



TEXAS CITY DISASTER

4 MAY 20  
COPY 1954

HEARINGS

BEFORE A

SPECIAL SUBCOMMITTEE

OF THE

COMMITTEE ON THE JUDICIARY

HOUSE OF REPRESENTATIVES

EIGHTY-THIRD CONGRESS

PURSUANT TO

H. Res. 296

54-61...

AUTHORIZING THE COMMITTEE ON THE JUDICIARY TO  
MAKE AN INVESTIGATION OF ALL CLAIMS ARISING OUT  
OF THE EXPLOSIONS AT TEXAS CITY, TEX., ON APRIL 16  
AND 17, 1947

NOVEMBER 16, 17, AND 18, 1953

Printed for the use of the Committee on the Judiciary.

Serial No. 11



UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1954

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# TEXAS CITY DISASTER

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MONDAY, NOVEMBER 16, 1953

HOUSE OF REPRESENTATIVES,  
SPECIAL SUBCOMMITTEE OF THE  
COMMITTEE ON THE JUDICIARY,  
*Galveston, Tex.*

Special subcommittee of the Committee on the Judiciary appointed to investigate the Texas City disaster, met pursuant to call, at 10 a.m., in the Galvez Hotel, Galveston, Tex., Hon. Edgar A. Jonas, chairman, presiding.

Present: Hon. Dewitt Hyde and Hon. Thomas J. Lane.

Also present: Walter R. Lee, legislative assistant to the Judiciary Committee, Cyril Brickfield, counsel for the subcommittee, and Brig. Gen. Claude M. Mickelwait, Assistant Judge Advocate General of the Army.

Mr. JONAS. The committee will be in order.

I would like to invite your distinguished fellow citizen to occupy a seat with this committee on the rostrum, Congressman Clark Thompson, if you will be good enough to step up here and sit with us.

I might add, before we proceed to function, that the Committee on the Judiciary in the House has a fixed and set rule that it is not permissible to broadcast the proceedings submitted to a subcommittee nor to take photographs while the witness is testifying or to televise any proceedings after the committee has started to hear testimony and is functioning. However, prior to that time it's permissible to do so, and, gentlemen, now if you wish to take some photographs, proceed to do it.

(Photographs taken.)

Mr. JONAS. On behalf of the committee, the Chair wishes to make a brief announcement. In that respect, I desire to read a short statement, and before doing so I might add for the record, Mr. Hyde, that we expect that Congressman Thomas Lane will be in here by 12 o'clock to sit with us as the third member of the committee. In the meantime, we are very glad to have our Mr. Thompson with us, who can substitute not only as a local Congressman, but also in behalf of the missing member of the committee.

The statement is as follows:

The subcommittee believes that it will prove helpful if, at the outset of this hearing, it expresses in definite terms the purpose for which it has convened. We consider this preliminary step expedient prior to the presentation of the taking of testimony and incorporation into the record such factual statements, written data, and exhibits as may be presented or offered, if and when deemed to be relevant to the issues and pertinent to the objectives sought by the investigation.

Before proceeding with the hearing, this committee wishes to make it clear that it is not constituted nor is it authorized to challenge nor to inquire into the legality of the controversial opinion of the Supreme Court of the United States. The duties and functions of the committee are clearly defined in House Resolution No. 296, adopted in the Congress, and in which resolution it is stated that "This subcommittee is authorized to make a full and complete investigation and study of the merits of all claims against the United States for compensation for property damages, personal injuries, and death alleged to have been caused by the explosion in Texas City on April 16 and 17, 1947." The resolution was introduced by Congressman Clark W. Thompson, the distinguished Member of the House who has the honor of representing the congressional district which encompasses the area in which the disastrous explosion occurred. The resolution clothes this committee with the authority to develop and investigate the facts and circumstances that did or might have motivated the United States Government to lend its aid and support to an adventure, the exploitation of which may have, did, or could be reasonably assumed or charged as being an integral or a component factor, directly or remotely related to the explosion and the resultant deaths, injuries, and damages admitted to have been suffered by the inhabitants of Texas City.

It is a matter of record that subsequent to the dates when the explosion occurred, a citizen of Texas instituted a suit in a Federal court of the United States and in the accepted traditions of recognized American jurisprudence, elected to make the United States of America the sole respondent. The allegations in the complaint and the issues joined by the pleading in the trial court resulted in a finding and judgment in favor of the petitioner. The respondent appealed from the judgment and in due course of the prosecution of the appeal the case reached the Supreme Court of the United States. There the issues litigated in the trial court were decided adversely to that of the petitioners' interests. The hearing of the case on appeal taxed the judgment of 13 learned and erudite jurists. Of the 13 judges who rendered opinions, only 4 were in agreement as to the law applicable to the case at bar. These judges constituted the majority members of the Supreme Court of the United States, a tribunal which has final jurisdiction of the case. It is worthy of comment that the judges presiding in the United States appeals court, and the Supreme Court of the United States, were not entirely in accord nor in unanimous agreement pertaining to the interpretation of the Tort Claims Act which Congress passed and became effective in 1946.

The technical and legal construction given to the act by the Supreme Court obviously leaves the petitioners and others in the position they would have been in before the passage of the Tort Claims Act. The United States Congress undoubtedly was conscious of this situation when it unanimously adopted the Thompson resolution (H. Res. 296).

The subcommittee wishes to advise the witnesses who are here to testify in these proceedings that it will grant them wide latitude in developing the facts and issues pertinent to the presentation of their testimony. The subcommittee has no fixed rules of procedure. It is not bound by rules of evidence or judicial procedure. However, it is limited by the provisions of House Resolution 296 and must, therefore, confine itself to the scope of inquiry clearly defined in that enactment. The witnesses are requested to confine themselves in the presentation of their testimony to those circumstances which are germane to the development of the issues involved in these proceedings.

It should be emphasized again that the adoption of House Resolution 296 was not intended to supersede or invalidate the controlling decision of the Supreme Court laid down in the Daehite case for Congress has repeatedly entertained claims and concerned itself with legislation that provided relief for parties in situation analogous to that submitted to this committee for investigation.

I now wish to make a part of the record the House resolution under which this subcommittee is authorized to function:

[H. Res. 296, 83d Cong., 1st sess., Rept. No. 883]

*Resolved*, That the Committee on the Judiciary, acting as a whole or by subcommittee, is authorized to make a full and complete investigation and study of the merits, if any, of all claims against the United States for compensation for property damage, personal injuries, and death alleged to have been caused by the explosions which occurred at Texas City, Texas, on April 16 and 17, 1947. As soon as practicable during the present Congress the committee shall report

to the House, or to the Clerk of the House if the House is not in session, the results of its investigation and study, together with its findings and such recommendations as it deems advisable.

For the purposes of this resolution the said committee, or any subcommittee thereof, is hereby authorized to sit and act during the present Congress at such times and places within the United States whether the House is in session, has recessed, or has adjourned, to hold such hearings, and to require by subpoena or otherwise the attendance and testimony of such witnesses and the production of such books, records, correspondence, memoranda, papers, and documents, as it deems necessary. Subpenas may be issued over the signature of the chairman of the committee or any member of the committee designated by him, and may be served by any person designated by such chairman or member. The chairman of the committee or any member thereof may administer oaths to witnesses.

Now I think it would be only fitting and proper that at this time we proceed and hear briefly from our distinguished friend and our fellow colleague and your Congressman, the Honorable Clark W. Thompson.

Mr. Thompson, would you like to make a brief statement for the record?

Mr. THOMPSON. Thank you very much, Judge. I have been impressed that you covered the ground very thoroughly.

As the members of the committee will recall, I have said all that I can say to them in person and on the floor of the House and, of course, of the passage of the resolution in question. I shall not burden you with it further; therefore, Judge, I would like to have your permission to file a written statement at this point in the record.

Mr. JONAS. You may have that permission.

#### STATEMENT OF HON. CLARK W. THOMPSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

(Mr. Thompson submitted the following statement:)

In 1947, when what is now known as the Mutual Security Agency was beginning to function, the United States, as a part of the program, undertook to ship a chemical to the people of France. It was a product which was highly explosive. It was made by the Government in munitions plants. The original patent, held by the Hercules Powder Co., was for a blasting powder. Because of its high ammonium and nitrate content the patented product was also useful as a fertilizer, and it was for this purpose that it was being shipped to France.

This chemical had been stored in warehouses on the Texas City docks for some time pending availability of ships to transport it. On April 16, 1947, two ships were being loaded with this chemical in the port of Texas City. At approximately 9 in the morning one of the ships exploded. Shortly after midnight, the second exploded. More than 560 persons perished, and some 3,000 were injured. The entire dock area of the thriving port was leveled and property damage ran into millions of dollars. A substantial portion of the business district was destroyed or severely damaged. A great many residences, some located a considerable distance from the docks, were destroyed and others badly damaged. Parts of the ships were blown as far as 6 miles away.

The force of the explosion was felt 75 miles away. Windows in Galveston, 10 miles across the bay, were broken and buildings were shaken as in an earthquake.

This was a man-made disaster; it was in no sense an act of God. The fertilizer had been manufactured in Government-owned plants at the Government's order and to its specifications. It was being shipped at its direction as part of its program of foreign aid. The disaster was caused by forces set in motion by the Government, completely controlled or controllable by it. Its causative factors were far beyond the knowledge or control of the victims; they were not only incapable of contributing to it, but could not even take shelter or flight from it.

Had the chemical manufacturer and shipper been such a firm as du Pont or Hercules there would have been no question of their liability and those who had suffered in the explosions on April 16 and 17, 1947, would have long since been in

and out of the courts with appropriate relief. In the Texas City case, it was to the Government of the United States that the injured had to appeal for redress.

Over 30 suits were brought against the United States under the Federal Tort Claims Act, alleging that its negligence was responsible for the disaster. After consolidating the suits, the district court ordered the case of the petitioners to be tried. The parties of all of the suits, in effect, agreed to the common issue of the Government's negligence should abide the outcome of this test litigation. The Court of Appeals for the Fifth Circuit reversed the trial court's judgment in favor of the petitioners.

The case was then appealed to the Supreme Court. On June 8, 1953, the Supreme Court, in a 4 to 3 decision, sustained the decision of the circuit court.

In the majority opinion it was stated: "This is for the reason that as a matter of law, the facts found cannot give the district court jurisdiction of the case under the Tort Claims Act."

All courts accepted the findings of negligence of the United States district judge.

Since the Tort Claims Act does not apply, it is now necessary for the injured to seek relief from Congress. This could be done by the introduction of close to 1,000 individual private bills. Obviously, this course would create a tremendous burden, and it would be far better before entertaining any such legislation to have a determination made of the Government's liability or lack of it. It would also be desirable to have some sort of a yardstick by which to measure the amount of damages under certain groups of cases. For instance, a workman earning \$50 a week, being of age 35, and having 4 dependents, has lost his life. There should be a determination of the amount which his survivors might rightfully claim as damages. If their 3-room cottage was totally destroyed, and if the cottage was assessed on the tax rolls at \$3,000 and if they had no insurance, they would be entitled to a certain amount. All these questions and many others which would develop could better be determined at least in a general way by this subcommittee. House Resolution 296 merely recognizes the problem, places it in the hands of an appropriate committee, and directs that committee to proceed. It merely gives their day in court to a very considerable number of people who were damaged by their Government.

On July 13, 1953, final action was taken in this House on a compromise mutual security bill amounting to \$5,100 million of foreign aid. This is a part of the program which was initiated in 1947 under which the United States was trying to help the people of France. I venture to say that had the explosion taken place in France, this Government would long since have paid for damages to the French people involved. Certainly since that terrible day in April 1947, this Government has granted untold millions of relief to the people of France. There still remains the obligation, legal and moral, for the United States to make just settlement with its own people who were killed, injured, and damaged in the course of granting relief to the people of France.

Mr. THOMPSON. If you will indulge me for just a moment, may I repeat what you have just said. This is largely for the benefit of the attorneys present. There has never been any thought of quarreling with the Supreme Court. As I, as a layman, understand the situation, the Supreme Court merely said that the people who were damaged and injured in the Texas City explosion had gone into the wrong forum; that the local Federal district court did not have the authority to try the case, and that was, in lay language that was, the whole situation.

It was never said, however, that when a group of people, such as those who are involved in the Texas City disaster, have been injured and damaged by some accident which was not an act of God, that somebody must be responsible; so it was not a difficult matter at all to return, as the chairman has suggested, to the conditions as they would have been before the passage of the Tort Claims Act.

Now, the Congress is clothed with the responsibility of hearing from any citizen or any group of citizens who feel that they have been injured and wish to seek redress.

Now, that's the whole situation here this morning. I would like to invite the attention of all here present to a very significant, and I think a very heartening, part of what now goes on. The gentleman from Illinois, Mr. Jonas, the chairman of the subcommittee, has come here from his home in Illinois. The gentleman from Maryland came in by air yesterday. The gentleman from Massachusetts is on the way, and we think will get in here in the course of the morning or toward noon. So these gentlemen are deeply interested in what appears to be grievous injury done to a group of people, with the finger pointing unmistakably toward the responsibility of the Government. They could have held these committee hearings in Washington. They could have done it all from the record, but they joined with me in the feeling that you should have your opportunity, if you do not testify yourselves, to at least see that your Government is interested in your troubles and is perfectly willing to come to you for your convenience to hear what you have to say. These hearings are going on; there will be one in Texas City tomorrow afternoon, which, like this one, is open to the public, where those people who are so very close, no closer than many of you, but so close to the very thing, can hear what goes on, can see, and, I think, will leave encouraged that their troubles are truly being considered by an interested group.

Mr. Jonas, may I express deep appreciation for your interest personally.

The same to you, Mr. Hyde; you have been extremely helpful. You have been sympathetic with me when I was trying to get this resolution through the House. Without your help, I doubt very much if I could have done it.

To my own people, may I say there is no group in the Congress to whom I would rather trust the destinies of this case than those who are about to hear it. They are nonpartisan, they approach every case without the slightest regard to any political background, they are absolutely fair. I have been on committees with the chairman; we have served together side by side. As a Republican he has been chairman of some subcommittees under the Democratic Congress and has handled some cases, one in particular that has to do with our own community and people in it. So the forum is now open to you. I am very grateful to my colleagues in the Congress for the part they are playing.

Now may I add one thing that the judge suggested to me be told to those who were here as spectators. Spectators in the Congress, those in the galleries at the House, those who sit as you do in the hearing rooms, are guests of the committee. Demonstrations of any kind are not in order. Applause is never in order. I, of course, need not say that the same decorum as would prevail in the courtroom is expected here. The judge asked me, though, to say that—when I say "the judge," I am referring to our distinguished chairman who is known among all his colleagues as judge, but he has asked me to bring these things to your attention, to say to you that you are most welcome, that he hopes you will sit here with us through all the deliberations. Thank you very much.

Mr. JONAS. Thank you very much, Congressman Thompson; we appreciate the fact that you have taken the liberty in making known to the audience here and those who are interested as attorneys and

witnesses the facts and the background that is confronting us here where we are working and the rules and regulations that I am sure will remain in effect without having them spelled out in detail. We appreciate your courtesy and your gracious remarks in behalf of the committee, and want to tell you how pleased we are to have you with us and your help and collaboration in this important work the committee has assumed.

Mr. Hyde, would you like to make a statement at this time of any kind or nature? You are at liberty to do so, if you wish.

Mr. HYDE. Thank you, Mr. Chairman; I think everything pertinent to the beginning of these proceedings has been said and I have nothing more to add.

Mr. JONAS. We will then proceed with the next witness, or the first witness, I might state, and the Chair will call Mr. Russel H. Markwell, attorney, associate of the firm of Markwell, Stubbs & Decker, Galveston, Tex., and I understand we refer to him as Judge Markwell also.

We are very happy to have you proceed with your statement in the manner in which you have concluded it should be done.

It may be understood here for the record that since it appears there is nothing here under investigation that might ultimately involve violation of a criminal statute or raise the question of moral turpitude, it is not necessary to swear the witnesses. You are at liberty to speak freely as a witness presenting your side of the cause.

Be seated and proceed in accordance with the preconceived objectives that you have in mind.

Mr. MARKWELL. I would prefer standing, if you don't mind.

Mr. JONAS. That's quite all right.

Mr. MARKWELL. Being a lawyer, I would feel more at ease.

#### **STATEMENT BY RUSSEL H. MARKWELL, ATTORNEY, GALVESTON, TEX.**

Mr. MARKWELL. Judge Jonas, Mr. Hyde, Congressman Thompson, General Mickelwait, members of the staff of the committee, it is my purpose, in as brief a time as I can, to outline the general matters that we expect to prove by evidence here.

Mr. JONAS. Excuse me for interrupting you. Would it be easier for you if you talked from this side so the audience will have the benefit of the side view of you? I know how difficult it is for you to have your back to the audience. At the same time, you can face the committee.

Mr. MARKWELL. On April 16 and 17 of 1947, a man-made disaster occurred in Texas City of almost unbelievable proportions. The disaster occurred as a result of the explosion of an inherently dangerous material manufactured, packaged, shipped, and controlled by the United States Government under the label of fertilizer. Five hundred and sixty persons lost their lives, and approximately 3,000 or more were injured, with destruction of physical properties running into large sums.

The inherently dangerous commodity that had been shipped to Texas City was known as fertilizer grade ammonium nitrate, or we call it FGAN or F-G-A-N. It was shipped in paper bags, bearing

no signals of danger, nothing to warn the public that they were handling a commodity which was more explosive than TNT. We think that the evidence is overwhelming that the Government knew, or at least had sufficient information to put it on notice, that the commodity it was manufacturing and which was being manufactured in plants formerly devoted to the manufacturing of ammunition was a highly dangerous product, particularly when handled without proper precautions.

The ammonium nitrate was coated, for purposes that will be brought out, in the ordnance plant by a petroleum substance. There can be no doubt that the very method of coating this ammonium nitrate increased its sensitivity and made it even more dangerous.

After the explosion, the attorneys representing the various claimants were of the opinion that the case should be filed or the cases should be filed in the Federal courts under the Tort Claims Act. Prior to 1946, which was the year of the passage of the Tort Claims Act, as I recall it, of course, the matter then would have been submitted directly to Congress because the courts could not afford any remedy under the old claims procedure.

The Tort Claims Act, in substance, provided that the Government should be liable where a private manufacturer would be liable, with, however, an exception. It was the opinion of the attorneys that a private manufacturer would undoubtedly be liable, and I don't think that anyone has ever questioned that position. I believe that it is taken for granted that had this product been manufactured by the Hercules or DuPont Powder people under the same conditions and shipped without warning, that the people would have had their remedy in court.

Suits were filed; the matter was heard by a district judge of more than 20 years' experience, a United States Federal district judge of unimpeachable integrity. He came to the conclusion, and so found, that the Government was liable from the very commencement of the manufacturing process down to the loading and lack of supervision on the part of the Coast Guard. Those findings continued with the case. Fourteen judges ultimately considered the matter, and out of the 14 only 1 judge made any serious challenge as to the findings of negligence and fault on the part of the Government, and they still remain found from the evidence.

However, in the Supreme Court, by the very narrow decision of 4 to 3, 4 judges, a majority since 2 did not sit, it was held, not that the Government was not negligent, but that the 1 exception or the exception in the act dealing with discretionary functions applied, and, as I read the opinion, it proceeds on the basis that even though a private manufacturer would have been responsible because of the negligence proven and found by the trial court, yet because of this exception the Federal courts had no jurisdiction to grant relief, thus putting the claimants in the same position that they would have been in in 1945 before the passage of the Tort Claims Act, that is, in the position of seeking relief from Congress.

The opinion of the Supreme Court contains exact language, which makes it clear that it was not absolving the Government of fault but was proceeding on the assumption that the negligence was proven, but that the Federal courts, because of the wording of the Tort Claims Act, were without jurisdiction to give assistance.

Mr. JONAS. Well, is it your contention, Mr. Markwell, that the Supreme Court completely ignored section 1 of the Tort Claims Act, resorted to section 2 and predicated its whole decision on the discretionary clause, the section pertaining to discretionary acts of the Government?

Mr. MARKWELL. Yes.

Mr. JONAS. Would you want to amplify on that? We are also in a quandary about that. It is not too clear in the decision, but at least you are on the right road, at least I am thinking of that position myself, I don't know the position of my colleague, but that becomes quite a controversial issue throughout this whole proceeding; does it not? If section 1 of the Tort Claims Act was completely ignored by the Supreme Court, am I right in saying that then it leaves all of these claimants in the same position as though the act wasn't in effect at all so far as their rights were affected by the language in that act, in that section, but what about the second paragraph?

Mr. MARKWELL. The second paragraph, or the exception paragraph, provides in substance that, even though the Government be negligent, if the negligent acts involved a discretionary function on the part of Government officials, the courts are without jurisdiction to grant relief. It was the interpretation of what Congress meant by discretionary act, that brought about the almost even split in the Supreme Court and in the circuit court; the majority members of the Supreme Court interpreted the acts of negligence which were proven as being within the discretion of the Government officials, and even though a private manufacturer would have been liable that Congress had taken the authority away from the Federal courts to grant relief in this particular case. Now, I intend to offer, and I will offer in evidence at this time, a narrative of events leading up to and occurring after the explosion at Texas City in which we attempt to set out in substance the findings of the court and the evidence that is contained in the 38 volumes of the court's record. We have attempted to reduce the court record to some 44 pages, and would like to offer it in evidence at this time.

Mr. JONAS. It may be marked as "Exhibit 1" and received on behalf of the committee.\*

No objection, is there, Mr. Hyde?

Mr. HYDE. No objection.

Mr. JONAS. The reporter will mark it as "Exhibit 1."

Mr. MARKWELL. On page 16, commencing at the bottom of page 15, we quote from the opinion of the Supreme Court—a portion, rather, of such opinion—which we think clearly supports the analysis and the contention that we are advancing. The Supreme Court—that is, through its majority of 4—commencing at page 14, said:

Turning to the interpretation of the act, our reasoning as to its applicability to this disaster starts from the accepted jurisprudential principle that no action lies against the United States unless the Legislature has authorized it.

There they are clearly saying that unless we can fit the case within the Tort Claims Act we are restored to our original position that we would have had in 1945—that is, petitioning Congress for relief.

Now, at the top of page 16, "An analysis of section 2680 (a)"—which I believe you were referring to, Judge—

\*This exhibit is set out as part of the appendix.

the exception with which we are concerned, emphasizes the congressional purpose to except the acts here charged as negligence from the authorization to sue.

Reading further (p. 8) :

Even assuming their correctness *arguendo*, though, it is our judgment that they do not establish a case within the act—

that is, the Court says even assuming the correctness of the finding of negligence—

This is for the reason that as a matter of law the facts found cannot give the District court jurisdiction of the cause under the Tort Claims Act.

There the Supreme Court is admitting *arguendo* findings that matters of negligence were correct, states that it's a matter of jurisdiction, and they found the Federal court—the district court—did not have jurisdiction under the exception.

There are many other places in the opinion—I know that the committee is familiar with the opinion and will undoubtedly give it some study—but I think that that makes it clear that we are not arguing that something should be done that the courts did not do. Our position is, as the Supreme Court says, that the courts, even though finding negligence, had no authority or power to do it, and we are now proceeding before the body that does have the authority and the power.

That the Government was negligent and knew—or certainly in the exercise of reasonable care should have known—of the inherent dangerous quality of the product can be shown and proven from the very lips and correspondence of the Government officials themselves. We have compiled here in the form of a booklet a collection of a portion—

Mr. JONAS. Excuse the interruption. When you say “we have complied,” would you amplify it; tell us who you mean by “we”?

Mr. MARKWELL. The claimants in the present case are represented by a large number of attorneys. The evidence and the presentation that is being submitted here is the collective work of the attorneys. It was decided at a meeting that in the interest of orderly procedure the matter be presented by one attorney, and we do hope that other attorneys will be called as witnesses, but being the local attorney, I think, was the prime reason that perhaps I was selected to make the initial presentation.

Mr. JONAS. Then the document you just referred to evidently represents the concerted effort of yourself and others who are attorneys interested in this proceeding?

Mr. MARKWELL. That is correct, Judge.

Mr. JONAS. All right, sir.

Mr. MARKWELL. This booklet, which I will offer in evidence, consists of 36 pages taken from the files and from the testimony not of persons who are interested in the plaintiffs in the case, but from the Government's own correspondence and own files and own witnesses, in other words, when we were in the courts, of course, we were in an adversary position and we invaded the enemy's camp and we think we came out with some probative evidence.

Mr. HYDE. Mr. Chairman, if I may question?

Mr. JONAS. Yes, Mr. Hyde.

Mr. HYDE. To pursue further a thought we were following a moment ago, it is your contention, then, that as of now the finding of negligence of the district court stands?

Mr. MARKWELL. That is correct. It has not been disturbed. I will go further, Mr. Hyde, and say that of the 14 judges who have reviewed the case, only 1, and I believe it was Judge Strum of the circuit court, is the only one who challenged those findings.

Of course, we had the district court making the findings, we had 6 judges on the circuit court that reviewed the case; out of the 6 judges came 3 separate opinions, 2 of them wanted to affirm the—I will take that back. Two of them wanted to reverse the case only for procedural reasons, in other words, they agreed that we had made out a case both from the pleadings and the evidence. That was Judge Hutcheson and Associate Judge Borah. Three of the judges thought the discretionary function applied. One of the judges was the one that disagreed with the evidence. That's 7 judges. We went to the Supreme Court. Of course, 7 judges there heard it and none of them challenged the findings of the district court, so we think that we come before Congress with the findings of the district judge unimpaired other than they might have been challenged by Judge Strum of the circuit court.

Mr. HYDE. Thank you.

Mr. MARKWELL. I would like to offer in evidence at this time a statement of admissions of fact on the part of the governmental officials who were directly engaged in the manufacturing of this dangerous product.

Mr. JONAS. It may be marked as "Exhibit 2."\*

Mr. MARKWELL. Without attempting to go into details, as they will be a matter of record, I would like to refer to some of the passages. Let it be remembered that the manufacturing of fertilizer grade of ammonium nitrate commenced about 1943, and we will, therefore, start with the experience of the Government as early as that date.

Turning to page 1 we quote on August 20 of 1943, from Wilbert J. Huff, consulting explosive chemist of the Bureau of Mines, who was replying to TVA, which had requested an opinion of the United States Bureau of Mines as to this commodity. The FGAN that exploded at Texas City was mixed and covered with a petroleum product which is an organic product. If the committee will look at this statement from Huff of the Bureau of Mines, it will see that he was, even as early as 1943, opposed to the mixing of organic materials with ammonium nitrate, which is exactly what the Government did in its plant and which brought about the explosion of Texas City. [Reading:]

In general we do not favor the mixing of organic materials with ammonium nitrate, and are of the opinion that while such mixtures may not be unduly sensitive, accidents due to other causes may be attributed to such mixtures. We are very conservative in the recommendation of mixtures that have not been subjected to extended experience and tests.

We intend to show that even after these warnings, which I will refer again to, the Government did start to make tests, but for some reason that has never been disclosed, and even though their permission was requested to make more exhaustive tests, the Government ceased and stopped the experimentation and tests which would have more clearly revealed a dangerous quality.

\*Exhibit is set out as part of the appendix.

Referring to the next, on August 18, J. E. Tiffany, of the Bureau of Mines:

We know that there have been disastrous explosions with ammonium nitrate and undoubtedly these may recur from time to time. The conditions to bring about these explosions have never been satisfactorily established.

Now, there was the Government's own Bureau of Mines, which is charged with making these types of experiments, in a direct bulletin saying that ammonium nitrate would explode, and it did explode.

Canadian scientists at TVA conference objected to the manufacturing and use of FGAN as it was manufactured and shipped to Texas City, top of page 2.

It is also significant, we think, to note that in the ordnance plants themselves, where it is manufactured, FGAN was treated as a high explosive, and although treated in a manufacturing ordnance plant as a high explosive was shipped under the label of fertilizer. [Reading:]

Representatives from the Ordnance Department stated that in their handling of ammonium nitrate it was treated entirely as a high explosive.

That meant within the plant itself, which we think shows conclusive knowledge.

Speaking again from the Bureau of Mines, Tiffany to Huff, quoting:

Nevertheless, accepted precautions in handling these ammonium nitrate mixtures should be observed because numerous disastrous explosions of ammonium nitrate have occurred in the past. These explosions have taken place under conditions that have never been satisfactorily established. Undoubtedly such occurrences may recur from time to time.

Mr. HYDE. Mr. Markwell, is that the fertilizer grade of ammonium nitrate that that refers to?

Mr. MARKWELL. Yes, sir. It is referring to ammonium nitrate as a commodity; in other words, FGAN is ammonium nitrate treated with a petroleum covering to keep out the moisture, and these quotes are referring to ammonium nitrate mixtures, that is, pure ammonium nitrate mixed with something else, and FGAN is a mixture.

There are many more. Look at the circular letter on page 3, Col. Crosby Field of the Ordnance Department, Assistant Director of Safety, directed to all Government plants:

(1) That ammonium nitrate is an explosive and that its fire and explosive hazards "are aggravated when the material is contaminated with combustible or carbonaceous materials as in the case with all oxidizing agents."

Remember, this ammonium nitrate had been used to manufacture ammunition. In spite of this warning that ammonium nitrate is dangerous and its explosive hazards are aggravated when the material is contaminated with combustible or carbonaceous materials the Government did proceed to contaminate it by using this substance and by placing it in paper bags.

Mr. JONAS. You made the charges, I presume in the trial of the case, that are somewhat similar to those that you are outlining here now, didn't you, with reference to the inherent nature of the article involved?

Mr. MARKWELL. Yes.

Mr. JONAS. Didn't the Government offer any testimony in contradiction of your allegations or of your testimony?

Mr. MARKWELL. There was testimony offered and that testimony was rejected by the district court judge; what I mean, it was received in evidence but he felt, the district court judge felt, that the testimony as to its inherent dangerous quality and the lack of care was overwhelming, and he so found.

Mr. JONAS. As a matter of fact?

Mr. MARKWELL. As a matter of fact. The fact findings of the district court are set forth in our exhibit 1.

Mr. JONAS. Well, insofar as he is called upon to pass upon the factual question relating to the nature, the inherent nature of the article that was involved, the clear preponderance was with the petitioner; is that it?

Mr. MARKWELL. Clearly.

Mr. JONAS. Well, was that argued in the trial court; how was that met in the trial court or the appeal court? Was there any comment about that or wasn't that touched upon at all or just brushed aside as not being relevant to the issues or to the jurisdictional authority conferred on the appeals court? Did they pass upon it at all or comment?

Mr. MARKWELL. The only way it was passed on is that in both of the appellate courts, the circuit court and the Supreme Court, the majority members of them accepted the findings of fact as true and, as the Supreme Court says, it then became a question as to whether the court had the jurisdiction under the exception. As I said, only one judge on the appellate courts ever challenged these findings.

If you look on page 4 of exhibit 1—the emphasis is supplied—there is a finding by the district judge after the evidence was submitted:

Long before the manufacture of the particular FGAN which exploded at Texas City, the Government was fully on notice of the dangers of both fire and explosions and of the particular hazard involved in the coating for the ammonium nitrate used in making the fertilizer.

Mr. JONAS. This is the finding of the trial judge you are quoting?

Mr. MARKWELL. This is the finding of the trial judge I am quoting. As I say, it was challenged by only one judge. [Reading:]

Nevertheless the Government failed to give notice of such dangers to those who would be handling the FGAN or who would otherwise be exposed to its danger. It failed to inform the railroads and ocean carriers, warehousemen and other handlers, interested harbor authorities and the general public that the FGAN was an inherently dangerous fire and explosive hazard.

Mr. JONAS. Do you know how many findings of fact the court found? Can you read those, name them here, I mean in numbers?

Mr. MARKWELL. They start on page 2 and continue through page 7. Those are a summary of the findings, mostly consisting of direct quotations.

Mr. JONAS. Well, did the court of appeals in any of its opinions cited by the judges dispose of that or any or all of these questions of fact?

Mr. MARKWELL. The only way they disposed of them, Judge, was that they accepted them as true and as a matter of law interpreted the Tort Claims Act.

Mr. JONAS. They did not specifically comment on any or all of these findings of fact?

Mr. MARKWELL. They did comment on the fact that the trial court had found, and stated the number of findings of negligence, and the

Supreme Court also said that whether or not all of the findings could be supported, certainly most of them could or some of them could, and that therefore they were proceeding on questions of law rather than on questions of fact. The circuit court, I think, referred to it but they also treated it as a matter of law.

Mr. JONES. The reason I am propounding the question is that, to my understanding, if a factual question is decided or disposed of in the court of appeals, the court of final jurisdiction, that is, the Supreme Court, will not then review facts?

Mr. MARKWELL. That is correct, and that is what the Supreme Court—

Mr. JONAS. The phases of the case insofar as it related to the law it construed; is that right?

Mr. MARKWELL. That's correct, Judge.

Mr. JONAS. That's why I am asking you if there is anything you can enlighten the committee on pertaining to what the court said about the specific findings made by the trial judge. There is only one comment that I recall and I may not be quoting it correctly, but I think one of the judges noted that if the facts as developed, if believed, I think he used the language "if believed."

Mr. MARKWELL. Yes, sir. He uses there this phrase,

Even assuming their—

that's the facts—

Even assuming their correctness arguendo, though, it is our judgment that they do not establish a case within the act.

Now, that's by a majority of the Supreme Court. "Even assuming their correctness," so it makes it clear that the Supreme Court assumed the correctness of the findings.

Mr. HYDE. Isn't that a little broad in view of their footnote to that comment?

Mr. MARKWELL. What?

Mr. HYDE. On the footnote to the statement that you just read, "Even assuming the correctness arguendo," the footnote.

Mr. MARKWELL. They go further and say—I don't have the opinion right here—but go further and say in one portion that the evidence was sufficient to support the finding beyond the power of the appellate court to set them aside, or something to that effect, that there was sufficient evidence.

We are very firm in the opinion that the correctness of the findings has not been challenged, that it's the discretionary exception that involves the four judges, and I believe they make it clear this is the reason the four judges decided the court had no jurisdiction.

Continuing with the admissions, here's a letter from Wilbert J. Huff of the Bureau of Mines on March 3. This is on page 3, and I think this is very significant. Wilbert J. Huff, consulting explosives chemist, Bureau of Mines, to Lt. Col. George Ensminger, Safety and Security Branch, Office of Chief of Ordnance, War Department. [Reading:]

Before these tests were made I repeatedly called attention of representatives of the Department of Agriculture, the Tennessee Valley Authority, and the War Production Board, to the hazards of the mixture of ammonium nitrate with organic materials. For that reason I was quite unwilling to endorse any

ammonium nitrate mixture that contained organic materials on the basis of our small-scale study at Bruceton alone.

The Ordnance Department wrote a letter to the Hercules Powder Co. on March 9 and the Atlas Powder Co. concerning the adding of PRP, which was the coating, to the ammonium nitrate, and this is the particular ammonium nitrate that exploded at Texas City. This is a letter from the Government to the Hercules Powder Co., that is, from the Ordnance. [Reading:]

The technical literature states that a very definite explosion and fire hazard exists when organic materials are added to ammonium nitrate.

Would the experience of the Du Pont Co. allow you to form an estimate of the hazard involved in the coating of ammonium nitrate with a mixture of organic materials at temperatures indicated in the above paragraph?

Now this, I think, is significant.

Answer, the Du Pont Powder Co. to the Ordnance Department. After reciting explosions in Du Pont plant attributed to the presence of petrolatum which found its way to the evaporating pan, Du Pont stated:

As a result of this occurrence and previous explosions in the ammonium nitrate plant, this company discontinued the coating of ammonium nitrate with any organic compound.

Then, reading on, there are many, many of these quotations; for instance, at the conference on April 6 between Dr. Curtis, consultant of TVA, and the dean of engineering of the University of Missouri, Dr. Curtis stated:

That the hazard involved in the production of ammonium nitrate has long been recognized; that it is probably no greater than that involved in some of our other operations, and that we are justified in continuing our present method of operation as long as the war continues. We believe, however, that for the peacetime production of fertilizer, a safer production method should be developed.

Now, that's from the dean of engineering from the University of Missouri, and it should be remembered that this FGAN was produced during peacetime.

Then in 1945 the Ordnance Department, in its edition of the safety manual, has this in its manual:

When compounded with combustible substances, nitrates are violent fire and explosive hazards, and may be subject to spontaneous ignition.

Paragraph 4:

Ammonium nitrate may be exploded by relatively light initiation if it has been sensitized by impurities such as carbonaceous materials.

Lt. Col. J. S. Jefferds, commandant, Iowa Ordnance Plant, got up a set of safety standards. Subdivision (c) reads:

Dry ammonium nitrate may be detonated if given the proper stimulus. Detonating qualities are enhanced by contamination of carbonaceous materials, confinement, and heat.

Look at the next quotation from the testimony of Lt. Col. J. S. Jefferds when he was asked on deposition when the case was tried. [Reading:]

Question. Now, then, in July 1946 you had already discovered what to be fearful of in handling this unpredictable material, ammonium nitrate fertilizer grade?

Answer. We were aware of the hazards.

In the interest of time, I will not continue to read all of this material. I will leave it with the committee, but in our opinion it is overwhelming proof that the Government knew and failed to take precaution as to the hazards.

Mr. JONAS. Are these exhibits to which you referred quoted anywhere in the briefs and presented as argument to the court of appeals?

Mr. MARKWELL. Yes, sir; you mean in the briefs that appeared in the circuit court?

Mr. JONAS. Circuit court.

Mr. MARKWELL. Yes, sir.

Mr. JONAS. You also filed the petition for writ of certiorari?

Mr. MARKWELL. We applied for a writ of certiorari. That was a peculiar thing in the circuit court. As I say, 6 judges sat on the court and only 2 of them could agree on the law, so actually we have a reversal by, it is almost by minority, 2 of them agreed on the law and reversed because of the law, and Judge Strum, the only man to challenge the evidence, joined with them on a reversal but he disagreed on the law, he wanted to reverse it on the facts, and Judge Hutcheson and the other judge disagreed as to the law and wanted to reverse it for technical matters such as the introduction of evidence. But Judge Hutcheson and the other judges stated that the plaintiffs definitely pleaded and proved their case, so you have 6 judges on the circuit court and only 2 of them agreed on the law, 2 of them took a different attitude on the law, and one of them took a different attitude on the evidence, and that's the way the decision went. It has been a very novel case from that standpoint.

Mr. JONAS. Well, the attorneys for the Government, two of whom appeared before our committee in the early part of the week in Washington, apparently had been apprised of the reports that you submitted in writing printed here in notice of public hearing in Galveston pursuant to Resolution 296, 83d Congress, 1st session. I think one of their complaints about the contents of that record is to the effect that the quotations that you note in there are not complete, but only excerpts from the whole recital and that some of the excerpts that you have noted are taken out of context. Is there any merit to that, in your opinion?

Mr. MARKWELL. There is undoubtedly some merit that the quotations are not everything that was said. We were faced with this difficulty, naturally, we have—was it 30,000 pages of testimony—about 30,000 pages, and in order to lessen the labor of the committee and yet present our case as fully as we could, we tried to reduce it to 50 pages. Had we met their objection and given entire quotations, naturally our narrative statement would have been as large as the 38 volumes. We knew that there would be checks made—we expected it—and I am willing to state that to the best of the ability of the lawyers we gave a fair statement, and we gave reference to pages in the record so if any challenge was made you could go right to the 38 volumes and check it. We realized that we come to Congress not as a matter of right, but more as a moral right that Congress can, if it sees fit, recompense these people, and we thought that we should disclose all of the facts openly and fairly, and that is our position.

I will say this, that if there is any error made it was made inadvertently, and I frankly don't believe there is, because it is tied right into the record itself.

Mr. JONAS. You made the statement, Mr. Markwell, in the course of your testimony here, that the ammonium nitrate involved was shipped and controlled by the United States Government. I am not crowding you for an answer on that now, I am merely inquiring on behalf of myself and my colleagues, Mr. Hyde and Mr. Lane, whether you, through witnesses or later on by other testimony, will amplify and clarify that a little more, because that's very, very important in my opinion and I think Mr. Hyde probably feels the same as I do.

Mr. MARKWELL. Yes, sir.

Mr. JONAS. If you can establish the fact that this material was shipped and controlled by the United States Government, that it was the material that ultimately was the cause or motivating cause at least, of blowing up this ship which, in turn, led to blowing up the property on the shore and which, in turn, led to injuring people, it will play, in my opinion, a very quite important and conspicuous part in the adoption of the arguments and the position that the attorneys take that the Government was never really out of this transaction but was in it, and regardless of what position they take they never were out during the course of the entire proceeding. That will be developed later on; will it?

Mr. MARKWELL. Yes, sir, Judge; I think we can prove beyond any shadow of doubt that the Government manufactured it, that it shipped it, and that it controlled it from the day it started the manufacture until the day it exploded on the ship. It selected the containers, it selected the method of shipping, it selected the customer.

Lion Oil Co. may be what you have in mind. The matter will be gone into more fully in detail by Mr. Bryan and Mr. Leachman—

Mr. JONAS. I am glad to hear that. We'll bear that in mind. You will cover that later on in the course of our proceeding—

Mr. MARKWELL. Yes, sir.

Mr. JONAS. But it will be covered in more detail?

Mr. MARKWELL. It will be covered, yes. Many of the matters I have mentioned just broadly will be covered, but I didn't want to get any more repetition than possible.

Mr. JONAS. You gave us a general outline to the approach of this question.

Mr. MARKWELL. Now, I would like to say this, We think it is extremely important to prove the inherently dangerous character of this product. I know, of course, that you and Mr. Hyde are familiar with the principle that where a manufacturer places a dangerous product in the channels of commerce without warning that he remains liable.

Go back to the old McPherson versus Buick Motor Co., where the Buick Co. made an automobile with a defective wheel, and even there the control passed to the driver of the car, even though the manufacturer—which is not true in this case—loses control, if it manufactured an inherently dangerous product that is not labeled, such manufacturer still remains liable. We have many cases under the food laws and medicines or things of that kind, or explosives—

Mr. JONAS. We are in agreement as to the general principle of that law.

Mr. MARKWELL. And we think in the case of a private manufacturer here, Judge, if this FGAN labeled as ammonium nitrate fertilizer had been sold by a private manufacturer through a wholesaler into the hands of a retailer who stored it in his store as fertilizer, if

that had exploded, we think the private manufacturer would have been without question still liable. Because not only did it fail to warn people in this case, by labeling this material as fertilizer, which connotates for one thing that is an innocent sort of thing that you spread on the lawn, they actively misled the people. Not only was there a failure to give warning, but mislabeling.

Now, there is one significant part, and I will hurry along, the rates for loading explosives are about \$7 an hour or 5 times the rate for loading fertilizers on board ships. Labeling this explosive as fertilizer undoubtedly served two purposes; it misled the people handling the material and made a substantial saving in the hourly loading rates, but the very reason for the high rate for loading explosives is the danger run by the men who are handling it. In other words, if they want to take that risk for more money then on their part it's a calculated risk, but they should be given an opportunity of making such decision, in my judgment, and they should not be asked to load an explosive under the belief that it is fertilizer, which is exactly what happened in this case.

Now, in order to prove the inherent quality of this material, we would like to show the violence with which it exploded, very similar to the way we know that the atomic bomb has a great deal of violence, because of the pictures we have seen of it as well as read, and I think that these pictures that we will show will impress you as to the violence of it, if we may do so at this time, Judge.

Mr. JONAS. Yes, if that's the next order of business, I am sure it is agreeable to the committee. I want to make this comment. I am sorry I omitted to do so at the outset when the committee convened, but I failed to mention that we have here with us General Mickelwait, who is the Assistant Judge Advocate General of the United States Army, and Mr. Walter Lee, who is the clerk of this committee and the administrative clerk of the Committee on Claims in the House, and Mr. Cy Brickfield, who is the attorney for the committee. I should have made that statement when we convened, but I omitted it and for the record I want to make it now so that we all have been properly identified.

We will now proceed with your plan. If what you are trying to carry on is through a moving picture, you have all of the mechanics set up, and I presume we need a darkroom and we can get started.

Mr. MARKWELL. Mrs. Knappenger, the lady who took the pictures, will tell us what they are.

Mrs. KNAPPENGER. The picture is first taken going into Texas City and these pictures are seen before the explosion. Now, this is the beginning of the fire, and you see the *Grandcamp* sitting where it exploded. These pictures are taken in the morning, before the explosion.

Mr. HYDE. That's the fire on the *Grandcamp*?

Mrs. KNAPPENGER. Yes, sir; there's the fire on the *Grandcamp*.

Mr. MARKWELL. May I bring this to the attention of the committee; you notice the peculiar color of the smoke, the orange color? That's something that's peculiar to this type of a mixture.

Mrs. KNAPPENGER. This picture is over the warehouses on the dock. That thing hanging out in the—

Mr. JONAS. Come up to the microphone, lady, that will make it better for you to talk.

Mrs. KNAPPENOER. Now, right after this picture is the explosion. You will notice at the bottom there is a wall of water coming toward the dike where I was standing.

Mr. MARKWELL. Why was the camera shaking at that time?

Mrs. KNAPPENGER. Why? I was nervous.

Now, this is taken upon Sixth Street in Texas City. I was standing on the seawall. That's the Seatrain that you see up there. Then I went out on the dike and just raised the camera to take a picture when it exploded, a concussion hit it.

This is going out of Texas City in the afternoon. That's the smoke over Texas City.

Mr. MARKWELL. You will note the mushrooming is almost like an atomic bomb.

Mr. JONAS. Very much so.

Mrs. KNAPPENGER. Now, this is coming back the next morning.

Mr. HYDE. That's the following morning?

Mrs. KNAPPENGER. Yes.

Mr. MARKWELL. See, there were two ships that blew up, the *Grand-camp* on the 16th and the *High Flyer* on the 17th.

Mrs. KNAPPENGER. These are pictures of Sixth Street where the buildings were blown out, and that's the Seatrain camp. These were all taken after the explosion. That is an oil tank that exploded. That's a picture of the warehouse burning and these are pictures of the houses. There is a furniture store and apartment house. This is a schoolhouse.

Mr. MARKWELL. How far is that from the docks, Mrs. Knappenger, the schoolhouse, approximately?

Mrs. KNAPPENGER. Oh, it's about 8 blocks. It may be more than that.

That's White's Department Store on Sixth Street.

Mr. MARKWELL. I believe it's about a mile actually from the dock.

Mrs. KNAPPENGER. Yes, I believe it is, too. That's where the Army fed the people. These are houses that were blown to pieces. That's Monsanto after the explosion.

Mr. MARKWELL. What plant is that?

A VOICE. Theater.

Mr. MARKWELL. How far is that theater, about a mile from the dock area?

Mrs. KNAPPENOER. Yes; it's a good mile from the dock area.

Mr. JONAS. Is that the theater there?

Mrs. KNAPPENGER. Yes. That's a distant picture of Monsanto. Now, this is a picture of warehouses; the insides were blown out.

That's a picture of the docks from Sixth Street side.

This is Third Avenue apartments.

These are oil tanks that were damaged.

That's the freight train that was blown completely apart.

This is a warehouse. Another. That's a house that was blown completely off the foundation. This is the docks after the explosion. They were concrete and steel buildings. That's a flash fire.

Mr. MARKWELL. Mrs. Knappenger, will you give the gentlemen here your name.

Mrs. KNAPPENGER. Mrs. Keith Knappenger.

Mr. MARKWELL. You are an amateur photographer, is that correct?

Mrs. KNAPPENGER. Yes. This is the cemetery where the unknown dead are buried.

Mr. THOMPSON. Wasn't it 67, Mrs. Knappenger?

Mrs. KNAPPENGER. Yes, sir, 67, I believe.

This is a year later when we had Progress Day. All the stores you see have been repaired and are in use again.

Mr. MARKWELL. Is this the end of the disaster pictures?

Mrs. KNAPPENGER. Yes, that's the end of the disaster. The rest of it is progress on Texas City.

Mr. JONAS. Thank you very much for giving us the benefit of your good photography. We appreciate it. Did you place your address in the record? We gave your name, but what is your address, Texas City?

Mrs. KNAPPENGER. No; I live in Galveston, 6303 J.

Mrs. JONAS. 6303 J?

Mrs. KNAPPENGER. Yes.

Mr. JONAS. Galveston, Tex.

Mrs. KNAPPENGER. Yes.

Mr. JONAS. May we have the lights?

Mr. MARKWELL. We have more pictures. That's the first one. We have a Fox Movietone sound picture to be seen.

Mr. JONAS. Does it have a direct bearing on the subject matter in issue?

Mr. MARKWELL. Yes, sir. It was taken during the explosion and shows the tremendous explosion.

Mr. JONAS. I beg your pardon. I thought you were finished. We will be glad to have it.

Mr. MARKWELL. Will you give your name and address and explain it? This is another colored one; then we will follow that with a Movietone, if we may, sir.

Mr. HARRISON. My name is B. Mark Harrison. I live at Dickinson now. At the time this happened we lived in Texas City, and as the *Grandcamp* exploded I was about 6 blocks in front of it and immediately proceeded to 1 mile distance from the spot I was at about 90 miles an hour, of course, since I was very excited, but soon—

Mr. HYDE. Pardon me. How far were you when you started taking the pictures?

Mr. HARRISON. I was at 1 mile away, approximately 1 mile away, the Texas City junction and the Galveston Texas City Highway, and as soon as I got that distance away I felt safe enough to continue to take pictures. However, if I had known the tragedy of the affair I wouldn't have, I am sure, taken pictures. I didn't expect that there were but a few people killed, due to a stunned condition, you know, you can't think correctly, and I think most everybody was stunned for some hours afterward.

Mr. JONAS. Before you start your pictures, pardon the interruption, where is Mr. Markwell?

These pictures, Mr. Markwell, will not show, of course, in the record that we are making here, and they are a continuation of your statement for the purpose further illustrating some points that you raised in the testimony you gave here, am I correct about that?

Mr. MARKWELL. Yes, sir.

Mr. JONAS. What is the significance of these pictures? Shouldn't you read into the record a short statement as to the significance of the movie pictures that have been shown here to the committee?

Mr. MARKWELL. We feel that these pictures show the tremendous explosive quality of this FGAN, and they support the very testimony and letters and bulletins that the Government itself had that we read from; in other words, the Government had been warned that this was an explosive with great potentialities and we are showing now that the Government was correctly warned, and this that happened was what they had predicted would happen, and the pictures themselves, I think, graphically show the very force, in other words, as distinguished from a lumber fire or a piece of paper or if it had been fertilizer as we ordinarily know fertilizer, certainly it would not have exploded with this great and tremendous force, and that is our purpose in showing it, that inherently it was an extremely dangerous material that fulfilled all expectations of it.

Mr. JONAS. All right. Mr. Hyde, do you wish to ask any more questions?

Mr. HYDE. No; that was the point I was making, the general purpose to show the inherent dangerous characters.

Mr. JONAS. You may proceed, if you wish.

(Fox Movietone film shown.)

Mr. MARKWELL. For the benefit of the record, that is not the film that Mr. Harrison took. They got it a little out of order. That is a Movietone taken by Mr. Graham.

Mr. GRAHAM. I represent Fox Movie Films of this area, and I was at the disaster just 55 minutes after the report on the radio of the original explosion; 1705 South Main, owner of Time Service.

Mr. JONAS. Have you another picture to follow up with or were you there at the time this talkie was taken, the one we just concluded here?

Mr. GRAHAM. I shot this last one and the narration was my own narration as submitted to Lowell Thomas, who narrated the finished product.

Mr. JONAS. It may be of value to show in the record that you shot these pictures under the conditions under which they evidently were taken. You come pretty close to being in sort of a hero's role. It wasn't an easy task to do.

Mr. GRAHAM. Well, the greatest danger was when a lot of this material was flying around, there were several explosions while I was down at that front, and at the very time I was standing on a dead body and I didn't know, I was on top of this rig which had collapsed, a building that had collapsed, and there was a man in there somewhere hollering for relief, and all of this material started flying over us and that's at the time you see them running away from the camera. I stood still. I figured if I ran I'd probably run into it. I have been doing that all my life as a newsreel man, standing still. I think it pays off, and at that particular time there were several people injured and one man was killed right on the side of me. Other than that, why, it wasn't too much.

Mr. JONAS. The committee acknowledges your contribution to the investigation here.

Mr. MARKWELL. We have one more picture taken by Mr. Harrison that was the one I thought was to be shown. Mr. Harrison is an

amateur photographer, and I don't know that it will show up nearly as clearly, but he was taking it within how many seconds?

Mr. HARRISON. Within 60 seconds after it happened.

Mr. MARKWELL. Within 60 seconds.

Mr. JONAS. Still pictures?

Mr. HARRISON. A movie, colored. Due to so much light in here and the darkness of the smoke they are a little hard to show clearly. This was taken, as I say, before the sky was filled with smoke entirely, and it shows the trains being pulled back out of the area. I was there at the time they were coming out, and I want to point out the intensity of the flame from one of these tanks that went off just 4 minutes after the *Grandcamp* exploded, and you will see it in that area there in just another few minutes. It can't be imagined the force that some of those blasts was. As you can see in the camera, when the blasts go off, it nearly knocked me down, and in fact I nearly dropped the camera. At that time I made up my mind—see that explosion there over a mile away and that 40-foot—40-foot building is dwarfed in the bottom of it? See the concussion hit? At that time I decided it would be best to get away from there and get my child, who was in town. I hadn't yet even realized that anything so severe had happened. As I say, I think a lot of people were dumbfounded, and we got back in town and people seemed to be going in their own directions and there wasn't any congregation anywhere, everybody was driving very fast and apparently going to their homes, which kept them from being well spread out.

This was taken as we were hunting our child down near the blast area, just a few minutes after the blast, and this is of people leaving the town in a state of panic. If you could stop there on some of them you could see a little more clearly how they were dressed and the condition some of them were in.

This is taken away from Texas City 2 or 3 miles as we were leaving town. My wife was in a state of hysteria and wouldn't permit me to even stay in town, and I thought it would be best if I went with her, and it was a pretty good excuse to get away from a horrible thing, too, if you want to put it that way.

There is the Monsanto; the tower at the lower left shows you the height of the flame. If you can stop there, you can get a better picture of it.

I wanted to point out to you the intensity of the flame from such a great distance. It must have been horrible to those people nearby to find that those towers. Stop it right there.

That glass dims it. But you see the tower right at the bottom of the smoke to the left, which is 10 or 12 stories high, more or less, and it shows the flame as at least 2 or 3 times that high, and a flame of that size with anybody walking around it is sufficient to practically roast them, and I don't see how anybody got out of there alive.

You can go ahead now.

We kept getting farther away as time went on. This was taken from about 12 miles away within the first 15 or 20 minutes or so after that. I left town pretty quick after the blast happened. It was taken from the house of a friend of mine where I was glad to stay.

Now, this is my car that I had at that time. It shows the mud that was thrown from the trash over the road in the opposite direction of the *Grandcamp*. Some huge object fell. That picture shows the chil-

dren that were with the car and their parents were missing at the time and it was several days before they got joined again with them.

This particular picture was taken from several miles from Texas City. Now, the next day or two, if you notice, the wind has changed and the smoke is blowing in a different direction than it had been. We kept taking pictures from the distance. This is several days later. The wind has changed from the north back to the south and blowing the smoke in a different direction, but still a lot of fire and burning.

This shows some 30 blocks away, huge drill stems that weighed nearly 3,000 pounds that fell and threw mud on the houses, and this is one that they were digging out and just shows a boy with his shovel and the smoke in the background. See how far they were flung? That drill stem that weighed that much fell that deep into the clay.

This was a colored man's car that was—something came over the sea levee and dashed in his radiator right in front of me at the instant the *Grandcamp* went up.

This is the Bon Bon Cafe in Texas City, and the owner of that cafe was killed in his establishment.

Mr. MARKWELL. How far is that from the dock area?

Mr. HARRISON. Texas and Third; it would be eight or so blocks, I believe.

This is Third Street here. Now, some of these houses are in the area of the residential area nearest the blast. However, my home was away over a mile away and I had the wall pushed in by the concussion.

This is, of course, houses. Now, most houses, most all these houses it must be understood have withstood Texas hurricanes in the past because they have been there for years, a lot of those homes, and it goes to show you that with the tremendous force it could baffle those houses around, which a hurricane hasn't been able to do.

This is some big apartments as seen in a previous picture, but from a different angle and they were quite new. They weren't but just a few years old.

This is some pictures of Monsanto chemical plant. See the train and the ammonium nitrate still burning after all of the other flame is out? This doesn't show, but it's cars that were wrecked and moved into this particular area, Third Street, several blocks from the blast.

I was planning on going to the end of this street to take pictures, but I didn't quite make it. That shows the buildings that were at the base of the big flame awhile ago. Here's a picture of the ammonium-nitrate sack that I took down at the area.

That's all the pictures that they wanted me to show. I have considerable other pictures but they are taken at a later date which might not be of interest to you.

Mr. JONAS. Thank you very much for the contribution you have made to the hearing here.

We will proceed with calling our next witness, Mr. Markwell, if you have finished. If you have not finished, you may be privileged to go ahead with whatever additional testimony you might want to have, and, Mr. Brickfield, you are privileged to ask questions if anything occurs to you that you would like to inject into the proceedings by way of questioning or inquiry.

Mr. MARKWELL. At this time, if it meets with the approval of the committee, we would like to offer still pictures. These same pictures

were received in evidence in the district court and went with the record up to the Supreme Court through the circuit court. They have been withdrawn under order of the court and we would like to offer these series of still pictures into the record showing the condition of the area before and after the explosion, showing the terrific violence with which this commodity exploded.

For instance, here is one called PT-72 in the record showing the devastation at the dock area. I don't know whether the committee wishes to take time to examine these pictures now or whether they would prefer to examine it at their leisure.

Mr. JONAS. I presume we'd better wait and examine them at some future date. I can see very readily the very important part these pictures can supply, and if you have no objections, Mr. Hyde, the exhibit will be received as exhibit No. 3.\*

Mr. MARKWELL. Judge Jonas, I believe at this time that is all that I have to offer. I believe that I have offered the brief narrative statement, the admissions of the Government and the pictures and I will be happy to try to answer any questions that the committee might desire, otherwise I yield to my associates.

Mr. JONAS. Mr. Hyde, do you have any further questions to ask of the witness?

Mr. HYDE. No.

Mr. JONAS. Mr. Brickfield?

Mr. BRICKFIELD. No, sir.

Mr. JONAS. Thank you, Mr. Markwell.

Is Mr. Austin Y. Bryan, attorney, available?

Mr. BRYAN. Yes, sir.

Mr. JONAS. All right, Mr. Bryan, will it be convenient for you to be seated or stand in the place assumed by Mr. Markwell, or would you rather change your position?

Mr. BRYAN. If I might, I expect if I may address you directly here, I think it will be best.

Mr. JONAS. All right, sir.

#### **STATEMENT BY AUSTIN Y. BRYAN, ATTORNEY, HOUSTON, TEX.**

Mr. BRYAN. May it please the chairman and the gentlemen of the committee present: I would like to address a few remarks to the opinion of the Supreme Court earlier discussed. I thought the chairman had caught that which was elusive in the Supreme Court opinion. It did apparently in the majority opinion completely ignore the first section, the working section, of the Tort Claims Act which is, of course, the one that sets the simple formula for the yardstick of determining the liability of the Government as that which would have been of a private person under similar circumstances. Apparently the majority opinion got caught with what at least we regard as a super-technical construction of this conception. It has given it, in our belief, an unrealistic construction. Our concern here, it seems to me, is that the Supreme Court has never limited the wide sweeping range of the yardstick set by the Tort Claims Act in the first working section, not the exception area. It is to that section I think that we want to address ourselves and to establish proof to your satisfaction, if we

\*Exhibit is on file in the records of the House Committee on the Judiciary.

may, that we do qualify, both under the grace and the equity that Congress has always accorded a good claim, but also that we present a legal case under the yardstick Congress set before.

Now, you ask about how the facts were treated. The district court did make probably the most overwhelming findings of fact that I have ever seen a court in 30 years' practice make. They demonstrate, in our opinion, the completely persuaded bias of a very able district judge, and they represent the bias that Judge Learned Hand of the second circuit<sup>1</sup> found occasion to commend with the most extreme approval. That's the bias of persuasion, and he said it was a very healthy thing in a district judge, and if I may interpolate, the chairman of this committee having sat as a district judge, will understand what Judge Learned Hand is talking about, that once persuaded, a judge should have the courage to state the results of his conclusions.

The district court did that, and he did it in these findings, and for the work of the committee or its counsel, here's a copy of its findings that we would like to introduce if we may be permitted. They represent the entire findings and the statement of the court.

Mr. JONAS. That will be marked "Exhibit 4."\*

Mr. BRYAN. They represent an amazing aggregation of findings, over 80 findings of fact; bias has been demonstrated by a judge of tremendous experience and judicial capacity.

Now, those findings did come under review in the circuit court to this extent, that three of the gentlemen of the court so to speak, as it turned out, the majority opinion, took the same attitude that the Supreme Court did, that the facts were accepted.

They do not say so, and this refers very implicitly and explicitly to my notion they had to review the facts for this reason, that 1 of the justice members of the court took a position on the facts which would have been decisive of the whole picture had 3 or more thought the same thing, so having taken that position, we believe it put the other 3 members of the court writing one of the opinions to the necessity of deciding; Do we join with Judge Strum or not? because that will dispose of the case in the circuit court.

We believe those three did not agree with Judge Strum's very narrow theory of sole and independent cause, therefore they had to pass on the facts. If facts had been in issue in their determination, they need not have found a controversial law question but might have decided the facts strong enough to indicate it. So 3 of these people on the circuit court did pass on them, 3 accepting the facts as having been established by the evidence below.

Two of the circuit court made express findings. They were Judges Hutcheson and Borah. I think the chairman probably had that in mind when he asked Mr. Markwell. They held expressly that the facts, if believed, would establish a case of liability against the Government because of failure of warning and notice and all that.

Mr. JONAS. Pardon an interruption. To use the words "if believed" now, were the facts in the trial court submitted to a jury?

Mr. BRYAN. No, sir; by the Tort Claims Act, the—

Mr. JONAS. Only to the court?

Mr. BRYAN. Yes, sir.

<sup>1</sup> *U. S. v. Aluminum Co. of America*, 148 Fed. (2d) 416 (2d circuit).

\*Exhibit is set forth as part of appendix.

Mr. JONAS. So that the court was sitting in the capacity of a jury; is that correct?

Mr. BRYAN. Yes, sir.

Mr. JONAS. As I understand it, the Federal courts have repeatedly held, those on review at least, that where a Federal trial court is clothed with the authority to hear the facts that the findings are conclusive unless there is gross error in the record and such findings are as effective as that of a finding by a jury.

Mr. BRYAN. That is a completely penetrating and accurate statement, Judge Jonas. The courts have held that the Tort Claims Act having deprived the litigant of the right of jury trial, the court then sits and his finding is entitled (the ruling of the court) to the weight that is given the jury finding. We made that contention to the circuit court and so have contended that throughout the litigation. That's what fortifies us in the belief that these other three members, Judge Rives writing the opinion, were put to the necessity of examining the facts enough to determine whether there was support for the district judge and having accepted them because Judge Strum put them on the spot.

Now we turn to Judge Strum. Here's something that might be of value to you. Judge Strum is a lawyer from Florida. He held on the narrow ground, in my opinion—and I believe I voice my associates' opinions—not that the facts did not support the evidence, but he held that in his opinion the most direct, the proximate and the sole proximate cause was the way it was loaded, the material was loaded, at Texas City. Now, that ignores to some extent, and I realize this isn't a body of law but nevertheless all of you gentlemen are lawyers and I think there is a field in this view, in Texas we have the multiple proximate cause rule and we accept multiple proximate causes. There may have been as many as a thousand or only one.<sup>1</sup>

He also ignored the Texas Supreme Court and decisions which hold, even though the last cause may be the most prominent, that it is a contributing cause, and if you go back you still have the originating or contributable cause and you still make liable the manufacturer. So we have there Judge Strum holding only on the narrow point, in my view, of sole proximate cause, but not denying that the other holdings of negligence were there and supported by the evidence.<sup>2</sup>

Now we come to the Supreme Court, and I rush on, but I did want the privilege of offering these views. When it got to the Supreme Court, they said very pointedly since this court, the circuit court, has not been able to pass by a majority opinion on the facts and decide them they come to us—and they use this very significant language—unimpaired, and whatever connotation you wish to give to the word “unimpaired” it necessarily covers quite a reach, it has no limitation as I view it, so they took them unimpaired.

Now, I believe the chairman asked the question whether that court had passed upon the facts. We offer this view, we don't think the majority members of the court did pass upon the facts as facts because they felt the jurisdictional question was all that they could see or consider or would write upon, and that's what they wrote upon, but

<sup>1</sup> *Walker v. Burgdorf* ((Res. sup. 1952), 244 SW 2d 506-509).

<sup>2</sup> *McAfee v. Travis Gas Corp.* (153 SW 2d 442 (Tex. Sup. 1941)); *Milwaukee R. R. v. Kellogg* (94 U. S. 469, 24 L. Ed. 256).

under the Federal system of appellate practice the findings of the trial court, if I understand correctly the law, not having been overturned are virtually binding upon the Supreme Court because they come there, as they say, unimpaired. Now, had the circuit court passed on those facts or held against the facts, we would be in a very different situation. But I even think the majority opinion accepted that procedural approach that they are good here, they were supported by the evidence, and we would accept it.

I did note what Congressman Hyde mentioned about the footnote. I think they are saying there that we are not put to the—we don't have to accept them to the necessity of examining to see whether each finding of fact is supported by sufficient evidence under, as you know, the rules prevailing, that the Supreme Court can set aside a finding if they think they are just plumb wrong.

But here, too, is an entirely important aspect of this fact finding. The minority opinion—

Mr. JONAS. May I interrupt you just a moment.

Mr. BRYAN. Surely. May I solicit any interruption and question. It's our function to get what you want to know.

Mr. JONAS. I appreciate that. I think it would be helpful to both myself and the other members of the committee if from time to time we can get to clarify some of these problems that confront us in trying to carry out the mandate that's been conferred upon us by the resolution. I know the gentlemen understand we are in no position to review the findings of the court, but you have a perfect right, an absolute right, to present in your arguments here or the testimony that you wish to explore and amplify any matter or any substantive data, whether it be oral or in writing, that will establish a basis for Congress to consider these claims upon a compassionate or an equitable basis on the theory that in equity and good conscience there has been a miscarriage of justice which unfortunately cannot be remedied by the laws that now prevail. Now, with that in mind, we have a statement from Judges Hutcheson and Borah. See if we are right; it is just an excerpt that was taken from their opinion. It is stated here, that is, the opinion states that there was prejudicial error committed on the part of the trial judge. That's summarizing his statement. He says there was prejudicial error. It points to the errors and certain rulings on evidence and procedure and asserts that the findings and conclusion were too sweeping. I didn't have a chance to read the opinion in detail. Did the court amplify that and point out specifically where they were sweeping?

Mr. BRYAN. The circuit court?

Mr. JONAS. Yes; Judges Hutcheson and Borah evidently took part in rendering one opinion and somebody else another. They went further in that opinion and said that the case should be remanded for new trial. That's important to note that there was a remand for a new trial. That doesn't entirely reverse the case as a matter of law and fact. These two gentlemen consider that while there were errors in the record; nevertheless, as they said in here, a case against the Government was completed and that there was evidence which, if believed, would have been sufficient to sustain a recovery. Now, this is an important factor in the case that these two judges explored and developed that I think has a considerable impression

upon anyone who is trying to analyze this case in the light of the plan that is exercised or set forth in the resolution; at least I feel that way about it. These two learned gentlemen say that a case against the Government as pleaded, that means that if the pleadings stand alone without being challenged by answer or whatever your pleadings are, that in itself would make out a prima facie case: am I correct?

Mr. BRYAN. Yes, sir; correct.

Mr. JONAS. There is evidence which, if believed now, tends to raise other points; no one else had a right to believe the evidence or weigh the evidence except the judge; he is the jury; he has to weigh the evidence.

Mr. BRYAN. Precisely.

Mr. JONAS. This judge weighed the evidence. Then they say if believed it would have been sufficient to sustain recovery.

Mr. BRYAN. Yes, sir. As a former trial man, you will be interested in the only reasons that Judges Hutcheson and Borah should remand should follow. There's the record. Judge Kennerly followed what I thought had been the accepted practice of all trial men, that is, the judges of primary arbitration. When he had a great volume of evidence and the advocates jumping up and saying "I object," and maybe stating the reasons, but normally saying "I object," he said objection carried with the case. He did that for both Government and petitioners. There were veritable bales of evidence dumped on him. Out of the Department of Justice they had sent it down to Government counsel as high as this table. We did likewise. We came in with material, depositions. He took it all subject to objection. He then ruled on these objections at the time he filed these findings. They felt that was a prejudicial error, that he should—there is a backdrop here you are not primarily interested in—that he thought he had an agreement with Government counsel, that that's the way it would be done. We thought that because he had the same agreement with us. Now Government counsel says he didn't. Judge Kennerly comments on that and said he did, and that's what he thought we were operating on.

Nevertheless, that is what the remand was about—not on the facts, not on the law. Hutcheson and Borah disagreed with the Rives opinion, as we call it. They disagree with the Strum opinion; so you have that posture of the situation when it gets to the Supreme Court. Now, when it gets there on this question of fact we think a legal anomaly has been developed here, because there is no doubt in the world that Justices Black, Jackson, and Frankfurter squarely and directly and conclusively passed on the facts, and they held just this way: "This was a manmade disaster; it was in no sense an act of God."

That, I think, fits the formula Congress has had for a hundred years or more; that is, that it will recognize the equity of citizens injured at the instance of or as result of the acts of the Government if it is man-made. Act of God and common disaster to which the common group, the whole democracy is subjected to is something else, and that's what Justice Jackson holds on the facts.

The fertilizer had been manufactured in Government-owned plants—and you ask about control; listen to how these eminent Justices found—

had been manufactured in Government-owned plants, at the Government's order and to its specifications. It was being shipped at its direction as part of its program of foreign aid.

When you persuade these three men, even though in a minority opinion, to accept such and make such a factfinding, you must have: (1) the evidence to support it; (2) their review of that evidence and their conviction.

The disaster was caused by forces set in motion by the Government, completely controlled or controllable by it.

I think that ought to answer, in part, Mr. Hyde's inquiry about where the Government came into this control picture.

Its causative factors were far beyond the knowledge or control of the victims; they were not only incapable of contributing to it—

and that takes out the so-called contributory negligence and the sole independent cause that Judge Strum found himself convinced of—but could not even take shelter or flight from it.”

While Justice Jackson is noted for his dramatic composition, that is a gripping summary on the facts, and we submit that it is worthy of your review and consideration.

Mr. BRICKFIELD. Mr. Bryan, before we pass from the Supreme Court decision I'd like to ask you a few questions on the majority opinion, because in the final analysis that is the controlling one in this case.

Mr. BRYAN. Yes, that's true.

Mr. BRICKFIELD. You state that the majority of the Supreme Court accepted the facts as found by the district court judge.

Mr. BRYAN. Yes, sir, I think so, because the circuit court had not passed on them against them or for them.

Mr. BRICKFIELD. You say that the Supreme Court accepted these facts because of appellate procedure in the Supreme Court or do you think they accepted the facts because they believed them?

Mr. BRYAN. I think both. I think both. I am not able to say to you that the opinion reflects that the four members writing the majority opinion reviewed each and every fact. Their footnote that Mr. Hyde points to indicates they did not feel it necessary to sustain under the rules prevailing or rather examine to determine whether they threw them out because they were just against the reason or not.

Mr. BRICKFIELD. That footnote that Mr. Hyde referred to indicates to me that the Supreme Court was critical of the district court.

Mr. BRYAN. It was, that's right.

Mr. BRICKFIELD. It indicates that the judge's methods were wrong—

Mr. BRYAN. That's the distinction.

Mr. BRICKFIELD (continuing). And that his approach to the problem was wrong in his findings of fact. The court said they were profuse and sweeping and further, that the district judge should have made individual findings of fact.

Mr. BRYAN. Would you accept this suggestion for consideration? I rather got the impression that there was a fretful comment rather than a comment on the merits. It put more work on the appellate judges. The Court's findings were sweeping, but, as I point out, they met the very bias that Judge Learned Hand speaks of. I didn't get the impression, and I offer for your review, that the majority

opinion was questioning that there was evidence to support them. The opinion was criticizing them because of the nature of their composition and arrangement, it made it more difficult for them if they were going to pass upon the facts to determine whether they were or were not supported.

Mr. JONAS. Didn't the appeals-court summary make mention, after the trial court had filed all these long and extended findings of fact, that they were too prolix and they found it more difficult with the composition and the form than they did with the substance or the truth or veracity of the statement?

Mr. BRYAN. I think that is completely accurate. It's a little fretful; don't you get that out of the language that they use?

Would you bear with me for just one further phase of that—and I realize it's the minority opinion but after all the caliber of the men on this minority justifies consideration—and that goes to this, Mr. Justice Jackson caught very clearly the Texas rule and he held, as you know here, that they didn't have to review all 80 of these findings; that if any of them—and he found on notice and warning and testings—is supported, judgment follows. This language seems worthy of your consideration, "In order to show that even a private person would not be liable, the Government must show that the trial court's findings of fact are clearly erroneous." That's the rule, as you know, on an erroneous finding. That is why the majority opinion is querulous with what he wrote about, he wrote too widely, too profusely, and prolifically and such as that, but they didn't say they were clearly erroneous.

As you know, Justice Jackson says:

It points to what it claims are patent errors in the lengthy findings made upon a record of over 30,000 pages in 39 printed volumes and apparently urges upon us a rule of "error in uno, error in omnibus"

and they reject that.

The chairman, I am sure, having sat as an arbiter on the court of general jurisdiction, will know that findings, any one of them, if it is on a determinative issue, you find on the—

Mr. BRICKFIELD. What I wanted to bring out was that the prevailing opinion accepted the facts rather than reviewed them and in reality pointed out that no proper review of the facts could be made.

Mr. BRYAN. Well, I think you are substantially correct that that does represent what they said.

Mr. BRICKFIELD (continuing). And that for the purpose of the appeal that the court would accept the facts as true and, even though true, because of its construction of the Tort Claims Act there could be no recovery?

Mr. BRYAN. There was no jurisdiction, not recovery. They never held, if I may suggest—we would like to drive home that in no court has there been a holding of no recovery on the merits of these claims. That presents the legal anomaly I mentioned a moment ago; 14 men have passed upon or had the opportunity to pass upon the facts or had the necessity of examining them partially, superficially or otherwise. We do not have a majority of that group yet holding these facts not fully sustained by the evidence. On the contrary, we have 13 out of 14 holding or accepting the facts, and these claimants still do not have judgment.

My function here goes toward trying to reduce and give you a résumé of facts as were testified to in this proceeding. We realize the mechanical and physical difficulty of bringing both the testimony in the form of witnesses or in too extensive a restatement of the record.

Mr. JONAS. Mr. Bryan, would it inconvenience you if the Chair suggested, with the permission of my colleague, that since the statement you are about to make is going to be a general review of the facts, and that we consider that very, very vital and important to have it presented in a concise and clear manner, that we adjourn now to give Mr. Lane, who is the other Member coming in at noon, an opportunity to hear them. Would that be all right?

Mr. BRYAN. Thoroughly; yes, sir.

Mr. JONAS. We will reconvene at 2:15 in order to give Mr. Lane an opportunity to get organized.

The committee stands adjourned until 2:15.

(Whereupon, at 12:20, an adjournment was taken until 2:15 p. m.)

#### AFTERNOON SESSION

Mr. JONAS. The committee will be in order.

I have the pleasure of presenting the third member of the committee, our colleague, Mr. Tom Lane, from Massachusetts.

You may proceed.

Mr. BRYAN. May it please the chairman and the gentlemen of the committee, before embarking on what we thought would be the necessary way to bring before you, as well as we could, an examination and review and contrast of the facts that were developed in the trial of the case, I should like to comment on this aspect developed this morning. The chairman told us that a representative of the Department of Justice had indicated to the committee at some meeting that the material appearing in the narrative—what I say goes for all the material we are presenting—was probably not quite fair to the record in that it was both an excerpt and secondly the excerpts were out of context. To that answer, supplementing what Judge Markwell has said, we say categorically and without reservation the material is made up of excerpts but there is no material taken out of context and no material that distorts the effect of the language employed. They are quotations, they are taken directly, and they are offered for the commonsense ordinary import and connotation that the language carries.

We challenge the Government to suggest or find, because we have given the record references, any place we have taken them out of context or distorted them, and will welcome a reference at any time by this committee to the record itself on any excerpt or quotation so that the whole or any part may be read. We are very sincere in that, because we were first met with that on August 4, 1948, when we were taking General Hughes' deposition. As there are a lot of lawyers around here, they will know that that is the easiest exception to make and the most difficult to run down. As to the first exception we met, I think Mr. Fletcher was examining General Hughes and somebody was objecting, we were reading some communication that that was out of context. We challenge the Department of Justice

to check the record itself, and we welcome checking there any quotation we give by any member of this committee or its permanent staff.

Now we are brought to the necessity of trying to show this committee the background for our contention that the Government itself, as if it were a private manufacturer, was culpable of any number of serious oversights, neglects, and indifferences.

We should like to begin, if we may, in some sort of an order that will meet and lend itself to a ready study. We do that beginning with World War II. The major shooting aspect of that war ceased and, of course, the problems that follow a war came immediately to the fore.

One of them was the complete shortage of food in the occupied areas. This shortage was recognized by Secretary of War Patterson (Record 25977).

Could I have the advice of this committee, some of it is a matter of record, some may not be. Do you want me to give it now to go into the record? Probably now is a better way.

Mr. JONAS. If it is not too involved or too long. I think the committee would prefer that it be made a part of the record now. It may get out of line or place later on. Will you supply it now without going into great detail? I assume that would be satisfactory with both members of the committee, would it not?

Mr. LANE. Yes

Mr. HYDE. Yes.

Mr. BRYAN. Secretary Patterson felt such urgency required a letter. He wrote one to the Secretary of Agriculture dated April 19, 1946, and the function of this part of the presentation is to show the governmental character of it, the emergency and the war aspect of it, that all that is done here is related to war activity (Record 25977).

In this letter, in part, he said :

In view of the urgency of supplying fertilizers to the occupied areas for this crop year it is requested that every effort be made to substantially increase the War Department allocations. It is considered that such action is imperative in assisting to prevent the recurrence next winter of the food crisis with which the world is presently faced (Record 25978).

That was 1946, and the year 1947 is the one he refers to.

Patterson continued again on the 20th of June 1946 on this same necessity, and this deals with ammonium nitrate fertilizer, which frequently will be referred to as FGAN. [Reading:]

Accordingly the War Department proposed to make its own ammonium nitrate by activating 15—now increased to 16—ordnance plants, some of which had been declared surplus and are now being returned to us under directives from Mr. Snyder.

That letter is from record reference, volume 35, page 26121.

Furthering the background for which you will deal is this statement by Mr. Patterson:

We, of course, also have in mind that, beyond the immediate military need, this great increase in nitrogen fertilizer production can, by such later changes in financial arrangements and in disposition of the product as may be ordered by the Director of War Mobilization and Reconversion, be employed further to ameliorate conditions in famine-stricken countries, and so have an even broader usefulness. We expect that our requirements for occupied areas will have precedence only to the extent necessary to prevent unrest and disease (Record 26122).

There's a connection there by what he contemplates the necessity of going behind and beyond the authorized occupied areas to those needing it. That captures France. It comes into this picture as it bears on Texas City.

What Mr. Patterson thinks is this:

At present, however, the action called for is to get the production.

and that emergency, that urgency, that drive irrespective of all conditions goes all the way through, and here's the genesis of it—

For this we have the advantage of the Ordnance Department's "know-how" in getting production from these plants, most of which it erected and supervised during the war (Record 26122).

The situation was, and the War Department considered it—I am quoting—

considered one of supplying additional food or additional troops to control the conquered peoples (Record 20896).

General MacArthur, with his understandable dramatics, cabled—

Send me more troops or send me more food—

then he added—

You will have to send both if you don't hurry.

That's record reference volume 19, page 14034, hearings, H. R. 6837, June 25, 1946, 79th Congress, 2d session, page 28.

Thus the War Department early discovered that World War II left an acute shortage of nitrogen in the world. In fact, existing world production was all allocated on the international agreements so there was none available for occupied areas (Record 13984-13985, 14045).

As Secretary Patterson pointed out above, the ordnance surplus plants that manufactured FGAN made it as an explosive—when I say FGAN, may I make this distinction, when ammonium nitrate of any character of additives or additional components was used for explosives as it was for military explosives, it had a smaller grain, it had a different ratio and it was mixed, as you will see later, it was mixed with TNT to make amatol or mixed with various others. There are a hundred and, I believe, twenty-six, mining and blasting explosives of which ammonium nitrate pure is a simple and a dominant component element. But when we say FGAN, when they use it as an explosive, condition it for that purpose, they use a coating, as well as the various types of carbonaceous materials, resins, hydrocarbon oils, and such as that. So they had a background of making it not for agriculture and not in the same form exactly as employed here for FGAN, because the percentages were different and they used boosters and detonators.

As Secretary Patterson pointed out above, the ordnance surplus plants that manufactured FGAN as an explosive, mixing it with amatol during the war, offer the only possibility of meeting the needs of occupied areas for early nitrogen supply (Record 14052-14053, 14017, 25984, and 13986-13987). Confronted with this problem, the Secretary of War decided on the production of FGAN in reactivated Ordnance plants (Record 13990-13996, 14012). This appears to have been done on June 20, 1946, at about which date Secretary Patterson reported in substance this decision to the Cabinet and had

it approved with the decision of "go ahead" with this production. Here you have the executive and governmental and Cabinet level of the decision to manufacture this material as a war project for the general benefit of this country's interest worldwide.

Whatever responsibility we are able to establish here attaching to this activity you distribute, is right here for the benefit of the whole country and not some particular group or phase. After the Cabinet decides it, things move into high gear.

Secretary Patterson asked Tracy S. Voorhees, Under Secretary of the Army, to prepare the letter written by Patterson to Secretary Wallace of Agriculture.

As the Director of War Mobilization was paramount in authority, probably second only to the President, it was necessary to secure an order from this officer. This order is the historic background of this whole program and the initiating instrumentality. It fixed the intention, purpose, and character of the Government program developed in relation to the supplying of areas of the world with fertilizer grade ammonium nitrate. The order appears in volume 23, page 20001. The order was signed by John W. Snyder, Director. The order was directed to the Honorable Kenneth C. Royall, Under Secretary of War. For once and for all this program touching FGAN is fixed as an emergency measure for national defense in this language:

Since the production contemplated by this plan is less than the stated requirements of the War Department for civil affairs purposes and since such requirements, together with our own domestic needs and foreign commitments,

and will you please keep that in mind in relationship to the demands France makes in '46 and '47 for this material—

cannot be met by other means I am satisfied that the War Department's plan for producing 70,000 tons per month fertilizer grade ammonium nitrate is necessary as an emergency measure for national defense (Record 20001).

Mr. JONAS. Who is this talking now?

Mr. BRYAN. This is Mr. Snyder.

Mr. JONAS. What is his position at the time?

Mr. BRYAN. He was the Director of War Mobilization. He was, I believe I am correct in saying in the order of authority, second only to the President of the United States in power over the affairs as they touched war mobilization, isn't that correct, Congressman Thompson?

Mr. THOMPSON. I think that is correct.

Mr. BRYAN. He further stresses the point:

Accordingly I request the War Department to undertake such a program without delay, and to take whatever action is appropriate to expedite the attainment of maximum production (Record 20001).

Continuing to recognize the war and the governmental program involved and the emergency and national defense concerned, Mr. Snyder states:

It is further understood that while present plants contemplate that all fertilizer produced by the War Department under the plan approved above will be for the War Department's use under its allocation, it may at a later date be necessary to channel some of this production to other urgent purposes (Record 20001).

I am not speaking now from the record; I am speaking in the liberty that is afforded in a hearing of this sort. There was a suggestion to us, as traveling counsel in developing these facts, that it took this order to

get the War Department to do this. They didn't want to fool with the manufacturing of this material. That was out of their field—not out of their field, but out of their interest and purpose, and it took the order from the highest authority to initiate it. Whether that's correct or not I am not here able to affirm; we simply were told that by a competent authority.

The order just quoted from is dated May 28, 1946. This order threw the War Department, and particularly the Chief of Ordnance and Ordnance Bureau, into high gear. The Chief of Ordnance was designated as the responsible officer for carrying out this project. As found in the Headquarters Army Service Forces report of June 7, 1946 (Record 20004) is stated:

Because of the urgency of the time element it is desired that the Chief of Ordnance immediately initiate all possible action to carry out this project—and again it is stated—

the Chief of Ordnance is hereby granted blanket authority for construction without site letters (Record 20004).

About this time Spencer Chemical Co., a former war contracting company, that is, contracting company for war supplies and such as that is approached and it organized the Emergency Export Corp., a wholly owned subsidiary of Spencer Chemical Co., to carry out this operation under the direct direction of Ordnance, its officers and its directors and inspectors. It may, perhaps, well be exposed that the reason they organized this subsidiary corporation, which had relatively no capital structure, was because of the hazards involved, as you will see from the contract itself, in which the Government gives a hold harmless clause 100 percent. [Reading:]

The Chief of Ordnance is authorized to enter into cost-plus-fixed-fee contracts for the conduct of this operation (Record 20004).

Following through in the chain of control and direction of this emergency governmental program, the Chief of Ordnance promptly placed responsibility for the actual manufacturing operation upon the Field Director's Office of ammunition plants at Joliet, Ill. That appears in a letter of July 17, 1946, Record volume 29, page 23130.

As said by the Chief of Ordnance:

jurisdiction over the contracts listed below is hereby transferred to your station so that there will be a central office for certain administrative actions necessary in carrying out approved projects (Record 23130).

The contract referred to was, as I said, with Emergency Export Corporation. It covers the production of FGAN at the ordnance plants. There are three plants that are involved in this situation. The contract probably had two matters of extreme interest to this committee. One was that the United States, through the Ordnance Department and its officers in charge in the several ordnance plants, was in sole, absolute, and complete charge of the manufacturing, processing, handling, bagging, packaging, and loading into cars and shipping FGAN to all ports of export, including Texas City. The Government owned the plants; it supplied the materials; it supplied the specifications; it supplied, as you will find out, the know how.

Starr Exhibit 77, Record 21443-4. Major Starr (Record 6370-6374, 6379-6380, 6427-6428, 6599, 23332).

Mr. Calkins, who was manager of the Emergency Export Corporation, in one of the plants stated:

Question. Now, you have been asked a lot of questions about the standard operating procedure. It is a fact, isn't it, that those were prepared and then submitted for approval by you to the Ordnance?

Answer. Yes, sir.

Question. In fact, you couldn't have used them until they were approved by Ordnance, could you?

Answer. Well, it was part of our contract that we submit our operating data.

Question. As a matter of fact, wouldn't it be fair to sum up your testimony with this statement—that while Emergency Export Corporation operated the plant everything it did was under the direction and control of Ordnance?

Answer. Yes, sir.

Question. And everything you did was done pursuant to directions from Ordnance?

Answer. Yes, sir (Record 8378).

General Hughes was Chief of Ordnance at the time that we are concerned with here. He testified that—

Ordnance reserved—

this is the same contract—

Ordnance reserved and had both the power and the authority to supervise and control the operation in its entirety (Record 4560-4561).

Lieutenant Lucas, in charge of transportation at Nebraska Ordnance plant, typical of all plants, states the policy followed at all such plants, that the cars were loaded and sealed by Ordnance employees before delivery to the railroad (Record 8208-8209). The other phase of the contract lies in this—as I intimated a moment ago—language:

The Government recognizes that the work herein provided for is of a highly dangerous nature and that its accomplishment under existing conditions will be attendant with even greater risk of damage to property, injuries to persons and failures or delays in performance due to uncertain and unexpected causes than would normally exist. The contractor is unwilling to assume said risks for the consideration herein provided (Record 23364).

Then follows the 100-percent-hold-harmless clause. That is the one we did not see performance of in the litigation preceding this hearing.

The contractor, so-called, EEC, Emergency Export Corporation, did not supply the specifications and did not supply the know how. This came from TVA and Ordnance, as you will find out.

Now, that record, that examination begins at Record page 26413. That's the contract. The instrument contains the specification—I should like to withdraw that.

The record I am now beginning is the record of the plan of operation by Ordnance through the lower echelons of command, through FDAP out of Joliet and into the various plants. This instrument contains the specifications, the production inspection, shipping, storage requirements for production facilities, including FDAP, and the operation of production facilities, administration program, and so forth. The plan recognizes the need of producing 70,000 tons of ammonium-nitrate fertilizer grade per month in their installations to meet, and I quote:

The urgent problems presented by the world food situation (Record 26419).

Part 200 of the plan, which bears date July 29, 1946, concerns specifications for products and has this significant language which should

bear great consideration because it shows the genesis of this whole picture, specifications, testing, and otherwise:

A new specification—  
and this is FGAN—

has been prepared for the ammonium-nitrate fertilizer grade. Requirements for the AN are comparable to and based upon TVA specification for AN (Record 26428).

This simple statement of wholesale adoption of TVA specifications justifies a background reference to these facts. TVA supplied, partly to the Ordnance Department, a set of specifications which were used in the making of FGAN exploding at Texas City (Record 26444).

A very interesting commentary on this fact is that TVA specifications accepted by Ordnance actually grew out of original specifications given to TVA by Ordnance less than 3 years prior to this date. In other words, Ordnance apparently either forgot it or took back a set of specifications which they had actually given to TVA themselves (Record 13406-13407-13405).

Mr. LANE. Mr. Bryan, right there, are we going to get a copy of those specifications?

Mr. BRYAN. Yes, sir. The specifications will appear. They appear as a part of 200 and at Record 26428 et seq., I believe. They are here in detail. Yes, sir. Do you want them copied in the record? What I have dictated does not have them.

Mr. LANE. If you put them in the record, it will be all right.

Mr. BRYAN. Would it be agreed that all of my record references were treated as introduced into the record.

Mr. JONAS. Will it break your continuity of thought if we break in here?

Mr. BRYAN. No.

Mr. BRICKFIELD. Mr. Bryan, before the Army ordnance plants were deactivated, did the Army operate them?

Mr. BRYAN. Yes, sir.

Mr. BRICKFIELD. What did they manufacture?

Mr. BRYAN. Explosives.

Mr. BRICKFIELD. What were their component parts.

Mr. BRYAN. The components were more than 90 percent of ammonium nitrate, and TNT, and some conditioning agencies; mostly it was a mixture of TNT and ammonium nitrate.

Mr. BRICKFIELD. All right, now, you tell us, too, that as far back as 1943 the Tennessee Valley Authority developed a program for the production of fertilizer grade ammonium nitrate?

Mr. BRYAN. Yes, sir; they began dealing with it at that time for this reason, that in and about 1943, a little bit further back, TVA had geared itself to make military explosives, ammonium nitrate and TNT. In 1943 the British came out with RDX, which was a vastly more improved explosive. That made ammonium nitrate explosives not obsolete but put the amatol explosive behind the necessity of making RDX (Record 13409). TVA went on the freeze list and they had to learn to make something else.

Mr. BRICKFIELD. If the Tennessee Valley Authority had a program for the production of FGAN, then what was the purpose of the Army bringing in so-called independent contractors to manufacture FGAN at the Army's ordnance plant?

Mr. BRYAN. The answer to that is it allows the payment of different wage scales, it allows the subservience to different conditions of fair practice and labor, such as that. The Army has always used the so-called independent contract or agency system so that they can meet these various requirements.

Mr. BRICKFIELD. At the time the TVA was developing their program in 1943, were there any commercial producers also developing the manufacture of FGAN as a fertilizer?

Mr. BRYAN. Yes, sir; 2 months before TVA began, Hercules as the first commercial producer of FGAN, began the manufacture from its explosives patent the same formula TVA took.

Mr. BRICKFIELD. This so-called independent contractor which went into this Nebraska ordnance plant, is it affiliated in any way with the Hercules Powder?

Mr. BRYAN. No; it was a subsidiary of Spencer Chemical, another wartime contracting company, which did make commercial supplies of FGAN, but when I use the term "FGAN" I mean they didn't make it the same way that Ordnance and TVA did, they were using the Oslo crystal process which did away with this conditioning agent, PRP.

Mr. BRICKFIELD. Did the TVA, in adopting their own program, adopt any of the procedures developed by Hercules?

Mr. BRYAN. Adopted them 100 percent. It was adopted from an explosives patent that Hercules had and had the rights on, Cairnes explosive patent (Record 13559, 23963, 21763-21764).

Mr. BRICKFIELD. If TVA would adopt the program and the processes of a so-called private independent manufacturer, would it not follow logically that the Army could do the same thing in bringing in an independent manufacturer with his know-how of the process and the manufacture of ammonium nitrate to effect the same thing at Army ordnance plants?

Mr. BRYAN. Yes, sir; Army could do that, of course. They took a new concern and they supplied all the know-how themselves. The new concern didn't supply anything; Emergency Export Corp. (Record 13430).

Mr. BRICKFIELD. Well, when this independent contractor went into the Army ordnance plant, didn't they bring along their superintendents and engineers?

Mr. BRYAN. Yes, they did.

Mr. BRICKFIELD. And chemists and those people who had a know-how in the manufacture of ammonium nitrate, and they carried that with them?

Mr. BRYAN. They brought some personnel, that's true, but they had not been making FGAN before then. FGAN had never been made. When I am using the term FGAN, I am not talking about ammonium nitrate with sulfate and other combinations, I am talking about as it was conditioned with PRP or waxes. No independent contractor made them before then, see; 1943 is the beginning of FGAN, as that term is used here (Record 13423-13424, 13559, 23963, 21763, 21764).

Mr. BRICKFIELD. Well, I have some information here that says that FGAN, that is, the ammonium nitrate together with this mixture of petrolatum, resin, and paraffin, had been manufactured in industry for some 30 years prior to 1943, and I am reading from a statement by the director of research of the Trojan Powder Co.; it is in the record 21224.

Mr. BRYAN. That's correct, that statement is there, but that is not FGAN. If you will go to the original reference you will see that he is talking about a product like Du Pont's Nitramon. There are 126 ammonium nitrate explosives that have various types of conditioning agencies, but not the conditioning agency that was used on FGAN. He is quite accurate. Ammonium nitrate as an explosive is a very old element.

Mr. BRICKFIELD. He goes further; he not only says ammonium nitrate, but also ammonium nitrate mixed with this paraffin wax which you referred to.

Mr. BRYAN. That's true, but the percentage is entirely different. They were lower explosives for mining purposes, and we'll show you Bureau of Mines list, some of them had as high as 4 and 5 percent of the conditioning agency, which, as you may or may not know, reduces the sensitivity of it and makes it a low order of explosives. The highly dangerous stuff is the one employed here, between 0.075 and 1.50 participation.

Mr. BRICKFIELD. In any event, you say that this independent contractor that went into the Army ordnance plant had never made or manufactured FGAN as a fertilizer?

Mr. BRYAN. As it is here made under this Cairnes explosive patent, that's quite right. That is accurate and I would welcome your going directly to the record on it (Record 13413). This was first use of petrolatum as coating (1 percent).

Mr. BRICKFIELD. So when they went into this ordnance plant, they brought along some of this so-called manufacturer's know-how?

Mr. BRYAN. That is precisely right, and I will show you where Spencer Chemical Co., the parent company, came to TVA and Ordnance to find out how they did it (Record 13430-13431). Mr. Miller, of TVA, testified that Spencer Chemical, of which the Emergency Export is just a share, it's a new company, a subsidiary to avoid direct responsibility for these hazards, they went to TVA and Miller and Walthal of TVA to find out how to build this new material (Record 13430-13431).

Mr. BRICKFIELD. You do say that TVA in the first instance went out to private industry and adopted their procedure?

Mr. BRYAN. To Hercules, that's correct, but Hercules stops making it. Du Pont—they all try it—Du Pont stops making it because it is so dangerous.

Mr. BRICKFIELD. Didn't they stop because it was too dangerous in the process of manufacturing rather than in the end product?

Mr. BRYAN. Not specifically. They stopped because they discovered that some asphalt in a fire dropped from their ceiling and went into this material and discovered the carbonaceous combination exploded it, and they so tell it. Their letter is here (Record 21221).

Mr. JONAS. Any questions, Mr. Hyde?

Mr. HYDE. Pursuing that same thought, Mr. Bryan, you say it is not entirely accurate as has been represented by the Government that the Government personnel at these plants were limited considerably by housekeeping activities?

Mr. BRYAN. That's correct.

Mr. HYDE. You say that is not correct?

Mr. BRYAN. That is not, and I welcome again your reference to the record (Record 4560-4561, 8378, 21443-21444). Every step, every

man has a counterpart as is typical of all military installations, every civilian had a military representative over him and every step was directed and supervised. The specifications were written. The material was supplied. The method of operation was controlled by military personnel, commissioned officers and noncommissioned and civilian employees also. Not a single thing was done by the so-called contracting agency that had not been cleared and directed by the military, and we do categorically say that statement simply leaves the impression that all they did as administrative housekeeping, which is in error as was established by their own statements, their own commanding officer's statements. They ran the show. The fact of the matter, when we went to these plants we weren't received by the civilians. The civilians were called in. We were processed through the military and we carried badges and the military took us everywhere and showed us everything, and civilians couldn't talk to us until the military cleared us. In fact, they put us through 5 at a time; they couldn't afford over 5 casualties in a certain—

Mr. HYDE. That was the security?

Mr. BRYAN. No; the manufacturing process was dangerous.

Mr. HYDE. I know, but the fact that you were conducted by military personnel was a security matter, wasn't it?

Mr. BRYAN. No; we had been cleared by the Judge Advocate General and the Chief of Ordnance, but we were not permitted to talk. They brought them in and in the presence of the military we talked.

Mr. LANE. Where was that?

Mr. BRYAN. At the 3 ordnance plants; 1 at Wahoo, Nebr., and over at Burlington, Iowa. Those are 2 of the plants. There was a third at Firestone. Three plants made the material that was involved at Texas City.

Mr. LANE. And this Spencer Chemical there manufactured under the cost plus?

Mr. BRYAN. Yes, it was cost plus.

Mr. JONAS. Who owned the plant?

Mr. BRYAN. The Government. They were all owned by the Government. All the material was manufactured by the Government; sent there. The anhydrous liquid or ammonia was sent there from Government plants. All materials were bought directly by Government purchase and requisition. The contract was used, I believe you will find if you check the record, to permit them to make certain employment contracts, pay certain wages, and meet certain standards set up, and such as that, and take away from the military the necessity of having to abide.

Mr. JONAS. When the producing agency moved in, such as you referred to as the independent contractor, did he take over the building and the machinery in it and was it all set up to go right ahead to make this particular product you are describing?

Mr. BRYAN. Yes, sir.

Mr. JONAS. Now, within the classification that you have described?

Mr. BRYAN. Yes, sir; for this reason, that formerly they had been loading manufacturing plants for ammonium pellets or beads or such as that, which were of a different size and mixed differently, but they had to go through the same process of preparation, that is, through the hi-pans and through the fudging and on down to where they became pellets or little beads. These ordnance plants that had made

wartime explosives using ammonium nitrate were in shape to carry on the process. All they did was add the conditioning agent, which made a different size pellet, and this explosive pellet formula they got from Hercules.

Mr. JONES. When the Government completed these plants, were they ever on their own?

Mr. BRYAN. As ordinance plants making military explosives.

Mr. JONES. In the course of the trial was it ever explained why the Government saw fit to abandon what Ordnance had done, and to turn it over to an independent contractor?

Mr. BRYAN. No, sir. The reason they claimed, and you will find it true, which you will find later here is not an accurate statement, that they did it because they didn't have the know-how, they wanted to get a civilian know-how on it. The fact of the matter is they supplied the know-how, and I will demonstrate that. The real reason is the one I have given you, which was never offered and it may or may not be approved now by the Government.

Mr. LANE. Mr. Bryan, were these plants first turned over to the War Assets?

Mr. BRYAN. That's right.

Mr. LANE. And then taken back from War Assets subsequently?

Mr. BRYAN. Yes, sir. You see, the importance of ammonium nitrate as an explosive lessened immeasurably in 1943 when RDX came out and they made these advances in developing high explosives. They had 15 plants, in fact 16, but their importance just went right on down until this emergency was created, because in the meantime TVA had been converted to war operation, and in 1943 found itself with a big ammonium—they made the liquid down there also—with a big ammonium installation that had no use unless they could convert it to fertilizer production, and that's why there are so many coincidental circumstances that are really worked into this situation.

TVA felt it had a tremendous public investment, and they so say in their testimony. They had a plant that wasn't needed in 1943 so therefore they ought to, in fairness to their owners, find a means and a purpose for which to use these plant installations. That is when they went to Hercules and took license on this explosive patent to make FGAN, and they didn't take a license on the explosive patent and use this conditioning, because it had anything to do with the fertilizer or the value of the nitrogen. Ammonium nitrate is tremendously hygroscopic, it picks up moisture. It happens that the only thing that the industry had found that would prevent it from caking and taking this moisture was an explosive conditioner, which was this PRP, that has set this whole thing into the category of a dangerous high explosive. PRP was used to meet that need and not because it had anything to do with helping plant cultivation. It had no function except to prevent moisture absorption and caking in shipping and storage, but it also served the function of sensitizing this stuff which normally left alone has a low point of detonation into a high point, and that's what made the explosion.

Mr. JONES. Well, did the changing in the process that you have just described, and resorting to the process you just described, originate with the acts of the independent contractor or had the Government used that before?

Mr. BRYAN. This so-called independent contractor had nothing to do with that. That originated between TVA and Hercules. This alleged independent contractor you refer to came into that in 1946. It wasn't even organized in 1943. It took exactly the specifications that TVA had prepared and Army Ordnance had taken over from TVA in 1946, but these had originated in 1943 between TVA and Hercules, principally by TVA simply taking over bodily this explosive patent, and believe it or not, they had to get a license from TVA to use it and did get a license.

Mr. JONAS. Was TVA a Government agency?

Mr. BRYAN. Yes, sir.

Mr. JONAS. Operating and working in the interests of the Government?

Mr. BRYAN. Yes, sir.

Mr. JONAS. What about Hercules?

Mr. BRYAN. No, sir; private concern, but TVA became a licensee for the use of this formula, the explosives patent in making FGAN. These are the specifications, and you will see the reference that they take over there from TVA (record 26428). There are quite a number of pages there.

Mr. LANE. They appear in the record? (Record 26428.)

Mr. BRYAN. Yes, sir. We will introduce it.

Mr. LANE. Mr. Bryan, right there, can you tell us if there is some place in this record that goes on to explain to us the fact that the addition of the PRP, which is the paraffin, the resin, and the petrotatum, the addition of that formula would make it highly explosive? (Record 13413.)

Mr. BRYAN. Yes, sir.

Mr. LANE. Is there something in the record that will help the committee? (Record 13413.)

Mr. BRYAN. Yes, sir. You will get it and get it from the testimony. I should like to go on; you asked about private industry. Here's Du Pont's letter that Du Pont and all of private industry had abandoned this method of making; they fooled with it for a short while, including Hercules. On March 14, 1944, Du Pont writes back to Army Ordnance and they say this:

You will note in the memorandum that we had a fatal accident at one of our plants in which the charge in an evaporating pan detonated. Although we are not sure of the cause, it has always been attributed to the presence of petrotatum which found its way to the evaporating pan. At that time petrotatum was being used as a coating and lump material was redissolved and reevaporated. As a result of this occurrence and previous explosions in the ammonium nitrate plant, this company discontinued the coating of ammonium nitrate with any organic compound (record 21221).

That's 1944. After TVA had taken and licensed itself with this process from Hercules and Hercules' letter they moved on from other processes and you will see the testimony where TVA tried to get Ordnance to approve the new processes, and Ordnance said no, we are familiar with the old one, we will give you just as they are (record 13406-13407).

Mr. LANE. Did the Cabinet agree to that, to that part of it that made it more highly explosive, the addition of this water absorption process?

Mr. BRYAN. No, sir, the Government took this position in the litigation, that the material was not explosive, and they undertook to

labor that question all the way through the trial of the case (p. 96, Government brief, Circuit Court of Appeals).

Arthur M. Miller was head of TVA manufacturing and research facilities. He makes the whole point clear in this much of his testimony because he was a director of the plant in 1938 and from then on till 1945. Anticipating war was going to occur, Miller went to the War Department and he pointed out the great facilities of TVA for serving as a war plant and developing operating and manufacturing facilities that would aid in war effort if we got into it. War, of course, was imminent in Europe.

Miller says in the beginning of 1938 he had meetings with the War Department relative to the use of the TVA plant (record, 13407). TVA got all of its know-how information from Ordnance. Here's the answer he made (record 13405) :

The question of producing ammonium was involved and the question of producing ammonium nitrate was involved. We, ourselves—

that's TVA—

had had no experience in that field up to that time so we were very happy to have the advantage of advice from people in Du Pont and people in Hercules Powder Co. Actually the Ordnance Department itself knew a great deal about the subject and helped us. \* \* \* As a result of our deliberation and planning and what we had seen in the plants of others and what the Ordnance Department could tell us we made certain recommendations.

This was gearing TVA for assistance in any possible war participation we might have in the war. That's record, 13405-13406.

Miller testifies further, and, incidentally, this was a witness produced by the Government. This is his direct testimony :

However, the Ordnance Department insisted that we build the new ammonium nitrate evaporating and graining house because the technique had developed a little bit and they thought we could do a better job. We discussed the possibility of making—

and mark this well, please—

ammonium nitrate by new methods or trying some new methods, but the Ordnance Department said they would prefer that we stick to the old process, an old well-known method, even if advantage would be gained by changing the technique, because they were sure of these methods and they did not want any risk undertaken, so we had to design our plant pretty much as the Ordnance Department dictated, and pretty much patterned after the plants that the Du Pont and Hercules were at that time operating for their own private businesses (record, 13406-13407).

Now, here's a further commentary on this situation. He was asked :

You were not given the opportunity of making any research at that period in order to work a new method?

Answer. There was not time to make research at that time (record 13407).

Queried later on the subject, Miller testified :

Well, in due course we designed an ammonia plant with capable outside engineering assistance, constructed the ammonia plant, rehabilitated the ammonium nitrate plant and built the new portion prescribed by the Ordnance Department (record 13407).

Here is quite a distinction, though, that should be observed, that Ordnance took over bodily the specifications of TVA.

Miller testifies (record 13409) :

The ammonium nitrate we have been shipping to the Ordnance Department was mixed with TNT to make the explosive amatol.

If I may amplify, when TVA got geared up to help in the war, it supplied only the War Department and it supplied it ammonium nitrate to be mixed only with TNT and did that until 1943 when the British RDX supplanted the ammonium nitrate as one of the bases of one of the highest explosives (record 13409).

The amatol did not turn out to be, or rather, in the light of other developments, amatol did not hold its place as being a first-grade explosive. It was replaced by a British development, an explosive called RDX (record 13409).

Now, as to the very type of ammonium nitrate fertilizer, FGAN, that was involved in Texas City, here's how Miller tells the story of its beginning. Miller shows that TVA began in the spring of 1940 to examine literature and plans to learn about the manufacturing process, if any available, stating—

that while there was a hazard in this one step in the manufacturing process that there was—that we could feel reasonably safe in going ahead in making ammonium nitrate by the specifications we had received from Ordnance with advice from Du Pont and Hercules without undertaking—

and mark this well, please—

to do ammonium nitrate explosive tests ourselves. Now, we had no background in making such tests, but we had some confidence in what other people, the private manufacturers were doing with respect to ammonium nitrate, and our decision to go ahead at that time, I think, was reasonable (record 13410).

But the distinction is that the private manufacturers had been making mining explosives and low-grade explosives, low-detonating explosives, and not this material and, as you will see, they didn't seem to recognize that, but Hercules was the first in 1943, and I will establish it further for you.

It must be remembered in this connection that TVA was offering to teach Ordnance operators how to manufacture ammonium nitrate, fertilizer grade (record 13422, 13423, 13424), and if you believe me you will see how instead of the private industry bringing in the know-how, TVA contracted with Ordnance for 3 months to show private industry and Ordnance how they were making it right there at TVA, and that's who supplied the know-how, and unhappily Ordnance didn't undertake any tests. This occurred in the fall of 1943.

As Miller says:

Well, that was in the fall of 1943, the summer or fall, because after the matter had been discussed it was finally agreed—Ordnance agreed to put its plants into this service, and TVA agreed to teach Ordnance operators how to operate the plants to make the product that we were then making (record 13422-13423)—

and that's the FGAN that was involved at Texas City, not the particular FGAN, but it was the process.

Miller says further:

It involved not only the treatment, but involved making a larger grain of ammonium nitrate than formerly went to the War Department (record 13423). and here's the thing I pointed out a moment ago—

So the Ordnance people from all over sent representatives from several of their plants to us and we showed them how to process this material, both with respect to making the larger grain and with respect to providing a coating—

and here's the origin of your PRP, this coating—

and we provided specifications for the coating material (record 13423)—

and now I challenge the Government or anybody to go beyond this point as the origin of the specification for the coating that sensitized this material at Texas City—

we provided specifications for the coating material.

Actually, to get the project started, we furnished some of the coating materials to get the plants going more quickly, so that nitrogen could get to the farmers at an earlier date. The Ordnance plants thereupon started to produce coated ammonium nitrate (record 13423).

That's not my statement; that's Mr. Miller, head of TVA's operations and research. So it is perfectly clear now that Ordnance did not get its know-how, its specifications or anything else from EEC or the outside, they got them from TVA. They were the same old antiquated ones Ordnance had been using and had given to TVA in 1938 with a few modifications, and that's this coating from Hercules patent, the modifications, including the coating material specifications prepared by TVA, and they are right there in the record word for word verbatim, a copy of the Hercules explosive patent on coating this material (Record 21763, 21764, and 13559).

Now, under the plan that TVA developed for the transportation and distribution program, responsibilities of this fertilizer grade ammonium nitrate program were allocated as follows: Transportation to Transportation Corps; distribution, shipping orders, shipping descriptions, bills of lading, sales reports and foreign export reports and commitments to Quartermaster Department (record 23107). The program is now in operation under Army officers commanding each ordnance plant operating the strictest sort of direction, control and supervision over a newly formed subsidiary corporation for the purpose of operating such plants. It is entirely developed that the Government owned the plants, owned the materials, supplied the specifications, required the material to be made and shipped and bagged and identified and labeled in certain manner, and I will develop record reference that they determine those, not the contractor or the so-called contractor. In fact, the contractor had nothing to do with it but to carry out orders as any other employee.

The problems of this fertilizer grade ammonium nitrate program came tumbling along; much too rapidly for the ready solution of each phase. One was the War Department found itself in June 1946 and prior thereto unable to ship and deliver to occupied and devastated war areas the fertilizer grade ammonium nitrate it had already committed itself to deliver; in other words, in 1946, in Korea, in Japan, in Germany, the War Department had committed itself to supply so many tons of nitrogens and so many tons mixed with sulfates or anything else. In this case they were using the ammonium nitrate fertilizer grade, which is this FGAN. They had committed themselves to supply this material and didn't have it. They began looking around.

There was at that time, as I pointed out to you, some private manufacturers of this material in the year 1946, but they were—and I will get to it—under two processes, one commonly known as the Oslo crystal process and the other the prilling, the shotting method, whereby they dropped it down and it worked into pellets. They were not using these coatings that were involved in Texas City. The Government went to the commercial producers and asked would they sell this material to it for the purpose of meeting its commitments in these

areas. They would not do so. They said their domestic markets needed it.

Next we come to a phase that you gentlemen probably are familiar with. The Government then resorted to priorities, the MM and the CC priorities, and they required these commercial producers, with the agreement of return, to deliver to the Government for distribution in these areas 60,000 tons of FGAN, and here's how that occurred—I am quoting now from the Director of War Mobilization:

Until the ordnance plants get into production, it will be necessary for the War Department to borrow some fertilizer from existing world production. This will be repaid in kind within a few months. (Record 25820.)

So again the coincident of why these ordnance plants were reactivated lies in this factor: The Army had overcommitted itself, it couldn't get the material from the commercial producer; it thus had to get the material by MM and CC priorities, and it had to set up and reactivate these plants to make enough to supply back the return, and the other needs developed.

From this point forward the program was not too complicated, because there was nowhere to borrow the FGAN except from these commercial producers I pointed out; so by the tight control of this agency over all of the world's production they took from these commercial producers the tonnage required to meet the commitments. Here is a commentary you will be interested in: So tight was the control by way of priorities by this food board and war production that the Army itself, which was then manufacturing 30,000 tons through other facilities, could not use that output for its own overseas requirements because the board wouldn't allocate it, so they made it themselves and still had to go to other fields and had to go out and borrow it under this plan of return (Record 13989, 14025, 14042-14043, 14045-14046).

The Army had to agree, and this is the control board, with Civilian Production Administration and the Combined Food Board that in return for the War Department's agreement not to demand additional fertilizer those boards would approve the Army's request and loans from commercial and private industry of 60,000 metric tons of nitrogen to be replaced from Ordnance production in the spring of 1947, and that's how Texas City gets into the picture.

The source of this borrow program and shipments is Government itself. Procurement Directive NY-S-4006 (47) (CIV) went from Quartermaster General to War Department out to these commercial producers and they just had to give (Record 25675).

Showing the continued unwillingness of the Government at any phase to release any control over this material and the return, which was the material exploding in Texas City, this procurement order itself provided redelivery of amounts procured after January 1, in accordance with the conditions approved by the Combined Food Board, and that was the dictator, the czar of this whole operation, including every bit that went to Texas City (Record 25676).

Lion Oil Co. was to feel directly the conditions imposed by the Combined Food Board. Therefore, there was no relation left in the private contractors, including Lion Oil Co. They were under the priority regulations required to furnish the supply of FGAN necessary for the Army commitments in 1946 (Record 26052-26054).

General Fellman's report, July 24, 1946 (Record 26007-26008), as a part of this report, lists the actual allocation by CPA to named suppliers, including Lion, and states that "Contracts with all the producers carry an MM preference rating."

The next phase of the Government and emergency program in fertilizer was this. Though France was not an occupied country, it began clamoring for aid in developing its agriculture and enlarging its crop production. On June 6, 1946, the Office of Industry Advisory Committees was occupied for a meeting of Nitrogen Producers Industry Advisory Committee. It was presided over by J. W. Wizeman, Chief of Inorganic Branch, Chemical Division, Civilian Production Administration. One of the purposes of the meeting was stated to be to determine estimates of nitrogen available for agriculture for 1946-47 to meet domestic agricultural supplies and requirements for areas occupied by United States forces. That was the stated purpose. It didn't limit it to that. The position was taken by the Government that so long as the Second War Powers Act was in force the committee continues to function with the same limitations and immunities which existed during the war.

Here is a significant statement:

Exports—

see, they get beyond the occupied areas now; that has to do with this contract with Lion Oil—

exports exclusive of contemplated amounts for Japan, Germany, and southern Korea, are somewhat increased for 1946-47 as a result of Combined Food Board action (Record 20896).

The whole War Department emergency as to this FGAN operation is probably expressed in this report we are examining. Mr. T. Voorhees, of the War Department—he was the Under Secretary—reported that the War Department had, under the directives of the President, a responsibility for administering to the occupied areas so as to prevent disease and unrest. After examining the requirements for the year 1946-47, Mr. Voorhees makes perfectly clear that the three ordnance plants making the material at Texas City were doing so as a wartime measure, with this language:

As ordnance plants are now idle, it has seemed logical to those working with the problem to reactivate these plants in order to meet the requirements without detriment to the domestic economy.

Mr. Voorhees continues—

Authority has been obtained from the Office of War Mobilization Reconversion to reopen these plants for the production of ammonium nitrate—the form in which occupied area requirements can be most feasibly met, it is believed.

Mr. Voorhees, again in his reports, emphasized that this was a purely temporary program, and this is quoted:

Army Ordnance has no interest in going into the fertilizer business in competition with the industry or in participating in fertilizer production any longer than is absolutely necessary.

The chief difficulty is, however, that these plants cannot begin production soon enough to meet the requirements, which are immediate ones. For this reason, the War Department would like to have 60,000 metric tons nitrogen advanced by the industry, to be repaid by the ordnance plants at the rate of 30,000 tons during the first quarter of next year and 30,000 tons in April 1947 (Record 20897).

That probably supports the statement I made a moment ago, Army Ordnance regarded this as a temporary emergency, I mean they got it through and moved on; that probably accounts for the reason they didn't make the right tests, they didn't go into it. They didn't treat it as they would have if it had been a permanent part of their program. At any rate, they appeared to treat it solely as something they had to do and get through with.

Now, here's how industry reacted to the Army and Mr. Voorhees. I am quoting:

Industry members felt that the proposed plan would be definitely disrupting to American fertilizer customers, and they considered it unfortunate that the burden would fall so heavily on the ammonium-nitrate producers (Record 20897).

They thought UNRRA should cut back, and all these others. UNRRA didn't. [Reading:]

The committee members also pointed out that the CPA would have to develop some means of planning equitable distribution among ammonium nitrate manufacturers after the basis of the plan has been broadened as far as possible (Record 20897).

We close on the question of how France gets into this picture, and she did it without Lion Oil knowing anything about it, any consultation between them whatsoever. We are concerned with the meeting of November 7, 1946, of the Nitrogen Producers Industry Advisory Committee at the same place in Washington. The purpose of the meeting is stated to be:

The Nitrogen Producers Industry Advisory Committee met on November 7, 1946, to discuss means by which CPA—

that's the combined, and so forth—

will be enabled—

and mark this well, please—

to meet International Food Board allocations of ammonium sulfate and ammonium nitrate to foreign countries and United States possessions (Record 20900).

This is where France begins. This is in November 1946 before the material is ever manufactured that explodes at Texas City, before Lion Oil Co. has even delivered the material it was forced to deliver to go to Korea, but France gets the priority. Mr. Frederick Arden, Chemicals Division CPA, served as Government presiding officer (Record 20900).

On the subject of ammonium nitrate, Mr. Arden distributed a chart showing the quarterly allocations of ammonium nitrate for export for the fertilizer year (Record 20904). On ammonium nitrate this significant statement appears:

In answer to industry protestations that it has exported 71½ percent of production since June, he replied that it is a net percentage only, and most of it will be returned from nitrate produced under the Army program (Record 20904).

Now, on the position of industry which bears on the question of whether the material exploding at Texas City ever got loose from Government control and direction is this statement:

Several members of the industry call attention to the position in which they will be placed if, as is suggested, the Army ships its nitrate production to other countries instead of returning it to the producers as originally promised. One member said that he had made commitments to fertilizer companies in lieu of the amount shipped to the Army and the return of the Army nitrates is depended

upon to fill these commitments. \* \* \* Mr. Arden said that while the situation was new to him at the time of the last meeting, he was aware of the existence of an export policy and had believed it to be of such common knowledge that the industry had made it a part of its customers setup—

and the words are written “tup” in the Government print. I don't know what that means.

He reminded the committee that, if any more nitrate is acquired by the Army, the amount furnished would be returned, in addition to what is already due. As a matter of fact, Colonel Freed and Mr. Arden pointed out, the supplies can be returned directly to the industry if such is the industry's desire (Record 20905).

Mark this language :

Since like quantities must be exported, however, it would eliminate double handling if the Army were requested to ship it directly to the port—

and that's what happened at Texas City (Record 20906).

There's a commentary on that. Mr. Steelman, who succeeded Mr. Snyder, sought to cut through the redtape and indirection of the matter. Instead of having this material assimilated through the original companies they had borrowed it from, he issued an order requiring it to go direct to these countries. Well, that was a little too onerous. There was a lot of objection that the Government would be put in the position of breaching its word to return the material in some fashion, so they then used the device which was employed through Lion Oil Co. of the priorities and the so-called return of the borrowed equipment, but they ordered it sold to France, the same place that Mr. Steelman had already directed it to go. In other words, there was some deviation of method but not of objective.

Mr. HYDE. Right there you say the use of the private industry for transportation purpose here was merely a device complying with the agreement to return the fertilizer?

Mr. BRYAN. Yes, sir; two things it was used for; one was this whole program originally was set up to take care of occupied areas only. France was not an occupied area, but somebody high in authority wanted to give France the material, so they had to go through an apparent sale and return via this contractor so it could go to an unoccupied area, and, second, because Mr. Steelman's order had been criticized for creating the condition of the Government welching on its return which it originally agreed to when it took the material for Korea. It was going to return to domestic use the same tonnage, but when the Government decided in November, before the stuff was made, that France was to get 27,000 tons and it gave the priority and they named Lion Oil Co., long before Lion had ever heard they were going to get it back or have anything to do with it.

Mr. HYDE. Then on the basis of that, that would render not even worthy of consideration this discussion and argument about when title passed?

Mr. BRYAN. I think so, and if you care to consider the legal aspect of it, it makes no difference whether title passed or didn't pass legal-wise, but I am trying to persuade you gentlemen on the basis of the just plain garden variety of the thing. I think you are right. I think that's a well-directed point, because it was the appearance of the magician's mirror. The contract and all of this procedure really meant nothing because the Government had already committed the material and directed its course.

Mr. JONAS. You are talking about the French commitment now?

Mr. BRYAN. Yes, sir.

Mr. JONAS. Your contention is that regardless of what was done subsequent to the date when the commitment was made, there was a definite commitment to France to deliver so many tons of fertilizer?

Mr. BRYAN. Yes, sir.

Mr. JONAS. And that was made before they had any plans set up?

Mr. BRYAN. Before they went into operation, before the material was made, before Lion knew anything about it, before there was any relationship with Lion except when they got the material to go to Korea.

Mr. JONAS. So the Government had to meet an obligation and do so by producing this fertilizer, and it was then that they set in motion all those instrumentalities you speak of?

Mr. BRYAN. Yes.

Mr. JONAS. And landed down here in Texas City and culminated in these explosives?

Mr. BRYAN. That is correct, sir.

Mr. JONAS. Mr. Hyde, did you raise the point that the title may not make any difference in this case?

Mr. HYDE. Yes.

Mr. JONAS. Any further questions?

Mr. HYDE. No.

Mr. BRYAN. Again industry comes back up there, including Lion Oil. We have wires in here from Lion Oil saying listen, this stuff, if we ever get it back, we want to send it to our domestic buyers, but this is the meeting where all this decision was made in November 1947.

Mr. JONAS. Are you taking, Mr. Bryan, this matter in chronological order the way you have prepared it?

Mr. BRYAN. Yes, sir.

Mr. JONAS. You haven't reached the Lion Oil Co. yet.

Mr. BRYAN. They come in January 10.

Mr. JONAS. Excuse me. Go right ahead.

Mr. BRYAN. Am I making this too detailed for you?

Mr. JONAS. No, quite all right.

Mr. BRYAN. We have an enormous problem of trying to cull out of the record a connected story.

Mr. JONAS. It is in very good form. I think we are satisfied with it. That's about all that can be done with the enormous amount of material.

Mr. LANE. Before you go on any further, would you tell the committee why the United States Government was anxious to deliver this fertilizer in France, these twenty-seven-thousand-odd tons?

Mr. BRYAN. Well, this is not in the record, Congressman, but we were told, and I think on competent authority, that France was threatened with a Communist government, and that the complete structure that had been set up in France to hold the line, so to speak, and bring France back to a healthy governmental position was in severe danger unless they increased the production of food.

Mr. LANE. I had read that some place, but wanted you to bring it out.

Mr. BRYAN. That we were told. I am not able to point directly. Mr. Voorhees did testify broadly on that basis in the case, that it was

necessary on this and all these other fronts to deny the domestic consumption here in America to save the picture, as they sought to develop it, in the continent.

Mr. LANE. So it was more important to supply it to our allies, France, than to give it back to the—

Mr. BRYAN. Occupied area.

Mr. LANE. Occupied area and the farmer producers.

Mr. BRYAN. Yes, sir; and that was because, as you see, they just simply go, this whole—well, I have stated that, but they simply ignore the necessity of shipping only to occupied areas, the appropriations were for occupied areas, and if you will look when it went through Congress it was limited to occupied areas, but this device is the strategem or the means by which they contain themselves within the law and yet serve the need in France, as I understand it.

Mr. LANE. They transferred the funds from another appropriation to take care of this?

Mr. BRYAN. Yes. You know the War Department paid this out of their own moneys, the shipping and such as that, and I have reference to the particular fund that was used.

But industry was outraged about it. They are told here by Mr. Arden that—

all the figures would have to be changed before that could be done, because all known carryovers had been taken into consideration at the time the export allocations were made (Record 20906).

Industry came back and said, "Look here," to this Combined Food Board, "you have got some carryovers that you haven't used up for Korea or Germany, give us that at least to use for domestic use." This is Arden, and he is saying that even the carryovers are going to be used. Now we close that phase (Record 20906).

Mr. Finn, of the Department of Agriculture, states:

The nitrogen condition throughout the world is more serious this year than ever before, he stated, since war-ravaged nations are now arranging their agricultural work and can use fertilizers.

You see the predicate coming in for France. "The situation"—and here it is in a nutshell, this is Department of Agriculture, I am quoting—"The situation is most critical in France and nations served by UNRRA where short rations and actual starvation exists."

He emphasized that any assistance this country can give will still leave it in a far better situation than the rest of the world (Record 20906).

and that's the beginning of the French program. That's the story of Lion Oil. They knew nothing about it.

Mr. Arden disclosed the desire of the Government that commitments for the amounts in excess of what is to be returned by the Army during the third and fourth quarters be made with representatives of the foreign countries immediately (28,000 tons) to assure them that it will be shipped soon. In case domestic pressure is too great to permit voluntary commitments, he stated, the Government can rate the business to remove responsibility from the shipper for prior domestic commitments (Record 20906).

In other words, they were forcing Lion and these others to break the contracts of industry.

The industry was told that, even though an order is rated, the producer can choose his own customer and handle his own deals. Several industry members preferred this method to letting a Government agency make the contract with the foreign country. \* \* \* A number of industry representatives indicated that

the supplies would have to be rated by the CPA, since they could not voluntarily assume the responsibility of taking nitrates out of the domestic economy, but they wished to make their own arrangements with the countries involved (Record 20907).

The Federal allocations of ammonium nitrate thus were, on November 7, 1946, by table B (Record 20901) for France and colonies fixed for the year, first quarter of 1947, as 18,000 tons, and that's part of the material that was going through Texas City. A part of this was the material exploding at Texas City. The allocation to France was made long before the material was even manufactured in the ordnance plants and quite a time before Lion Oil Co. had any idea that it was to figure in the transaction (Record 20901). The Lion Oil contract, so-called, for return of the material involved in Texas City in part was not even written until the 10th day of January 1947. As Lion Oil Co.'s telegram of July 25, 1946, shows, they were required to ship for the Government in that year, and Lion Oil did not want to ship on the amount the Government proposed to return. The wire concluded:

Our ammonium nitrate fertilizer is urgently needed by domestic fertilizer manufacturers throughout this country (Record 25687).

As stated, long before the material exploding in Texas City was made, the French had received a commitment for it. On about September 23, 1946, the French Supply Council, acting for the Government of the French Republic, filed an application with the Civilian Production Administration, of Washington, D. C., for approximately 43,643 short tons of FGAN (exhibit, Record 21776).

The first authorization was for 20,000 short tons with a CC rating. Now that has come in, and that was even higher. At page 21776a the suppliers' names and addresses having the material from which the French could force delivery with the priority rating were named, including Lion Oil Co. On January 21, 1947, additional authorization for 26,997 tons was approved by the Civilian Production Administration (Record 21776B). Record 21777-21779 is an illuminating instrument. It is a memorandum in the Civilian Production Administration's office reading, in part:

As you know we have been informed that the U. S. Army is now returning to producers the tonnage of ammonium nitrate which they had borrowed. Our Chemicals Division states that these producers are reluctant to ship for export either from this returning tonnage or from new production and, therefore, the United States Government commitment is in danger of not being fulfilled. Mr. Hart, Chemicals Division, is of the opinion that the only method by which this export requirement will be filled is through the use of a CC rating authorized to cover these unfilled balances.

Whether in terms of dramatics or not, this was the disposal of production that France put on the back of Lion Oil Co. theoretically, and these paper transactions are gone through because of it.

Mr. JONAS. Let me interrupt you just a minute for an inquiry. Was the case tried in your local court, the Federal court here, and ultimately taken up to the United States court of appeals taken on oral arguments?

Mr. BRYAN. Yes, sir. It was, indeed, and all of this was argued, and it's in the briefs, of course.

Mr. JONAS. But there's amplification of the arguments and parts that the attorneys may wish to emphasize in oral arguments?

Mr. BRYAN. Yes, sir; and I want to point out that in the circuit court—as far as that goes, in the United States Supreme Court—there

was only about 45 minutes allowed. It is in the briefs, but you could not give probably as much emphasis as I have been able to give you here.

Mr. JONAS. That's the reason I am questioning you. In an involved matter of this kind, where you have documentary data running into thousands and thousands of pages, your oral arguments wouldn't even scratch the surface.

Mr. BRYAN. That's quite right.

Mr. JONAS. And, unless you can follow the logic and have enough time for oral argument, as I see it, this is rather an involved proposition, and you have to just take this whole picture from beginning to end and observe how the different elements fit into the pattern as it points up finally to the causes which culminated in the explosion.

Mr. BRYAN. You are certainly right. Unless you do that, you admit confusion and uncertainties and shadings; but, if you follow the sequence of this, it at least is our view that you can't escape the simple fact that this was all committed out—this was made, it was committed, and it was directed from the time, I suppose, the anhydrous ammonia went in the tank cars to these several plants.

Mr. JONAS. There is this to be said about it—and I am in no position to make any final commitment—but there is this to be said about it as far as you have gone, if we are to take the record as presented here—and undoubtedly that is the record because you are quoting from it—the Government got into this thing as the, well, we might say the original producer; it was the Government's idea, the Government's job, the Government's obligation, and all through this proceeding there was no way of shaking the Government out of this if they were going to carry on. Now, if the Government can't be shaken out of this, that's probably a crude way of putting it, but if the Government is in this picture, and regardless of whether it's remotely or directly, what answer do the courts give you in the oral argument, or didn't any of the judges ask any questions relating to the points that the Government was not in this as a prime contractor or factor that controlled the element that ultimately ended up with this explosion? Was that discussed at all in the questions that they asked?

Mr. BRYAN. There were no questions in circuit court, Mr. Chairman, and here is probably the reason. The Government, in the appellate courts, has never made any real attack on these facts. It fought it out on the narrow issue that this exclusion or exception of discretionary function took it out.

Mr. JONAS. I see.

Mr. BRYAN. The Government, Government counsel is not here to speak for themselves, but I was all the way through the proceedings.

Mr. JONAS. That was my reason in asking the question.

Mr. BRYAN. They never really have questioned these facts. Their defense lay within the very, very technical harbor of that exception, so it did not produce a full discussion with the courts even in the limited time of these aspects here. The discussion, the argument, and almost entirely in the Supreme Court was entirely limited to whether or not that was the reasonable construction to give to that exception.

Mr. JONAS. The Government took the position—

Mr. BRYAN. We lost on that—sir?

Mr. JONAS. The Government evidently took the position from what you stated that they were sympathetic to your cause; they conceded

everything in the record you had well pleaded as true; but said nevertheless under the law, under section 1 of the Tort Claims Act, you couldn't recover?

Mr. BRYAN. That was one, and the second was they undertook the impossible in the beginning and tried to hang onto it and claim that this material was not explosive. I will have to leave that to your consideration. We thought it a frivolous defense, but they took it, but they never made any action on the facts after we got past the trial court.

Mr. JONAS. Did they have the opportunity to see the picture produced here?

Mr. BRYAN. Yes, sir.

Mr. JONAS. And they were still unconvinced?

Mr. BRYAN. I have about 10 counsel here to support me that Government counsel would open up every day with the rhyme that it was not explosive.

Mr. HYDE. They did take issue; however, with the facts in brief?

Mr. BRYAN. They do, but it is not a serious issue; they do, in the circuit court and in the Supreme Court, Mr. Heiser was delegated the argument on the facts in the circuit court. He made a very short argument, I don't think it was 20 minutes, and he took issue primarily on the basis that this material was not explosive, the Government had no reason to be apprehensive about it, that ammonium nitrate had been shipped—now, these are his approaches—and they hadn't had an explosion, the theory being that the dog is entitled to one bite or more without liability. That was the approach, and if you will read the briefs, we will welcome you reading the Government's brief because you will see and go back a few times to the record references, you will see that the facts are just as we are contending they are, and the Government references are frequently the ones we are relying on. But the whole attack in the appellate courts was on the basis of these exceptions, or this exception. They used 2; as a matter of fact, the Supreme Court disregarded 1 of them. They used one that this was the performance of a statute or ordinance which took it out. The Supreme Court didn't even consider that. It dealt only with the discretionary function, but in the circuit court, the intermediate court, the Government stood strongly on those two which appears disjunctively as the exception agent.

Mr. BRICKFIELD. Mr. Bryan, to what authority or authorization did these responsible officials in Washington point in order to expand this program from occupied territories to unoccupied territories like France?

Mr. BRYAN. They never did, except Steelman's directive which was quickly withdrawn, when it was found they had no authority to ship to unoccupied areas. He was going to cut through the tape and ship this Army stuff straight to France.

Mr. BRICKFIELD. Did they give priorities to countries other than France?

Mr. BRYAN. Yes.

Mr. BRICKFIELD. Italy, for instance?

Mr. BRYAN. Yes. If you will find for me, please, exhibit, Record 20901, there's an exhibit B there which I think will show the list of countries, which were all unoccupied, that were receiving this material. Not Czechoslovakia, but down below there in the Balkans.

Mr. THOMPSON. Yugoslavia?

Mr. BRYAN. Yes, I believe it is, but there's a list there. It's exhibit B. If you wait, maybe I can give you it. It is table B, the Federal allocations of ammonium nitrate as of November 7, 1946, and look at exhibit, Record, 20901.

A VOICE. That's not it.

Mr. BRYAN. Look at page 21776.

Mr. JONAS. Would you like to suspend for a minute?

Mr. BRYAN. Yes.

Mr. JONAS. We will take a 5-minute recess.

(Short recess.)

Mr. JONAS. The committee will be in order, and the gentleman will resume with his testimony.

Mr. BRYAN. Mr. Chairman and gentlemen of the committee, in my stenographic transcript we had some numbers transposed. We were speaking, at the time of the adjournment, of this allocation in November 1946, worldwide to unoccupied areas (Record, 20901), and it is not only France but other areas.

Mr. JONAS. This is a point that was pressed by Mr. Brickfield.

Mr. BRYAN. Yes, sir.

Mr. JONAS. And this is in answer to his inquiry that there were other countries who were given priorities besides France?

Mr. BRYAN. Yes, sir; and you will see France is stated there about the middle section—France and her colonies as well.

This is quite a departure, you see.

Mr. JONAS. Yes; that is stated here as the following and goes on.

Mr. BRYAN. Puerto Rico, the Philippines.

Mr. JONAS. The Netherlands.

Mr. LANE. Latin American Republics, France and colonies, Netherlands, West Indies.

Mr. JONAS. East Indies, Netherlands East Indies, and Finland. Here is your list, Mr. Brickfield.

Mr. BRYAN. This is the departure between occupied and unoccupied and the production had not been set up for that.

Mr. BRICKFIELD. Would I paraphrase your statement correctly if I say that what these responsible officials could not do directly they sought to accomplish by indirection?

Mr. BRYAN. That's a completely accurate statement of my view; yes, sir.

Mr. BRICKFIELD. How did they accomplish this indirectly? Did they have this combined production administration issue priorities or what?

Mr. BRYAN. Yes, sir. In November 1946 on that list you see there were MM and CC priorities issued to those particular areas, France included, and on each priority was listed the name of the company where you, as the holder, may go and force the production. Among those was Lion Oil, who was, in turn, to receive someday the return material from our production.

Mr. BRICKFIELD. But when Lion Oil came into the picture they had these priorities staring them in the face and there was nothing they could do but to commit their fertilizer to these priorities?

Mr. BRYAN. Here's the way it went: They just simply had to accede to the way the Government wanted it done. France went to Mr. MacIntosh, of the Quartermaster Department, in New York, their pro-

curement office. MacIntosh issues these orders to these Army Ordnance plants to ship in this fashion. It is true that they then contacted Lion Oil Co. and they tell them that they can get this back but they have to send it, have to dispose of it according to Combined Food Board conditions, as I read you here, and then France goes to the Lion Oil Co. and presents these priorities. The Army then makes its return contract with Lion Oil Co. on January 10, 1947, some 3 months nearly after they have already committed the stuff to France. The plan of the return to Lion Oil Co. and shipment is accomplished in this fashion: Quartermaster's office in New York orders the plants to ship. They are shipped under War Department direction to the account of the French Supply Council's representative, Latta & Co., at Texas City. They are shipped with the instructions on Government bills of lading to consignee, French Supply Council, with return of bills of lading to Lion Oil Co. Lion Oil will, under that contract which they, in turn, have made with the French Supply Council representative in New York, present these bills for payment and upon the deliveries of the bills title will pass.

Mr. BRICKFIELD. I didn't wish to go into that phase until you reached it in your statement.

Mr. BRYAN. Since the point is up, may I show you the type of shipping papers they employed, or would it be of interest to you?

Mr. BRICKFIELD. I think you should hold off until you come to them in your statement.

Mr. BRYAN. Now, Mr. Hart, who was with the Food Production people, and we took his deposition in Washington, testified at Record 9260, that the French Government, armed with a priority, would take such to Mr. MacIntosh in the Quartermaster's Corps of the Army in New York and Mr. MacIntosh would issue proper shipping instructions to one of the Army Ordnance plants.

Lion Oil Co. just never was anywhere near the production, manufacturing, the shipping, the packaging, or the filling, or the handling of this material, as a practical realistic fact. They simply were the agency that was employed for the device we have been talking about. The Government could use Spencer Chemical or anybody else, and they did so; they returned to other people in the same way and they were forced to send it on. That's our predicate of our view, first, that the Government was never loose from this material and was controlling it all the way through. They paid the transportation out of War Department funds. Second, that, of course, it makes no difference legally at least where the title is present or who has possession if the material is dangerously prepared and distributed into public commerce without warning and notice.

Now I should like to offer some general views and experience of the Government with FGAN as an explosive and as a fertilizer. The Government had been making, as is well known, explosives containing a very large percentage of ammonium nitrate for more than 75 years. There are, as I indicated earlier, more than 120 mining and blasting explosives for rock and for quarry and such as that which is called the approved list of explosives. Digressing only for a very second, Bureau of Mines has jurisdiction of that. That Bureau examines explosives as to their working suitability and the hazards involved, and they approve or disapprove for blasting and use in mines and for shipping and under the various mining control pro-

visions of States and Federal Government. They had approved a list of which I say 129, I believe more than eighty-some-odd with practically pure ammonium nitrate. As such, that's no new product at all. But after RDX came in, the Ordnance Department of the United States Army, advising and consulting with TVA, undertook, and with other producers like du Pont and Hercules, to work out something to do with TVA's facilities. I touched on this earlier, and they felt the necessity of doing something with them for the general broad public good, because it was publicly owned facilities. But let's back up behind that.

Ammonium nitrate is a very old salt. In 1835 Turner's Chemistry said:

When this salt (ammonium nitrate) is exposed to fire, it liquefies, emits aqueous vapor, dries, and detonates.

Now, that's pure ammonium nitrate. This quotation appears in C. E. Monroe's article, *The Explosibility of Ammonium Nitrate*, printed in 1922. He was quite a famous explosive expert, at one time with the Bureau of Mines. It is quoted with approval in the Bureau of Mines official bulletin, No. 7463, styled *Ammonium Nitrate, Its Properties and Fire and Explosion Hazards*, dated June 1948 (Record, vol. 26, p. 21859 et seq. at p. 21861).

Mr. LANE. Was that first date 1835?

Mr. BRYAN. Yes, sir, thus more than a hundred years ago it was learned that ammonium nitrate was a high explosive. The French scientist, Berthelot, in his book exposes that power in 1833. He stated:

Ammonium nitrate from a point of view of its volatility and on account of many considerations may be regarded as a typical explosive substance (Record 21861).

Because of these and many other statements in the literature and experience in Monroe's article accepted by the Bureau of Mines, that official testing agency of the Government naturally restated it:

The foregoing record shows beyond question that ammonium nitrate under certain circumstances is by itself explosive.

Aufschlager, a German writer, found the material to be explosive and dangerous, holding the same to be "a brisant explosive." (Record 21862). Jones exhibit 4 is not published in that printed record there but is a part of the transcript, the typewritten record made in the trial court. It contains a bibliography of 115 references, including the Bureau of Mines survey and study of literature—and that's where it came from—covering a period from 1830 to 1947. Each of such references discusses the dangerous proclivities and characteristics of ammonium nitrate and sulfur mixed with other contaminating materials. The Bureau of Mines, through many years, has recognized, through its publication of safety manuals, ammonium nitrate as a high explosive, and so classified it as such.

The Army Ordnance safety manual, which is the guide and the bible for all personnel of Ordnance dealing with explosives, even manufacture, shipping, storage, and such as that, the 1945 edition (Record, vol. 33, pp. 25139-1 et seq. under subdivision C of par. 70) has this language:

When compounded with combustible substances, nitrate is a violent fire and explosive hazard and may be subject to spontaneous ignition.

That's what we think happened in the *Grandcamp*. Spontaneous ignition and combustion, because of the heating of the very high temperatures and the exothermic character of the materials which give off heat; I will get to that later. But we are pointing out that the very agency of the Government which undertook reluctantly the manufacture of this material had this information available to it through its own information and through agencies like the accepted Bureau of Mines and others, and the accepted literature (Record 21876-21883).

Mr. HYDE. Right there, didn't the test show that in order to explode, that is, any prior tests, it had to be under pressure, and didn't the Government argue that there had never been any proof of this material being an explosive except under high-pressure conditions?

Mr. BRYAN. No, the Government, if I may offer this, what may appear to be a correction, the Government argued that prior to Texas City it had never been exploded except by boosters, detonators, caps, and such as that like you do in mining explosions and dynamite and that sort of thing. We were able to dissolve that. You see, they made tests after Texas City. They took the position that there never had been any explosions which involved an ammonium nitrate except under high pressures. We took the position it doesn't make any difference whether it is likely to be involved under high pressure, low pressure, or where. The Government had the duty of finding all this out. After Texas City, Picatinny Arsenal, Aberdeen Testing, and War Navy Board on explosion, some of them proved the point that Dr. Nuckolls warned them about, for fear of explosions where large masses were confined which, of course, become the ideal situation where the mass is shipboard. But the Government took the position that it wouldn't explode at all. In fact, they brought in the theory that this was sabotage. They next brought in the theory that 16 cases of small-caliber ammunition blew it all up.

Mr. JONAS. Did they actually produce testimony or attempt to produce testimony and try to show that this explosion may have been caused by saboteurs?

Mr. BRYAN. Yes, sir, they produced.

Mr. JONAS. What did they produce?

Mr. BRYAN. They showed that over in New Orleans, the port of embarkation, which would be down at Braithwaite, they showed that there was found in there a candle set in among a lot of paper in a boxcar which had burned out. I don't know. The court said he couldn't see how that had any relationship to this down at Galveston. But nevertheless that was the theory of sabotage, because that was discovered there was sabotage here.

We were met, Mr. Hyde, with a fiercely aggressive attitude on the part of Department of Justice which, if I may be permitted to say, I thought was much fiercer than the Army had; we dealt extensively with Ordnance and JAG and all others. They never seemed to have the extreme feeling that this must be fought out and this must be defeated on any ground we can achieve, so we have met any number of defenses.

Now, this same—and here is the core, the very thing you asked, Congressman Hyde, if the Government took the—at least Justice took

this attitude. This is said at paragraph 4 of the manual, safety manual:

Ammonium nitrate may be exploded by relatively light ignition as it has been sensitized by impurities such as carbonaceous materials (record, 25139).

The point was it does not take caps to blow it off or some booster or some exciting explosive, that it itself may be an explosive.

Now, Dr. R. M. Cook, in 1924, B. T. exhibit 599, not printed in this record but available, stated:

The explosive industry has for a long time been acquainted with the fact that ammonium nitrate readily enters into and contributes to explosive mixtures and under conditions may be brought to detonation without being mixed with other explosives.

If you bear with me a moment, as soon as I find it here somewhere, Berthelot's seven different conditions of this composition, you will find that it does warrant and point out that under heat and confinement alone it will explode, which is precisely what happened at Texas City, and that was in 1835.

Here we go a little further. This is Cook on confinement, back in 1924. Confinement is an effective element and agency in promoting the detonation of an ammonium nitrate, and may I offer this suggestion, all I am reading here now talks about ammonium nitrate pure. The enormous distinction to keep in mind always is this conditioning agency made it the dangerous explosive we are talking about; what they are talking about has no coating material on it. That's pure ammonium nitrate, but it itself was explosive, and here's what Cook says about it when you add these petrolatums:

These results show the decided effect of a small percentage of organic material—

and that's the coating agency—

in increasing the sensitiveness of ammonium to detonation. The maximum effect was shown by 1 percent petroleum. Two percent of this material caused less fragmentation but probably more action than 1 percent TNT, which had a greater effect than one-half percent TNT.

I want to bring back the point I made earlier in these commercial explosives using ammonium nitrate; they reduced it by using larger quantities than 1 percent and three-quarters of 1 percent and they are not the figure or the animal as General Hughes refers to it that we are talking about here. He made that very expressive statement that FGAN was an entirely different animal from ammonium nitrate pure.

In 1933, the famous explosive expert and writer, Tenny L. Davis—and I should point out we found in the libraries of the Government agencies all of this bibliography. This material was there if anyone wished to read it and apprise himself of it—the famous explosive expert, in his *Chemistry of Powder and Explosion*, says:

The sensitiveness of ammonium nitrate to initiation is increased by the addition to it of explosive substances such as nitroglycerin, nitrocellulose, or automatic nitro-compounds.

Further:

All of nonexplosive combustible materials, such as sulphur, charcoal, flour, sugar, oil, or paraffin—

and that's precisely what the coating material PRP was made of.

Again this is Davis:

Substances of the latter class—

and that's talking about the paraffins—

react with the oxygen which the ammonium nitrate would otherwise liberate. They produce additional gas and heat and increase both the power of the explosives and temperature of the explosiveness.

Dr. Melvin A. Cook, a witness offered by the claimants in their legal proceedings, physical and explosive chemist, professor and theoretical metallurgist, University of Utah, Ph. D. 1937 from Yale University and physical chemistry, based on his training and experience and background of 10 years as a research chemist on explosives with duPont, including ammonium nitrate explosives, Record page 13050, testified:

It has been fundamental that carbonaceous material and ammonium nitrate make an explosive mixture.

Record page 13054, this is Dr. Cook still testifying, stating that FGAN is an entirely different animal and material from ammonium nitrate and would have different reactions. The compositions of the products of reaction would be "quite different" (Record 13059). When asked about the critical range of sensitivity produced by the organic material such as the coating used on FGAN, Dr. Cook answered, and I, subject to the correct quote—I am sorry, would you get it?—she's left some blanks here (Record 13059):

The addition of waxy materials in percentages from three-quarters to 1½ percent produces a maximum sensitivity of ammonium nitrate hydrocarbon type of mixture (Record 13071-13072).

Saying this is the most critical range you could have with that combination, Dr. Cook, without reservation, testified about FGAN, and he said, and I am quoting:

It is an eminently and inherently dangerous and hazardous material (Record 13103).

Dr. George B. Kistiakowsky, of international repute, a professor at Harvard School, and associate of Dr. Busch in the atomic research, testified extensively without qualification that this FGAN was an inherently dangerous and high explosive, and he left us with the acid comment that most anyone that was familiar with explosives at that time and prior to Texas City should have known that.

Mr. BRICKFIELD. Mr. Bryan, did the Government produce any of its own expert witnesses who testified in rebuttal to this or testified in conflict? I mean, I can see where you would have expert witnesses giving or pointing up one side of the issue favorably to the petitioners, if that's the case, and the Government would come back with its own expert witnesses and try to refute those claims.

Mr. BRYAN. They did. They produced—but may I offer this comment—quite a list of men, but whether by design or necessity, or what, these men, except for one, Dr. Rickenbach, chief explosives expert at the Picatinny Arsenal, none of them was an explosives expert. They were superintendents at the manufacturing plant level. They did not have either degrees in chemistry or such as that, simply process men. No one was an explosives expert except Rinkenbach, someone who had been in that field. This is not said lightly. I believe the record will bear out that the only thing they testified to was that prior to Texas City they had not considered ammonium nitrate a dangerous explosive. But again, the distinction that this is not ammonium nitrate, it is FGAN, to use the abbreviation.

Additionally, I think you will find, and we would solicit earnestly your review of their testimony, that on cross-examination they not only acceded to our theory, they were required and did testify to these combinations and finally came up with the proposition, yes, there were two theories about it; some thought it was and some thought it wasn't, and here is for us the punchline: We asked them, "Well, if there's a question about it wouldn't you have tested to find out what the real answer was" and I think without fail, Kaffke, Allison, and Rinkensbach, who wrote a report which we found in the record which directly refuted his earlier theory, said yes. They had to say yes. You have to test if there is uncertainty. Our point is that they didn't, I suppose, because there was a war on.

Mr. HYDE. Right at that point, isn't it true that they had never been able to explode it by tests?

Mr. BRYAN. No, sir, that is not true, and I will give you some examples, going back to 1898 (Record 21863). That is not correct. The Government did take that position, but I think you will find it failed then and failed with the district court and I think it will fail with you when you hear the list of explosions that did occur without detonation by boosters or excitors or caps or such as that. Heat alone springs in. In 1898, 18 pounds of it was being heated and they got it too hot (Record 21863). In those days they didn't have the narcotics we have now and they were making laughing gas for dental use and it got up too hot and went up. There were 18 or 20 explosions prior to Texas City, and I can recount them and the dates and locations.

Mr. JONAS. The old style original ammonium nitrate is one thing in this picture, isn't it, but FGAN, as I understand it, is ammonium nitrate souped up?

Mr. BRYAN. Conditioned, as they call it; the scientists call it conditioned.

Mr. JONAS. Not being a chemist, but a layman, I call it being accelerated, souped up in plain language.

Mr. BRYAN. Sensitized. That's our point exactly, and that's a distinction.

Mr. JONAS. And then if you take it in its original state, as I understand it, it is not nearly as dangerous, but when you sensitize it with all these elements then you have got an explosive product?

Mr. BRYAN. You surely do. That's our point exactly. We will go along with the Government, really, I mean, when you get down to scientific facts; the Government couldn't put on different testimony from us and we couldn't put on different from them, but classified correctly they are talking about one material and we are talking about another and they never wanted to talk about the material we were talking about. That's the real conflict in this record.

Mr. JONAS. You are in accord on the old original ammonium nitrate that the opportunities for explosion are not near as prevalent as if you took it, took ammonium nitrate in this form that you now designate as FGAN, you are in accord about that?

Mr. BRYAN. We readily concede that, but we point out that it can be exploded even by the same conditions that applied to FGAN.

Mr. JONAS. But the opportunities, I mean, are not near as great?

Mr. BRYAN. That's right, the likelihood.

Mr. LANE. In other words, you got some illustrations that you are going to give the committee without the PRP to it? (Record 21863-21867.)

Mr. BRYAN. Yes, sir. Of course, all of this is driving up to win your support for or view that they should have tested it. They should have discovered what this stuff would do before they turned it into commerce and shipped it into channels of unsuspecting habitations and industrial groupings. That's what we are driving at, to show you that they walked over and took pure ammonium nitrate. They did something to it here. They pitched it out. Assume they did look back to some of the information on pure ammonium nitrate. They did not apply it in terms of these changes and they did not speculate or use their imagination to determine what would happen to it with the sensitizing agencies, and it did happen. That's our point.

Dr. Cook points out just about what we are saying here, just what we are discussing, in this language:

I'm not picking out the pure ammonium nitrate and saying that is your hazard. I'm not picking out the wax and saying that is your hazard. I say it is the combination which is hazardous. (Record, 13309).

That's what the chairman has just said, it is FGAN which is the hazardous material that in my opinion was responsible for the trouble that occurred in Texas City, and that, I think, aptly sums it (Record, 13309-11).

As I said, Dr. Kistiakowsky had no difficulty at all in saying this conditioning agency just made all the difference in the world, it sensitized it to where it was a highly dangerous explosive. He also pointed out and brought to focus—I don't want to involve the committee with serious technicalities—but he brought to focus these factors of heat, confinement and mass, and those are the factors that the Government did not discover, but when they applied together in the hold of a ship they produced what you have seen in Texas City. He said that was known to science, and it was, and I will show you, prior to Texas City.

When asked to assume that FGAN was first, I think, manufactured in 1943, and the contents were given to him, he was asked what he would have done or said as a consultant if some manufacturer had come to him and proposed to ship the material by railroad or other means of transportation. He said his answer would have been this, and he did make this answer and I am quoting:

The general information on properties of ammonium nitrate would have told me that this material would be a definite hazard.

As he says, the Bureau of Mines tests were, and I am quoting,

Very conclusive proof that there is an explosive hazard and a major explosive hazard.

He stated further that all of these tests could easily have been made before Texas City (Record, 15116). On cross-examination by the Government, Dr. Kistiakowsky said this:

Question. Now, do you consider, then, that fertilizer grade ammonium nitrate is an inherently hazardous and dangerous material?

Answer. Yes; I do.

Question. Do you consider that it is inherently dangerous and hazardous to human life and property?

Answer. Yes; I do (Record, 15125).

Again on cross examination by Government counsel:

Question. \* \* \* Now, were these hazards commonly known to people in general who were nontechnical and untrained people?

Here is the doctor's reply:

Answer. No. Those are problems which require considerable scientific training to be appreciated (Record 15126).

We would like to point the accusing finger at the Government agencies available to have discovered just these answers. The Ordnance had its own Picatinny Arsenal, one of the classic testing agencies of the Government; it had, of course, the Navy and Army Board, it had the Bureau of Mines, it had the Department of Commerce, Weights and Standards, and, of course, it had its own agencies within the Department Ordnance.

As to the addition of the coating material and the use of paper bags to transport this FGAN, Dr. Kistiakowsky had this to say:

My opinion is that there is a definite increased hazard to spontaneous ignition on coating ammonium nitrate with wax. The hazard thereby produced is further greatly increased—

there's a break in the quote here

by adding paper (Record 15212).

It was developed by Dr. Kistiakowsky that a number of fires and explosions—and, Congressman Hyde, this is part of the information I want to give you—of ammonium nitrate explosives mixed with either TNT or other explosives had occurred prior to 1943. The origin and manufacture of FGAN fertilizer grade of ammonium nitrate is rather recent and simple. It begins and goes along in this fashion. TVA, having made ammonium nitrate—I have explained that to you.

As Arthur Miller, head of manufacturing and research for TVA, said:

We said, we have a plant here that has been giving its products to the War Department. The War Department does not need the products any more. We think it is an excellent fertilizer, and we would like to divert it to your use if you would like to have it and can take it (Record 13410).

They appeared before WPB, War Production Board. As Mr. Miller said—this will bear out some earlier statements I made; this is Mr. Miller, head of TVA—

A great many treatments were tried and any treatments which in our own laboratory showed promise we immediately sent samples to every place in the country, such as the land-grant colleges, to be tested both to see if their results correspond with our results—

but the tests they were applying were not as to the explosibility of the material, but whether it would feed through the farmers' machinery, the drills, and whether it would cake or not cake and whether it would pour; those are the tests, and not explosiveness as Miller testified earlier—

and—actually we had our first suggestion from the Hercules Powder Co. (Record 13413).

That's where this all begins.

WPB—

I am still quoting—

had been working with Hercules and talking this matter over with them and getting advice, and as a result of these discussions it was suggested to us that

we look into a patent that the Hercules Powder Co. had on the treatment of ammonium nitrate.

That is the birth of FGAN right then and there.

We did, and as a result of that patent, we first tried the use of petrolatum—and there enters one of the big items.

As I recall it, 1 percent of petrolatum on the ammonium nitrate grain (Record 13413).

That's wrong; it's the record 13413, something left out—

That's so important, would you bear with me a moment and see if I can find that correct reference?

Mr. JONAS. While we are having this pause for a moment, is it possible, Mr. Markwell, to ascertain how many more witnesses we will have tomorrow and probably whoever is here can tell us what they are prepared to testify tomorrow and about how much time they will consume.

Mr. BRICKFIELD. You mean on this phase?

Mr. JONAS. No; any matters they wish to testify about. We have to ascertain in a general way the number of witnesses that we may expect to testify each day.

Mr. BRICKFIELD. Mr. Jonas, we have a tentative list, but the subcommittee didn't have an opportunity of going over the list.

Mr. JONAS. I have a tentative list here—

Mr. MARKWELL. I believe we have a different list, Judge.

Mr. JONAS. Here it is. This is the tentative list. The list contains the name of the witness, Mr. Bryan, who is now testifying, and a number of other witnesses who are listed here. Now, are all of these witnesses going to testify? Is there any question about it?

Mr. BRICKFIELD. If you read it, it says that Mr. Bryan is to testify and he is to be assisted by these other attorneys, and I don't think—

Mr. JONAS. Yes, by all of the other attorneys, but is that to be construed to mean that other attorneys are not testifying but have adopted and concurred in the compilation of what Mr. Bryan has submitted here in the form of testimony?

Mr. MARKWELL. That's right.

Mr. JONAS. I was under the impression that all of the attorneys were going to testify whose names were listed here.

Mr. MARKWELL. I thought it was such a tremendous record that Mr. Bryan, in our opinion, would help them on the matter. He is the last witness today.

Mr. JONAS. We can conclude our hearing with Mr. Bryan's testimony today. Sorry to interrupt you.

Mr. BRYAN. In the interest of accuracy, the quote I was trying to read goes in this fashion:

We did, and as a result of that patent, we first tried the use of petrolatum. As I recall it, 1 percent of petrolatum on the ammonium nitrate grain.

On each grain there was 1 percent of petrolatum.

Mr. Miller says:

From the results of our studies and trials, and so on, we found that the treatment of the grain with 1 percent petrolatum, a fairly good job, so we changed our treatment from limestone to the petrolatum treatment and started shipping in that manner (Record 13414).

and, believe it or not, they did it without any testing.

Now again quoting Mr. Miller:

And not long after that, we found that we had a better, and improved treatment, which was the one that is still in effect today and which was petrolatum, paraffin, resin, kieselguhr combination.

That's one he was testifying about (Record 13414).

Here is the distinction that Mr. Miller makes that should be considered, in my opinion, the difference between War Department ammonium nitrate and FGAN. He says:

Now, about that time, well, I would like to go back now to the period when we first started considering manufacture of ammonium nitrate as such. This is not coated ammonium nitrate, this is ammonium nitrate for the War Department. In the meetings that we had had with the War Department, it was pointed out to us that particularly in one stage of the manufacturing there was a hazard to making ammonium nitrate (Record 13415).

As to the War Department type of ammonium nitrate for that Department in 1940, Mr. Miller said:

it was found that there had been explosions in manufacturing plants. There were recorded various other problems with respect to ammonium nitrate but our people deduced from the literature everything that we could learn up to that time, that while there was a hazard in this one step in the manufacturing process that there was (Record 13416).

a break here—

that we could feel reasonably safe—

it's garbled.

What he is saying—I will start with this quote—

we could feel reasonably safe in going ahead in making ammonium nitrate by the specifications we had received from Ordnance with advice from DuPont and Hercules (Record 13416).

I should point out again this is still War Department ammonium nitrate. This isn't FGAN. That's the distinction he makes—

without undertaking to do ammonium nitrate explosive tests ourselves.

They even began manufacturing for the Army without any tests whatsoever.

Now again here is Mr. Miller:

Now, we had no background in making such tests but we had some confidence in what other people, the private manufacturers, were doing with respect to ammonium nitrate. (Record 13416.)

As you will see, the private manufacturers did not make it this way, they went to prilling and the Oslo crystal process.

Specifications at the Ordnance plant making materials exploding at Texas City were drawn, as they show in their statement, from TVA ones we are talking about. Mr. Miller, having been placed on the stand by the Government, of course, is the principal voice for TVA. He states in the record:

Yes, sir, but we knew as well as the Bureau of Mines that there had been explosions, unexplained explosions previously. (Record 13419.)

Here is an interesting commentary. Hercules, one of the owners of the explosive patent from which FGAN was made, only began shipping FGAN 2 months before TVA tried it. (Record 13438.) Mr. Miller makes this amazing statement:

We proceed to make ammonium nitrate with this coating and distributed it for use in agriculture.

That's FGAN, now, I am talking about.

We considered the possibility of having additional tests made because it seemed to be the prudent thing to do.

Well, this is thoroughly garbled. Will you look at record reference 13438. About this time, what he is saying is that the WPB was considering the matter, I think. I will have to explain, this has been written up as of yesterday, this material, and under such rush that we haven't had time to correct it. We had a different plan of presentation, but after talking to your counsel, the outline he had indicated in his thinking seemed a much better way so we tried to conform to that.

Mr. JONAS. Mr. Bryan, are you planning to be at Texas City tomorrow?

Mr. BRYAN. Yes, sir, or at least whatever you wish.

Mr. JONAS. Would it inconvenience you if the committee adjourns? It is a quarter to 5 now.

Mr. BRYAN. Yes, sir.

Mr. JONAS. And then you could resume your testimony.

Mr. BRYAN. Either there or Wednesday, whatever you say.

Mr. JONAS. It can be done later tomorrow evening. I think that will give you a little more opportunity to check the record and correct it. If that's agreeable with the committee, we will stand adjourned now until 1:30 tomorrow afternoon, when the committee will resume the taking of testimony in Texas City, at the city auditorium in Texas City.

(Whereupon, at 4:45 p. m., the committee adjourned until the next day, Tuesday, November 17, 1953, at 1:30 p. m., in the city auditorium in Texas City, Tex.)

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## TEXAS CITY DISASTER

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TUESDAY, NOVEMBER 17, 1953

HOUSE OF REPRESENTATIVES,  
SPECIAL SUBCOMMITTEE OF THE  
COMMITTEE ON THE JUDICIARY,  
*Texas City, Tex.*

Special subcommittee of the Committee on the Judiciary met, pursuant to adjournment at 1:30 p. m., in the city auditorium, Texas City, Tex., Hon. Edgar A. Jonas, chairman of special subcommittee of the Committee on the Judiciary, presiding.

Present: Hon. Dewitt Hyde and Hon. Thomas J. Lane.

Also present: Walter R. Lee, legislative assistant to the Judiciary Committee; Cyril Brickfield, counsel for the subcommittee; and Brig. Gen. Claude B. Mickelwait, Assistant Judge Advocate General of the Army.

Mr. JONAS. The committee will be in order.

Prior to proceeding with the business that has been outlined for the benefit of the committee, I deem it my duty and real pleasure to announce to this audience that we have with us today your distinguished citizen, the mayor of your city, and I think it would be only fitting and quite appropriate that we heard a word from your chief executive, and I am sure that my colleagues on the committee and our distinguished colleague from your district, Congressman Thompson, will concur in this little preliminary, which is in addition to our work that we have this afternoon in taking testimony, and therefore I take great pleasure in presenting—he needs no introduction, I am sure, to this audience—the Honorable Lee Robinson, the mayor of Texas City.

Mr. ROBINSON. Thank you, Mr. Chairman. Ladies and gentlemen, we, of course, are very, very happy and proud, indeed, that we have such a distinguished group here visiting with us today. Of course, I know all of you know the occasion. These gentlemen, while they could have remained in Washington to listen to hearings and various other information, have been so kind as to leave that post and to come visit with you folks. We are certainly proud of the fact that they are here to listen to your stories. We are also very happy, too, that our own Congressman, Clark Thompson, has seen fit to arrange this meeting. We are indeed proud; we welcome these gentlemen here and we want them to come back soon. Thank you.

Mr. JONAS. Thank you very much, Mr. Mayor. I hope you can stay with us some time this afternoon, and you are perfectly welcome to sit on the rostrum with us, if we have room, but I presume you are just as comfortable there, if you want to remain there, and I can see in true constituency style you want to remain with your fellow citizens.

to be heard and some have not finished with their testimony. They will be heard today from this witness chair if time permits, and otherwise from Galveston tomorrow.

The chairman asked me to explain the situation concerning the audience; the galleries up in the House of Representatives and the audience at a congressional committee. You are guests of the committee. You, of course, I know without mentioning it, will maintain the same decorum that you would in the courtroom. I might also say this, since you have already been kind enough to applaud for your mayor and myself, it isn't customary to applaud either the witness or the members of the committee.

I am thankful, Judge, that you introduced me before I had to say that.

You join with me, I know, in welcoming the committee here and in expressing appreciation to these gentlemen who have come so far to listen to our problems. Thank you very much, Judge.

Mr. JONAS. Thank you, Mr. Thompson.

Mr. LANE. Mr. Chairman, may I just say a word at this part of our hearing, that, Mr. Chairman, the people of this congressional district ought to be congratulated in sending to the Congress a gentleman of the type of your Congressman Clark Thompson. You are to be congratulated because of the fact that Congressman Thompson has accomplished a great deal of work, if I may say so, in bringing to the attention of the people of our United States this serious disaster in this section of our country.

Being a Member of the Congress on his side of the aisle, as we say, I can tell you truthfully and honestly the amount of hours and days that he has spent in Washington working to obtain the passage of this resolution here, this resolution that was passed by the Rules Committee and later by the House of Representatives owes its passage alone to your Congressman because of that vital interest, the work and the effort that he has put into bringing this to the attention of the Congress and the people of our United States. Because of his activity in that direction, this resolution was then referred to the Committee on the Judiciary so that we could have this opportunity here today representing part of that committee of the House of Representatives, namely the Judiciary, to come here to Texas and to see and to hear firsthand the attorneys representing the litigants and the people who are vitally interested in this serious situation, and because of your Congressman's interest, because of that foresight on his part, his work and his effort, it has given us this opportunity to hear you here today so that we may have this information from you for this record so that we can report back to our colleagues on the House Committee on the Judiciary and later the House of Representatives. I thank you, Mr. Chairman.

Mr. JONAS. Mr. Hyde, do you care to make a statement at this time?

Mr. HYDE. I think everything has been so eloquently said by Congressman Thompson and Congressman Lane that anything said by me would be so much surplus, so I will say thank you; we certainly have enjoyed the most gracious hospitality by all you folks and are happy to have the opportunity to be here and consider this very, very great problem.

Mr. JONAS. Thank you, sir.

The Chair will call the first witness, Mr. Rankin L. DeWalt. Is he prepared to testify?

Mr. DeWalt, if you'll just step up here, please, and take a chair.

The counsel for the committee informs me, Mr. DeWalt, that you have agreed to yield your time to two other witnesses, and at this time you don't care to testify; is that agreeable to you or would you rather testify? Whatever meets with your approval.

Mr. DeWALT. I can testify after they testify; I'll give them my time.

Mr. JONAS. You can make it brief and short, can you?

Mr. DeWALT. Yes, sir.

Mr. JONAS. All right, we'll be happy to have you make a statement. For the record, you understand what we are trying to get at is matters relevant to this issue and whatever you know personally about the explosion as an eyewitness or whatever can enlighten or have some bearing on this hearing. The record will show that you are Rankin L. DeWalt; is that your name?

Mr. DeWALT. Yes, sir.

Mr. JONAS. Your address is Texas City, Tex.?

Mr. DeWALT. That's right.

Mr. JONAS. And you are in the business of assistant wharfmaster and chief special officer?

Mr. DeWALT. Yes, sir.

Mr. JONAS. Texas City Railroad; is that correct?

Mr. DeWALT. That's right.

Mr. JONAS. And you were present and a resident here at the time when the explosion occurred in April, April 16 and 17, 1947?

Mr. DeWALT. Yes, sir.

Mr. JONAS. You may proceed now and relate in your own terms what you wish to have placed in the record, and continue.

#### STATEMENT OF RANKIN L. DeWALT, TEXAS CITY, TEX.

Mr. DeWALT. Well, my name is Rankin L. DeWalt. I am employed by the Texas Terminal Railway Co.; have been employed for this company for about 8 years. Now, I don't know what you want. If there's any question that you would like to ask me pertaining to this, I will be glad to answer it.

Mr. JONAS. Probably you could tell us about the effect or what you observed as to the ferocity of the explosion, anything that you recall that you witnessed at or about the time that the explosion took place, if you can give us that.

Mr. DeWALT. Yes, sir. On April 16, 1947, I arrived at the Texas Terminal Railway Co. docks about 7:45 a. m. I was assigned work that day in loading gondola parts in open storage out at 1601 yard. In coming to work I passed pier O, where the *Grandcamp* was docked. I didn't notice anything unusual at that time. At 8 o'clock I went to work in the 1601 yard.

Shortly afterward we heard a siren. Looking over toward the waterfront we saw smoke. I got in my car and drove down to the office to find out where the fire was. I was told by our timekeeper, Mr. H. C. Loper, that the *Grandcamp* was on fire. We watched it for awhile. I returned back to where the men were working.

Shortly after, the explosion occurred. We took cover under carports and railroad cars there. After the debris and fragments of iron stopped falling, we returned to the waterfront, and aid was given in getting the injured people out.

My duties were, with the terminal company there in working in the warehouse, to supervise the loading and unloading of different cargoes that we load in the warehouse. We had in the warehouse at this time a product of fertilizer that was being loaded on the Steamship *Grandcamp*. We didn't know at that time, I hadn't been told or anyone in our company in handling this fertilizer that it was explosive or that it was dangerous. We handled it like any other commodity in the place.

Mr. JONAS. Did you have anything to do with storing this fertilizer in the warehouse prior to the time of the explosion?

Mr. DEWALT. Yes, sir. That was under our supervision that it was stored in the warehouse for later shipment.

Mr. JONAS. How long had it been stored in the warehouse on the dock before the explosion occurred, that is, the fertilizer that you knew actually had been stored there?

Mr. DEWALT. Well, we handled a lot of fertilizer there. I don't remember; possibly a month or 6 weeks.

Mr. JONAS. Six weeks?

Mr. DEWALT. Yes, sir. I would say that length of time. From time to time, as these cars came in the yard, well, they would be placed at this warehouse for unloading and later on loaded onto the ship.

Mr. JONAS. Was there any discussion or were you ever cautioned or warned that the product that you were handling had high explosive potentialities or possibilities?

Mr. DEWALT. No, sir. We weren't told that by anyone there, I mean we handled it just like we would any other carload, we weren't told that it was explosive and it wasn't marked as such on the cars as it arrived in the yard.

Mr. JONAS. Did you assist in loading some of the products on the boat that was wharfed there?

Mr. DEWALT. No, sir; that was the stevedore that did that. We placed them in the warehouse for storage and they carried it from the warehouse to the ship.

Mr. LANE. Do you know how long this FGAN was in transit from Nebraska?

Mr. DEWALT. No, sir; I don't. It probably showed on the bill of lading, but I don't remember.

Mr. LANE. Well, now, would you tell us whether or not this FGAN was in hundred-pound sacks?

Mr. DEWALT. Yes, sir; it was in paper sacks, about a 6-ply bag, weighed probably 100 pounds.

Mr. LANE. Now, this storage in the warehouse, was that any different form of storage than the storage in the freight cars that come all the way from Nebraska?

Mr. DEWALT. They were stored in the warehouse in carload lots. There's probably eight hundred to a thousand bags to the car, and it was kept separate in carload lots in the warehouse.

Mr. LANE. Left right in the cars?

Mr. DEWALT. No, sir; unloaded from the car into the warehouse and stored in carload lots.

Mr. LANE. Was that done under your supervision?

Mr. DEWALT. Yes, sir.

Mr. LANE. Now, were any of those sacks broken?

Mr. DEWALT. Occasionally we would find bags in the cars that were broken.

Mr. LANE. Was there very many broken?

Mr. DEWALT. Not very many; there was a few.

Mr. LANE. There was a few, and those that were broken, was the contents of those sacks swept up and rebagged under your supervision?

Mr. DEWALT. Yes, sir; they were.

Mr. LANE. And you say now to our chairman that this storage in the warehouse was a matter of 3 or 4 weeks; is that right?

Mr. DEWALT. Yes, sir, that's right; it depended on what shipment. I know that they had this ship coming in here for a shipment of fertilizer, and the—I'd say it was 3 to 6 weeks from the time it arrived in the yard until it was loaded on ships.

Mr. LANE. Well, did the men have any trouble unloading those sacks from the freight cars to the warehouse due to anything such as heat or anything else?

Mr. DEWALT. No, sir. It was handled by hand. Didn't have any trouble.

Mr. LANE. Were those bags heated at any time?

Mr. DEWALT. Well, at times when you'd open the boxcar door you could tell that there was heat in the car and the bags would be warm.

Mr. LANE. But they weren't too hot to handle, were they?

Mr. DEWALT. No, sir; I don't remember of ever finding one that was too hot to handle. I do know that they were warm.

Mr. LANE. Your men did not take it from the warehouse to the hold of the ship?

Mr. DEWALT. No, sir.

Mr. LANE. That's done by the stevedore?

Mr. DEWALT. That's right.

Mr. LANE. All your men did was to take it from the freight cars and pile it in the warehouse?

Mr. DEWALT. Yes, sir; that's right.

Mr. LANE. How was it stored in the warehouse, one sack upon another.

Mr. DEWALT. About, stacked about 8 high and in carload lots, say there's 800 bags to this 1 car, well, it was kept separated in the warehouse in carload lots.

Mr. LANE. Was there any separation between those bags?

Mr. DEWALT. No, sir; none other than bag and dunnage on the floor of the warehouse.

Mr. LANE. But you say now to the committee you had no trouble handling any of those bags or sacks because of the heat?

Mr. DEWALT. No, sir; we didn't. There was heat there; it was warm, but we didn't have—wasn't too hot to handle. As they would open the car door, we would find that the bags were warm and it wasn't too warm to handle.

Mr. LANE. And you had no trouble in the warehouse with any fire or anything breaking out?

Mr. DEWALT. No, sir; we didn't.

Mr. LANE. And you didn't guard against any fire?

Mr. DEWALT. Beg pardon?

Mr. LANE. You didn't guard against any fire; you had no information?

Mr. DEWALT. No, sir; we had a sprinkling system in the warehouses and fire hose and water lines, but we didn't take any particular prevention on this product here other than we would flour or sulfur or anything else.

Mr. LANE. Did you and your men work on this whole order of FGAN?

Mr. DEWALT. Yes, sir.

Mr. JONAS. Have you related now all that you wish to relate or recall in connection with this?

Mr. DEWALT. Sir?

Mr. JONAS. Have you related everything now that you wish to relate or that you recall that has a bearing on this transaction?

Mr. DEWALT. I believe so.

Mr. JONAS. Do you have anything else in mind that you want to add to what you have said right now?

Mr. DEWALT. Well, none that I can think of.

Mr. JONAS. All right, Mr. Hyde.

Mr. HYDE. Had your company ever handled any of this FGAN before, prior to this shipment?

Mr. DEWALT. No, sir; not to my knowledge.

Mr. HYDE. Are you familiar with anything else that was aboard the ships? You are not familiar with what the ship had aboard?

Mr. DEWALT. No, sir; I am not.

Mr. LANE. How many men did you have unloading this FGAN from these carloads to the warehouse?

Mr. DEWALT. Well, that would depend on the number of cars that we had in the yard.

Mr. LANE. At a time?

Mr. DEWALT. Yes, sir; sometimes it is about 15 or 20 cars and use 5 or 6 gangs. You would use seven men to the gang, and—

Mr. LANE. Tell me, were any of these sacks broken when you took them off the freight cars?

Mr. DEWALT. Yes, sir; there was; occasionally you would find one broken in the cars.

Mr. LANE. Were any of them broken while they were in the warehouse stored there for those 3 or 4 weeks?

Mr. DEWALT. Well, in handling, now, there might have been some bags torn, and if they were torn, well, we had a man we called the sweeper to sweep the contents up and place them in another bag and put them in a stack.

Mr. LANE. How many bags in all would you say was stored in the warehouse?

Mr. DEWALT. At the time of the explosion?

Mr. LANE. Yes.

Mr. DEWALT. Well, that's hard. I don't know. We had been taking fertilizer from the warehouse to the ship, and I wouldn't know at the time how many we did have.

Mr. LANE. Taking a guess at it, how many would you say?

Mr. DEWALT. Well, I'd say from 40 to 50 carload lots in the warehouse.

Mr. LANE. How many in a carload lot?

Mr. DEWALT. 800 bags, or about 50 tons.

Mr. LANE. And you say now to the committee there were very few of those sacks broken?

Mr. DEWALT. In the warehouse?

Mr. LANE. Yes.

Mr. DEWALT. Yes, sir; that's right.

Mr. LANE. Very few of them were broken in the freight cars?

Mr. DEWALT. That's right. There was several in each car probably that were broken.

Mr. JONAS. Did the bags come in shipments in a closed car or were they on an open flatcar?

Mr. DEWALT. They came in boxcars.

Mr. JONAS. Boxcars. Now, when the ship was loaded—I think the name of the ship was the *Grandcamp*; am I correct?

Mr. DEWALT. That's right.

Mr. JONAS. Were you present and observed the stevedores hauling the product from the warehouse into the hold of the ship?

Mr. DEWALT. From time to time I would be around there as I passed by, but it wasn't my job to.

Mr. JONAS. When were you last there prior to the time the explosion occurred?

Mr. DEWALT. The day before the explosion; on the 15th.

Mr. JONAS. On the 15th?

Mr. DEWALT. Yes, sir.

Mr. JONAS. You weren't there on the day of the explosion?

Mr. DEWALT. Not in the warehouse.

Mr. JONAS. Were you anywhere near the place?

Mr. DEWALT. Yes, sir.

Mr. JONAS. At what locality?

Mr. DEWALT. I passed along the dock road just in front of the warehouse there, probably a hundred feet in front of the warehouse from where the ship was docked.

Mr. JONAS. Did you then observe the dockmen load the ship with the product, take it out of your warehouse that you have told us about?

Mr. DEWALT. No, sir; I didn't.

Mr. JONAS. You didn't see that?

Mr. DEWALT. I didn't see that, because I didn't stop driving along the road there right by the warehouse.

Mr. JONAS. You never were down in the hold of the ship to observe how much had been taken out of the warehouse of this product just prior to the explosion, were you?

Mr. DEWALT. No, sir; I wasn't.

Mr. JONAS. And you didn't look into the warehouse immediately prior to the explosion to see about how many of the many tons that had been stored there had been put in the ship, did you?

Mr. DEWALT. No, sir.

Mr. JONAS. Can you give us any idea about that?

Mr. DEWALT. No, sir, I can't. I was by there only along the dock and through the warehouse, but I wasn't concerned with how much

cargo was in the warehouse because I had my supervisors take care of that.

Mr. JONAS. And further questions?

Mr. LANE. No.

Mr. HYDE. No.

Mr. JONAS. All right, thank you, Mr. DeWalt. You may be excused.

Mr. W. H. Sandberg.

**STATEMENT OF W. H. SANDBERG, EMPLOYEE OF TEXAS CITY  
TERMINAL RAILWAY CO., TEXAS CITY, TEX.**

Mr. JONAS. Mr. Sandberg, for the record, state your name and your address and occupation or business or profession.

Mr. SANDBERG. My name is W. H. Sandberg. I am presently employed by the Texas City Terminal Railway Co. as its president and general manager. I live in Texas City at 119 Ninth Avenue North, and I lived in Texas City at the time of the disaster.

Mr. JONAS. Proceed now and tell in your own way what you wanted to add to the record, at this hearing.

Mr. SANDBERG. At the time of the disaster on April 16, 1947, I was the vice president and auditor of the Texas City Terminal Railway Co., a switching terminal and wharfage, our railroad tracks connected with the trunk lines that run into Galveston and Houston, and we merely performed the switching service, picking up the carloads of freight at the junction point and delivering them into Texas City either to industry, to small business, or to the docks and wharves which we operated as a wharfing. We owned the waterfront properties known as the wharves and docks. We are one of the few privately owned wharfingers, and, of course, as a common carrier we are regulated by the Interstate Commerce Commission.

In 1945 we commenced handling fertilizer, and the French Supply Council had a representative in Houston by the name of J. D. Latta, who approached us and offered to give us some business. He described this material as being fertilizer going to France to be used in the agricultural areas of France. No one had any idea of the nature of the material. We were looking for business and therefore we agreed to take the business on.

Mr. LANE. Right there, Mr. Sandberg, did you folk inquire whether or not this was anything of a dangerous nature in the transportation of FGAN?

Mr. SANDBERG. No, we didn't, Mr. Lane. At the same time, for the French Supply Council, we had handled asphalt, bag sulfur.

Mr. LANE. You didn't inquire and neither were you told, is that it?

Mr. SANDBERG. No, sir; but I am leading up to something as I tell my story that may answer some of the questions that you want to know.

Mr. LANE. Excuse me; go right ahead.

Mr. SANDBERG. We commenced handling the product, which was shipped in hundred-pound bags in hoxcars, it varied anywhere from 800 to a thousand bags per car. This material was a clayish-looking material, packed in laminated bags which were in most cases tied with wire ties.

In the early part of 1946, we commenced finding more bags torn in cars than usual, and I might explain to the gentleman of the commit-

tee that Mr. DeWalt, who preceded me on this witness stand, at the time of the disaster was assistant foreman. Our general foreman, who, of course, was lost in the disaster, had more to do with the unloading of cars than Mr. DeWalt. While Mr. DeWalt testified that we did not have too much bag breakage—that question by Judge Jonas—it's most probable that Mr. DeWalt did not have that experience such as I, as the officer in charge of the operations of the dock, came in contact with. On several occasions when we opened the doors we found those contents of those cars so hot that the men could not handle the bags right at the moment, and we had to leave the car doors open until such time as those bags cooled off.

Mr. LANE. The other witness says they were only warm.

Mr. SANDBERG. I see several boys in here who can testify on that. Now, it's possible, Mr. Lane, that on those cars that Mr. DeWalt—he was merely assistant foreman and he could have been charged with the responsibility such as he was the morning of the disaster, being over in the knocked-down freight-car yard loading knocked-down freight cars, and it is easily possible that Mr. DeWalt, on the cars that he came in contact with, were not hot; but, anyway, after those cars would cool off, where the bags had become so hot that the waterproofing substance and asphalt base that was between the laminations of the bags bled through the bags, and we have submitted some of those bags as evidence in our first trial. They were evidence themselves. The heat had generated through those bags, causing them to bleed and the asphalt coming to the surface.

Well, as the railroad, I was naturally concerned about claims that would arise over the number of broken bags, and I commenced writing letters and I sent those letters not only to J. D. Latta, with whom I had dealt with most of the time, I sent copies to his Galveston office, to his Houston office, to the military chemical works who was shipping this fertilizer, and also to the office, to Mr. Albert's office, of the French Supply Council in New York, and I pointed out that because of the nature of this commodity, upon its receipt the heat was causing extremely—was causing it to be extremely difficult to unload the car, that was costing some little extra money and because of the number of bags that had become parched—when 2 men would grab them they would break in 2—we felt something had to be done about it and someone was going to have to repay us for the rebagging of that material.

In due course of time they sent a representative to Texas City, Mr. Floyd Steed, and Mr. Steed was quite concerned himself, and he was there when we opened some cars for his benefit, and at that time I inquired of Mr. Steed, What was this material we were handling? He said, "Why, it is fertilizer." I said, "Well, is there any dangers to it; will it explode?" He kind of laughed it off and said, "Why, no; what gives you that kind of an idea?" Well, I said, "It comes in here hot, it was manufactured in an ordnance plant, and I just thought there may be something about it that we did not know about it." He assured me there was no danger.

He went back to his plant and brought about some improvement, but it wasn't a matter of several months when we had to write some additional letters, and another gentleman came down—but unfortunately I was not in town that day—and he talked to our Mr. Frank-

lin, our wharfing-warehouse foreman who was killed in the disaster. I did not remember his name, but I learned later that his name was Mr. Christensen. All during this time, of course, the fact that the material was moving in interstate commerce without a placard on it showing that it was dangerous—it never occurred to me or my bosses that the Government would ship anything in interstate commerce and violate a law that they had promulgated themselves, and there was no indication, either by placard, by notations on the way-bills, the bills of lading, that the material we were handling was of a dangerous nature. We handled this material no differently than we did sulfur, carbon black, which were also handled for the French Government.

So when we'd drop it in the warehouse; we would unload these cars into the warehouse; we kept them separate so they would not lose their identity by car numbers, just leave a small aisle to separate, to distinguish 1 carload from another as it laid in the warehouse, and it would lay there for indefinite periods, depending on the chartering of ships by the French Supply Council, and I would say that the average time between—that some of it from time to time would lay in there as much as 6 weeks. Again if a ship came in and we had an influx, of course, to save time we'd take—we'd load the ship direct from car to ship, have the stevedore laborers merely pick up the bags out of the boxcars and go direct to the ship's tackle and go into the ship. In such event we had nothing to do with the unloading.

Mr. LANE. May I interrupt you there, Mr. Sandberg?

Mr. SANDBERG. Yes, sir.

Mr. LANE. Will you tell me whether or not you testified in the United States district court action.

Mr. SANDBERG. Yes, sir.

Mr. LANE. You were a witness in that case?

Mr. SANDBERG. I was, yes, sir.

Mr. LANE. And I assume you testified as to the heat, as you have testified before this committee?

Mr. SANDBERG. This is an exact replica of my testimony.

Mr. LANE. Now, you say that when these car doors were open that the heat was so intense that you were unable to, your men were unable to, handle the carload of FGAN?

Mr. SANDBERG. Yes, sir.

Mr. LANE. And that you allowed it to cool off. Now, in what way did you allow these carloads of FGAN to cool off? What was the process of it?

Mr. SANDBERG. We merely left the doors open, Mr. Lane, and let the air circulate. It wasn't a matter of 4 or 5 minutes, just a short delay, but when you had 10 or 15 gangs of 7 men each standing by for 5 minutes per car it ran into money.

Mr. LANE. Will you tell the committee this, about how long was it before this explosion that this condition was brought to your attention, the heat of these sacks of FGAN as you opened up those freight-car doors?

Mr. SANDBERG. It is my recollection that we—I first wrote the letters in either April or May, and then I followed up following that with several letters. Now, following the disaster all our records were destroyed, our office building was burned down, and we had no rec-

ords, and I went—I was able to go to Galveston and get a couple of copies of those letters that I had written, also some pictures that I had taken of those cars as we opened them and found the damaged bags as well as the bleeding bags, and the photographs clearly showed the bleeding of these bags.

Mr. LANE. This explosion took place on April 16 and 17, 1947?

Mr. SANDBERG. Yes, sir.

Mr. LANE. Can you tell the committee how long before that was it brought to your attention about these carloads of FGAN?

Mr. SANDBERG. O Mr. Lane, you mean when I first discovered it? Oh, as early as March or April was the first that we took exception to it, and then we called it to their attention principally through J. D. Latta by telephone, but that got us no results, and we commenced writing letters. Now, I didn't write those letters, Mr. Lane, with the idea of being suspicious that we were handling any commodity that was dangerous. I merely wrote those letters as a claim-prevention method in the interest of the railroad.

Mr. LANE. To protect your rights, if any, later on?

Mr. SANDBERG. That's right. Now, any claims that we might make for the rebagging of this material I wanted those people who would have to eventually pay those bills be on record that they should expect to pay us for the rebagging of that material, and we took no precautions—we knew nothing of the sensitivity of this material we were handling, and we took no precautions in storing it in a warehouse; and when a bag broke—we had several bags broken—we merely shoveled it in a pile, and when time permitted there were always a few empty bags in a car to cover breakage in the event of breakage, and we'd fill those bags up. We'd shovel in everything that happened to be on the floor into those bags.

Mr. LANE. The company didn't have anything to do with the unloading from the warehouse to the ship?

Mr. SANDBERG. No, sir; after we delivered the material into the warehouse, it was turned over to the French Supply Council, and from then on they were responsible for delivering it to the ship.

Mr. LANE. Now, the packing or the storing in the freight cars, did that differ in any way from the packing and the storing in the warehouses?

Mr. SANDBERG. No; it was practically on the same basis; we had them 7 and 8 high, and we took up about the same amount of space in our warehouse as the fertilizer would occupy in a freight car.

Mr. LANE. No separation between the bags?

Mr. SANDBERG. No separation between the bags, but on the ground we usually put paper dunnage to keep the dampness from the first layer of bags.

Mr. BRICKFIELD. Mr. Sandberg, you said that as a result of your complaints, the manufacture with whom the Army had contracts sent a representative to Texas City, and his name was a Mr. Christensen?

Mr. SANDBERG. No; the first gentleman was Floyd Steed.

Mr. BRICKFIELD. And sometime thereafter, though, another manufacturer's representative came down here, and his name was Mr. Christensen?

Mr. SANDBERG. That's right.

Mr. BRICKFIELD. Now, as a result of his trip here and inspection, did he make a report?

Mr. SANDBERG. I am sure he did, Mr. Brickfield, but, of course, we did not get a copy of it, and we don't know what the results of his report were. We saw some improvement for a while, and it would be all right. We would—the condition of the bags as to heat.

Mr. BRICKFIELD. Did he indicate, either to you or to your company, that your complaint was justified and that there would be improvement?

Mr. SANDBERG. Oh, yes; he seemed to know what the trouble was. He explained that the material was loaded into the bags in a hot condition.

Mr. JONAS. Who did he represent; Christensen was whose agent?

Mr. SANDBERG. As I understand it, Mr. Jonas, he was for the military chemical place.

Mr. JONAS. Was he a Government agent or an employee of the United States Government?

Mr. SANDBERG. An employee of that ordnance plant. Another thing, these carloads of material, as they came into Texas City, on the inside of every car was a description of the materials, the number of bags on an ordnance plant package slip which was always signed by an officer of the United States Government; I mean of the United States Army.

Mr. JONAS. You might revert back to Mr. Christensen again; you say, as you understood it, he was an employee or an agent of the United States Government?

Mr. SANDBERG. No; of an ordnance plant.

Mr. JONAS. Of an ordnance plant?

Mr. SANDBERG. Yes.

Mr. JONAS. Did you talk to Mr. Christensen at that time?

Mr. SANDBERG. No; I did not talk to Mr. Christensen.

Mr. JONAS. Has it ever been traced down as to just who he represented or what his authority was? Have you ever run it down as a matter of record?

Mr. SANDBERG. Yes. I think I might say this, in the legal committee, in taking my deposition prior to the Government tribunal, that I—since our records were destroyed, I had to depend on memory alone, and I reported that a representative of the ordnance plant had been to Texas City. I said the only one that I had seen was a Mr. Steed. Well, on that deposition tour they failed to find Mr. Steed anywhere, and they came back and almost convinced me that a Mr. Steed had never come to Texas City, and it was a subject of a lot of debate, and I had gotten to the point almost that that bunch of lawyers had convinced me that I had never spoken with a Mr. Steed in Texas City with respect to the condition of ammonium nitrate as it arrived in Texas City. So I went over to J. D. Latta's office one afternoon, and I asked his representative in Galveston, a Mr. Arthur Clark, if he wouldn't help me find a Mr. Steed, and he said, "Well, the Spencer Chemical Co. has succeeded military company works; let's call them in Kansas City." So we put in a call to Kansas City. He said, "We'll write them." I said, "No; we'll spend a little money and get them on the telephone"; and we talked to the traffic manager of the Spencer Chemical Co. in Kansas City; and, when we asked him whether they had a Mr. Steed in their employ, they said, "Yes; he's at the Kansas Ordnance Plant in Parsons, Kans." We asked if he had ever been

to Texas City. They said, "No," they didn't think he had been in Texas City. We said, "Will you inquire and find out," and they told us that they would, and after another week or 10 days, when we hadn't heard from them, we put in another long-distance call and talked to the same gentleman, and he said, "Oh, I forgot to call you," and "I spoke to Mr. Steed, and he had never been to Texas City."

So, without anybody's knowledge, I got on the train on a Friday night and wound up in Parsons, Kans., on a Saturday morning looking for Mr. Steed, and I went out, got me a cab and went out to the ordnance plant, and after seeing the place where they manufacture this material, gentlemen, I can tell you that they consider it very dangerous because you could see those huts looking like igloos separated every thousand or 1,500 feet apart just like in any other building where they handled dangerous commodities, but anyway I located Mr. Steed finally. He was not at his office. I phoned the bank, and they said he had just left there and had gone home, so I put in a call from the ordnance plant and called his home, and a gentleman answered the phone, and I said, "Hello; is this Mr. Steed?" He says, "Yes." I said, "Well, this is W. H. Sandberg from Texas City." He said, "Hello, Mr. Sandberg. What are you doing here?"

I knew that I had the right man. So I asked him if I may have a conference with him, and he said he'd be glad to see me, and I went by and visited with him about 30 minutes, and I said, "Floyd, there's only one thing I want to straighten up," I said, "there seems to be some argument as to whether you had ever been in Texas City." He said, "Why, certainly I have been in Texas City." He said, "Don't you remember my meeting Mr. Mikeska, your president, right outside your front office?" I had forgotten about that, but I did introduce him to Mr. Mikeska, our president. I said, "Do you recall my asking you if this material would explode?" and he said, "I sure do, and my answer was 'No' and I still don't think it would explode." I said, "I would like to take you down to Texas City and let you look for yourself, and I am sure you will change your mind."

So we visited for about 10 minutes, and I caught the noon train back, very happy over the fact that I could assure my lawyers that I hadn't lost my marbles with respect to what had happened in that period prior to the disaster.

Mr. LANE. Since then, I suppose, Mr. Sandberg, you insist of them leaving their cards so you'll have something to show hereafter.

Mr. HYDE. Mr. Sandberg, after Mr. Steed came there or after Mr. Christensen was there or both of them there, there was some improvement to the bags. What do you mean by improvement?

Mr. SANDBERG. Well, the bags were not in as heated a condition, and we didn't have as many torn bags, and—

Mr. HYDE. Now, you said that when you opened a car the bag was too hot. What was too hot, the bags too hot to handle or the car?

Mr. SANDBERG. No, no; the bags. Of course, the cars would be warm, Mr. Hyde, but they were not so warm that you couldn't work inside, and naturally you clear out the doorway first in order to run your trucks into the inside of the car.

Mr. HYDE. And it only takes about 5 or 10 minutes for them to cool off?

Mr. SANDBERG. That's right. You open both doors on both sides and just let the air circulate through there, and about in a 5- or 10-

minute period you'll be able to get in there and unload. But some of those bags, having ridden in a car for 4 or 5 days under apparently intense heat, had a tendency to dry out and parch to such an extent that they were very dry; and when 2 men grabbed them, 1 on each end, the manner in which they were handled, why, they would break in two.

Mr. HYDE. After you noticed this heat which caused you to call in these people for consultation regarding the danger to this material, did you take any extra precautions, any different precautions?

Mr. SANDBERG. No, sir; certainly not; after Mr. Steed assured me there was no danger, that it was just an organic material with no inherent danger, and certainly he was the man that was involved in its manufacture, and that was good enough for me.

Mr. HYDE. Would these bags heat up at all in the warehouse while stored there?

Mr. SANDBERG. No, no.

Mr. HYDE. They were hot when they got there from the cars?

Mr. SANDBERG. That's right. We never noticed any heating of them in the warehouse. Of course, our warehouse doors were left open during the day because we were open, not only from warehouse to ship but car to warehouse.

Mr. HYDE. Did you ever get any complaint from the captain of the ship about the heat of the bags?

Mr. SANDBERG. We would not; he would not complain to me, Mr. Hyde. If he had any complaint to make, he would make it to the stevedore.

Mr. HYDE. You never heard of any?

Mr. SANDBERG. I never did; no, sir.

Mr. HYDE. How long before this particular shipment exploded—how long had you been shipping this freight?

Mr. SANDBERG. Oh, I imagine we had handled 60 or 70 thousand tons of it.

Mr. HYDE. For how long a period?

Mr. SANDBERG. For a little over a year. It commenced in late 1945 and it was early 1947.

Mr. HYDE. When was this that you made the report to Mr. Steed?

Mr. SANDBERG. That was in mid-1946.

Mr. HYDE. About a half year before that?

Mr. SANDBERG. Somewhere in there, roughly; I didn't review my testimony on that, but as I recollect it was in April or May, somewhere in there, and then later I wrote some other.

Mr. LANE. 1946 or 1947?

Mr. SANDBERG. 1946, Mr. Lane, that I wrote the letters, April or May.

Mr. MARKWELL. One of those letters, may it please the committee, was offered in evidence along with the still pictures yesterday. It's in that folder, the letter in March or April 1946 that Mr. Sandberg is testifying to is in evidence.

Mr. JONAS. You may proceed.

Mr. SANDBERG. So on the morning of April 16, which had been my custom for many years, and I might say I have been associated with the company since 1917, I got to work around 8 o'clock, and I usually report to the office, looked at my mail and then made it a point to go around to various warehouses and see how many gangs were working, what ships were working, and how things were generally, so that when

I had my conference with the boss around 11 in the morning, why, I could tell him how we were getting along. I was sitting in my office about just a little after 8 o'clock when one of the clerks came in who had been over to the wharfmaster's office and the wharfmaster's office, I might explain to you gentlemen, was right in front of where we disembarked this morning at the dock area, had a two-story stucco building there which was destroyed in the first blast. This clerk had been over there to get the wharf reports, to compile the records for the number of cars and material unloaded the day previous and the number of cars that had been taken out of the warehouse going to the ship and reported that a ship was on fire.

Well, I merely turned around in my office chair and looked out the office window and I could see this iron smoke ascending skyward and thought not too much about it, we had had ships on fire before that were always controlled within a short time, and I felt no difference in this instance, that it would just be a matter of time that the fire would be put out, but in a few minutes the president of our company came by my office, gave instructions to the PBX operator to call Galveston and have the tugs dispatched to Texas City.

I then in a few minutes followed him and went out to the dock where the ship was on fire, and I never did go alongside the ship, I expect I was probably 50 to 75 feet astern close to the dock road or where I talked to the ship's stevedore, Mr. Suderman, who I understand is here today and will be a witness. We talked at great length. He told me that they were fighting fire with steam, that was the captain's order, that he had reported to his office the fire, and that he had also called the steamship agent, E. S. Binnings, and told them to send those tugs.

Well, after talking with him for some, oh, 30 or 40 minutes roughly, maybe a little later, I said, "Well, there's no signs of tugboats yet, I am going to the office and raise mischief, see why those tugs haven't gotten there." He said, "Why don't you go out to the end of the T-head, you will probably see them coming around the curb."

Gentlemen, had I listened to him and gone out to the T-head and looked to see whether those tugs were coming around the bend, just off from where we saw those tankers this morning, I would have seen the tugboats and I would have stayed at the ship and I wouldn't be here testifying this morning.

That was 9:07. He asked me the time and I told him 9:07. It was 5 minutes before the ship exploded.

I left the dock and started over to the office when I met the president of our company coming in—he had been around to some of the other docks—and he asked me where I was going and I told him to the office to put in a phone call to see why the tugs had not shown up. Now, the only reason that we wanted tugs there was for the purpose of—that if the fire did get out of control that we could haul it out in stream. No one at any time had any idea that there would be an explosion. That was evident because they had two or three hundred people down at the area that had gotten into the property before we could close the gates, just sightseers watching fire like a lot of people will do. However, the majority of the people down there were—when they saw they could help, why, they went in there and fought the fire. There was just a lot of them came down there first to be a spectator and wound up as fire fighters, helping with hose and helping the fire

trucks as they came into the area, and had they thought that there was any danger of that boat exploding, why, of course, I think you will agree they wouldn't remain there.

I went over to the office. The boss asked me if I would perform a chore for him, and I went to the shop, which was just a few hundred feet to the west, attended to the matter that he had asked me to do, and came back to the office, and the president's assistant was in my office on the telephone talking to Mr. Jimmy Thompkins, the vice president of Lykes Bros. Steamship Co. When I came in, he turned the phone over to me, and Mr. Thompkins, who was a good friend of mine, said, "Swede, what does it look like over there with respect to our vessel?" He referred to the *High Flyer*, Lykes Bros.' steamship, the *High Flyer*, which was in port right across from where we docked this morning. She was loading knocked down boxcars for account of the French Government. I told him that I saw no immediate danger involving this ship, that I would be there right along and that if I saw any need for the removal of his ship I would give him plenty of time for him to remove the ship to further safety, and I no more than hung up before the explosion occurred.

The roof of our building caved in, and some 10 or 12 clerks that were right in the area where my office was were injured by flying glass and debris, and we were—the assistant to the president, who was sitting at my desk, was badly hurt and lost an eye, but, anyway, we got our employees out, as many as we could, we got them all out from the office. We checked up and found that everybody was there with the exception of one clerk who was out on the dock and lost his life.

So I immediately then helped take out the injured and deliver them upown, and we had to go out the back way because of the fire in the entrance to our property, the route that we went to Monsanto this morning, that was all obstructed by a big acid barge that had been blown up in the pathway and the roadway there blocking the exit from the property on the front side, so we went out the back way, and as soon as I delivered the people in the automobile that I was with to the clinic for first-aid treatment I went by to see how my family was and asked Mrs. Sandberg to go by and stay with Mrs. Mikeska, the president's wife, because I felt like Mr. Mikeska was lost, knowing the approximate location he would be at the time of the explosion.

I returned to the area and I first stopped by the clinic and got a little first aid myself. I returned to the area to be of whatever assistance I could and stayed down there until the early afternoon, when I came uptown and helped—Mayor Trahan, he asked me to help him coordinate the different agencies, the Red Cross, the National Guard; there were a lot of people running in needing this and that and didn't know where to turn for it, and I lived here a long time, and being a member of the disaster committee, why, I was familiar with the locations of vital materials, such as draglines and machinery, and so on, but about 6 o'clock that evening, or 6:30, a rescue gang returned from the dock area and said, "There's another ship down there with that dynamite on it that's on fire," and I said, "Why, what do you mean dynamite?" He said, "That ammonium nitrate." I said, "There's no ship in port with ammonium nitrate on it now." He said, "Yes, there is, because here's a fellow that helped put it on." He said, "Yes, Mr. Sandberg, the *High Flyer* is down there." I said, "Well,

she's not on her berth." He said, "Well, she's drifted on down the slip some."

I still didn't believe it, because having worked in there all afternoon down on that dock road where we disembarked this morning, I had walked up and down that road many times that afternoon, early afternoon, and when I noticed that the berth where the *High Flyer* was docked was empty I felt like that Mr. Thompkins had removed the *High Flyer* from Texas City so I had no worry there whatsoever, but what had happened, the impact from the first explosion had broken the mooring of the *High Flyer* and she drifted down and lodged against another ship that was on the opposite side of the slip, the *Wilson B. Keene*, and lodged up against the *Wilson B. Keene*, and because of the warehouses and all being on fire, and we had a north wind blowing, the smoke, the pall of smoke was so great that it just obliterated that end of the slip and you could not see what was beyond that pall of smoke, so that hid the *High Flyer* from the dock road, and caused me to make the statement that there was no ship in port that had any ammonium nitrate on it.

Well, I wasn't convinced and I went down with Capt. Will Hansen of the Houston Police Department, in his squad car, and walked down to the apron, that is, the two-story concrete pier of ours some 1,180 feet long, and there I found the *High Flyer* still in port but lodged up against the *Wilson B. Keene*, but I was unable to tell whether it was on fire because of the dense smoke coming from the northerly direction from the two warehouses that were burning.

I returned to the city hall upstairs and we had a telephone strike on but I was able, after some difficulty, to get a call through to Mr. Thompkins at Lykes Bros. and I inquired of Mr. Thompkins why he hadn't got the *High Flyer* out earlier. He assured me that he had tried all afternoon, that he could find no one that was willing to man tugboats and come into the devastated area. However, he was still working on it and he felt shortly thereafter they would be able to. It wasn't too long after that I learned from him that they had a crew that had come from New Orleans; it was going to man tugs and they would be over, and he asked if I would have some gas masks for him and I told him they would be cutting torches because I thought they would have to cut the chains loose, or something to get the boat out. I would imagine that somewhere around 11 or shortly thereafter that evening, that night, the tug boats showed up and we furnished them with gas masks and they went to work putting the hawsers onto the ship and trying to pull her out. They had no luck, and they came back and reported to me that apparently the boat was lodged on some debris that had blown into the channel from the first explosion, and I told them to keep on trying to get that boat out if for no other reason than the psychological effect it would have on the people in Texas City. The radios had already warned the people there would probably be another explosion, there was another ship on fire in port, and warning them to get out of town.

So a few minutes after 1 o'clock I noticed what appeared to be Roman candles coming out of the midship in the direction of the *High Flyer*. At the same time, through the smoke, I had lost sight of the red lights on the foremast of the tugs, which indicated that they had given up and moved on, and when I saw those Roman candles, as I like to describe them because they were an exact replica of a Roman

candle shooting skyward, I gave orders to blow the whistle and clear the area of some 200 to 300 workers in that area, and we got everybody out of there with the exception of 10 or 15 workers who were right close to the big acid barge that had been blown up, when the second one went off. We, of course, assembled everybody, the few that were there following the second explosion, and we found 2 men only who had been seriously injured, 1 having lost a leg. We applied first-aid, loaded them in the truck and I made one last look around to see that we weren't leaving anybody, and when I turned back everybody had left me down there. I was down in that area at 1:30 in the morning by myself and, gentlemen, I can tell you that that was an eerie sight.

I returned then, had to walk up to this building, and returned up here, and, of course, from that time on, why, we had no more—ammonium nitrate continued to burn down there until we had the Coast Guard come into port and wash it overboard.

Mr. HYDE. You say the ammonium nitrate continued to burn. You mean there was some on shore?

Mr. SANDBERG. Yes, sir, there was some at the location, we found a few bags over—I say a few, it probably could have been as many as a hundred, that for some reason had not blown up but was burning profusely over on the water edge, and we asked the Coast Guard to come in and wash it overboard, which they did.

Mr. BRICKFIELD. Mr. Sandberg, you say you were associated with this Texas City Terminal Railway since 1917?

Mr. SANDBERG. With the exception of 2 years, Mr. Brickfield; I started in 1917 and in 1920 I went with the Sante Fe and came back in 1922.

Mr. BRICKFIELD. Now, at the time of the Texas City disaster and for a year previously you had been an officer of the company?

Mr. SANDBERG. I had been an officer of the company since 1930.

Mr. BRICKFIELD. Now, this company, it is essentially a warehouse company?

Mr. SANDBERG. No, it's principally a switching terminal that owns the docks and wharves.

Mr. BRICKFIELD. As an officer of that company, did you from time to time have occasion to familiarize yourself with the rules and regulations of the Interstate Commerce Commission?

Mr. SANDBERG. Yes, sir.

Mr. BRICKFIELD. Do you know that from time to time the Commission publishes lists of articles that are to be shipped in interstate commerce?

Mr. SANDBERG. Well, I am sure, Mr. Brickfield, I know that they do. At the same time, we have found in most instances where these lists that you have reference to, we found very few violations. In fact, I don't ever recall finding—

Mr. BRICKFIELD. Well, did you ever consult these lists to find out if ammonium nitrate was on them?

Mr. SANDBERG. No, sir.

Mr. BRICKFIELD. You never did?

Mr. SANDBERG. No, sir.

Mr. BRICKFIELD. All right. To return to the questioning of Mr. Lane before, and on which Mr. DeWalt's testified, how many burned

bags would you say were in the average carload of FGAN when it was brought into your terminal?

Mr. SANDBERG. Oh, it varied; I'd say anywhere from 6 to 8, up to 15 sometimes.

Mr. BRICKFIELD. All right; 6 to 8 bags, and how many bags were in the average boxcar?

Mr. SANDBERG. About 800.

Mr. BRICKFIELD. So that would be about 1 percent?

Mr. SANDBERG. That's right, roughly.

Mr. BRICKFIELD. About 1 percent of the bags were burned. Was there any time any fires were had here in the Texas City Railway Terminal?

Mr. SANDBERG. No, sir.

Mr. BRICKFIELD. You just saw burned or charred bags, but you never had occasion to report or see a fire?

Mr. SANDBERG. Those bags, I might say, Mr. Brickfield, when we say burned, were in parched condition, they were not burned in the sense that they were, part of them were removed or anything; they were all together in one piece when we would pick them up.

Mr. BRICKFIELD. Now, I think this is important. You said that from time to time and on several occasions over the year you made complaints to the various people?

Mr. SANDBERG. That is correct.

Mr. BRICKFIELD. And as a result of one of these complaints a Mr. Steed came down to Texas City?

Mr. SANDBERG. Yes, sir; and a little later a Mr. Christensen.

Mr. BRICKFIELD. And Mr. Steed advised you that this FGAN was not inherently dangerous?

Mr. SANDBERG. That is correct.

Mr. BRICKFIELD. Did he say it was not inherently dangerous as an explosive or that it was not inherently dangerous in that it would not burn?

Mr. SANDBERG. Well, as I recall, Mr. Brickfield, I asked him if this material was dangerous and would it explode, and he said, his answer was "No."

Mr. BRICKFIELD. It would not explode?

Mr. SANDBERG. That's right.

Mr. BRICKFIELD. He didn't comment on whether or not it would burn?

Mr. SANDBERG. No. He asked me what made me ask that question, and I said, "Well, it was a little unusual to get a commodity in such a heated condition and, knowing it had come from an ordnance plant, I just wondered if there might be some association of that with an explosion."

Mr. BRICKFIELD. Well, knowing that these bags charred, did you have any opinion yourself as to the possibility of having a fire?

Mr. SANDBERG. No, sir.

Mr. BRICKFIELD. You did not. Now, when these bags burst and spilled, you say the employees of your railway from time to time swept up the ammonium nitrate that had spilled and repacked it in bags?

Mr. SANDBERG. That is correct.

Mr. BRICKFIELD. And when they swept up this ammonium nitrate, was it just the fertilizer itself without pieces of charring mixed in with the fertilizer?

Mr. SANDBERG. Well, now Mr. Brickfield, where we had a couple of bags or 3 or 4 bags that might have broken within the car, we would shovel that into a wheelbarrow and take it to a place inside the warehouse and place it on some paper dunnage. The time might—the opportunity might not present itself right at that time to bag that material and it would be allowed to lay in there for several days, and it would be very easy for it to become contaminated with other materials, dust from the floor; well, we always, when we empty a warehouse we always swept it right out following the material moving out.

Mr. BRICKFIELD. Well, your decision to rebag this material, was it your own, did you act on your own initiative or did you get directions from the agent in Houston or did you get directions from the Army ordnance plant, say, in Nebraska?

Mr. SANDBERG. Well, the agent in Houston had the ordnance plant—either the ordnance plant, I don't recall at the moment, either the ordnance plant or the French Supply Co. to send us down a supply of bags, and it is my recollection that we billed the French Supply Co. for the bagging of the material that had been recovered.

Mr. BRICKFIELD. Did anyone suggest to you that you should rebag this material?

Mr. SANDBERG. No; neither did they tell us it couldn't be rebagged.

Mr. LANE. Mr. Sandberg, do you care to comment on this little section here on page 147 of the brief for the United States, No. 308, October term 1952, in the case that went to the Supreme Court, and I wish to quote:

Thus, petitioners' witness Sandberg of the Texas City Terminal Railway Company (a petitioner) testified that the number of broken bags averaged from four to twelve per box car or one-half to one and a half percent (R. 12628-9). When it is recognized that much, if not all, of the expectable breakage of the paper bags was due to matters wholly unrelated to haggling temperatures, e. g., nails in box cars, errors in sewing the bags, or careless unloading—

cites the pages —

this breakage figure is singularly unimpressive. Similarly, petitioners cite a series of reports covering the period from October through December 1946 and the superficially startling figure 11,000 as the total of broken bags received for shipment at Gulf Port, Mississippi. But this figure, the cited pages show—

and then the page—

is the number of broken bags out of a total of over 570,000 covered by the reports—or less than two percent—and is again heavily weighted by breakage from causes other than heat.

The evidence showed, moreover, not only that many reports of hurt bags were erroneous, but that these reports were carefully investigated and that steps were taken to remedy the causes of breakage.

Mr. SANDBERG. I think, Congressman, that with respect to the number of bags that might have been broken due to poor crating, nails, was insignificant, but that was not the point that we were trying to bring out. We were trying to bring out this point, and I think it is very important, that here was material coming in to us. It seems important now. At that time it didn't seem important. We were merely concerned about the claims that were to arise through the necessity of having to rebag this material. But we mustn't lose sight

of the fact that this material, which some say is not explosive and other say that it is, came in to us in an unusual fashion, in that it was hot, and that when those bags burst because of their parched conditions and that material was recovered it goes without saying that other foreign matter became integrated with that material, and from what we have learned now of the sensitivity of the material, it certainly had a bearing on what could have caused this disaster.

Mr. LANE. Did you know at any time that this FGAN contained this moisture absorption commodity?

Mr. SANDBERG. No; but we soon found out that when you had a foggy day and you had some of that material laying open in a pile that some moisture would accumulate around it, but that didn't mean anything to a fellow in my position who is not familiar with the chemical terms and what the material might have. That meant nothing to me, Mr. Lane.

Mr. LANE. I just asked you because of the fact you testified that when these sacks of FGAN were stored there in the warehouse that you placed paper or cardboard on the floor to repel any moisture.

Mr. SANDBERG. It accumulated moisture, and as you could see this morning, we have our share of it at certain times of the year, and so that we tried to prevent as much as possible, especially those bags that would be on the bottom of the floor, you know, to accumulate more than the other; again a preventive measure from having broken bags, it was another one of those steps we took.

Mr. LANE. Just another question, Mr. Sandberg. Now, after this explosion, do you know whether or not you or your company handled or had anything to do with the transportation of FGAN?

Mr. SANDBERG. Did we have anything to do with the transportation of it?

Mr. LANE. After this explosion, after the experience of this explosion?

Mr. SANDBERG. No, sir; only to this extent, Mr. Lane; on the day of the explosion a considerable amount of ammonium nitrate was in Texas City. Some of it had not been brought into the dock area. It was out on our switch docks, and so immediately just as quickly as we could divert that material to some other location we did so, as soon as we got instruction, and I might say that some 5 or 6 months later a ship blew up in Brest, France, a Liberty ship, and being of an inquisitive nature I thought there might be a possibility that some of those cars that had been in Texas City on the day of the disaster might have found their way into the hold of that ship which had been loaded in Baltimore, Md. We sent men to Baltimore to check the cargoes and the initials of the cars that went on board that boat, and much to our amazement some of the cars that had been loaded with ammonium nitrate in Texas City on the morning of the disaster were placed above that—aboard that ship that was loaded in Baltimore, Md., and exploded outside the harbor of Brest, France, I would say somewhere in the period of 5 or 6 months later.

Mr. LANE. When you say ammonium nitrate, for the record, you mean this FGAN?

Mr. SANDBERG. I mean fertilizer; yes, sir.

Mr. LANE. Are you handling any of it now?

Mr. SANDBERG. No, sir. That isn't all, Mr. Lane; when we get those docks back we won't be interested in loading it then.

Mr. JONAS. Did you witness the mechanics employed by the stevedores and used in wheeling or taking the bags of nitrate out of your warehouse and getting it on this ship that was docked?

Mr. SANDBERG. Yes, sir. One time they handled it in net slings, and I think at the time of the disaster they were using pallets.

Mr. JONAS. How do they get them out of your warehouse? Do they have trucks?

Mr. SANDBERG. Trucks; yes, sir.

Mr. JONAS. And then wheel them out to the ship and put them in a conveyance and lower the bags down in the hold of the ship or drop them down?

Mr. SANDBERG. Oh, no; they used the utmost care in dropping those pallets into the ship's hold. They load them with speed, but, of course, they had considerable amount of broken bags in the ship's hold.

Mr. JONAS. Do you know if there is anyone here who is a witness to enlighten the committee on that?

Mr. SANDBERG. I think Mr. Suderman is going to be a witness following me and he can testify.

Mr. JONAS. Was he in charge there on the day of the explosion?

Mr. SANDBERG. Yes.

Mr. JONAS. Have you finished your testimony?

Mr. SANDBERG. I have unless you gentlemen have something you would like to ask.

Mr. LANE. Mr. Sandberg, one question; will the next witness be able to tell us where there was any difference in the filing or storing of them on the ship and storing them in the warehouse?

Mr. SANDBERG. Oh, I think he can.

Mr. LANE. And now you say that this fire or explosion that broke out at Brest, France, was on the ship?

Mr. SANDBERG. Yes.

Mr. LANE. And this was on the ship?

Mr. SANDBERG. Yes.

Mr. LANE. Not while it is in the warehouse or the freight car or anything else?

Mr. SANDBERG. That's right. I might say this, Congressman Lane, that they benefited from our experience in Texas City and was able to get the ship out from the city so that they never had the devastation that we had in Texas City.

Mr. JONAS. Do you have a question, Mr. Hyde?

Mr. HYDE. Mr. Sandberg, as far as the record of your company was concerned, who was the shipper of this ammonium nitrate?

Mr. SANDBERG. The various ordnance plants, it showed that on the face of the expense bill, Chemical Works, Lion Oil Co., or whoever shipped it, it showed on there and it was signed for, the bills of lading were signed usually by an officer of the United States Army.

Mr. HYDE. Bills of lading for all this was signed by an officer of the United States Army?

Mr. SANDBERG. Yes, sir; and in many—in most instances, in fact, every car that I ever saw unloaded on the itinerary of that car was a packing slip that was a form and it showed that it was shipped from an ordnance plant at such and such a location and was signed by, in most cases, a captain of the United States Army. I don't recall

having seen one of those packing slips inside the car, which stated the number of bags of material in that car and the number of empty bags and a description of the material and then signed by an Army officer of the United States Army.

Mr. JONAS. You were entitled to compensation, were you not, not you, but your railroad terminal, for transporting the property in question and getting it into your warehouse?

Mr. SANDBERG. Yes, sir.

Mr. JONAS. Who did you look to to pay for that?

Mr. SANDBERG. I might say this material moved to the various ports on what is known as an export rail rate, and in that rail rate, in our case it included our switching charge from the connecting point to Texas City and also included the amount of wharfage and the amount of the unloading charge which was a flat so much per ton, so—

Mr. JONAS. All right, now, relative to prices of these particular bags that you had in your warehouse, since they were part of this explosion, can you tell me to whom you are going to look or did look to for pay?

Mr. SANDBERG. Yes, sir; we looked to the railroad that delivered the material to us at Texas City junction.

Mr. JONAS. You didn't look to the Government for payment?

Mr. SANDBERG. No, sir.

Mr. JONAS. You looked to the railroad that brought it to your terminal for distribution?

Mr. SANDBERG. That's right. We collected the money from the railroads that are delivering lines. If it came in by the Santa Fe Railway, we bill the Santa Fe for the wharfage, the car unloading, and the switching. If it came by MKT and Missouri-Pacific we look to the Missouri-Pacific to pay those charges.

Mr. JONAS. Who owned the warehouses where the surplus was stored from which you took your supply to load the boat known as the *Grandcamp*?

Mr. SANDBERG. The Texas City Terminal Railway Co. owned the docks.

Mr. JONAS. Is there where you were an officer?

Mr. SANDBERG. Yes, sir.

Mr. JONAS. Now and then?

Mr. SANDBERG. I was then and now.

Mr. JONAS. Now, for the storage and maintaining the product under a roof, was the pay exacted from the railroad that brought the goods up to the terminal where you began distributing it from?

Mr. SANDBERG. No, sir; that was for the account, they had a certain number of days of free time and after that free time expired then we looked to the French Supply Council.

Mr. JONAS. To whom?

Mr. SANDBERG. French Supply Council.

Mr. JONAS. French Supply Council?

Mr. SANDBERG. Yes, sir. The material was consigned to them. They had made arrangements with us as the warehouseman, and we handled it in the warehouse and delivered it to them in the warehouse, and then the French Supply Council paid us if the material stayed in our warehouse in excess of the free time.

7 or 8 hours that there could have been a considerable more heat to it than at the time it left the Ordnance depot; I mean that would be the normal thing to think, so, gentlemen, I at no time made any statement, gentlemen, and I so testified, I think at the trial in the district court, that I was happy over the condition of the bags when they were received in Texas City. There were improvements noted from time to time, but we never did get the improvement that we had sought from the time we commenced getting it in the damaged conditions both from cooPAGE and from heat.

Mr. LANE. You understand, Mr. Sandberg, that I ask these questions because of the fact that other members of Congress are not going to read the testimony, they are going to read the report of our hearings.

Mr. SANDBERG. I thoroughly understand, and I am only too happy to have any questions. This is the time to answer them. Ask them right now.

Mr. LANE. That's all.

Mr. JONAS. That's all. Thank you, Mr. Sandberg. We'll move on to our next witness.

The next witness is Mr. Suderman, C. P. Suderman.

**STATEMENT OF C. P. SUDERMAN, SUPERINTENDENT, A. D. SUDERMAN, STEVEDORES, GALVESTON, TEX.**

Mr. JONAS. Will you state your name and your address and your business for the record, please.

Mr. SUDERMAN. C. P. Suderman, 3910 Avenue R-1/2 Galveston.

Mr. JONAS. Galveston, Tex.?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. What is your business or occupation?

Mr. SUDERMAN. Outside superintendent of the A. D. Suderman Stevedores.

Mr. JONAS. You, I take it, are familiar with the circumstances that immediately preceded this explosion that's under the investigation by our committee?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. Prior to the time of the explosion were you employed anywhere near or about the scene of the catastrophe?

Mr. SUDERMAN. I was employed on the ship, the *Grandcamp*.

Mr. JONAS. The *Grandcamp*?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. Who was your employer?

Mr. SUDERMAN. A. D. Suderman Stevedoring.

Mr. JONAS. Were you in business for yourself?

Mr. SUDERMAN. No, sir; my brother.

Mr. JONAS. You were working for your brother?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. Was your brother's business operating under a trade name or a partnership or corporation?

Mr. SUDERMAN. Partnership.

Mr. JONAS. Were you a partner?

Mr. SUDERMAN. No, sir.

Mr. JONAS. You were working for him on a salary?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. How long have you been working for your brother in this capacity?

Mr. SUDERMAN. Oh, at that time about 20 years.

Mr. JONAS. About 20 years?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. And had your work been confined for some time past to that of loading ships or unloading ships at this dock that was ultimately blown up?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. Now, Mr. Suderman, just relax and take it easy and tell us in your own way just what you can add to this record from your own personal knowledge and observation as a result of being at the scene of the explosion and all of the details in connection with this job that you undertook at that time.

Mr. SUDERMAN. Well, this boat came ahead, and we were going to boat this ammonium nitrate in two hatches, No. 2 and No. 4. No. 2 hatch was supposed to take considerably more than No. 4, so we had been working it day and night. No. 4 hatch was only worked in the daytime. So on the morning of the explosion I arrived at the dock a little after 7 o'clock—

Mr. JONAS. That would be April 16, 1947?

Mr. SUDERMAN. Yes. Shortly after the men assigned to No. 2 hatch had gone to work for the day. We were in the shed checking our cargo and at 8 o'clock the gang for No. 4 reported to work. They went aboard the ship and uncovered the hatch, and at that time my foreman himself was out in the shed trying to get cargo that was suitable for No. 4 hatch to load.

Mr. JONAS. What is the name of your foreman?

Mr. SUDERMAN. Fagg.

Mr. JONAS. Spell it for the record, for us.

Mr. SUDERMAN. I think it is F-a-g-g. He and I were in the shed at that time talking with the clerk, and the men went aboard the boat and started to uncover No. 4 hatch. They had been up there possibly 5 or 10 minutes, in the course of uncovering the hatch, and when they uncovered it and got it open they saw smoke coming from the side of the ship on the starboard side and they immediately called for me to come aboard.

We went on board along with Fagg. We looked down in the hold of the ship and we saw smoke coming up between the bags and the side of the ship. It was down, I would say, from the height of the cargo at that time it was about 6 feet high in the lower hold.

Mr. JONAS. You are using the terms "bags" now; what have you reference to?

Mr. SUDERMAN. Nitrate bags, paper bags.

Mr. JONAS. Where were those bags taken from in order to get to the ship?

Mr. SUDERMAN. Taken out of the warehouse, Texas City.

Mr. JONAS. How long before the 16th of April was it?

Mr. SUDERMAN. We had been loading it the day before.

Mr. JONAS. The night shift had been?

Mr. SUDERMAN. No, sir; the day shift was loading in No. 4 hatch only. The night shift was loading in No. 2.

Mr. JONAS. And the night shift worked the previous evening before the 16th of April; is that right?

Mr. SUDERMAN. At No. 2 hatch.

Mr. JONAS. And were taking these bags of nitrate out of the general warehouse that Mr. Sandberg has described here; is that correct?

Mr. SUDERMAN. Yes.

Mr. JONAS. So that when you looked down into this particular section of the ship known as the *Grandcamp* and at the hatch where you fixed the location, there were bags in there that had been taken out of the warehouse; that previously were stored and under the control of this Terminal Railway Co.?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. And the bags were filled with nitrate ammonium; is that correct?

Mr. SUDERMAN. Yes.

Mr. JONAS. Now, go ahead from what you observed.

Mr. SUDERMAN. We saw the smoke coming up from that. The men had left the water bucket in there from the day before, so they poured the water out of this bucket down the side, thinking they might be able to put it out. It had no effect on it, so the French crew members came down there with extinguishers and they tried to put it out, but the smoke was getting thicker all the time, so the captain—

Mr. JONAS. Just where were you standing with reference to where these bags were located?

Mr. SUDERMAN. Right in top of the hatch where I could look down on the cargo.

Mr. JONAS. The hatch is located where?

Mr. SUDERMAN. No. 4 hatch.

Mr. JONAS. Is it on the deck of the ship?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. How far was it from the top of this hatch to the layer of bags that you observed, in feet?

Mr. SUDERMAN. I would say about 20 feet.

Mr. JONAS. Go ahead from there.

Mr. SUDERMAN. And the French crew members brought some fire extinguishers down there and tried to put the fire out by just pouring the small hose down in the direction the smoke was coming. They had no success and the smoke became worse, so the captain came out on deck and was standing alongside of me and says, "Stevedore," he says, "we better cover up this hatch and put steam in it." So our longshoremen and the crew members all got together and we started covering the hatch up, spread the tarpaulin, put the wedges in, and then they put the steam in it to smother the fire.

Mr. JONAS. You battened down the hatch again, did you?

Mr. SUDERMAN. Yes, sir.

Mr. LANE. Is that the usual way to put out the fire?

Mr. SUDERMAN. Yes, sir. After we got it all battened down, I told my men to cover up No. 2 also so they would all get off the ship on account of the fire, we didn't want anything to happen to No. 2 up there, so we covered No. 2 up, too, and all my men walked off the ship at 8:30 in the morning, and I followed them off the ship and left there and went over to a forwarding office by the name of Latta and called up Galveston and told the agent, E. S. Binnings Co., I talked to Mr. Westernman and told him that we had a fire aboard the boat, to please notify the board of underwriters and also try to get the Galveston fireboat to come over. I didn't know anything about how Texas City

was situated for fire equipment, and I returned to the docks, after making this telephone call, and was standing down about 400 feet from the stern of the ship and about 20 feet on the apron of the dock, and I was standing there talking to 2 men at the time of the explosion, and while we were standing there talking, Mr. Sandberg and Mr. Mikeska both came up, and Mr. Sandberg went back to his office and Mr. Mikeska continued on down to the ship. At the time the fire exploded there were firemen down on the boat fighting the fire.

Mr. LANE. Where did they come from?

Mr. SUDERMAN. That I couldn't tell you. They come from some place in Texas City.

Mr. JONAS. They were local firemen?

Mr. SUDERMAN. I imagine they were.

Mr. JONAS. Not part of the crew.

Mr. SUDERMAN. No, sir, the crew, before the explosion, they abandoned the ship.

Mr. JONAS. What was the local fire department doing about putting out the fire when you saw them on board the ship?

Mr. SUDERMAN. I imagine they were putting water on it.

Mr. JONAS. Did you see them doing it?

Mr. SUDERMAN. I was standing about 400 feet away from them. I never did go back alongside the ship.

Mr. JONAS. You don't mean they were down the hold of the ship?

Mr. SUDERMAN. No, sir; on the decks.

Mr. JONAS. On deck?

Mr. SUDERMAN. Yes, sir; deck and on the docks.

Mr. JONAS. Was there a fire engine there, pumping apparatus?

Mr. SUDERMAN. I think there was a pumper down there.

Mr. JONAS. Go on.

Mr. SUDERMAN. When I was standing there talking to these two men, why, at that time the explosion took place, and I imagine it was a little—well, I found out it was about 9 to 12 when the explosion took place, and it threw me back about 20 feet and just piled all this 3-inch planking on top of me and I was finally picked up by some Red Cross rescue workers and they picked me up and took me over to a first-aid station, and during the time that I was there I was talking with, I think, about 4 or 5 other men who were along in that same vicinity and when they picked me up I evidently was the closest one to the road, so they saw me first and after I got over there I told them there was some other men right close by where I was, would they send over there and get them. So at that they took me to Galveston to a hospital where I lay for 87 days. They amputated one leg and left me this one leg that's not too good now, not good enough for me to wear an artificial leg on one of them, and from then on that's about all I can tell you.

Mr. HYDE. Mr. Suderman, you said the crew abandoned the ship. Is that customary for the crew to abandon the ship when there is fire like that?

Mr. SUDERMAN. I imagine when the firemen came on the crew left the ship.

Mr. HYDE. Have you had any experience with ships on fire?

Mr. SUDERMAN. Yes, sir.

Mr. HYDE. Is it customary for the crew to abandon the ship?

Mr. SUDERMAN. Not unless it gets too hot for them. I never have seen them abandon it before.

Mr. HYDE. You don't know of any particular reason why this crew abandoned this time?

Mr. SUDERMAN. No, sir; other than that they figured the fire was beyond control.

Mr. LANE. Mr. Suderman, just a few questions. Will you tell me now about these hatches, are they separate compartments, are they divided, one hatch to another?

Mr. SUDERMAN. That is depending on construction of a boat. In this particular type boat, a Liberty ship, you have a bulkhead between each hatch. This boat where we were loading No. 2 and No. 4 hatch, between the 2 hatches you had 1 hatch, No. 3, and the engineroom divided away from No. 4.

Mr. LANE. Now, what was stored in hatch No. 3 and would be the one in between 2 and 4, I assume?

Mr. SUDERMAN. Well, we haven't put any cargo in there; I don't know what was in that part of the ship. We didn't load anything in there; never uncovered it.

Mr. LANE. You say you had supervision of the loading of these bags into both hatch No. 2 and hatch No. 4?

Mr. SUDERMAN. Yes, sir.

Mr. LANE. And the difference is 1 had a night crew and 1 had a day crew; is that right?

Mr. SUDERMAN. Yes, sir.

Mr. LANE. Now, will you tell the committee just in what way these bags were stored in those hatches? Were they piled up similar to the piling or the storing in the freight cars and in the warehouse or was there anything different in the piling into these hatches on the ship?

Mr. SUDERMAN. No, sir; in loading cargo like that we piled one bag right on top of the other, and you bring it up to your height.

Mr. LANE. There is no separation between the bags?

Mr. SUDERMAN. No, sir.

Mr. LANE. Was there anything else piled into hatch No. 2 and hatch No. 4 except this commodity, ammonium nitrate?

Mr. SUDERMAN. No, sir; that was all that was in either one of them.

Mr. LANE. They were both empty and these bags were piled in there; is that right?

Mr. SUDERMAN. Yes.

Mr. LANE. And no other commodity in these hatches?

Mr. SUDERMAN. No, sir.

Mr. LANE. I think that's all.

Mr. HYDE. After the crew abandoned the ship, did they stay in the general area alongside the dock, or do you know? Did they leave the area?

Mr. SUDERMAN. I couldn't tell you that.

Mr. HYDE. You don't know whether or not they were told to abandon by the captain, do you?

Mr. SUDERMAN. No, sir. I wasn't on the ship when they came off the ship. I saw them come off, but I wasn't there.

Mr. HYDE. Did they abandon the ship before the firemen got there or afterward?

Mr. SUDERMAN. No, no, it was after the firemen got there.

Mr. HYDE. Was the fire getting pretty bad by the time they abandoned?

Mr. SUDERMAN. Yes, sir.

Mr. HYDE. That's all.

Mr. LANE. Any casualty among the French crew, do you know?

Mr. SUDERMAN. I afterward heard there was. I believe there were only 4 or 5 of them that survived it.

Mr. LANE. The two men that were talking to you at the time of the explosion, were they more fortunate than you?

Mr. SUDERMAN. No, sir, they were both killed. They were—acted more as a shield to me. They had their backs to the ship and I was looking right at it and I think they shielded me.

Mr. BRICKFIELD. Mr. Suderman, whose decision was it to cover the holds of the ship?

Mr. SUDERMAN. Well, the captain and I were standing there together and he said, "Well, I think we better cover up and put steam in there to smother the fire."

Mr. BRICKFIELD. Is putting out a fire by the use of steam a common or the customary method, if you know?

Mr. SUDERMAN. Yes, sir; that is customary.

Mr. BRICKFIELD. Is it preferred to putting out a fire by means of water?

Mr. SUDERMAN. Yes, sir; in this respect, if you put water in any kind of cargo like that, bag cargo or anything, that water might damage it. If you put the steam in there, the steam will smother the fire but won't damage the cargo.

Mr. BRICKFIELD. In other words, if you put a fire out by the use of water you usually have a ruined cargo?

Mr. SUDERMAN. Yes, sir.

Mr. BRICKFIELD. And by putting it out with steam you have very little damage to the cargo?

Mr. SUDERMAN. Yes, sir.

Mr. BRICKFIELD. So that the reason for using steam to put out a fire is in at least one sense an economy measure?

Mr. SUDERMAN. Well, yes, sir; you can call it an economy.

Mr. BRICKFIELD. That's all I have.

Mr. JONAS. Probably before we close with your testimony you can tell us how deep it was from the deck to the hold, to the bottom of the hold of this ship.

Mr. SUDERMAN. I would say from the bottom it would be about 19 or 21 feet, from the deck to the bottom, to the very bottom of the boat.

Mr. JONAS. Now, you had to wheel in your bags to the deck of the ship, didn't you?

Mr. SUDERMAN. Sir?

Mr. JONAS. You had to wheel in or cart the fertilizer, the bags filled with fertilizer or ammonium nitrate, rather, we will call it, from the warehouse to the deck of the ship; isn't that correct?

Mr. SUDERMAN. No, sir. We took it from the warehouse to the side of the ship.

Mr. JONAS. Was there an entrance to the side of the ship?

Mr. SUDERMAN. No, sir. We picked it up with winches.

Mr. JONAS. What vehicle did you use transporting the bags from the warehouse to the side of the ship?

Mr. SUDERMAN. We put a tray.

Mr. JONAS. A tray?

Mr. SUDERMAN. Tray on a 4-wheel truck and we loaded the tray while it was on the 4-wheel truck and then pulled the 4-wheel truck along with the tray and the load to the side of the ship.

Mr. JONAS. Then when you got along the side of the ship it was put in a receptacle and the winch lifted it up on the deck?

Mr. SUDERMAN. No, sir, on this tray you have 4 eyes, 1 on each corner; you have what you call a pry with a hook on it and you hook on each corner with this pry.

Mr. JONAS. It's like lifting up a large basket?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. Then you convey it to the opening of the ship, which is on the deck, and which you call the hatch?

Mr. SUDERMAN. Yes.

Mr. JONAS. And then loaded it down to the hold of the ship?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. Were there men down there who took it off of the receptacle and unpacked it?

Mr. SUDERMAN. They unloaded it and took it off the tray.

Mr. JONAS. Were any of these men down there at the time when you saw smoke coming out of the hatch?

Mr. SUDERMAN. Yes, sir. They hadn't started working yet.

Mr. JONAS. But they were down there?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. Were they warned and did they come out?

Mr. SUDERMAN. Yes, sir, they came out.

Mr. JONAS. Are those men alive today?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. Have they ever been questioned, as far as you know, as to what they observed about the smoke or fire starting down there?

Mr. SUDERMAN. I imagine they were questioned during the trial.

Mr. JONAS. You personally don't know whether they were or not?

Mr. SUDERMAN. No, sir, I couldn't say that.

Mr. JONAS. Did you ever talk to any of them since the day of the explosion?

Mr. SUDERMAN. No, sir.

Mr. JONAS. How many men were down there, as far as you know, immediately preceding the explosion?

Mr. SUDERMAN. There were supposed to be eight men down there in the hold.

Mr. JONAS. Did you see any of them come up out of the hold of the ship when you were discussing the smoke there?

Mr. SUDERMAN. Yes, sir, I saw they all were. We were responsible for them.

Mr. JONAS. They were under your supervision, your jurisdiction, and belonged to your operation?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. They all came up?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. In the course of having them come up out of the hold of the ship and assemble them on deck, as I presume you did, did you hear any opinion expressed as to what was the cause of the fire?

Mr. SUDERMAN. They just said it was fire down there and wanted to know what to do.

Mr. JONAS. How long had they been down in there, as far as you know? When I say in there, I mean the hold of the ship, before they were called on deck; how long had they been down there?

Mr. SUDERMAN. I would say they were there at least 5 to 8 minutes. They had just gotten down there and then they threw this water on where the smoke was coming from and the fire extinguishers were used to try to put it out and they were told to come up.

Mr. JONAS. In other words, they had just gone down there?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. And at the time of going down was there already evidence of smoke coming out of there?

Mr. SUDERMAN. Just as soon as they uncovered the hatch, the air came in and the smoke started up.

Mr. JONAS. When you uncovered the hatch there was nobody down there at that time?

Mr. SUDERMAN. No, sir.

Mr. JONAS. How much time elapsed between the time that this ammonium nitrate was loaded in the ship and up to the time that you uncovered the hatch and were ready to send men down there?

Mr. SUDERMAN. The men assigned to the hatch were knocked off the afternoon before at 5 o'clock and it was covered the whole night until 8 o'clock the next morning.

Mr. JONAS. In other words, when you say knocked off, you mean it was—

Mr. SUDERMAN. It was covered up and secured for the night.

Mr. JONAS. That's when they finished working, putting the material down there?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. So it was closed from 5 o'clock until the next morning at 8 o'clock?

Mr. SUDERMAN. Yes, sir.

Mr. JONAS. Immediately after you lifted up the hatch you noticed this smoke coming out of the hold of the ship?

Mr. SUDERMAN. Yes, the men noticed it and called me.

Mr. JONAS. So far as you know, the period from 5 o'clock in the evening until 8 o'clock the next morning none of your men were down there?

Mr. SUDERMAN. No, I am positive of that.

Mr. LANE. Mr. Suderman, is this section loaded down through the hatch or from the bottom up? How do you load it into that section?

Mr. SUDERMAN. These trays are brought into the ship and you start right at the bottom and you start—

Mr. LANE. Load them down through the hatch?

Mr. SUDERMAN. Yes, sir, you lower your tray down through the hatch.

Mr. LANE. Tell me now whether or not either yourself or any of the men had any trouble with any of these bags due to heat.

Mr. SUDERMAN. Well, I didn't; I never touched them.

Mr. LANE. Did any of the men complain to you about any of the bags might have been warm or hot?

Mr. SUDERMAN. No, sir.

Mr. LANE. Now, did any of the men talk to you or complain to you about any of the bags being broken?

Mr. SUDERMAN. Well, when we take them off of the pile in the dock, if they are broken we just leave them there to be repaired.

Mr. JONAS. You don't handle broken bags?

Mr. SUDERMAN. No, sir. We just leave them lay there and the Terminal Co. will come along and repair them.

Mr. LANE. If these bags were hot or broken by the time that your men get around to it you'd know about it?

Mr. SUDERMAN. I think they'd say something about it.

Mr. JONAS. That's all. Thank you very much.

Is Mrs. Henry G. Dalehite here?

#### STATEMENT OF MRS. HENRY G. DALEHITE, SR., GALVESTON, TEX.

Mr. JONAS. You are Mrs. Henry C. Dalehite?

Mrs. DALEHITE. Yes, sir.

Mr. JONAS. D-a-l-e-h-i-t-e?

Mrs. DALEHITE. Yes.

Mr. JONAS. What is your address, Mrs. Dalehite?

Mrs. DALEHITE. Box 154, Causeway Road, Galveston, Tex.

Mr. JONAS. What relation are you to Elizabeth H. Dalehite?

Mrs. DALEHITE. I am Elizabeth H. Dalehite, and I am the widow of Henry G. Dalehite, Sr.

Mr. JONAS. You are also the petitioner in the litigation that was filed in the Federal Court of the District of Texas here and which was ultimately taken to the Supreme Court of the United States?

Mrs. DALEHITE. I am.

Mr. JONAS. Now, use your own judgment and speak freely and tell the committee what you have in mind that you would like to make part of the record in the form of your oral testimony here this afternoon, if you wish.

Mrs. DALEHITE. Well, my husband was Capt. Henry G. Dalehite—

Mr. JONAS. Compose yourself and take your time, now. We are all sympathetic toward your cause, but we want to accomplish our purpose here by getting things in the record. We know how disturbing these emotional matters are to you.

Mrs. DALEHITE. My husband was a coastwise pilot.

Mr. JONAS. Coast what?

Mrs. DALEHITE. Coastwise pilot. He piloted the ships in all of the Texas areas.

Mr. JONAS. All right, and about on April 16 or 17 about how old was your husband at that time?

Mrs. DALEHITE. My husband was 47 years old.

Mr. JONAS. And at the time when he passed away or was killed did he leave a family?

Mrs. DALEHITE. Yes, sir, we had two children; Betty; she's Mrs. Thomas F. Ellis, Jr.

Mr. JONAS. She's living?

Mrs. DALEHITE. Yes, sir, and a son, Henry G. Dalehite, Jr.

Mr. JONAS. He's living?

Mrs. DALEHITE. Yes, sir, he's living.

Mr. JONAS. All right. Now, on the morning of the 16th of April, can you tell us when last you saw your husband on that day, if such was the fact?

Mrs. DALEHITE. Yes, sir. You see, my husband, you know, at that time we had this nationwide telephone strike, and to get our calls through for our business we had to get them from the agents, they used to telephone us what time the ships were coming in and what changes there were in the ships, and so forth and so on, so we couldn't get any calls through. My husband tried to get this call through and this man that was on the switchboard at the time, he said shipping is not essential and he wouldn't let him get the call through. We had a change in orders and a ship in Baytown, and he wouldn't let him get any calls through Baytown so we could get ahold of our pilot to tell him about the changing off. So he said, "Well, come on, we'll have to go and see, you might have to bring the car back." So we left and went to Baytown and we saw—

Mr. JONAS. You say "we"; who?

Mrs. DALEHITE. Captain Dalehite and myself.

Mr. JONAS. The two of you together?

Mrs. DALEHITE. Yes, sir. I always drove my husband to meet his ships and then I was able to bring the car back, or if I had to meet him at his ships so he could make a quick turn around, you know, and get back home and then we had a car. He needed a chauffeur all the time. And so we went to Baytown and he went down and we got this captain and we took this captain back and we went to meet the airplane in Houston there and had to put—there was a change in the orders of the ships and we put this captain on, left him there at the airport to catch this plane to go over to Corpus Christi to take care of a ship, and then we came back and—Do you want me to tell all that?

Mr. JONAS. Came back where?

Mrs. DALEHITE. Came back and passed down to League City to visit our little daughter, who was at her grandmother's. He wanted to tell her goodbye. We came on and had to go to Texas City to get his orders, Captain Dalehite, to get his orders for the Seatrain. It was due in the next day. So we came on up and he was—he used to get as much sleep as he could, you know, in the car, because the shipping, you know, had to get the ships going all the time, and the pilots, he took—he had other business, too, Dalehite Boat Line & Tow business, and he had to take care of all that and that's why I did all the driving. So we went on down and I told him, I said, "Is this all right," and he said "Yes."

Mr. JONAS. What date are you talking about now?

Mrs. DALEHITE. That was the morning of the 16th.

Mr. JONAS. Morning of the 16th of April?

Mrs. DALEHITE. The Texas City disaster.

Mr. JONAS. You had come from what city?

Mrs. DALEHITE. We had been to Baytown and Houston and came around through League City and stopped in there and came on down the road to Texas City.

Mr. JONAS. You are coming from Houston or some other city and driving toward League City and Texas City; is that correct?

Mrs. DALEHITE. Yes, sir. That's all on the way.

Mr. JONAS. What time did you get to Texas City?

Mrs. DALEHITE. I am sorry, I can't tell you that because time didn't mean anything to me. We had to go in and find out about the ships, and, well, that was my husband's business at the time.

Mr. JONAS. Where did you go in to find out about the ships?

Mrs. DALEHITE. Right by the Seatrain dock.

Mr. JONAS. Seatrain docks?

Mrs. DALEHITE. Yes, sir.

Mr. JONAS. And in order to be a little more specific for the record, can you describe about where they were?

Mrs. DALEHITE. Well, as we came up, there was—well, the Seatrain is right as you come on down the road. We crossed over the railroad track there by the little road right in through there and there were some Mexican houses through there and we just drove up there and I stopped and I said, "Is it all right?" He said yes. We noticed a little blaze on the ship there, but he didn't say anything and I didn't.

Mr. JONAS. How far was that away from the ship as you noticed the blaze?

Mrs. DALEHITE. As I was coming up I noticed a little blaze.

Mr. JONAS. About a block or a mile?

Mrs. DALEHITE. About a block, I guess. I don't know exactly how far.

Mr. JONAS. It was near enough so that your best estimate is it was about a block; is that correct?

Mrs. DALEHITE. Yes, sir, but, you know, a lot of times you saw little fires around there and you never worried about it and so—

Mr. JONAS. Were you both in an automobile then at that time?

Mrs. DALEHITE. Yes, sir; I was driving.

Mr. JONAS. Did you stop your automobile and did he get out?

Mrs. DALEHITE. Oh, yes, sir, I had to wait for him to get over to the Seatrain to get his orders.

Mr. JONAS. Did you stop the automobile at this destination you described and he started to walk?

Mrs. DALEHITE. He got out and I just kind of got down in the car, didn't think any more about anything, in fact, hadn't even had any idea what was happening, and I always have a little prayer that I always say, it's my novena, so I just thought I would go ahead and read my novena prayer, which I have always said my morning prayers all my life, and then the next thing I know I was blown out of the car, and I—well, I guess I was just like everybody else, just crazy or something, you know; it just was a terrible feeling.

Mr. JONAS. Can you tell us what sensation you noticed or observed when you were blown out of the car so we can tell what caused it or have you no idea?

Mrs. DALEHITE. Yes, sir, just felt like you were stunned. I don't know. You just didn't know what had happened to you.

Mr. JONAS. When you use the term "blown out of the car" you mean blown bodily?

Mrs. DALEHITE. Yes, sir, I was blown way over on the other side of the ditch, and as I was blown over there I remembered this little Mexican woman, she was running and she grabbed ahold of me and I shoved her aside, and the next thing I knew I was blown again.

Mr. JONAS. You are speaking now blown with the ear and all?

Mrs. DALEHITE. No, sir, my car was never blown there, but it was demolished, you might say; the hood was all up and they tell me that it was——

Mr. JONAS. Were the doors of your car open when your husband left you?

Mrs. DALEHITE. No, sir.

Mr. JONAS. You closed the door. So far as you know, whatever brought it about, at the time when it did occur something must have thrown you against the car door and you were thrown out when the car door opened; is that it?

Mrs. DALEHITE. Well, it must have been the impact of what it was, and it just blew everything, even the cigarettes, you know, the trays were all blown out of the car, and all the covers and everything was all blown to pieces, and then when I got back to it it seemed like—well, like I say, I was just dazed, and when I got back to the car they were putting people in it, they were all just running with them in their arms; it was a horrible sight, and the man says take the—drive on, drive on with these people to the hospital, and I couldn't because wires were all across my car and they jumped out of—a truck full of men, and cut the wires from my car, and I took these people to the hospital, and then I got out and I started running and I thought if I could find Mr. Bynum, who was the——

Mr. JONAS. How do you spell that?

Mrs. DALEHITE. B-y-n-u-m, I think, and I ran up to his building; and as I was running in these men says, "You can't go in there; that place is falling down"; and they ran after me, and I ran, and everybody was running around just like they were all stunned. I don't believe anybody knew what they were doing. All down the street with blankets around them. It was a terrible sight.

Mr. JONAS. Mrs. Dalehite, the committee has a fairly vivid impression of the horror of this accident, and I don't know whether it will serve any useful purpose in stirring up your emotions, but tell us on that day what happened from then on so far as your husband is concerned.

Mrs. DALEHITE. I never saw my husband after he left the car.

Mr. JONAS. Never saw him again?

Mrs. DALEHITE. Never saw him until they brought him home in his casket.

Mr. JONAS. Your husband was brought home, was not alive?

Mrs. DALEHITE. No, sir; not alive.

Mr. JONAS. Can you tell us the circumstances under which he was hurt or what hit him, where he was found dead?

Mrs. DALEHITE. No, sir; I don't know where he was found dead. He was found dead in Texas City.

Mr. JONAS. You don't know whether near the explosion or near the ship?

Mrs. DALEHITE. I don't know anything about that.

Mr. JONAS. How old were your children at the time? Married at that time?

Mrs. DALEHITE. Yes, sir; my daughter was married, but my son was still in law school.

Mr. LANE. Is this the boy right here?

Mrs. DALEHITE. Yes, sir.

Mr. LANE. Stand up, please.

Mr. JONAS. You are the son?

Mrs. DALEHITE. Yes, sir; this is my son.

Mr. JONAS. Now, have you told us substantially what you can tell us about this, about this situation, or is there anything more you wish to add to the record?

Mrs. DALEHITE. Not unless anything you want to ask me.

Mr. LANE. In spite of the fact that you were thrown out of this automobile and hurt yourself, you chauffeured all these other people to the hospital?

Mrs. DALEHITE. Yes, sir; and I even drove my car as far as to the Texas City Y, but how I did it I don't know.

Mr. LANE. You certainly did a good job, very good under the circumstances.

Mrs. DALEHITE. I also ran over to Mrs. Bynum's and her house was all torn up, looking for him, and by the time I tried to get back to my husband to see if I could find him they were making the people, you know, wouldn't let them get back onto the docks again.

Mr. JONAS. Was your home in Texas City at that time?

Mrs. DALEHITE. No, sir; it was in Galveston.

Mr. JONAS. It was in Galveston at that time?

Mrs. DALEHITE. Yes, sir.

Mr. JONAS. So that you have no property damage here except your automobile?

Mrs. DALEHITE. My husband.

Mr. JONAS. Your husband, of course, was killed, but I mean you had no house here that was damaged?

Mrs. DALEHITE. No, sir.

Mr. JONAS. Mr. Hyde?

Mr. HYDE. No questions.

Mr. JONAS. Mr. Brickfield?

Mr. BRICKFIELD. No, sir.

Mr. JONAS. That's all. Thank you, Mrs. Dalehite, for your testimony.

Mr. THOMPSON. It might be of passing interest to the committee to know that I was the one who identified her husband up here in the gymnasium.

Mr. JONAS. When he was brought in with the many other hundreds of victims?

Mr. THOMPSON. Yes.

Mr. LANE. The same day?

Mr. THOMPSON. No; the next day.

Mr. LANE. 17th.

Mr. JONAS. Is there anyone here—I presume it may not be material, the circumstances under which he was found. It would add nothing to the record. We know that he was identified.

I might add, for the benefit of the committee, among the attorneys who are present and have been present, if there is anyone in addition to the statement that has been made and the amplification of the facts as noted in the record and made by Mr. Bryan, is there anyone among the attorneys now whose names have been detailed here in the record who wishes to have a minute or two in making any statement or adding anything to the record? Would you like to do so?

Mr. FLETCHER. I think not. My name is Thomas Fletcher. I am one whose name was on your list. Mr. Bryan and I were closely associated in the trial of this case. I have been listening and will continue to listen to his testimony. So far as he's gone, I have nothing to add. If he should overlook anything, I will undertake to prompt him, but I see no reason for us duplicating to this committee.

#### STATEMENT OF NETH LEACHMAN, ATTORNEY, GALVESTON, TEX.

Mr. LEACHMAN. I have just a few points I'd like to make if I may.

Mr. JONAS. All right.

Mr. LEACHMAN. My name is Neth Leachman. I am an attorney, and I represent many interested parties in this litigation. I have made a few notes as the evidence has gone along, and I thought it might be worthwhile to clarify a few points.

Supplementing Mr. Bryan's testimony, there was one important aspect in the notice to the Government of the dangerous character of this material that he overlooked, and that's this, in March of 1944 the Government had an ordnance plant at Milan, Tenn., called the Wolf Creek Ordnance Plant, and in March of 1944 they were manufacturing this fertilizer grade of ammonium nitrate there, and during the manufacturing operation they had an explosion which was caused by some ammonium nitrate being heated, of course, and contaminated with some oil, and in that explosion, as I recall, there were 4 people killed and I think 17 injured.

Mr. HYDE. Excuse me, Mr. Leachman, what was the date of that?

Mr. LEACHMAN. That was in March of 1944. That was a Government ordnance plant. Just prior to the time of that explosion the security and safety division of the ordnance plant were making quite an investigation as to the explosive hazards and power hazards of ammonium nitrate, and I believe it was along about that time that a paper was written in the Ordnance Department in Washington which spelled out the fire and explosive hazards of ammonium nitrate when contaminated by carbonaceous material, and that paper—it was not published, but it was written under the auspices of the Ordnance Department—spelled out the hazards which produced the explosion at Texas City; that is, it's been the contamination and the explosive hazard after it would catch fire.

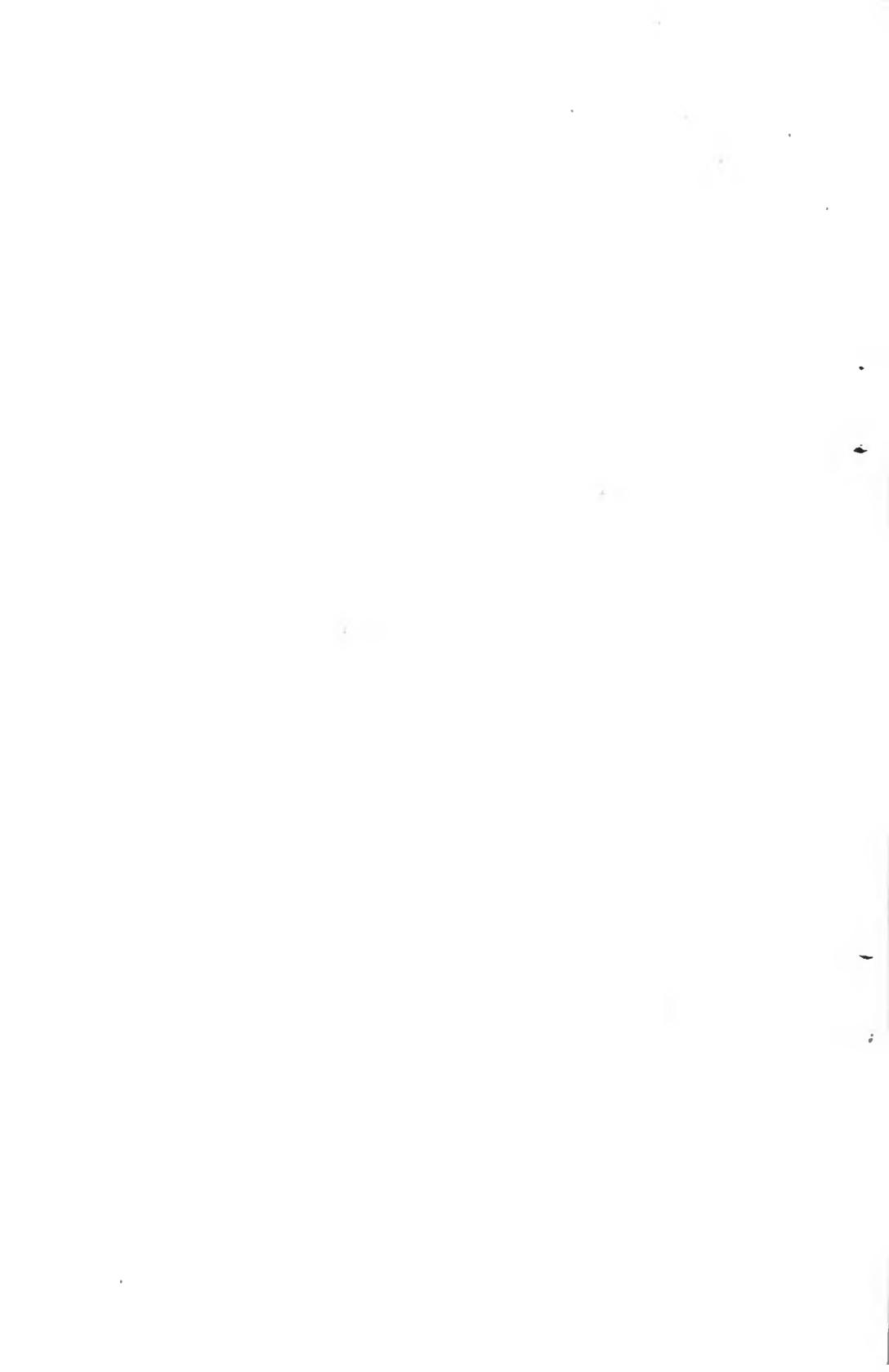
In March of 1945 Dr. R. O. E. Davis, who has been with the Department of Agriculture for the Government, published a bulletin called Bulletin 719, as I recall the number, in which he again spelled out. The title of that bulletin was the "Fire and Explosive Hazards of Ammonium Nitrate Fertilizer" (Record 27709), and he spelled out in pretty much detail. That's in the record, and so is this Wolf Creek explosion in the record.

Mr. LANE. What page would that be in the record; would you know?

Mr. LEACHMAN. I will have to furnish you with it, Mr. Lane. I will do it, but I won't stop at the moment.

Mr. JONAS. You can furnish it tomorrow morning.

Mr. LEACHMAN. Yes, sir; I can furnish you with that. Now, mention has been made during the course of the evidence, of Mr. B. T. Christensen, who Mr. Sandberg mentioned about coming to Texas City. He was the chemist for the Emergency Export Corp., which



# TEXAS CITY DISASTER

NOVEMBER 18, 1953

HOUSE OF REPRESENTATIVES,  
SPECIAL SUBCOMMITTEE OF THE  
COMMITTEE ON THE JUDICIARY,  
*Galveston, Tex.*

Special subcommittee of the Committee on the Judiciary met, pursuant to adjournment, at 9:30 a. m., in the Hotel Galvez, Galveston, Tex., Hon. Edgar A. Jonas, chairman of special subcommittee of the Committee on the Judiciary, presiding.

Present: Hon. DeWitt Hyde and Hon. Thomas J. Lane.

Also present: Walter R. Lee, legislative assistant to the Judiciary Committee; Cyril Brickfield, counsel for the subcommittee; and Brig. Gen. Claude B. Mickelwait, Assistant Judge Advocate General of the Army.

Mr. JONAS. The committee will be in order.

The Chair wishes to announce that the following members of the committee are present: Mr. Hyde, Mr. Lane, and the following members of the staff: Mr. Walter Lee, the clerk; Mr. Cy Brickfield, the counsel; and the following representative of the military forces: Brig. Gen. Claude Mickelwait, who presently is serving in the capacity of Assistant Judge Advocate General of the United States. Present also is Hon. Clark W. Thompson, the Congressman from the district that takes in the area in which was located the explosion that's under investigation.

The chairman wishes to further state that in order that there may not be any misinterpretation of the meaning of this resolution, which was passed through the good auspices of Congressman Thompson and, as already stated for the record, introduced by him, it is not the intent or purpose of this committee, at this time, to specifically investigate the merits of every specific claim. It would be a physical as well as a mental impossibility to do it in the short time allotted to us. The purpose of this resolution as passed is to give every facet of society who are either directly or indirectly related or concerned with this catastrophe in question an opportunity to present such testimony as they may have and wish to present to establish that there is merit to the contention that counsel and they are making on behalf of their clients that since the Supreme Court of the United States had adjudicated this case and has decided on the legal basis, the Congress of the United States has a function and duty to perform and can take jurisdiction under the practice that's invoked; namely, by introducing private bills.

Now, the question of what bills will be introduced or in the manner in which they are to be introduced and the various phases of these

problems that these bills are to cover is a matter for future consideration and study and is not within the functions of the committee this morning, but we construe the words of this resolution to mean mainly a complete investigation and study of all the merits—of the merits of all claims against the United States for compensation. We assume that all these claims are made through the efforts of the attorneys who represent all these parties, and if anyone has been omitted and before the committee closes its record and anyone wishes to add anything to what has already been given us here for the purpose of the record, you may be assured that the doors will not be closed to give you an opportunity to give us this information in order to amplify or modify or disclaim or in any way add to or assist in this problem that has been given to the committee for consideration and study.

I merely make this preliminary statement in order that we may be in full accord, with not only the seriousness of the responsibility that rests upon all of us who are interested in this investigation, but also for the purpose of expediting the matters so that we won't get too involved and the record get too cumbersome, too prolix and therefore made up of matters which may be unwieldy, as well as to some extent not applicable, to the context and to the spirit and letter of this resolution. I think this resolution is broad enough, I want to say this for the benefit of the audience, I am sure that I am voicing the opinions of my colleagues on the committee, I want to repeat again this resolution is broad enough and sufficiently worded and so well worded that it takes care of all the problems that may have or will or actually do confront every man, woman, and child or any actual or prospective or potential litigant or claimant who may be, whether it be man, woman, or child, is interested in calling upon the Congress of the United States to pass legislation that may give you the relief and redress that you are seeking. If there's anything you wish to add, Mr. Lane, to what has been said by the Chair, well and good.

Mr. LANE. Mr. Chairman, I think you covered it very well.

Mr. JONAS. Mr. Hyde?

Mr. HYDE. No.

Mr. JONAS. Mr. Thompson?

Mr. THOMPSON. Mr. Chairman, if it would not be out of order, I would like to ask that any attorney who has claims in this case and who has not spoken, be permitted to file a written statement with the committee.

Mr. JONAS. That's quite in order if they wish to do so. I have in mind, after conferring with my associate members of the committee, that we were trying to follow the policy or actually did follow the policy that had been established up to our present time of the hearing, and that is that the attorneys in mass or as a group here were good enough and farsighted enough to delegate one of their members to represent them, in a collective capacity present all of the facts and all of the matters incidental to the facts or in explanation of or tending to illuminate or amplify the facts and circumstances that entered into this explosion. However, that will not preclude any of the attorneys in the meantime, after Mr. Bryan is finished, to add or give us a short statement or brief explanation of what you have in mind in addition to what has been already incorporated in the record by Mr. Bryan,

who we understand has undertaken the responsibility of representing all counsel whose names are on our list here and who appears for various of the major claimants as well as some of those that are just as important but not of such large numbers, so with that understanding, when Mr. Bryan is finished any attorney who is here may have the privilege of making himself known and in conformance with Congressman Thompson's request I am sure the committee will not deny you an opportunity to incorporate it into the record, either a written statement or short statement of explanation, whatever best serves your purpose.

The committee is here to keep an open and free mind in reference to all approaches to this very, very highly controversial problem, and no one will be precluded now or if anything occurs to you later that you wish to add when the committee has adjourned that you want to present in written form, that is material to the issues, you can always present it at that time. You will not be foreclosed in any way, shape, or manner in trying to help us complete the record.

Does that substantially answer your question? I think it assures all of the counsel that we will be as liberal in the matter of making up the record and opportunity to participate in the proceedings that we possibly can.

I would like to suggest now that we resume with the testimony of Mr. Austin Bryan, and before we do that, Mr. Bryan, if you will be good enough to take the chair, we will have the understanding Mr. Leachman can finish his brief statement he took up yesterday, and any other counsel here who wishes to add an oral statement, you may do so. You may have a chair while you are composing yourself to get ready for the work unfinished.

The Chair would like to read into the record a telegram received on November 16 from Warren E. Burger, the Assistant Attorney General of the Civil Division at Washington, D. C. The purpose in reading the telegram is to make the record speak for us insofar as it can, and in that we do not want to preclude or do anything here that will foil the Government or its Government representatives from presenting any matter, either written or orally, that they deem necessary to protect the Government's interest and that they deem necessary and relevant or material to the issues that are being tried, being heard here. I presume that's satisfactory to both members that I read this into the record.

Mr. LANE. Certainly.

Mr. HYDE. Yes.

Mr. JONAS. The telegram is as follows, addressed to me at Galvez Hotel here in Galveston, Tex.:

Department of Justice will rely on transcript of your hearings commencing today. However, if committee decides to take testimony, Government can introduce a vast amount of evidence showing absence of negligence. If your decision today is to reconsider evidence of merits of claims which have already been decided, please advise and we can arrange to have representative in Galveston to work on schedule for receipt of evidence since that will require considerable planning. Respectfully, Warren E. Burger, Assistant Attorney General, Civil Division, Washington, D. C.

To that a reply was sent which bears my signature as chairman of the subcommittee, which reads as follows:

No urgent need to come to Galveston. Committee is receiving testimony and will supply Government with copy of transcript for its examination. Any

relevant material you may wish to supply may be submitted at a later date convenient to the Government and the members of the committee.

I wish to further add that in case we have another hearing and the Government witnesses are called upon to testify or desire to do so, if you will advise or let us know who you wish us to notify here in Galveston on behalf of your clients we'll give you notice of the time of the hearing, and if you desire to have a representative there in rebuttal or for the purpose of observation or whatever may be your choice, we'll be very glad to give you that notice and try to expedite matters so that it will be mutually convenient for all parties to be present.

Mr. THOMPSON. Regardless of whoever else may be notified, I would like to be notified.

Mr. JONAS. Let the record show that in any event we will notify Congressman Thompson and if you have any Representative in particular you would like to have notified, let us know.

Mr. MARKWELL. Judge Jonas, if I can receive notice I will see that it gets to the other attorneys.

Mr. JONAS. And, for the record, will you state your name.

Mr. MARKWELL. Russel H. Markwell.

Mr. JONAS. And the address is what?

Mr. MARKWELL. Markwell, Stubbs & Decker, Cotton Exchange Building, Galveston, Tex.

Mr. JONAS. Thank you very much.

Now, Mr. Bryan, you may proceed with the hearing.

#### STATEMENT OF AUSTIN Y. BRYAN, ATTORNEY, HOUSTON, TEX.—

##### Resumed

Mr. BRYAN. Mr. Chairman and gentlemen of the committee, I thought it might be helpful to catch up a point or two that was developed yesterday without the benefit of the original evidence. One was that Mr. Sandberg made several statements respecting his complaints about hot bags and broken bags and the conditions of them, and such as that. We didn't have the evidence with us, which was the evidence in the two folders introduced the other day, Monday last. There are letters there to the ordnance plants by Mr. Sandberg making those complaints. It isn't a matter of testing his memory now as to whether he did or did not. The letters are there, as well as something that would have been of considerable importance to you today, which is also in that folder. That is the pictures of the bleeding and the charred bags in the warehouse of the Texas City Terminal Railway right here at Texas City, which he took and sent himself. We have copies of those letters there and subject to the record, as I recall, they are exhibits, about 176 or 177 through 180. They would be of great help to you, I am sure.

There is another exhibit in the beginning of those two folders which would probably assist. One is the series of pictures before and after, and beginning with exhibit 65, I think, will be a picture of the Seatrains loading dock and the area, in fact, where the boat you were on yesterday docked. That's the area where Mrs. Dalchite stopped just a short distance back in her car and her husband was walking down to that Seatrains office right there by the derrick.

We had planned on introducing—you have seen pictures of them, but probably this should go in in connection with our theory of the

failure of any character of warning or advice of the dangerous character of equipment. These are original bags from the plant. You know there were 20 bags, the Government itself, because of the breakage, sent 20 extra bags in each car to take care of reloading and relooping of the broken bags. The point of enormous interest there is that no knowledge of information or warning was sent with these 20 extra bags stating on them don't sweep up this paper and don't sweep up the floor coverings and the various debris because it will unduly sensitize and increase the explosiveness of it. They just sent it to them and told them to rebag it. That's what Sandberg did over there.

Mr. JONAS. They may be received as exhibit 5.\*

Mr. BRYAN. The dominance of the word "fertilizer" is perfectly obvious; it doesn't need pointing out with regard to the inherent characteristics of FGAN.

Mr. JONAS. In your exhibits that have been offered, Mr. Bryan, have we on file an exhibit that portrays the condition of the bags that were frequently referred to by the Witness Sandberg as burnt bags?

Mr. BRYAN. They have been sent to the committee office. The reporter thought he should send everything in. They were in these folders the other day and they will be in Washington.

Mr. JONAS. They were made part of the record; they are part of the record and not here for inspection?

Mr. BRYAN. Yes, sir; that's right. Here's another set of bags I think you have already seen, but they will be available to the committee.

I can now give you the correct exhibit for the record. They are PT exhibits 168, 169, 171, 172. Those are the original photographs. They were taken at Texas City of broken, bleeding, and charred bags, and were transmitted by Mr. Sandberg.

Now, there was another aspect developed in the testimony, it seems to me, which would bear on this appearance and the committee can resolve its own judgment about it. As I recall, Mr. Sandberg testified about these reports and these complaints, and Mr. Christensen, you will remember, was identified as the chief chemist of the Emergency Export Corp.; and that is correct. Mr. Christensen's memory apparently is unreliable because—I am reading to you now—he said that he had made an investigation and there was nothing to the burned or charred bag claims, and such as that—I read now from letter of B. T. Christensen, chief chemist of Emergency Export Corp., to Dr. John C. Holtz, of the Bureau of Mines, dated May 13, 1946. If you care to follow it, it is in the group of admissions.

Mr. JONAS. What page?

Mr. BRYAN. Page 13. Now, here, right at the same time, the reason I do this, the Government brief was read by one of the members of the committee yesterday as indicating, probably giving the negative to Sandberg and indicating that Christensen had said there was nothing to this. Mr. Christensen now says:

The tests were made in an effort to determine the factors relevant to the charring of bags. The tests were precipitated because of reports of ammonium nitrate bags arriving at their destination in a charred condition. The reports

\*Exhibit is on file in the offices of the House Committee on the Judiciary.

of charred bags were not investigated, and the fact as to whether or not they were actually charred has never been established.

That's completely wrong and wide of the mark, because the Army's own installation at New Orleans, Theodore, Ala., and Braithwaite, La., were complaining all the time. They had sent in complaints of thousands of bags of charred and burned bags.

Mr. JONAS. Why don't you make that a little more specific? There's a sharp conflict in the statements made by Mr. Christensen, and if you have data to refute that, wouldn't that be quite appropriate if that was specifically pointed out in the record and read in this record, and then following the final analysis of the report after the committee gets it, we will have both sides of the story in abstract form?

Mr. BRYAN. Yes, sir; I can do that.

Mr. JONAS. It isn't very long, I presume.

Mr. BRYAN. I will undertake to reduce it. I can't go into the details reading these long reports from these various Army installations.

Mr. JONAS. You can identify it by pages and refer to it, that your contention is supported by the record on page so and so, with the statement of whoever you wish to identify for that purpose.

Mr. BRYAN. I might just as well take the whole subject up while we are at it. These bags, as you see, they are laminated bags. They are laminated 5 or 6 ply. They are paper. They have asphalt in between them. They are certified by their manufacturers that they have a melting point of 175° F. That's the asphalt lamination that melts. Our contention has been, and our position is, that they loaded these bags at anywhere from 180° to 259° F. There's where this heating begins. There's where the deterioration of the bag begins. Again, if you will go along with me, I will try to pick this out as fast as I can—

Long before the Texas City disaster occurred—

this is in refutation of this claim—

Mr. JONAS. Who is making this statement?

Mr. BRYAN. Capt. George E. McCabe, commander of the Eighth Coast Guard District, testified that FGAN was loaded on the *Golden West* at Baltimore so hot that he feared the heat was due to combustion and that the hold of the ship was required to be ventilated and that the boxcars that the FGAN was transported in were allowed to be cooled before FGAN was placed in the hold of the ship (Record 7323).

Employees of the various Ordnance plants gave affidavits to a board of officers—now this thing reached official letters, this isn't a matter of speculation—investigating fires in FGAN to the effect that bags were so hot that they were difficult to handle and sometimes reached temperatures where smoke could be seen coming from the bags and the odor of charred bags noticed (Record 23193). This is an official inquiry. Major Starr, commander of the Nebraska Ordnance plant, went down to the port of embarkation on it. These are records we have taken from the Army records and here is that exhibit, Proceedings of a board of officers which convened at the ammonium nitrate Illinois ordnance plant, Carbondale, Ill. The board met, pursuant to the foregoing order, at the ammonium nitrate Illinois ordnance plant on the 16th day of January 1947. This is on a boxcar fire. That dam-

age by fire occurred in the boxcar identified as the property of the Chicago, Burlington & Quincy Railroad. While it was obviously impossible to definitely fix the cause of the fire, it was the considered opinion of the board that the evidence shown by the testimony of several witnesses indicates strongly that a lighted cigarette and/or a lighted match was carelessly flipped into the car which caused a general ignition of the entire load.

Mr. LANE. Was there any evidence offered that there was a burning cigarette?

Mr. BRYAN. No, sir, that's their conclusion.

Mr. LANE. Any evidence?

Mr. BRYAN. No, sir. They have never proved a single cigarette. They raised that as a possible source of fire.

Mr. LANE. That's a matter of conjecture?

Mr. BRYAN. That's right, that's the conjecture they applied also here at the *Grandcamp*, but we have checked every bit of the Government evidence and all the affidavits and original evidence and there is no direct evidence of any cigarette ever having been found.

Mr. JONAS. I think you have covered that pretty well now.

Mr. BRYAN. You take the problem, that ties itself into the warnings or, rather, let me give you this, if I may. Here is the headquarters, New Orleans Port of Embarkation, New Orleans 12, La., May 9, 1947. This is an official report, subject loading of nitrate fertilizer. It is Record 21361. It goes up to 369. The additions go on through. This summarizes:

It should be noted that all reports reflect damage as a result of the following factors: (a) Material loaded at temperatures by shippers, which result in deterioration of the container to the extent that the bags burst open upon attempt to remove them from stacks.

This is, I will say this is, final Army reporting, and it runs on through with the different affidavits and certificates.

So our point is that Mr. Sandberg is thoroughly supported at all these other ports. Now, that ties in, though, with this problem. They were not unaware of that. Mr. H. A. Campbell, chief inspector, Bureau of Explosives, writes Chief of Ordnance in alarm over boxcar fire of FGAN, January 16, 1947, and if you care to follow that it is page 7 of the admissions:

Inquiry developed that loading temperatures have been ranging from 180° to 210°. It was also developed that it has not been uncommon to find that paper bags in which the nitrates are shipped badly charred and disintegrated when unloaded at destination. I am of the opinion that loading temperatures in this material are excessively high and continued spontaneous heating in material loaded at these temperatures is liable to result in fires in transportation. Your assistance is solicited in handling the matter so that future shipments will be cooled to a temperature not to exceed 120° F. at time of loading (Record, vol. 29, 22990).

Mr. Campbell's advice was treated in this fashion, top of page 8:

Duncan Smith took letters from plant to D. C. and discussed with Mr. H. D. Reynolds, who answered Mr. Campbell's letter to the effect that it is not feasible to accept his recommendation (vol. 29, pp. 22989-22990).

Now again the question comes up to the highest level in Ordnance. This is a letter from Chief of Ammunition Supply Division, Janu-

ary 27, 1947, to the commanding general of Ordnance Department, reading:

This matter has been discussed with Colonel Tibbitts, of the Safety and Security Division, and they have no objection to the ammonium nitrate being loaded at a maximum temperature of 190° F. It is realized that the request to not exceed 120° F. at time of loading is not practical (Record 22989).

We will compare that for a moment a little later with what they have already been told by the bag manufacturers.

We are reading now at the bottom of page 8, from the Union Bag & Paper Corp., of letter of date January 22, 1947, prior to Texas City:

If this is not possible from a warehousing point of view. It would be our suggestion to reduce the packing temperature to a range of 160° F.-175° F.

From our understanding of your operations, it is questionable if you have the facilities to warehouse these bags under the relative humidity conditions suggested.

It has been our observation in other plants where ammonium nitrate is packed with little or no deterioration of the bags, that their packing is done within the range of approximately 160 degrees F. to 170 degrees F. and that they experienced none of the difficulties which currently face you. It would be our strong recommendation that, if possible, your packing temperature range be reduced to that noted above (vol. 29, p. 23411).

Would you compare this with that. This is the testimony of Colonel Jefferds, commanding officer, Iowa Ordnance Plant, and it is on the same page—page 9:

Question. Let's move on. We are at a temperature of 250 to 258. What happened to the material at that point? \* \* \*

Answer. At that point the material is dropped down through the shaker screen.

Question. That is the Ro-Ball screen?

Answer. Yes, I believe that is the name. They were shaker screens.

Question. Through the screen passed whatever the size of the screen was in the way of grains of material; is that right?

Answer. Yes.

Question. Into what?

Answer. Into bags.

Question. Bags immediately under your kettles, is that right?

Answer. That is right.

Question. How much time elapsed occurring between the bagging under the kettles and the delivery to the sewing machines at central bagging? \* \* \*

Answer. Oh, 15 or 20 minutes, perhaps (Record, vol 7, pp. 6095-6097).

Here is really a summation of this problem of bags in which we charge that there was a conscious election to accept the hazard or to ignore the hazard, either way you wish to put it, and this is the testimony of Colonel Jefferds on the subject. He was the commanding officer at the Iowa Ordnance Plant.

Question. So far as FDAP was concerned, notwithstanding what Lieutenant Colonel Meldrum sent you, and notwithstanding what you were telling them, that they could either take production or low temperature, but that you could not give them both—you told them that, didn't you?

Answer. In effect, yes.

Question. FDAP never ordered you to reduce temperatures and sacrifice production, did they?

Answer. They never ordered us to go to 120°.

Question. Or never less than 200°, did they, before Texas City?

Answer. That is correct.

Question. In fact, never less than 210° F. at Texas City, did they?

Answer. I believe that is also correct (Record 6147).

Mr. JONAS. Mr. Bryan, this is in evidence, this document you are referring to?

Mr. BRYAN. Yes, sir.

Mr. JONAS. So that for future reference it would be available to anyone who studied the committee report?

Mr. BRYAN. Yes, sir; that's correct. The committee, I am sure, will be interested in knowing that the President called a conference on Texas City, not named as Texas City, but on the fire hazards involved in the manufacture of, transportation and storage and use of ammonium nitrate, and some of it was held in Washington on September 8, 1947. In that they point out again, those who were informed on it, that this paper bagging was dangerous throughout, that it contributed the carbonaceous material. They said the bags were charring, breaking, and the material was falling on the docks and innocent people were sweeping it up and putting it back with little pieces of paper and the dusting. May I interrupt to suggest that you keep in mind it's been developed that dust created by the manufacture of this FGAN in these findings becomes an even greater explosive hazard. It settles on the piece of paper and sensitizes the outside of the bag as well as the material on the inside and constitutes itself a tremendously increased fire and explosive hazard.

Mr. BRICKFIELD. Did these bags char from the inside out so as to indicate that it was this ammonium nitrate within the bag that caused the charring?

Mr. BRYAN. Yes, sir.

Mr. BRICKFIELD. Or was there charring from both sides, both the inside and out?

Mr. BRYAN. Well, there was a charring from both sides, but according to the scientific reports, their sources, origins, were distinguishable, the charring from the outside would come from the exothermic radiation of heat from all the other bags around it, but the deep burning would come from the inside of each bag where it melted that asphalt and the asphalt in turn would begin to smolder. It is not a flame as such, but it keeps working down depriving the paper of all the moisture and finally breaking it down to where it's a brittle mass of char. It can char either way, from outside or inside, and there's a point there that might well be considered.

It's been developed, after Texas City, that, for instance, you have a big area of ships hold and a boxcar. The center section, of course, the outer layer is the buffer between the normal atmospheric temperatures and the heat it began with which caused it to deteriorate. The outer layer would be cooler but the center or inner layer would be the area where the highest heat range occurred. Obviously so. It gives off heat through the radiation of the material and creates, of course, the acid.

Mr. BRICKFIELD. Yesterday when Mr. Sandberg testified about the boxcars and how the workers have to open the doors and leave them open for some time before these men who unloaded the cars could go in and do a proper job, how long did they leave these boxcars stand with the doors open before they unloaded the bags from the car; do you know that?

Mr. BRYAN. I know it in this fashion, yes, sir. I know that there was a variance or a range or period of cooling, depending on atmos-

pheric conditions. If it left Nebraska in the cold belt in a severely cold season there would be less time; if it left in a warm time or if we were having a cold season, the outer layer would cool down or go up. That would vary. I do know this. This has been checked and I would like to put it in the record, that all of the material going into the two ships at Texas City had not been in Texas City, either in the warehouse or in cars in transit or standing for unloading, more than 3 weeks from the time of origin. You have therefore that factor to consider in determining the continued exothermic ranges. You will find, and I realize that you just can't dig this whole record unless the Government wants to get into a cat fight on it, and we'll pull all the records, if you check the records out of New Orleans, Braithwaite, Theodore and Baltimore, Md., that some that had been at these ports 6, 8, or 9 weeks, still had this high range of heat, had the charring, broken bags. At these same ports they were sweeping up from broken bags and rebagging; you will find that at every port of embarkation.

Mr. BRICKFIELD. If these bags were packed in mass in a boxcar and in line with what you have just advised the committee, that the innermost part was usually the hottest part, wouldn't it take some time, say a week or 2 weeks, to sufficiently cool a quantity of bags such as would be found in the boxcar?

Mr. BRYAN. I am sure it would, and longer; some are reported in the Army installations at 8 and 10 weeks. Where the bags were out on the dock, I think it is New Orleans, they loaded 4,800 sacks out in the open on the docks, with tarpaulin coverings, and they still continued to heat. The heat was present when they undertook to load the ship. That's not our conclusion. That's the Army reporting to itself on it. The variance in the range and the periods when that heat will rise and go down is very dependent on how much ventilation, atmospheric temperature, and confinement and mass, how little, how high they are.

Here is one of these letters—

Mr. HYDE. Before you do that, yesterday the testimony was that the cars were left open 5 to 10 minutes.

Mr. BRYAN. That might well be.

Mr. HYDE. In order to be cool enough to handle. Can they cool down enough in 5 to 10 minutes?

Mr. BRYAN. Again I will daresay where you will find where they were standing on the tracks there as much as a day or two or maybe longer; I wouldn't pretend to mislead you, I don't know accurately enough those times because the testimony shows they just varied.

Mr. BRICKFIELD. The bags loaded into the *Grandcamp*, they were only in the ship 1 day, and certainly at the time of loading, the men loading them must have been able to handle them, they couldn't have been too hot.

Mr. BRYAN. Yes, they could handle them. But here is something, that's an eccentricity of this material. It travels along like the turtle up to a point and after it reaches a certain temperature range then it's like the hare, it catapults. It could very well have been this could go along at atmospheric temperatures. You get the mass and you get the confinement and you get the area of confinement of the gases that come off above it, all that produces the exothermic surge and the

temperature just runs out the top of the thermometer. That wouldn't be a real criticism or a constructive inquiry as to whether it did or didn't. I don't know. We just know it blew.

Mr. BRICKFIELD. For the record, in the hold of the *Grandcamp* was there ventilating ducts and a ventilating system?

Mr. BRYAN. There was the usual ventilating system. But here's something else which was discovered after Texas City. Prior to that the methods—if we had the picture we could show you the ventilating system of the *Grandcamp*, of the one at Brest, the *Ocean Liberty* and the ones at Baltimore. Anyway, they simply made no provision for that. They started with wooden dunnage on the floor of the lower hold. I would like to bring that definitely out. I am not sure it was done yesterday. You know, in a ship there's a between deck and then the deep or the lower hold or well. On the bottom they start with wooden dunnage, come up the side of the center of the ship also with dunnage and paper, kraft paper, then they just stack layer on top of layer and stack on top of stack. There was no ventilation at all. They came right over the shaft log. See, there's a big log in there. The shaft log goes down there and they just build up around it and come right up over the top of it. There is no ventilation except as can go through the dunnage, and likely enough—this merely represents my guess, but it is feasible—the reason that when Suderman opened that hatch and saw the smoke coming from the bottom up the skin of the ship, the sides, the skin of the ship, between the material and the skin of the ship, I am guessing, it came probably from the center of the mass. It moved through the dunnage, when he opened the hatch there was a little draft and it had to go to the skin of the ship which was held off by dunnage from the material. The ship's skin will sweat and vary with ocean temperatures. That's probably why the smoke was coming from there instead of straight up.

Mr. BRICKFIELD. Could it have been the ventilating system working that was sending these drafts in and about?

Mr. BRYAN. It might have been. They do have a certain amount of ventilation, but it is relatively small in connection with the area involved.

Mr. LANE. Mr. Bryan, right there, would you kindly, if you can, help the committee to understand whether or not there is any explanation in your record—you may call that to our attention—that there was no smoldering or no explosions in these cars in transit for 3 or 4 weeks and in storage here for a number of weeks in the warehouse, but your testimony as offered up to now shows that explosions took place on ships, 1 at Brest, France, and 1 right here that we are interested in and studying at this particular time; is there anything in your record that would explain that to the committee in any way?

Mr. BRYAN. Yes, sir.

Mr. LANE. So that we can understand if these bags were so hot and manufacturing and bagging and transportation, one thing and another, why didn't smoldering take place and why didn't explosion take place in transit all these weeks and storage all these weeks, but no explosion took place until it was transported into the ships and put down into the hatches and it was only a short period of time, just overnight, an explosion took place.

Mr. BRYAN. There are 3 or possibly 4 simple explanations for that. One, they were shipped in cars which were—they were not permitted

to use steel boxcars—wooden boxcars. You had a small—you had only 800 bags there. You had it in wooden containing walls. You also had the acceleration and the cooling that goes with movement. Here is the most important reason. They had numerous fires in boxcars, but just like gasoline you spread on the floor, you can't explode it because it doesn't have the ratio of so much air to so many parts of gasoline. In ammonium nitrate, unless you can get that confinement, the sustained confinement which allows the production of these gases coming off from this material, and it creates its own oxygen which then develops that high rise of temperature the FGAN burns but does not detonate off with heat alone. They (the wooden boxcars) burned out too soon and you just had an open mass of burning material. That's not my explanation, that's the scientists' explanation and the Government's own. That's Picatinny Arsenal's own explanation.

Now, when you get to the storage, the other answer is ventilation. If I had Sandberg's pictures I could show you the stuff is just stacked in a warehouse wide open, the doors all open, there's ventilation everywhere, but may I offer this further suggestion? We may have confused you about burning. There's several gradations of burning; not all of them is flame. The process is going on, and the burning we are talking about is that which through acid and otherwise is generating this heat and deteriorating this paper and withdrawing the moisture from it and charring.

Mr. LANE. Without flame?

Mr. BRYAN. Without flame. That was going on in the warehouse and it was going on in the boxcars. But here are the other answers. The outer sacks probably acted as sufficient buffer against the atmospheric temperatures to where it held enough heat inside to have a generating source of heat. Now, the fourth answer is this, when you get to the ship's hold, here's how it's stowed, there is no ventilation. There's a picture of the storage in the ship's hold identically as in the *Grandcamp*, packed sack on top of sack. There is no ventilation. Now, this is how it comes out of the warehouse, you see. It is all scattered and the stacks are disrupted, but when you get to that ship's hold you immediately produce a complete loss of influence of atmospheric temperature, that is, temperature that can invade the mass. The mass has sealed itself off, one, with the skin of the ship, two, with the body of the material itself and the extent of it. So that you have then, if by chance—and this is the only explanation, the only explanation we can make, and it is not speculative because it happened in two ships—if by chance you get some out of a boxcar that was loaded too hot and the central area continued with its capacity of exothermic development, it would still be there when it got down in the ship, and even if it were lessened, if it was way down, just barely enough there to start, the minute you get the mass, the minute you get the confinement, the minute you get the density and the minute you get the area to form this air above it you have the classic condition and it went off.

Here again is something to consider; shortly after this, the *Ocean Liberty* ship at Baltimore—now, I may be using too much time, but your question indicates that this might be valuable to you—was there to load FGAN. Texas City had happened. The Coast Guard had moved in, as I will indicate to you, which it didn't do before at Texas City. They took charge at Baltimore, and had perfect and absolute

control of the loading. They cleaned out the hull and the hold of that ship just like a Dutch kitchen. Nothing was left. She was washed down, believe or not, everything was clean. She was loaded under the Coast Guard's supervision entirely, and Army officers. The manner of loading was the same, though, and some of the material from Texas City was there. I don't think that's the sole cause at all. It simply means that the other material that came there was loaded too hot and so that the inherent characteristics of this sensitized material of this coating, when it got in the scientific condition of perfect equation, off she went. Those scientific explanations, to us at least, carry enormous weight and substance. They are not ours, they are not partisan views. They are the answers of Picatinny Arsenal, Aberdeen Proving, Army and Navy Board, Dr. Davis, of the Department of Agriculture, Dr. Dickinson, of the Bureau of Standards, and I could go on down the list. That's the explanation for these ship explosions.

It is our position that they should have discovered all those factors and those conditions before they turned it loose in the program. That's our claim against the Government.

Mr. JONAS. You are taking the position that all of these factors you have described, together with the inherent nature of the product itself—

Mr. BRYAN. As affected by the conditioning agent.

Mr. JONAS. That's right; led to what is commonly termed as spontaneous combustion?

Mr. BRYAN. And ignition; yes.

Mr. JONAS. And when you have spontaneous combustion it means exactly that, it works itself up to a certain pitch and finally the gases get into a flame, they explode?

Mr. BRYAN. Yes; in any explosive wave it radiates and connects itself with the next mass and goes right on, it is an instantaneous chain of reaction.

Mr. JONAS. Its ferocity develops as it begins to expand?

Mr. BRYAN. Yes, sir; two whole Liberty ships literally disappeared into air. There wasn't anything left of them. Two-thirds of another was gone. All that was found was the forward bow section of the *Wilson B. Keene*.

I have been handed here—I think they have found both of the letters I was trying to show you this morning.

Mr. MARKWELL. This is one that we referred to and I would like for you to put it in the record, because it is possible that the other one is not in the folder.

Mr. BRYAN. With consent of the committee, this gets us back to Mr. Sandberg's testimony which we thought ought to be aided, PT exhibit 173, appearing at record 20111, dated February 19, 1946, addressed to J. D. Latta, Cotton Exchange Building, Galveston, Tex. J. D. Latta was the agent for the French Supply Council, which, working with Quartermaster Department, handled this material. The letter is to the attention of Mr. Clark.

GENTLEMEN: With reference to our several conversations in connection with the condition of bagged fertilizer or nitrate upon its receipt at Texas City, where we are finding anywhere from 2 to 20 torn bags per car, I have had some pictures taken of this material, marking them Exhibits No. 1 to No. 5, and shall refer to them through this letter:

In the writer's opinion there are several contributing causes for the torn bags, chiefly, it appears that the material is placed into the bags while hot, which has a drying-out effect on the bags so that they become parched or baked and tear or break at the slightest jar. The element of heat enters into this picture somewhere, because the waterproofing material that covers the inside layers of the bags, comes to the outside surface indicating that they have been extremely hot. By referring to all the pictures attached, you can see evidence of where this waterproofing has come to the outside surface. Secondly, after the car doors are braced, the bags, by the time they reach Texas City, it is impossible to remove them and they are found to be torn, due to having rubbed against the corner of the car bracing, and due to the baked-out condition of the bags it takes very little abrasive effort to bring about a torn condition.

We are also finding many bags that are poorly tied, with the result that—

well, I don't think you want that, save as this relates to the fact that they are damaged through transportation hazards.

I believe that concludes what you wanted, doesn't it?

Mr. MARKWELL. Yes.

Mr. BRYAN. We have so much material, I solicit you to tell me when you are just worn out, but there is so much bearing on this that we think you ought to hear about it, at any rate.

Mr. JONAS. You had an outline here the other day, did you not, Mr. Bryan?

Mr. BRYAN. Yes, I have one.

Mr. JONAS. I believe it is in conformity with your method of approach. You follow the outline; if you need this material to amplify anything that's in your outline, you are at liberty to use it. We are here to hear you. That's the purpose of the committee.

Mr. BRYAN. All right. Here is Technical Division, Picatinny Arsenal, the historical testing division of the Army, and the lectures by William H. Rinkenbach. It is at Record 23581, and it explains—here's how it explains the *Grandcamp*:

(b) When the hatch covers were removed on the following morning, the warm air in the hold started to rise, and the air currents quickly fanned the smoldering fire and caused it to spread rapidly. The fire probably progressed most rapidly where the greatest amount of fuel—wooden dunnage and paper—was in contact with the bagged FGAN and the air could circulate most freely. During this time, molten FGAN probably flowed down the burning face to the bottom of the hold.

(c) Within a relatively short time, some of the wooden dunnage burned away, and the cargo began to shift and settle, probably against the shell of the ship, thus confining some of the molten, burning FGAN in a closed space where gas pressure could develop rapidly. It was probably here that detonation originated and was propagated to the rest of the cargo.

And that's the Government's explanation which we wish to adopt 100 percent of what happened in the *Grandcamp*.

I had thought of setting up—trying if I could to expedite this picture—a few targets that we want to shoot at. Maybe I have hit some already. One was—and this I just can't bring too much emphasis on—there never was any testing by anybody of the hazards of this FGAN, prior to Texas City, save by the small test at Bruceton, Pa., by the Bureau of Mines. They said it would not do as a basis of conclusion, and the incomplete, the cutoff tests by Nuckolls—and I will amplify that—the point being that our charge is that this material was released into public commerce without any character of testing that the normal private operator would have employed.

Mr. JONAS. What about the statement that was made—if I am in error about it, you correct me—that there was a test at the Aberdeen Testing Grounds in Maryland, or doesn't that appertain to this matter?

Mr. BRYAN. It does. It proves the very things we maintain, but it was all done after Texas City. Every bit of the testing the Government did, same the incomplete test of Nuckolls and save the small-scale that was not released by Bureau of Mines, all of it was done after Texas City.

Mr. JONAS. Are we in accord that whatever testing was done at Aberdeen, Md., was done with the product that's involved in this explosion?

Mr. BRYAN. Yes, sir, with FGAN, and we are in accord and the record establishes that a test there run was with an aperture, that is, a vent in the bomb intended to be in proportion to the opening of the hatch in the *Grandcamp*. The test was an attempt to simulate the exact conditions in the *Grandcamp* to scale. That test exploded from heat alone, and this is Aberdeen and Picatinny speaking, that test exploded from heat alone in 45 seconds. So, answering you, it just builds up so rapidly once it starts. That's the Government conclusion as results of Army and Navy testing at Aberdeen, to simulate the exact conditions of the *Grandcamp*.

Mr. LANE. In other words, no tests were ever made before Texas City explosion?

Mr. BRYAN. That, sir, is exactly right, save as I will amplify here when WPB employed Nuckolls but cut him off when he was telling them he should go ahead.

Mr. JONAS. You mean no conclusive tests were made?

Mr. BRYAN. No sufficient tests to tell them completely of the characteristics of the material they were dealing with and turning into public commerce.

Mr. LANE. He hadn't had an opportunity to finish his work?

Mr. BRYAN. That's correct, sir. They cut him off with the paltry sum of fifty-two hundred and some odd dollars, seven hundred sixty dollars, which was all that was allocated to determine the hazard of this material.

Mr. JONAS. Isn't that the question in dispute? Doesn't the Government contend in this and all through the hearings in the courts that their chemical analysis of this particular product conclusively showed that it had no inherent explosive powers, that is, to bring it about, without chemical ingredients being added to it, and they did make some, probably not detailed tests, but they did make tests based on chemical knowledge and scientific investigation, didn't they contend for that?

Mr. BRYAN. No, sir; they contended that what they were talking about was ammonium nitrate pure. There were tests made on that, lots of them over the years, but there lies a distinction I do hope this committee will remember with us.

Mr. JONAS. You argued that yesterday.

Mr. BRYAN. We talked about FGAN and they tried to shift the onus to pure ammonium nitrate.

Mr. JONAS. The distinction is that they admitted or at least tried to establish they have made a test of the ammonium nitrate not in the form as it ultimately was made into and became FGAN?

Mr. BRYAN. That's right, because they said:

What we knew about pure ammonium nitrate was not sufficient to put us on notice to test this other material, because ammonium nitrate was a component element of it.

That's what they said:

What we knew about pure ammonium nitrate and ammonium with other component elements prior to the introduction of FGAN did not require us to test FGAN.

We differ with them on it. We claim that any new material, it doesn't make any difference what the elements are, requires the manufacturer in releasing it to test it thoroughly and know more than anybody else about that material or accept the responsibility for the failure.

Mr. JONAS. I take it the committee gets this point that counsel is arguing for. I am sure that's important to bear in mind. You make the contention that the original ammonium nitrate product was tested by the Government, or alleged to have been tested by the Government, and that that test compared to the product that you now charge was the causal connection or the real cause for it blowing up, contained component parts that were not in the ammonium nitrate that the Government made the test of?

Mr. BRYAN. Yes.

Mr. JONAS. Does the Government admit that?

Mr. BRYAN. They admit the conditioning agent is in addition. FGAN, roughly, is 95 percent pure ammonium nitrate, plus in this case a class of earth, kieselguhr, about 4 percent something bare to 4 plus to 4 minus and three-quarters to 1 to 1½ of PRP. That's the conditioning agency, you see, that goes in. That's the difference between the former treatment and what we are dealing with, FGAN.

I have here a list. I mean, as Mr. Fieldner, who is head of the Bureau of Mines, says, there are a hundred-and-some-odd mining explosives using ammonium nitrate. And for many years there's more than 95 percent of it in these explosives, but the combinations are different. They are mixed with infusorial earth, they are mixed with sulfate and any number of chemical combinations. Those are the ones Bureau of Mines has tested, and you couldn't use them in a mine under Federal jurisdiction or State authorities unless Bureau of Mines puts them on a permissible list, because you have the coal dust. You have to make the explosive substantially of such a range and such a rate of detonation that you do not blow this coal dust, see, ignite them, so Bureau of Mines tested all that. But that's not the material we are dealing with.

Mr. JONAS. How did the Government meet that issue?

Mr. BRYAN. They didn't.

Mr. JONAS. In other words, you charge undoubtedly the tests show, and probably did, the distinction between this original product and then when changed into FGAN and showed what component parts went into the latter and what was lacking in the former?

Mr. BRYAN. Yes, sir.

Mr. JONAS. And on that you relied to a great extent as the cause for making this much more dangerous and subject to explosion, that is, the FGAN product?

Mr. BRYAN. Yes, sir.

Mr. JONAS. What did the Government say about that?

Mr. BRYAN. The Government took simply the position it wouldn't explode.

Mr. JONAS. Well, isn't that very much like the fellow who called up and said to his lawyer, "I am in jail." He said, "What did you do?" He said, "I did thus and so," and so he said, "They can't put you in jail for that." He said, "I am here just the same." Well, I think you have conclusive evidence of that fact; half the town was missing the next morning after the explosion.

Mr. BRYAN. That was our thesis and we never departed from it.

Mr. HYDE. What was the stuff that exploded at Wolf Creek in 1944?

Mr. BRYAN. That was ammonium nitrate that was being run through the process area and some of the lances filled, the air lances filled up with oil and it got the very thing that this—

Mr. HYDE. That wasn't FGAN?

Mr. BRYAN. Yes, sure, ammonium nitrate going through. You mean the completed product?

Mr. HYDE. Was it the same stuff that exploded at Texas City?

Mr. BRYAN. No, it was being made for ammunition; it was a little different but it was the same stuff.

Mr. HYDE. You mean it was the same stuff that exploded at Texas City?

Mr. BRYAN. No, sir, the same base, ammonium nitrate as a parallel.

Mr. HYDE. I understand that. Was it FGAN?

Mr. BRYAN. No, it was not, sir. But it was exploded by the introduction through the air lances of a little bit of oil that went down there, and the minute that petrolatum or that oil—

Mr. HYDE. I know that ammonium nitrate in connection with a lot of substance explodes, it's an ingredient in a lot of explosives so there would be quite a difference. I understand from Mr. Leachman's testimony yesterday that this FGAN had exploded in Wolf Creek in 1944, but apparently that is not correct.

Mr. BRYAN. I think what exploded there at Wolf Creek was ammonium nitrate being prepared for use in explosives which is 95 percent ammonium nitrate against 90 to 95 percent pure ammonium nitrate. The lesson from Wolf Creek, which the Government accepted, is that when you make carbonaceous material with ammonium nitrate you get—you raise right away its likelihood of explosion and fire, that's the lesson of Wolf Creek. That explosion killed, I think, four men, and such as that. But that's all this conditioning agency on FGAN is, is carbonaceous material, that is only the material that is added to pure ammonium nitrate plus kieselguhr, this soil.

Mr. HYDE. But it is important that it is slightly different because you admit that the different proportions of the foreign substance with ammonium nitrate makes a lot of difference?

Mr. BRYAN. Yes, they do; that's true. It's different only in the sense—it is not different at all as to the influence, as a sensitizing agency of petroleum products on ammonium nitrate. It is identically the same thing. The particular material was different in the way it was being made and use being put to.

Mr. HYDE. You have pointed out heretofore that the difference in the type of things that the Government has talked about from time to time has been that what they have talked about with respect to

experiments that were made was ammonium nitrate either pure or with something else other than the Texas City.

Mr. BRYAN. That's right.

Mr. HYDE. And, of course, the same thing applied with the material at Wolf Creek?

Mr. BRYAN. That's just a chance happening; that wasn't a regular thing.

Mr. HYDE. I understand that, but what happened at Wolf Creek was some substance slightly different than what was at Texas City.

Mr. BRYAN. In the finished product, that's true, but not in the chemical reactions, and that's the point we make. The Government had this information which warns of the hazard, the very warning they do not pay attention to at Texas City. That was before, of course, they had gotten into this FGAN program.

Mr. LANE. Mr. Bryan, was there any time in the trial of this case that you agreed with the Government that if this storage on the ship was just ammonium nitrate there would be no smoldering and no explosion, no fire?

Mr. BRYAN. No, sir, we did not agree to that. We took the position, and we stand on it, we have proven it, that even pure ammonium nitrate with heat and confinement and mass will itself blow but not as fast as with this sensitizing agency. We never agreed with the Government that pure ammonium nitrate, subjected to these conditions at a certain temperature range, will not blow. That's precisely what Picatinny and Nuckolls proved. They used conditioned ammonium nitrate, they used pure in these tests and proved it in both cases, but the distinction was that the rate of temperature rise to reach the point of detonation was accelerated more rapidly with the conditioning agency than the pure.

Mr. LANE. With the addition of the PRP?

Mr. BRYAN. Yes, sir, but pure ammonium nitrate will explode. That's what we were proving in 1895 by Aufschlager, and it will explode just exactly the same way as FGAN.

Mr. BRICKFIELD. Did the Government in saying that it wouldn't give a specific reason state that this PRP was an inert clay, that it had no other purpose than to prevent the absorption of water?

Mr. BRYAN. Yes, that was the position they took, and they took the position that nothing could lead us to think it would blow because we had shipped 75,000 tons of it.

Mr. BRICKFIELD. Now, you recall yesterday testifying here about a report from the director of research at the Trojan Powder Co. to the effect that FGAN, not ammonium nitrate, but the product that blew up at Texas City, FGAN, had been used in industry for 30 years?

Mr. BRYAN. Yes, sir, and I have got my notes to answer that. Here it is right here. I will give you plenty of testimony, but here's the Bureau of Mines itself, if you will hold that a minute.

I found what I was looking for. This is Fieldner. I have got a note here; look on the Presidential conference report, page 11 and 12, I think it is.

Mr. MARKWELL. Page 8.

Mr. BRYAN. I am going to try to put that at rest. Now, here's the President's conference—no, that isn't. The one that says it just began in 1942. It's a new product in 1942.

Mr. LANE. You could submit that to the committee later on if you care to, Mr. Bryan.

Mr. JONAS. If he prefers to get it in the record now, I presume while it is fresh in his mind, it is all right.

Mr. BRYAN. I will bring it back in a minute. Here the highest authority of the Bureau of Mines says, tells the President's conference the material is new, it has never been made before 1942; it was 1943, is what it was.

Mr. BRICKFIELD. As a fertilizer?

Mr. BRYAN. Sure; FGAN. That's the only thing we are dealing with. The other point is one that I want to dwell on as much as the committee thinks it profitable. The Coast Guard is by law made the policeman of the port. They are the captain of the port and they are absolute czars or policemen of any navigable water or port areas by law. They have also set up, which were written by Commander Butler, the explosives regulations and regulations for the carriage of cargo and the handling. They have the duty of knowing dangerous materials and cargoes and providing for isolation of them in the loading of such as that. Our position is, and we can amplify on it and will do so, that the Coast Guard failed in its prescribed duties and principally because they did not have the money, they say, to buy the personnel to do this work. They did it after Texas City. There came an order down in a hurry from Commander Shepherd to prohibit any passage through this port, and Galveston or any other, and sent to all district offices, of ammonium nitrate without first requesting permission of Coast Guard, the supervision of it and the loading of it and all the rest.

Mr. JONAS. You stated that quite rapidly, and I think it's important. You contend that after the explosion the Coast Guard established the policy that nothing could be shipped through this channel, that is, the channel that embraces the area here which was adjacent to where the explosion occurred of the nature or character such as FGAN without first having obtained a clearance from the Coast Guard?

Mr. BRYAN. Yes, sir.

Mr. JONAS. Where is that supported by record?

Mr. BRYAN. The original base order is here. It is on page 68 of my brief. Here is the Federal Register printing of it. I am now introducing it from Federal Register, Saturday, August 9, 1947, page 5425, title 46, Shipping; chapter, Coast Guard Inspection Navigation; subchapter, Explosives or Other Dangerous Articles Combustible Issues on Board the Vessel. Issued by Admiral Farley, Commandant of the Coast Guard.

Mr. JONAS. He is under jurisdiction of what department?

Mr. BRYAN. Head of all of it.

Mr. JONAS. Does that come within the Department of the Interior?

Mr. BRYAN. It was Treasury then, and I think vice versa. Now it is Interior, I believe, isn't it?

Mr. THOMPSON. Still Treasury.

Mr. BRYAN. As a matter of fact, I think at that time it was still under the Navy, at this time.

Mr. HYDE. No; under Treasury.

Mr. JONAS. Is it still under Treasury, and was it under Treasury at the time of this order?

Mr. BRYAN. If it was under Treasury in 1947, yes, sir, I believe that's accurate, though I had thought that the Navy, under the Executive order, that they had not gone out from under Navy, but maybe they have.

Mr. LEACHMAN. It has gone back. It was about in 1946 or 1947 it went back to Treasury from Navy. During wartime it was under the Navy and after war it went back under Treasury.

Mr. JONAS. We are agreed, then, the order was issued under the jurisdiction of the Secretary of Treasury?

Mr. BRYAN. Yes, sir. May I read it, since it is quite important to show what they could have done before?

Mr. JONAS. Is it a long order?

Mr. BRYAN. Well, it is. There are portions here, though, I think, will—suppose I read section 146-22-9, Authorization To Load or Discharge Ammonium Nitrate.

Mr. JONAS. Read it so the reporter can get it there.

Mr. BRYAN (reading):

Shipments of ammonium nitrate or ammonium-nitrate fertilizer in amounts exceeding 500 pounds shall not be laden on or discharged from any vessel at any point or place in the United States, its Territories or possessions, not including the Panama Canal Zone, until authorization for such loading or discharging has been obtained by the owner, agent, charterer, master, or person in charge of the vessel, from the district commander or other officer of the Coast Guard designated by the Commandant of the Coast Guard for such purposes.

Mr. JONAS. Was this an original order?

Mr. BRYAN. Yes, sir; this followed Texas City. This is in the back—you have a copy of this, don't you, Mr. Brickfield? But it shows here in the back as an exhibit of my brief, but it is also in the record.

Mr. BRICKFIELD. Yes.

Mr. LANE. In other words, Mr. Bryan, that directive from Admiral Farley on August 9, 1947, spells out ammonium nitrate and not FGAN?

Mr. BRYAN. Yes, sir; that's right.

Now, here are some of the reasons—I am quoting from Mr. Wilson of the American Association of Port Authorities testifying before the President's conference:

Furthermore, the Coast Guard does not require that such vessels containing ammonium nitrate shipments go to explosive anchorages; they may go to any anchorage or pier in the harbor not restricted by local authority, provided they do not intend to actually work the ammonium nitrate cargo.

So we have these exploding bombs coming right into the harbor now without any restriction.

That was before the order.

I have got some more material here I wanted to show you, but—

Mr. JONAS. I think you have covered it fairly well, don't you think so? I think you have enlightened the committee on it in quite complete form.

Mr. LANE. Mr. Bryan, will you tell me who presided over the President's conference?

Mr. BRYAN. General Fleming.

Mr. LANE. When was it held?

Mr. BRYAN. This was August 27, 1947, that's the first one—the first one September 8, 1947, in Washington and presided over by General Fleming.

Mr. HYDE. Mr. Bryan, the court of appeals rejected the finding of negligence as to the Coast Guard, did they not?

Mr. BRYAN. Yes, on the basis that it was a governmental agency. Our appeal here to you is the moral responsibility of the Government whose agencies employed to do certain things have not done them under the function of a governmental activity. That's what the Supreme Court went out on, too, of course, discretion such as that.

On this page, this same committee recommended quite a series of changes that the Coast Guard should have gone to and go back to, which they already had in their regulations. I'd like to introduce some sections from the part I Report of Interagency Committee on the Hazards of Ammonium Nitrate Fertilizer in Transportation on Board Vessels. This is Treasury Department, United States Coast Guard, introducing that much of it on page 20 which lists the sections which were already in the Coast Guard Regulations that they did not enforce.

Mr. JONAS. It may be offered and made a part of the record. The reporter can copy it in the record later on.

Mr. BRYAN. Yes.

(The instrument was copied as follows:)

(A) The committee suggests that such provisions of the following procedures as can be legally incorporated in regulations be so treated and the remaining procedures publicized in the widest possible manner as recommendations.

(B) Condition: A vessel about to load a cargo of ammonium nitrate fertilizer:

(1) Prior to the beginning of actual loading of cargo the master shall—

(a) Notify the officer in charge, Marine Inspection United States Coast Guard and

(b) The municipal or State port warden if there is such an officer in the port, or

(c) The chief of the municipal fire department if there is no port warden.

(d) Consult sections 146.02-1 to 146.02-22, inclusive, 146.06-1 to 146.06-19, inclusive, 146.22-1 to 146.22-6, inclusive, and 146.22-100 (specifically the item ammonium nitrate) of the United States Coast Guard Regulations entitled "Explosives or Other Dangerous Articles on Board Vessels, April 9, 1941".

Mr. JONAS. Mr. Lane commented to me a minute ago that he would like to have the names of personnel on that particular committee, President's conference. Is there any way you can help us in that respect?

Mr. BRYAN. It is not a committee. Here's a transcript of it in which apparently General Fleming was chairman and a great many appeared there. I can get you a proceedings copy of it which will give you the names. They reviewed this whole problem.

Mr. LANE. Were there other representatives of the Government besides General Fleming?

Mr. BRYAN. Oh, yes. Here's what I was looking for a moment ago.

A VOICE. Read him the name of the participants who participated in and signed that report. I think that will give Mr. Lane what he wants.

Mr. BRYAN. That doesn't appear on this one. It appears on part I here, not the one I had there. Those signing the report were J. W. Connelly, Office of Chief of Naval Operations, Navy Department; Dr. Arno C. Fieldner, Chief, Fuels and Explosives Branch, Department of the Interior; George W. Jones, Chemist, Bureau of Mines,

Department of the Interior; R. O. E. Davis, Bureau of Plant Industry Soils and Agricultural Engineering, Department of Agriculture; V. E. Haninger, explosives agent, Bureau of Service, Interstate Commerce Commission; H. A. Campbell, Bureau of Explosives, Association of American Railroads; F. F. Dick, Bureau of Ordnance, Navy Department; Bernard Lewis, Chief, Explosives Division, Bureau of Mines, Department of the Interior; W. G. Finn, Production and Marketing Administration, Department of Agriculture; John A. Dickinson, Chief, Section of Safety Codes, National Bureau of Standards, Department of Commerce; Francis H. Van Riper, United States Maritime Commission.

Now, on that score we have some very important information, and it comes directly again from Commander Butler. If you will turn to page 32 you will see this statement, which I think is highly illuminating:

In statement and interview with FBI, April 9, 1948; showing difference between pure ammonium nitrate and FGAN, stated—

that is what Commander Butler, who wrote the Coast Guard Regulations on explosives and transportation of dangerous articles on ship-board, he's the author of them, here's what he said:

The foregoing sections are applicable provided the theory is accepted that ammonium nitrate was being transported. However, the substance that was being transported was ammonium nitrate fertilizer, and no such substance was authorized for transportation by the regulations except under the descriptive name "nitrates N. O. S.," as shown on page N-196.

That appears in the record, page 27323. Commander Butler, as I just stated, compiled the Coast Guard Regulations which formed the Publication of Explosives and Other Dangerous Articles.

Now I am over on the top of the page.

Commander Butler advised that since the United States Coast Guard hearing held at Galveston, Tex., in April 1947—

of which he was a member of the board—

at which time he testified that ammonium nitrate was, in his opinion, the proper shipping name for the FGAN, he feels that he was in error in this conclusion as it is his belief that the fertilizer should have been called nitrates N. O. S. Therefore, according to Butler, it would also have been correct to have shipped the FGAN on bills of lading under the shipping name of oxidizing material N. O. S. This name was listed in the United States Coast Guard list of explosives and other dangerous articles and other combustible liquids. However, in Commander Butler's opinion, the shipping name of nitrates N. O. S. should be given preference over the same oxidizing material N. O. S. due to FGAN's high content of ammonium nitrate. Butler has stated that in the event he is called upon to testify, he feels conscience-bound to relate information as attributed to him in his report, although his information might be prejudicial to the Government's case.

Commander Butler advised that the Underwriters Laboratories, Inc., was contracted by the War Production Board to conduct an experimental investigation into the comparative sensitiveness to explosion of ammonium-nitrate compositions containing organic material. The results of these tests were published on April 30, 1945, in an article entitled "Miscellaneous Hazard Report No. 3463." Regarding this report, Butler has stated that the findings were to the effect that the presence of organic materials in ammonium nitrate rendered it more sensitive to detonation, and the Ordnance Department should have known about this research and should have handled FGAN in a more cautious manner.

That's from a senior officer of the Coast Guard.

He also stated, and you see this, he made—the copy of a speech he made. Now we go to the next phase. Capt. Edward C. Cleave,

higher in the hierarchy of the Coast Guard, Bureau of Marine Inspection, testified, and as I said here, perhaps the epitasis of the whole Texas City tragedy and catastrophe is developed in this testimony from Cleave (Record 9195-9196):

Question. The singular fact remains, though, that immediately after Texas City your department issued orders requiring Coast Guard personnel to supervise and to know about and to prevent except in isolated port locations the loading of these ships, did it not?

Answer. Yes, sir.

Question. You issued it under the same authority you had prior to Texas City, didn't you? They hadn't changed the statute, had they?

Answer. No, they had not changed the statute.

Question. It was under the same authority you had prior, wasn't it?

Answer. Yes, sir.

Question. You never did check the Army manual, did you, on explosives and safety, Ordnance Department, prior to Texas City?

Answer. No, we operate under our own regulations.

Question. May I read you that again? I am reading you one of the front of Shepherd Exhibit 1-C. I read you as follows:

"The regulations in this booklet are applicable to all vessels subject to the provisions of Revised Statutes 4472, as amended (46 U. S. C. 170)."

That's over the Coast Guard and it makes them supreme in the port. They are the policemen or the captain of the port. Now the question, back to Commander Cleave, I return now to the lower paragraph in quote:

"General authority over and responsibility for the administration and enforcement of the laws and regulations governing the transportation, storage, stowage, or use of explosives or other dangerous articles or substances and combustible liquids on board vessels in the several Coast Guard districts are vested in and imposed upon the Coast Guard district commanders in charge of such districts."

signed by J. F. Farley, Admiral, United States Coast Guard, Commandant. You were familiar with that, were you not, sir?

Answer. Certainly.

Question. That puts squarely on the shoulders of the district commanders the duty to enforce and carry out these general regulations and authorities, didn't it?

Answer. Yes, sir.

Question. And that was true prior to Texas City, wasn't it?

Answer. Yes.

Question. And it is under that very authority that immediately after Texas City Coast Guard issued specific orders directing that they check to see that the ship holds were clean and properly prepared to receive cargo in accordance with present regulations, is it not, sir?

Answer. Yes, sir.

Question. You didn't write the shipping agents: you ordered your district commanders to enforce those regulations, didn't you?

Answer. Yes, sir.

Question. But you hadn't done that prior to Texas City, had you?

Answer. No, sir.

And read with me, please, this—and let these words sink deeply—

Question. The real truth about it is that they weren't enforcing those regulations prior to Texas City, because they had gotten the wartime attitude of taking a chance, wasn't it?

Answer. Yes, I think so.

Now, Commander Cobb, who was in charge here at Galveston, revealed the amazing situation that he had never heard of this stuff, never been told to watch for it, no one had ever instructed him to do

anything, in the next place he didn't have the men to do it because he didn't have the money to pay for it.

Admiral Shepherd testified to the same effect, that they didn't have the personnel.

Now that brings to mind another target. These Coast Guard regulations on explosives and the dangerous articles, that's what Butler wrote, and there are plenty of regulations in there that we say have been violated and were violated and the district court found they were violated. It is hard to believe he could make a contrary finding in the face of these admissions.

The other target we are proposing is, you were asking about what the Government contended. They were quite an elusive opponent. They took the position that this material, FGAN, was shipped as a fertilizer because it could not be shipped as an explosive, but saying that the explosive sections of the ICC, their transportation of explosives by land regulations, as well as those by water did not include this material and therefore they have done no violence to any of those sections, including 417, which the Board of Coast Guard Inquiry found they had violated and which the district court found they had violated by not shipping under the explosive sections of the tariff. They took the naive position that if they had it wouldn't have made any difference, the material was actually shipped, I think it is under 17410 but that's subject to review, classification of fertilizer not otherwise indexed by name. Our position was that they had at least—if it had 95 percent of ammonium nitrate—to ship it under the ammonium nitrate provisions of the explosives section of the tariff, but whatever the condition was there is no uncertainty that after Texas City it was recognized for what it was as it should have been recognized prior to Texas City. Here is the supplement and the amendment which I want to introduce as part 4, Regulations Applying Particularly to Carriers by Rail Freight, and it's Supplement No. 16 of Agent H. A. Campbell's Freight Tariff No. 4, Interstate Commerce Commission Regulations for transportation of explosives and other dangerous articles by freight, including specifications for shipping containers.

Mr. JONAS. Well, I think if it is called to the reporter's attention, he can copy it from that section or you can introduce it, whatever you find most expedient now.

Mr. BRYAN. And to prove our contention that FGAN is not ammonium nitrate, here is the ICC recognizing it. Here is the addition:

Adds section 532 (k), page 160 of Tariff. (k) Ammonium nitrate, ammonium nitrate fertilizer, calcium nitrate, guanidine nitrate.

(k) (1) Ammonium nitrate, ammonium nitrate fertilizer, calcium nitrate, and guanidine nitrate in bags must be loaded in all-wood boxcars, or wooden boxcars with steel roofs, or steel boxcars with wooden floors. Only clean cars must be used and must be free of any projections that would injure bags.

For the first time she's classified, and it is in the explosive section, of course, where it should have been all the time, and had it been there it would have come down here labeled properly and it would have come down here with the placards and the information which would have given warning.

Mr. JONAS. While you are on the shipping problem, Mr. Bryan, would it be out of place if you tried or attempted to enlighten the committee somewhat on the relationship between the Government and the Lion Oil Co.; that seems to be a problem here that has not been

sufficiently explored and on which the Government hung part of its case, I think, did it not?

Mr. BRYAN. They hung their case on this, that they had parted with the title when it left the gates at the ordnance plant, that this material, notwithstanding it was shipped on Government bill of lading under War Department directions, was shipped for the account of Lion Oil Co. and not for the account of the Government, that the Lion Oil Co. was the seller, the Lion Oil Co. was the one responsible for the condition of the material, the Lion Oil Co. was the one responsible for failure to test and anything else; they simply undertook to substitute the Lion Oil Co. for themselves.

Mr. JONAS. How did you meet that?

Mr. BRYAN. By the statements we made the other day, that this was Government-controlled throughout, that Lion Oil Co.—the material had already been ordered, shipped, and allocated to France before Lion Oil Co. ever heard of it; that Lion Oil Co.—and again in the President's conference you will see the explanation that I made to you the other day, that the Army could only ship to occupied areas, the Government could only ship to occupied areas; they had to have the device, subterfuge—I don't mean that in the connotation of evil, but nevertheless it's a deviation from the permitted ranges of shipping under the appropriations provided. If they were going to ship to France and other unoccupied areas, they had to go through the simulation of a commercial transaction and ship it in that fashion, and that's the way it was shipped to France. Lion Oil Co. was one that they had taken the material from in 1946 to go to Korea and occupied areas. They returned it, but returned it under the device of using Lion Oil as a contracting party under the pressure of writing the contract of sale to the French Government because the United States Government had already told them they would get it, and they used the priorities to force Lion Oil Co. to sign contracts of sale for material they never had in their possession, never had in their control, never had anything to do with.

Mr. JONAS. What do you class Lion Oil Co. to be in this picture, an independent contractor or a chain in the agencies that are representing the Government or just what position?

Mr. BRYAN. I class Lion Oil Co. as simply a mask for the operations of the United States Government that it conducted itself. They simply went under the name of Lion Oil Co. in order to make a commercial transaction out of it and in order to be able to give France this material, because I don't assume there's any doubt in anybody's mind that this was a gift. The way it worked out it may have sounded like a commercial transaction, but France got the money from the United States with which it paid, theoretically, Lion Oil Co., with which, theoretically, Lion Oil Co. paid the United States Government, and manufacturing it and selling it at a rate of about one-third of its cost of production.

Mr. LANE. Did Lion Oil Co. pay for this after this explosion?

Mr. BRYAN. They were paid for it after this explosion; yes, sir; and they paid the Government, of course.

Mr. LANE. And they paid for it after no delivery?

Mr. BRYAN. That's right. Well, this is all a simulated transaction in which they were a very reluctant participant, and the record shows they were worrying and writing and didn't want any part of it.

Mr. BRICKFIELD. In order to clear up the point that Mr. Lane makes, did the Government have a contract with Lion Oil for the passage of title to this fertilizer?

Mr. BRYAN. Yes; I was going to mention that.

Mr. BRICKFIELD. One of the conditions for the passage of title was the payment upon delivery of this FGAN product?

Mr. BRYAN. Of the bills of lading, and title didn't pass until bills of lading had been delivered and the check paid for. If you should give any life or vitality to these simulated contract instruments between Lion Oil, the Government, and the French Government, then there is this other peg to hang a hat on, that the contracts provide that title did not pass from the Government until they had been paid for.

Mr. BRICKFIELD. All right. Now, why did Lion Oil Co. pay the Government for this shipment if, as you point out, it never received delivery?

Mr. BRYAN. Because in 1946 Lion Oil Co. had been forced to give a part of the 60,000 tons to the Korean area and the Government had then used again this commercial transaction and paid Lion Oil Co. for that figure, for that volume of FGAN, and in turn Lion Oil was just returning it; it was on the same basis; that is, it had no real relationship to the manufacturing cost. As Major Starr testified, and I think one or two others, the cost of their manufacturing this material which they would sell back to Lion Oil was \$47; they sell it back at \$47; I think he testified it cost them about 2½ times that to make it, that it didn't really have any commercial transaction involved.

Mr. BRICKFIELD. Where was this payment to be made? Where did the Government designate the place where the check was to be mailed, was it to receive payment from Lion Oil Co. for the shipment of this FGAN?

Mr. BRYAN. I think it is Chase National Bank, New York, but it might have been the quartermaster department there.

Mr. BRICKFIELD. And you say that payment was never made at New York City until after the Texas City disaster?

Mr. BRYAN. Several months after.

Mr. BRICKFIELD. Can you give us the reasons for the delay?

Mr. BRYAN. I think just largely transit problems. I mean bills of lading clearing, going back and sending on.

Mr. BRICKFIELD. Apparently the bills of lading must have cleared before the disaster at Texas City.

Mr. BRYAN. No; they didn't. You will be interested in this: the commanding officer of the Government in charge of these plants wired the Texas City (Tex.) Terminal Railroad Co. claiming title of this stuff and ordering not to move it until authorized by the Government.

Mr. BRICKFIELD. Is there any distinction to be made between a Government bill of lading and a commonly accepted commercial bill of lading?

Mr. BRYAN. I would like to put it this way: I don't think a Government bill of lading is conclusive evidence that it's for the Government's account alone, but it is very strong evidence that it—if they could prove that it wasn't actually, then the fact it was a Government bill of lading would not be conclusive.

Mr. BRICKFIELD. Was the purpose behind using a Government bill of lading the fact that the Government can ship at cheaper rates by using its own bill of lading?

Mr. BRYAN. That would control, in my opinion; they were seeing that this material moved with a priority of Government lading and going to the market, going to France. It has been pointed out by one of the counsel that the Government had applied for and received a cheaper rate, but it also had the advantage, too, somewhat, of priority.

Mr. BRICKFIELD. I was wondering if the Government bill of lading would indicate that the Government itself was keeping title until such time as payment was made.

Mr. BRYAN. On the face of the lading; yes; it indicates that.

Mr. BRICKFIELD. Who was named as the consignee of the shipment?

Mr. BRYAN. It would be French Supply Council. It wasn't Lion Oil Co.

Mr. BRICKFIELD. Where was the bill of lading mailed to?

Mr. BRYAN. It provided for ocean export; the bills of lading carry the stamp on there for export. Where was it mailed to? They were sent, I believe—the Government sent them, I think, to Lion Oil, and Lion Oil was to send them to the French.

Mr. BRICKFIELD. And the Government contends that any title that it had to this FGAN passed when it loaded the FGAN on board the boxcars at the ordnance plant?

Mr. BRYAN. That is correct; that was their contention. We differed with it. We differ with two things; we don't think title passed; we know control never passed, and control is more important here than title.

Mr. BRICKFIELD. When was delivery made? I think that is really the controlling factor.

Mr. BRYAN. The closest you could find delivery really, in my opinion, was shipboard, when it moved shipboard it probably was delivered into French custody, certainly under a foreign flag; there was a dislocation of the continental control. I don't say the United States Government had any control after it passed the dock lines and went on a French ship under French registry.

Mr. BRICKFIELD. Now, when you talk of delivery in that sense, you don't mean that title actually passed?

Mr. BRYAN. No; physical possession. I think much depends upon what the purpose and intent of the parties was as to when title passes and whether Government bill of lading means it is solely for Government account or for accommodation of other aspects. The Government brief undertakes to bring this under the Uniform Sales Act. I don't think that has anything to do with it. It depends on what the Government was doing factually as to the legal effect to be given these instruments.

Mr. BRICKFIELD. Do you rely upon the provisions of the contract rather than the actions of the parties?

Mr. BRYAN. We rely on the actions of the parties. We think the contracts become hollow shells when the facts are developed.

Mr. BRICKFIELD. If you rely on the action of the parties, you admit that the Lion Oil Co. made payment for this shipment of FGAN?

Mr. BRYAN. Certainly, under the device employed, surely. They returned the money the Government had given them the year before, that's all they did. You see, this isn't an isolated transaction. When the Government found, the War Department found itself committed to Germany, Korea, and Japan and all that area for over 70,000 tons

of conditioning materials it didn't have, fertilizer, it reached out through the Food Control Board with the priorities and just took it away from Lion Oil but—

Mr. BRICKFIELD. I think you developed that yesterday, you brought out that this was in fact a veil that the Government was using.

Mr. BRYAN. The aspect of that is, though, they didn't say "We will take it and give it back to you next year"; they said, "We will keep this on a commercial basis, so you will have the money for operations we will pay you for that, though we are going to return it," so they just returned it for the money you received.

Mr. BRICKFIELD. Was payment made with money received from the insurance companies as a result of the payment?

Mr. BRYAN. That I can't answer you; I doubt if insurance had been paid.

Mr. BRICKFIELD. I am trying to develop what the reason was for the delay in payment.

Mr. BRYAN. I don't know whether they had any insurance, as a matter of fact; there is nothing in the record that shows what money was used. Lion Oil Co. never got any insurance from anybody. That we know.

Mr. JONAS. We are getting somewhat far afield here in this situation. I think what we had better bear in mind is this, that all we are talking about here are the contracts and the relationship of the Lion Oil Co. and the United States Government; all other parties who are related either directly or indirectly is all admitted in the record; isn't that true?

Mr. BRYAN. Yes, sir, that is correct.

Mr. JONAS. The problem before this committee now is this, as I see it, we can't ignore the record, the record has been made, it was not disputed during the trial of the case which was instituted here in the Federal Court, District Federal Court of Texas, the United States District Court of Texas, rather, but, as I understand it now, you are contending for this point, pursuant to the Thompson Resolution which was passed, that regardless of what was found to be the law in all of the respective courts that had an opportunity to pass on the facts as they are admitted in the record, we can't change them here, at least not very well, that Government never actually released its interest in the fulfillment of its obligation that it had promised the country of France some time ago.

Mr. BRYAN. And the control.

Mr. JONAS. So that regardless of what the legal technicalities may be or what technicalities were interposed and the reasoning of the court which may have been sound and must be taken as the final adjudication of this whole matter in the courts, the Government of the United States in this transaction had a moral obligation to follow this whole transaction through and see to it that this fertilizer was loaded on the boats of the country to whom it was to be transported and to whom they had made a promise that they would deliver fertilizer to them in order to rehabilitate, or whatever you want to call it, their agricultural activities and all other matters that agriculture entered into.

Mr. BRYAN. That's true, and the long hand of United States Government control never lifted from every sack of this material even as it got to the *Grandcamp*.

Mr. JONAS. It was the long hand of moral control.

Mr. BRYAN. Yes, sir; it was real, it was more than moral.

Mr. JONAS. Well, they began with substituting in private enterprises these factories that they owned to produce the article.

Mr. BRYAN. That's right.

Mr. JONAS. They pursued their activities up to where they got to the Lion Oil Co. and being under obligation to the Lion Oil Co., appealed to the Lion Co. to do a favor to the Government, all in satisfying the French Government. They saw to it that through their friendly agent or friendly coworker, that the fertilizer was ultimately transported to the docks of Texas City, Texas City evidently admitted ships and permitted them to dock a French ship to act in Texas City as the vehicle where this material could be stored and shipped.

Mr. BRYAN. And the French shipment which the United States Government gave to France.

Mr. JONAS. It carried the French flag?

Mr. BRYAN. Yes.

Mr. JONAS. When we get into this giving problem we will get more bogged down than ever. I assume you are right about that. I didn't know about that. The ship was there to receive this material. In the meantime it was subject to the rules and regulations of the Coast Guard.

Mr. BRYAN. That is quite so.

Mr. JONAS. And the Ordnance Department had not completely released its interest in this product because of the fact that there was a money transaction involved, somebody had to get their money for it, that was the Lion Oil Co., and the Lion Oil Co. got into the picture previous to that because it had done a favor for the Government of the United States and in that course of proceedings we get at least into the relationship of a moral obligation; that is your contention?

Mr. BRYAN. We do indeed.

Mr. JONAS. And you have not yet abandoned your theory there is also a legal obligation?

Mr. BRYAN. No, no; we maintain that there is an unbroken sequence of Government control of this material all the way through. Whether it did or did not control it, it had, if you apply law to it as well as the moral and the equitable rule, the duty as made by the Tort Claims Act of a private manufacturer to do all of the things under the same circumstances that a manufacturer of this, du Pont or Hercules, would have been required to do in the way of testing, determining a new product, warning and safeguards against hazards to innocent people. That really sums up our picture. That's what we are trying to show you here. We recognize that you may not be nearly so concerned with strict legal concepts and yardsticks, that your interest is whether or not the Government of whom you are representative through the Congress has a basic moral equitable obligation to make restitution here for acts which were benefiting the whole of the country and everybody in it, insofar as our agencies like the State Department and others have decided it was necessary to help France. Our position is that we are solid in thinking that that is the wide-reaching measure that justifies taking this hazard. Our thinking is that the costs should be distributed to all of those who theoretically at least benefited, the whole Nation, and that's our approach.

We are fearfully anxious, and I am again to leave it to the wishes of the committee, I have not dwelled upon the knowledge they had, the only two agencies that were concerned here—this will absolutely amaze you—Ordnance took the position that we got this from TVA so we don't have to do any testing. TVA took the position—and that's in the record—TVA took the position we don't because WPB has interested itself in testing for explosibility. And what does WPB do? It's the Nuckolls' testing, which was incomplete, and in spite of Nuckolls warnings and threats that they were asking for trouble they brush it off on the basis—and there's a letter here if you will find that for me, that's the Moore letter to Monroe, I do want to drive home this one if you will bear with me—that says as a scientific research it might be well and good to go forward with it but as far as they were concerned this was a war deal and a war measure. This is what he says, not what I paraphrase. We introduce Record 20931, which is:

War Production Board, Washington 25, D. C., October 7, 1944. Memorandum to: Dr. L. A. Monroe from William Cabler Moore. Subject: Contract WPB-166. With Underwriters Laboratory: Explosion hazards of ammonium nitrate.

Squarely on the subject: There is no uncertainty about what he is talking about.

The following résumé may be of some help in deciding whether the above contract should be reviewed. 1. Is ammonium nitrate likely to be a factor in the postwar fertilizer picture? To obtain an answer to this query I called Dr. F. W. Parker of the Agriculture Research Administration. His answer was decidedly *yes*. 2. Is ammonium nitrate likely to be available as a fertilizer material while the present war continues? No one knows the answer to this question. 3. Under what conditions have known explosions of ammonium nitrate occurred?

Mind you, that's pure, now; that's where the confusion began with the Government's contention.

"Answer" is "(a)"—he's telling you where they occurred—

When large piles of it, combined with the sulfate as "Luma Sulfpeter" had hardened into a concretelike mass and dynamite was being used to break it up. (b) When it had been overheated in the "Graining" process. (c) When deliberate attempts have been made to detonate it, but these attempts were successful only with real detonators and generally at a high temperature.

4. Can ammonium nitrate be stored, successfully in bulk, without caking? Answer. Only in very dry locations, where the temperature is kept at least 10° F. above that of the surroundings.

5. How can ammonium nitrate be stored to prevent caking? According to the report written by W. H. Ross and his associates, and received by us from Dr. F. W. Parker on September 29, 1944, the most feasible method of storing ammonium nitrate is in waterproof bags, closed to prevent ingress and egress of moist air. Furthermore, Mr. Kenneth Keifer, now of American Cyanide Co., Stamford, formerly operated the ammonium nitrate plant at Welland, Ontario, and he says that ammonium nitrate should be bagged in rooms having very low humidity.

6. What bearings have the above on the underwriter's contract? Since the recommended practice will be to package ammonium nitrate in bags impervious to moisture, these bags, if kept intact, containing about 100 pounds each of the salt, can easily be moved as units. There therefore will not be much chance of mass caking of the material; and if mass caking does not occur, breaking up large aggregates will not be necessary; therefore there will not be occasion to dynamite the material and hence it will not be subject to detonation.

Again on the theory that it takes an outside booster. Now, listen to this:

In a burning building, it would, of course, constitute a fire hazard in which explosions might occur but with the salt in 100-pound bags the bag itself would possibly tend to retard the propagation of the explosion wave.

He wasn't much of an explosion engineer, because all the Government information included this far show the shockwave would go right through, that it was a conductor. Now he's now dealing with Nuckolls' report:

It is at least pertinent to suggest, therefore, that under the most likely methods to be used in storing ammonium nitrate it will not constitute an explosion hazard.

We say the Government had the duty to know it was going to export. They knew it was going into the ships' holds, they knew it would reach these conditions of confinement, mass, and such as that, and here's how they brushed off Nuckolls and the testing contract:

It is true that the Underwriter's Laboratory work is incomplete and as a piece of scientific research should be pushed to a successful conclusion. However, such an activity is entirely outside the war effort; and in view of the above summary it is my recommendation that as a war project the Underwriters' Laboratory contract 166 be terminated.

It was the only large-scale testing ever undertaken by any department of the Government before Texas City to determine the characteristics of FGAN.

Mr. JONAS. Mr. Bryan, can you give the committee some idea of how long a time you wish to take in finishing your statement? The reason I am making this inquiry is I am trying to limit the time somehow. I still don't want to restrict you or any members of the bar or any of the people who are here, any witnesses who wish to introduce in the record a brief oral statement or statement in writing.

Mr. BRYAN. Maybe I had best, in candor, deal with you only in this fashion. I think that probably about 2 hours more material on testing and knowledge of the information that came from the testing, the incomplete testing, the attitudes of the various persons in senior position with responsibility and how they ignored this testing and how they failed on the warnings and failed of the control and transportation that they themselves employed. It may well be, I will say, more than enough to advise of our position. I want you to be candid with me because I will stop anywhere you suggest.

Mr. JONAS. May I suggest this, the Chair will declare a 5-minute recess so I can confer with my colleagues and then we will determine just how much longer we can run or accommodate you, in other words, we don't want you to feel we are shutting you off because of a matter of expediency. We will declare a 5-minute recess and in the meantime you can determine by numbers or by names who you wish to add to the list of witnesses.

(Short recess.)

Mr. JONAS. The committee will be in order.

Mr. Bryan, the committee has decided that we can give all of you time up to 1 o'clock p. m. today, so that will give you 1 hour and 15 minutes, and can you finish in a half hour so that the other half hour would be open to those who wish to make short statements and we can wind up the record?

Mr. BRYAN. I will undertake to do it; whether I finish or not I will stop.

Mr. JONAS. I mean to get those points in the record which you consider above all others should be mentioned here so that we can refer to them later on in the record.

Mr. BRYAN. Yes; and would this tend to help, too. Let me sort of, if I may get, before you, 1 or 2 items that haven't been explored, the highlights so to speak, possibly if you think it well later after I correct this for record references, may we submit to you the outline I have been working from? It will have more detail than I am able to give you here.

Mr. JONAS. I am sure that will be satisfactory if we just adopt the outline as part of the record. Is that the memorandum you read from yesterday?

Mr. BRYAN. Yes, sir; here it is. Here are two things I would like to drive home.

Mr. LANE. Before you start on those 2 points, if you will, kind of straighten me out on 1 matter. Right after this explosion here in Texas City the President appointed this Conference Committee.

Mr. BRYAN. Yes, sir.

Mr. LANE. And as you stated they held hearings in Washington and I assume held the hearing down here in Texas City?

Mr. BRYAN. No, sir; they did not. The Coast Guard held hearings here. That was the official board of inquiry as they were required to do under their statute and Bureau of Mines sent exploration parties.

Mr. LANE. How many days did the President's Committee on Conference have hearings?

Mr. BRYAN. I can't answer that. They were in and out. I know of one that I think was 3 days. Then they adjourned and came back again.

Mr. LANE. Was that right after this explosion down here?

Mr. BRYAN. Yes, sir.

Mr. LANE. When it was uppermost in the minds of everybody?

Mr. BRYAN. Not only uppermost but they called men like Fieldner, of Bureau of Mines, then they called Davis, of the Department of Agriculture. They called Dr. Bernard Lewis, head of explosives of Bureau of Mines. All those people.

Mr. LANE. Will you tell me what was the purpose of the President's Committee on Conference?

Mr. BRYAN. It was a recognition of the catastrophe portion of Texas City and a quick early conference to determine what generally was the cause of it and what to do in the future to prevent its recurrence.

Mr. LANE. Are their recommendations contained there?

Mr. BRYAN. Yes, sir. We would like to adopt them as the things that ought to have been done before.

Mr. LANE. Was the purpose of the President's Committee on Conference, Conference Committee, to take up the matter of the damages of the claims?

Mr. BRYAN. No, sir, it had nothing to do with it. It was on the national scale of the national level.

Mr. LANE. The overall picture of it?

Mr. BRYAN. Yes, sir. This was a catastrophe which the country couldn't afford any more.

Mr. LANE. In other words, it was to prevent them in the future?

Mr. BRYAN. Yes, sir.

Mr. LANE. And not to compensate anybody for their loss of damage?

Mr. BRYAN. No, sir; had nothing to do with that, simply dealt with the fact that here was a great industrial area blown to pieces, others might likewise be blown to pieces; humanitarian aspect.

Mr. LANE. Thank you.

Mr. BRYAN. They developed—I would love to be able to read you lots of it, because it is precisely what we are contending, but, at any rate, they developed a lot of facts I will try to hit easily. Here is Mr. Davis introducing Mr. Minor from the Agricultural Department. Mr. Minor has this to say:

From a technical standpoint I could not say anything if I wanted to, but from the standpoint of the use of ammonium nitrate as fertilizer I would like to make a few comments.

This Government contention which they have thrown at us for 30 years' use of this material, here is Mr. Minor:

Ammonium nitrate—

and I quote from page 11—

for direct application first came into use back in 1942—

actually it was developed in the first commercial production in 1943—so it is comparatively new in this country and apparently we have made more progress than elsewhere in connection with it.

And that's our point; the new material, it had to be tested, they had to know what they were doing.

Now, the other one is—I'd like to hurry again—that that smoke screen the Government raised, which was disregarded both by the trial court and by Coast Guard and everybody else, that they were doing it exactly like industry was making it, and I want to point here not to my conclusion but to the conclusion of Mr.—this is still the President's Conference and it is the conclusion of Colonel Miller, from the Department of Agriculture, and I withdraw again, Colonel Miller introduced Dr. R. O. E. Davis from the Department of Agriculture, probably one of the most famous men involved in this picture. He wrote Bulletin 719 which told them it was going to happen, and they wouldn't listen to it. Here's what he has to say.

He points out that—

The Canadians had found that in adding the waxy coating they do not improve the product to any great extent. At the same time, they were making an examination of the bags that were being used for packaging, and they were being studied in the Agriculture Department, and it was found that if those paper bags were 5 or 6 layers and 2 good asphalt layers, they were very impervious to absorption of moisture and the material might remain in those bags for a long period of time, in a very humid region, without the material's caking or absorbing moisture, so that in several places the waxy coating was discarded.

Mr. Miller, head of TVA, says or probably makes this amazing statement:

We proceeded to make ammonium nitrate with this coating and distributed it for use in agriculture.

That's just all he did. He says, and here is his reason why when charged with it—

About that time the WPB was considering the same matter.

That's the testing for the hazards of the explosive.

They had not only TVA to deal with but the possibility of using material from Ordnance plant for fertilizers so that the WPB suggested to us that in view of the fact that TVA was only one of a number of people who were making this product—

this is still quoting—

that it would probably be appropriate for WPB to take over this problem of testing ammonium nitrate and that they would proceed to go to the underwriters and have additional tests made, and we then left it with WPB to carry out that procedure (Record, 13421-2).

That ends all interest TVA ever had for testing for explosiveness of this material.

Now, WPB did go ahead, and Mr. J. E. Underwood, of OPRD of War Production Board—since I mention it, we will introduce this patent again. It's in the record, of course.

Mr. JONAS. You can introduce it, Mr. Bryan, in the form of a page from the record that you are now referring to. We can probably get a photostat or a copy of it made by the reporter, and incorporate it in our record here. Is that agreeable to you?

Mr. BRYAN. Oh, indeed, yes.

Mr. JONAS. For a brief explanation, what is the document?

Mr. BRYAN. We are introducing United States Patent No. 2211733, patented August 13, 1940, in the name of Robert W. Cairns, assignor to Hercules Powder Co. (Record 21763). The formula is exactly FGAN.

Mr. JONAS. All right, it may be received.

(Instrument not furnished reporter.)

Mr. BRYAN. Now, this again is the same formula which TVA completely turned over to Ordnance and they start making the stuff. Here is admission by Mr. Miller again:

Question: TVA hopped into the manufacturing of conditioned ammonium nitrate fertilizer without prior experience, didn't it?

Answer. That is correct (Record 13449).

Notwithstanding that, Dr. Frank came over from the Fretsch German Chemical Co. and warned about using FGAN, pointing out, and I can't go into the details in the President's Conference, but an examination of that will show that in the European markets they did not use these carbonaceous conditioning agencies, they used infusorial earth. In fact, in Germany you couldn't ship FGAN at all. It had to be carried by special permits for explosives. Italy, Holland, Belgium, all of them would not permit that type of conditioning, and Dr. Frank makes that clear. Here's what he said to a meeting with TVA:

He warned us about manufacturing it. I do not remember him warning us about using it.

Miller identifies the meeting which Dr. Frank attended and made a talk as reported by Dr. Curtis in this fashion:

Dr. Curtis concludes that on the basis of reported results no appreciable results could be made if we are to continue to make a satisfactory fertilizer product.

He stated—

That the hazard involved in the production of ammonium nitrate has long been recognized, that it is probably no greater than that involved in some of our other operations and that we are justified in continuing our present method of operation as long as the war continues.

And that fits in exactly with what Dr. Moore is telling Dr. Monroe. We are not going to worry about the hazard here. This is war. It sounded that way at Texas City, too.

He believed, however, that for the peacetime production of fertilizer a safer production method should be developed. It was agreed that no change would be made in operating procedure.

Now we skip through, and you will recall, I am sure, that the letters that came back from Atlas and Hercules and Du Pont, every one of them except one told them not to condition this material with this PRP. The one that wrote, and I think I am right, is Atlas, probably said, "It is all right but we are not doing it," and they weren't and no private industry was doing it the way they were.

Again I should like to point out as developed here, and I will move on through it, that private industry never bagged above 160 to 170 and less than that, some of it at a hundred to a hundred and forty. In fact, Dr. Davis, of the Department of Agriculture, in Bulletin 719, warns Ordnance and TVA not to bag above 100.

Mr. HYDE. In the Government brief it says the average bagging temperature for this particular FGAN was 158 degrees.

Mr. BRYAN. That's what they say, but one can't know what that was because here's why, Congressman. At that time they were using a western thermometer and about every 50 bags they'd stick in the thermometer through the bag which itself created an opening which let the material flow out into the car and get tainted and contaminated. They only checked every 50 bags. With this character of material, according to the scientists, that is no check at all because one bag may have come in at 300 degrees. That may be an exaggeration, but we have it up to 259. I don't want to get the record too full; it is, in my opinion, not feasible for the Government to make such a statement in the light of Colonel Jefferds' testimony that up to Texas City they were bagging up to 259 and going straight into the car so that would be no criteria, in my opinion, as to what the temperatures were really when they went in the cars and when they got down here, because one out of every 50 will hardly tell the story.

Now here's another question; I said a moment ago that all private industry and Canadian, the Europeans had quit fooling with it. They quit this conditioning with this PRP agency. Here's TVA admitting that. I would like to quote to you, please. It is so garbled; would you get me 13495, please.

I will move on for the moment. TVA developed its own report and it finally became available. It was report 571 and it had listed over a hundred literature references dealing with the explosiveness, ingredients of pure ammonium nitrate and ammonium nitrate in other combinations, not this particular FGAN, but here's the admission that others have gone to different methods. Let us examine this phase:

Question. Isn't it a fact that TVA in 1943 made quite a review and research into the several methods of producing this coated or fertilizer grade of ammonium nitrate, the Oslo Process and the Batch Graining and Prilling Process? The Batch Graining is the kind that Ordnance and TVA used.

Answer. Yes; we made a considerable study of that.

Question. And isn't it a fact that the TVA report says the prilling was the safest of all?

Answer. I don't remember what the TVA report shows.

Question. Isn't it a fact that the TVA report shows that the prilling was the safest of all?

Answer. I don't remember what the TVA report showed, but the TVA report showed Oslo crystallizing method as the best and safest and installed it at Muscle Shoals.

Now that, to me, should go arrow deep. When they got to making it for themselves on a permanent basis at Muscle Shoals they didn't use FGAN by the Cairnes explosive patent. They used the Oslo crystallizing method. That, to me, is highly significant, and these people at Texas City aren't required to be treated in that fashion.

Question. Didn't you find that was the second safest, that the prilling used by the Canadians was the safest?

Answer. I am not sure of that, but I am sure that there is very little difference between the two as far as safety is concerned.

Question. I will get back to that later. But let me ask you your recollection since you have been the head of this department and have been so represented here. Didn't you find both by report and by experience that the prilling crystal processes were far superior and safer than the graining, either the continuous or batch graining process?

Answer. Yes, sir. Well, now, wait a minute, the prilling could not be carried out in certain climates, but in a place where it could be carried out, it was the safer than the graining.

Question. Isn't it a fact that Lion Oil and Silas Mason are using the Canadian prilling process right now?

Answer. Maybe I am misinformed, but I did hear through an indirect route that Lion Oil Co. could not make their prilling process work in a climate in which they are operating. I may have been wrong (Record 13495-13496.)

Now I am going—I may have bored you terribly with TVA, but it's the source of this picture as far as Ordnance is concerned, because they took it over bodily without knowing what TVA had or had not learned.

It is in this posture that the matter indicated goes to WPB. Ordnance got the specifications of TVA, not TVA after testing. The Ordnance Safety Manual defines ammonium nitrate, at the bottom of page 79 (Hughes exhibit 1):

Ammonium nitrate is a crystalline powder varying in color from almost white to brown. It is mixed with TNT in the manufacture of amatol which is used primarily as a bursting charge in demolition bombs. Ammonium nitrate usually cannot be detonated by heat or friction—

usually, they overlooked that word—

but may be exploded by a sufficient heavy initiation—

and they say for that reason we have no reason to worry about anything; now, they didn't read the rest of this—

It may be exploded by a relatively light initiation if it has been sensitized by certain impurities among which are many carbonaceous materials. Ammonium nitrate is not very inflammable at atmospheric temperatures, but fires involving ammonium nitrate in large quantities become an explosive hazard (Record 13472-13473).

Now they admit, Miller admits at TVA they knew about these regulations. At page 13461 Miller admits that he knew that TVA was conducting a hazardous manufacturing operation, and when asked whether in peacetime they were going to change it, he stated:

We always knew that and we were even at that time making plans to improve the ammonium nitrate process and that has culminated in success, if you would like to know it (Record 13461).

And it did, because they put the other process at Muscle Shoals.

Walthal wrote, of course, as you know, and this gets back again to my categorical statement that when Walthal was with TVA he wrote to Bureau of Mines, Huff, and asked for some tests on this ammonium nitrate conditioned, that's FGAN. Bureau of Mines comes back and says, We made these tests but they are small scales and they are inconclusive and should not be used. Our plant at Bruceton is not able to make the sizes that you need to determine this test. We recommend you get the Underwriters Laboratories, a very highly respected organization in Chicago of long or technical background of integrity and a dispassionate professional approach (Record 25222). That's when WPB gets into it. But they were careful and I can't take the time now. But Tiffany writing to Huff, Huff writing to TVA, don't you do this because it is dangerous, don't accept these tests.

Now, here's how TVA answers all these warnings from Bureau of Mines:

Thank you for your letter of August 20 on the subject of making fire and explosion hazard tests on ammonium nitrate fertilizer material. We appreciate your comments regarding the undesirability of mixing organic materials with ammonium nitrate, however, our experiments have indicated the necessity—

and mark what's the measure of this, not safety but drilling through farmers' equipment—

of using such materials as conditioning agents, in order to produce ammonium nitrate in a physical condition that permits its distribution for fertilizer use (Record 13463)

had no relationship to the safety angle.

Now, so that it may be clear in the minds of some of you, here is the material that TVA submitted to Bureau of Mines:

1. Ammonium nitrate containing no conditioning agents; 2. Ammonium nitrate conditioned with 1 percent petrolatum, plus 4 percent clay; 3. Ammonium nitrate conditioned with approximately 0.2 percent petrolatum, 0.6 percent resin and 0.2 percent paraffin plus 4 percent kieselsiuh. r.

That is FGAN, the last one (Record, 13463).

Moving on as quickly as I can, here is an amazing letter. This is from Colonel Dietrick, head of Safety and executive officer to Maj. General Hughes at Ordnance. He is writing to Colonel Ensminger, who is in Safety down below in the Chicago area, and he's sending on this report, and the reason he is doing it—and I am quoting now—

That the report on the tests was sent on because of the disaster at the Wolf Creek Ordnance Plant on March 2, 1944.

Dietrick says to Ensminger:

Before these tests were made, I repeatedly called the attention of representatives of the Department of Agriculture, the Tennessee Valley Authority, and the War Production Board to the hazards of the mixture of ammonium nitrate with organic material, and in a conference in my office on October 20, 1943, attended by Messrs. R. O. E. Davis and F. W. Parker of the United States Department of Agriculture, and R. R. Hull and J. E. Underwood, of the War Production Board, I pointed out that the tests made by us at Bruceton must necessarily be of rather small scale and that I did not believe that they could be deemed conclusive enough to cover the potentialities that might exist if large quantities of ammonium nitrate were mixed with organic materials (Record, 13481).

Mr. Underwood gets into the picture after Mr. Miller admits that TVA, that it would be good to go forward with a larger-scale test, and then says they didn't do it, and the reason why is this:

Question. Never prior to Texas City?

Answer. Since Mr. Underwood came to us and said that WPB would make these tests.

The Bureau of Mines report in letter to TVA sent also to Ordnance to Ensminger, as we have shown, contained this language:

In accordance with the views expressed at this conference, Mr. J. E. Underwood, consultant to the Chemical Industries Branch, OPRD, War Production Board, wrote me on November 19, 1943, stating that he had discussed with Dr. A. H. Nuckolls, of the Underwriters Laboratories in Chicago, the conduct of an investigation involving large quantities of ammonium nitrate.

He further stated:

We are hopeful that the amount of added organic material may be reduced to a minimum or possibly entirely eliminated (Record, 13482-13483).

Now, the Bureau of Mines, in Dietrick's Exhibit No. 20, letter of Huff, and so forth, I have read you.

As it has been charged, all interested should have been concerned with the testing of FGAN, a new material manufactured for the first time in the United States in 1943 by Hercules (Record 15117). Underwood wrote Nuckolls, stating that WPB was confronted with a safety problem in mixing ammonium nitrate with organic material and asked, as I have said, whether they would undertake the testing. Here's what Underwood—these are levels of responsibility authorized to do the particular thing, that's this test—is saying on February 17, 1944, when he asked the Chemical Referee Board to give funds for such tests that he was trying to contract with Nuckolls—listen to this, please—

Considerable data—

this is going to answer some of the questions—

Considerable data is available in connection with the explosiveness of straight ammonium nitrate and some mixtures of this material and other source. But—quoting—

practically nothing is known regarding the hazards involved through the introduction of organic materials to ammonium nitrate itself.

That's FGAN; that's the shadowboxing we have been doing with the Government. They would like to talk about pure ammonium nitrate and we just dissent from the invitation.

Now, Mr. Nuckolls does make the tests, they were cut off, and I read you the letter that Mr. Moore wrote to Mr. Monroe. There's another letter in here to Nuckolls. I think it's Record 20931, isn't it, or is it? Look how the brushoff is given Nuckolls. War Production Board, date May 11, 1945, letter from L. A. Monroe, Chief, Chemicals and Industries Branch, to Mr. A. H. Nuckolls, Underwriters Laboratories in Chicago, it is Record Reference 21598, and it says to Mr. Nuckolls:

DEAR MR. NUCKOLLS: Thank you very much for your letter of May 2, and for the copies of your report, MH-3464, on explosion hazards of ammonium nitrate. This report constitutes the final report under your contract WPB-166, and is being so recorded in our files. We will advise you should there be any indication in the future that further research on the fire hazard or explosion hazard under fire conditions may be deemed necessary in regard to this compound. Under present conditions, we do not anticipate that such a request will be made in the immediate future at least.

Will you find me Mr. Minor's letter from the Chicago Laboratories back to Monroe?

Mr. Nuckolls was one of the first called by the President's Conference, and he—I suppose this is not quite an unfair interpolation—he was the typical scientific type, quiet, small, and diffident in thinking of himself as a person of any consequence, but fiercely stubborn when he thought he was right.

In our work—

he is telling the President, that is, Chairman Fleming—

Briefly, our work for WPB showed, I think definitely, as brought out in this Research Bulletin 39 (copies of which will be available for, or are available to, any member here on request to the laboratories), that the organic matter definitely sensitizes the straight ammonium nitrate. That is, it is more sensitive to detonation by a booster than the straight ammonium nitrate, and it is more sensitive under fire conditions.

In our work we arrived at a conclusion I think in harmony with that mentioned particularly by Dr. Lewis, of the Bureau of Mines. We found an exothermic reaction, increasing in intensity as the mass of the ammonium nitrate involved was increased, and we were studying that exothermic reaction, a curve for which is shown in this bulletin that I mentioned. As I recall, in 115 to 145 minutes a sample of a 75-pound mass preheated to some extent gave a rise of 800 degrees Centigrade—

not Fahrenheit—

in a little less than 10 minutes—a very deep curve.

And that's the answer to Mr. Brickfield's question of overnight how could this possibly rise that fast. In less than 10 minutes it went to 800 Centigrade.

At any rate, WPB, apparently seeking to justify its action, writes to Mr. Minor, a widely recognized scientist in Chicago, and submits Nuckolls' contract, what he has been doing, his tests, his reports, and says, "What do you think, ought we to go ahead," and Mr. Minor, loyal to the scientific effort that Nuckolls was putting into this thing and the objective, writes back and says:

You should go ahead and you should get at the end of this thing and know what he is telling you should be fully developed.

They file that away and turn it down.

Well, I am intensely obliged for the courtesy and the attention that this committee has shown me, and I could have wished that the presentation were better, and I hope you have suspected us of being thoroughly earnest and sincere in this, in trying to bring before you enough not from the law angle but from the angle I presented of the moral responsibility of the Government through your agency to recognize a lot of unidentified people who were hurt without their anticipation and who really deserve the restitution they suggested.

Mr. JONAS. Mr. Bryan, could you give the committee an idea, if you care to, as to what you think is the maximum amount that would enter into the respective claims of which you now have knowledge or that could be made or actually have been made up to date or those that have been processed by the Government of the United States; if you took the face value of the claims or at their maximum, how much in dollars and cents in round figures would that be according to your best judgment?

Mr. BRYAN. As may be filed with you?

Mr. JONAS. Yes.

Mr. BRYAN. I can offer you this, I offer you first the view of several others, that they may reach up to 75 or 80 million. I offer my own

view that I believe 60 million will top it. That's my own representation. There has been quite a reexamination. We Texas lawyers are prone to ask for a good deal, if not the moon, when we file a suit in court, and in the suit filing we asked for much larger figures than might well have been given by a jury or court but we early recognized that here was a different situation. We want not to be in the role of coming to you as a raiding party, we want to be able to come to you and sustain to almost the penny the justness and the correctness of the figures we are filing for, so there has been a tremendous voluntary reexamination and reestimate of the figures of claims. There is one aspect, that gives me an opportunity to point out something that I am sure isn't intended, but it has been a very unfortunate thing. In all press notices the reference has been made to \$200 million. That is the most exaggerated, the most distorted possible figure; even in the old transaction. One of the suits was \$49 million, John Doe suit simply filed to take care of late filings, to keep them from being lost in limitations, and the amounts of claims, as I pointed out, I suggest those figures certainly encompass the probable range.

Mr. LANE. It says right in here, one of these records, that it's \$200 million, and it says on the first page of the Supreme Court decision.

Mr. BRYAN. That's right. The Government played that up very severely in all of its briefing.

Mr. LANE. This is a test case representing some 370 personal-property claims in the aggregate amount of \$200 million.

Mr. BRYAN. But that's still wrong. They played two things, the size of it, and I think that's what frightened the members of the Supreme Court, at least some of them, and they played the other one that they tried to leave the impression, which I think you found to the contrary, that this just represented a corporate attack, there weren't any people hurt or suffering or needing any recompense. You see that in the footnotes of the Government brief. That's inaccurate, too.

Mr. JONAS. Before you conclude, I am sure I voice the sentiments of the committee when I say that the committee expresses admiration for the capable and competent and exacting manner in which you have presented this testimony to us, and I am sure that we appreciate the agreements that were reached between eminent counsel here in this area who had an interest in this proceeding that you be the spokesman for all of the other eminent counsels' interest, this policy turned out to be very helpful to this committee, and we thank you for the patience and the efforts, especially the painstaking and erudite way you presented the testimony. This is not passing on the weight of the testimony, but merely to express admiration for the capable manner in which as a member of the bar you have prepared this case and presented it to an inquisitorial body.

Mr. BRYAN. This is a team and everybody is entitled to the credit. I have enjoyed working with you.

Mr. JONAS. Now if we could get the hands of the attorneys who wish to introduce a statement, is that possible, anyone, I mean if you have a prepared statement to introduce you can do it at any time, or if there is no one here—May we have your name; identify yourself for the record.

Mr. LEVY. Mr. Chairman, I do not wish to precede Mr. Leachman. I understood he wishes to speak.

Mr. JONAS. That's oral.

Mr. LEVY. I had an oral statement also.

Mr. JONAS. We can only confine that to a minute or two, but we'll be glad to hear from you.

Who else wishes to make a 2-minute oral statement?

Mr. PHIPPS. I would like to follow Mr. Leachman.

A VOICE. I would like the privilege to follow Mr. Leachman if he overlooks 1 or 2 points we have agreed upon.

Mr. JONAS. Mr. Leachman, if you will resume, I think we can give you a few minutes.

#### STATEMENT OF NETH LEACHMAN, GALVESTON, TEX.—Resumed

Mr. LEACHMAN. Mr. Hyde raised the question with Mr. Bryan about the Wolf Creek disaster that I mentioned yesterday. I'd like to clear that up if it needs clearing up. The ordnance plants quit manufacturing ammonium nitrate as an ammunition in 1943, as Mr. Bryan told you, when RDX was discovered. These plants became surplus. The Milan, Tenn., plant and several others were used to manufacture fertilizer grade ammonium which was sold through the Commodity Credit Corporation. That story appears in the official court record under the evidence of J. N. Pearre, beginning at page 1406, and particularly on page 4615, where it shows that Wolf Creek plant, Louisiana plant, Lone Star, Kans., and the Consumers, five plants, Illinois Ordnance Plant, Ravina and Nebraska were all used for the CCC fertilizer program. However, it doesn't make a great deal of difference in what we were thinking about as to whether it was plain ammonium nitrate or fertilizer grade at the Wolf Creek disaster because they had the liquid anhydrous ammonia which they started out with and it was in the graining kettle, and they had the arms that turn around and round and it finally mixes it into small granules and that's before the PRP was applied to it, the coating, it was still the pure ammonium nitrate. Now, they had some air lances in those paddles or blades which sort of blew it out to work down into these granules, and those air lances got clogged up with the pure ammonium nitrate and some oil got in there, a hydrocarbon, and the oil and the heat and the confinement in the air lance caused an explosion which in turn acted as a booster and exploded 4,800 pounds of ammonium nitrate, and that was where the 4 people were killed and the 17 were injured in March of 1944. So what does that mean to us? You had your hydrocarbon and your confinement and your heat and your explosion. Well, with your F-G-A-N you get your granule with your PRP over it, which is a hydrocarbon, you see, and then when you get your confinement and your mass and your heat in the hold of the ship you get your explosion, so it was a small one there and a large one here.

Mr. HYDE. I think the point is when you are contending with the Government about this, the Government can make the point however that there was not the exact same thing.

Mr. LEACHMAN. It was on its way to become the same thing but they hadn't reached the stage of putting the coating on, but we make the point that in either event you get a carbonaceous material, the hydrocarbon on it, which is the contaminating feature.

I would like to bring out just this one word on Mr. Nuckolls' test. Mr. Nuckolls wanted to continue those tests which were cut off. I

am not sure that that has been made clear. Now, as 1 lawyer out of 7 that's worked rather close to this situation, I think this is a very simple matter. I think that because it was such a disaster and so many people were killed and so many injured and so much property damage that we overexerted ourselves in our anxiety not to overlook anything, but really we may have gone down a lot of rabbit trails that were unnecessary. It's very simple. It's a *McPherson v. Buick Motor Co.* case by Judge Cardozo. The Government was the manufacturer and seller of a dangerous instrumentality. Now, question No. 1, we know they manufactured it and sold it. Question No. 1, is this a dangerous instrumentality. If you resolve that question, yes, then it is undisputed that you didn't give any warning about the danger.

Mr. JONAS. I am not finding any fault about the statement you make—if I were talking as an individual I might be entirely in accord with it—but the fact is that it wasn't sold to the court.

Mr. LEACHMAN. The court didn't turn down that sort of a presentation. They said that under this statute there's an exception.

Mr. JONAS. What you are trying to establish, regardless of how you look at this case and regardless of the position the courts took, there is sufficient basic equity in this case so that the powers Congress is clothed with cannot be ignored in seeing that substantial justice is done one way or another in the ultimate conclusion of this proceeding?

Mr. LEACHMAN. Exactly right, and it's a pretty simple matter and we don't have to burden ourselves with a lot of thinking about control or title or anything else. She manufactured it and sold it as dangerous; she didn't tell them it was dangerous, and it blew up and hurt those people.

Mr. JONAS. All right. Can you give us any idea as to what you think is involved at the maximum in dollars and cents if all of these claims of which you have knowledge and which the attorneys here are interested in these transactions have knowledge or any court or any public official or any tribunal having jurisdiction has knowledge, what do you say is the maximum in dollars that is contended for in all claims that have been brought to the attention of either those that would be competent under Congressman Thompson's resolution or those that were brought to the attention of the court involved in the voluminous records, briefs and abstracts filed?

Mr. LEACHMAN. That could be an embarrassing question, Mr. Chairman, and I have my own ideas but it is purely my own ideas.

Mr. JONAS. We'd be glad to get your own ideas. You are one of the counsel in the case.

Mr. LEACHMAN. Let me say a hundred million is a maximum.

Mr. JONAS. Well, we will let you go on record as a hundred million.

Mr. LEACHMAN. Yes, sir. Now there is one other point I would like to raise.

Mr. JONAS. We will give you 1 minute.

Mr. LEACHMAN. The Coast Guard regulations that were enacted in August 1947 after the Texas City disaster, Mr. Bryan touched on some of those, about notifying them that they were coming into the area. They went further and they said that when it did come into the area they had to load it way out in the Gulf, in an isolated loading space as a matter of precaution. I believe those points are about all

that I care to make, and I thank you very much for your attention.

Mr. JONAS. We thank you for your cooperation and help and assistance in this matter.

**STATEMENT OF JOHN R. BROWN, LAWYER, HOUSTON, TEX.**

Mr. BROWN. May it please the committee, I am John R. Brown, of Houston, with an office in Galveston as well. I happen to be one of the committee of lawyers appointed by the lawyers to try the case and did participate in the trial. I got, interestingly enough, the moniker of the seeing-eye dog because of my familiarity of this record over here with which we have lived with so long. I want to bring 3 or 4 things very briefly to the committee's attention.

First, as you can see, our difficulty here is not in presenting facts; it is how do we select the facts from this great abundant supply, and Mr. Bryan did a masterful job of which we all voice our approval. We only regret that we don't have more time to give additional information to you. He overlooked and has asked me to tender into the record the two copies of the complete Texas City printed record, which we understand are now available to the committee in Washington, together with the references that have been made from time to time. We offer them as exhibits.

Mr. JONAS. They will be marked and received as a part of the record.\*

Mr. BROWN. Now, as a further facility to the committee in its difficult task of assimilating this abundance of evidence we would like to also offer a copy of volume II of the brief filed by the petitioner through the working committee and the court of appeals, and we call specific attention to the very elaborate table of contents that appears in the first part of it. You can literally find any information you need. It's an abstract of the record, and while we were advocates and argued, there is nonetheless a reference to every one of these things stated chronologically and under the main points, so if you want to know what Mr. Minor said in 1944, you go to the index and it is there.

Mr. JONAS. You wish to offer that?

Mr. BROWN. Yes, sir.

Mr. JONAS. It will be received.\*

(Thereupon the document above referred to was marked "Exhibit No. 6" for identification and received in evidence.)

Mr. BROWN. Now, I have 3 other things and I should like the opportunity of finishing them in 5 minutes. How did we get this information? It's very important, I think, in your deliberations. We got it primarily because of the candor of General Hughes, who stands out yet as a forthright individual who was perfectly willing to own up to his responsibility. As Chief of the Ordnance he was the first witness called by the plaintiffs in this deposition tour, and we asked him various things and he says "I don't know, but it will be in the record." We concluded that this kind of a man, somewhat of a stranger among his fellows later on, would be honest, so we asked him, "General, can we have copies of these records," and he replied before the court reporter, and I am using his own words, "You cannot only have those records but you can have any damned records the Ordnance Department has

\*This exhibit is on file in the office of the House Committee on the Judiciary.

got." Now, the Department of Justice found itself tied with this statement of a high officer, and they couldn't back out of it.

We had conferences that resulted in the establishment of what was known thereafter as the screening committee, a committee which, incidentally, was financed entirely by these plaintiffs. We paid for the board and lodging, the travel and food of these Army officers and Department of Justice representatives. It was established as a result of an informal memorandum between the Secretary of War and the Attorney General by which a representative of the Attorney General's Office, a member who was Mr. Smith, Mr. Arch Benson of the Legal Office of the Chief of Ordnance representing the Ordnance Department, and Lieutenant Colonel Boren of the Judge Advocate General's Department represented the United States department and Colonel Tibbitts as the expert for Ordnance. We then were permitted to come into these Army installations, and we spent over 2 weeks in the Pentagon, 2 weeks at Nebraska Ordnance, 10 days at Joliet, Ill., at the field director of ammunition plant's office, and sat across tables from these representatives of the United States Government. Every paper had to be first screened by them before it was passed to us. We marked it and they were photostated and offered later on as an exhibit by the plaintiffs.

Now, the significance of this is this, we spent over 6 weeks looking at files; we demanded and got everything they said pertained to FGAN, the ammonium nitrate fertilizer program. One time they fudged a little bit, but we caught them and they later discouraged that. Based upon the honor of their statement, which we accept now, we have no way of checking it, they furnished everything. Every piece of information pertaining to the FGAN program was furnished first to the counsel for the Government and then passed to us. If there is anything that exonerates the Government, they had the opportunity to produce it. It's all there. As a matter of fact, it's not all printed and when you find that you want something that isn't printed, the original exhibits are still in the court papers, but if it isn't in those papers it doesn't exist, and that's a highly significant thing.

Now, I should like to have 2 minutes because it will take me that long to finish.

Mr. JONAS. We will give you the 2 minutes.

Mr. BROWN. There was a good deal of suggestion in the briefs filed by the Government that there should actually be no responsibility attached because none of these things were known and there was no need therefore to make tests or inspections.

I want to read to you six lines from the cross-examination of Dr. Rinkenbach, who was the most hostile advocate for the Government, produced as an expert, found at 15027 of the record:

Question. Whether you agree with that or not, the literature did contain opinions and conclusions that ammonium nitrate was subject to explosion from fire and heat. That is true?

Answer. Mostly opinions.

Question. Well, whether it was opinion or not it was there, wasn't it?

Answer. Oh, yes.

Question. And the post-Texas City tests confirmed that opinion, didn't they?

Answer. They did.

And finally who should know of all people whether this material was always considered an explosive and whether what they learned out of

Texas City taught any new lessons? Would it not be General Hughes, not the Judge Advocate Department, not the Department of Justice but the manufacturer of this product? Listen to what Gen. Everett S. Hughes had to say at the President's Fire Prevention Conference held in September of 1947, presided over by General Fleming, and not to be confused with the Interagency Committee Report. General Hughes was asked to give his statement, and I am reading now from the Record 4597, and I should like to read it all because I close with it.

Maj. Gen. EVERETT S. HUGHES. I can give you only a very general picture, which is to the effect that after the Texas City explosion the officer and civilian personnel of the Ordnance Department immediately undertook the task of examining into every phase of the manufacture of ammonium nitrate, how it was manufactured, its shipment and storage. We conducted certain tests, the most important one of which was conducted at Picatinny Arsenal, which is our explosion plant, where we verified the point that ammonium nitrate becomes a high explosive under certain conditions, and those conditions are represented in a vessel, in a confined space, where there is a fire. It may be in the form of a cigarette or it may be in the form of some other type of fire.

Then this next significant statement:

I think that the conclusion to which I have come—and I have been in constant touch with the people in the office at the arsenal who have been conducting the experiments—is that ammonium nitrate has always been regarded as dangerous, and it is no more dangerous now than it ever has been. There have always been restrictions on the handling of ammonium nitrate; there have always been restrictions on the storage of ammonium nitrate and the shipping of ammonium nitrate; and the two explosives to which you made reference a moment ago, General Fleming, are, in my opinion, from the best evidence that I can get, the direct result of fire aboard ship, and under those circumstances we believe that ammonium nitrate is a high explosive.

We agree. Thank you.

Mr. JONAS. I regret that we cannot allow you more time, because your argument became more interesting as you progressed.

Mr. LEVY. I am Adrian F. Levy, Jr., an attorney, of Galveston, Tex. Mr. Chairman, may I begin what little I have to say by asking you a question, sir?

Mr. JONAS. Yes.

Mr. LEVY. Do I understand correctly that there are no formal complaints to be filed with your committee at this session?

Mr. JONAS. That's correct.

Mr. LEVY. Then may I—I suspected that was so, sir, so this is what I should like to say: I should like to have the record reflect that this very distinguished group of lawyers who have spoken before you gentlemen have epitomized the feelings of all the lawyers concerned as to the questions which they have presented. I should like, however, to make perfectly clear that it is my understanding that there are approximately some 200 attorneys who represent various claimants and these attorneys who have appeared before you gentlemen, of course, represent some of those, but do not represent all of them insofar as the presentation of their specific claims are concerned. I thank you, gentlemen, very much.

Mr. JONAS. Thank you for your information.

Now you, sir, would you like to make a statement? If you do, identify yourself for the record.

Mr. PHIPPS. I am James H. Phipps, an attorney at Galveston. Gentlemen, Mr. Levy has so well covered what I was about to state that I think it would be a useless time for me to continue on further

except to say that I also represent a fair number of these individual claimants, and I join with Mr. Levy as to what he has said in regard to the presentation of this claim on behalf of all the attorneys who have claimants.

Mr. STEARNS. May I just have one word?

Mr. JONAS. Identify yourself.

Mr. STEARNS. Carl G. Stearns, of Houston. I am pinch hitting for Mr. Carpendale, who appeared here one of the first days. In view of the question about the amounts involved, I want to state that Mr. Bryan mentioned a \$40 million suit; I filed that \$40 million suit on instructions from eastern counsel. The amount actually involved is \$259,629 instead of \$40 million. Now, there were some 10 suits that were filed under that suit, and they were personal injury, as I recollect it, and maybe a death claim, but they did not amount to any substantial amount, but it did provide the form and give the chance for people that didn't come in earlier to come in under that suit. As I say, some 10 probably did and maybe another \$50,000 of other peoples in that \$40 million, so that \$40 million can be taken out of your \$200 million to to start with.

Mr. JONAS. That's fine. Anyone else among the attorneys now who wishes, for the record, to be identified or anyone who wishes to file a statement?

Would you like to be identified for the record?

Mr. DAZEY. If you please.

Mr. JONAS. Step right up here and identify yourself for the record.

Mr. DAZEY. I am William B. Dazey, a member of the bar of the State of Texas, Texas City, a retired officer of the Army of the United States, O-201235. I have been besieged with calls since yesterday afternoon from clients of mine asking that I express their appreciation to this committee for the kind and courteous attention that you gave them, and as a member of the bar, I must also say that I respect the skill and the attention and the capacities that this committee has evidenced in this time of turbulent national political scene; it's an inspiring thing to all of the people of this community. Thank you.

Mr. JONAS. Thank you for your complimentary remarks, and we appreciate having them in the record.

Mr. KLEINECKE. Mr. Chairman, my name is H. E. Kleinecke, Jr., attorney, Galveston, Tex. Is it the wish of the committee to have the names of all the attorneys present in the record?

Mr. JONAS. Those who want to be identified for the record.

Mr. KLEINECKE. I have nothing further to add except to have my name in the record and to confirm what has been said before.

Mr. JONAS. Anyone else who wishes to be identified for the record or for any other purposes that are germane to the problems under investigation, is welcome to do so. I might say that if you have in mind that you would like to file a statement in writing later on that that prerogative or privilege will be open to you.

I regret to state now that for numerous reasons too detailed or involved for me to comment about, this committee is compelled to enter an order of adjournment, not indefinitely, but until some future date the committee can agree upon, and it will in the interim leave open the opportunity for any or all interested parties, through their

counsel or otherwise, to get in touch with the secretary of the committee, Mr. Lee, at Washington, D. C., or with Mr. Brickfield, the counsel, or by writing to any one of the three members of the committee, including myself. I am sure in that way we can expedite matters to your satisfaction or to those who may have some matter left undone or undisposed of in this particular situation. If I may, Mr. Hyde—I am sorry, Mr. Lane, because of the press of time, had to leave us for the moment—but if I may state to you gentlemen of the bar of Texas who are represented here and have appeared here in person, with whom I had the pleasure of getting acquainted, as well as my colleagues, that I thank you in behalf of our committee for the arrangements you made and the patient and cooperative spirit that you manifested in this whole proceeding which is quasijudicial, probably not that, it's an inquisitorial body, and sometimes matters of this kind become tedious to lawyers to have to listen to because we are pressed for time and somewhat circumscribed in our thinking insofar as the rules of evidence and court decorum apply. I particularly thank you for making it possible for the number of spokesmen to take up the problems in detail, and in place of everyone stating his or her problem, as the case may be, and the legal aspects of the same, and therefore we, I think, have been able to avoid overlapping and repetition.

I think I would be remiss in my duty if on behalf of the committee I didn't openly and publicly express our appreciation and gratitude to Congressman Clark Thompson who, I think, was the motivating factor here in making it possible to obtain these quarters where we were able to hear and carry on our investigation. Quarters of this character are seldom supplied to traveling committees and we were fortunate in having the quarters made available to us.

I think he also had something to do, probably, in collaboration with the attorneys here and the businessmen and his fellow citizens who are here in procuring for us the quarters that we were able to avail ourselves of at the hearing in Texas City. To that extent not only are we obligated to you and your fellow citizens but the public officials of that city. I was rather impressed; a unique and extraordinary experience that we were able to have our hearing before your fellow citizens, and I think in so doing that we left the impression we are not here to adjudicate the claims pending and invade the province of the court, but to be helpful to your attorneys and to your public officials and to your Congressmen in order that we might lay the foundation one way or the other as to whether it is possible to pursue this proceeding and, if it can be pursued, in what manner we can make you whole and compensate you for some of the damages and injuries and deaths in your family by reason of this shocking catastrophe. As I said, we are indebted to Congressman Thompson and the other distinguished fellow citizens, the businessmen of both Galveston and Texas City who opened their doors and their spirit of hospitality to us in our spare moments when we were not busy as members of the committee, and we assure you that you made this stay for us extremely interesting and pleasant. We have a very grave and serious task under consideration and we realize it, but it would have been more depressing and uninteresting if you hadn't given us something of your welcome and splendid southern hospitality.

In that respect I want to again go on record in behalf of the committee, in behalf of the clerk of the committee, and our attorney, Mr. Brickfield, and General Mickelwait, who appeared here with us, as being under everlasting gratitude to you for these little amenities that you have expressed. I think I have said about all that I have to say and if there is anything omitted—

Mr. Lee informs me that in sending documents or communications, if you will address them to the Committee on the Judiciary, House Office Building, then we'll get them there. They will go either to one or the other departments.

Now, Mr. Hyde, do you have anything to say? If you have, you are at liberty to do so. If not, we'll call on Mr. Thompson.

Mr. HYDE. I have nothing further to all to what the chairman has said. I wish to join in it.

Mr. JONAS. General, would you like to say a word or two. We are glad to have you here. You have been what is known as the visible but the silent man. If you have a word or two, you are at liberty to express them.

General MICKELWAIT. I should like to say, first, that I join in the chairman's expression of thanks for the hospitality that has been afforded us. I suppose you may wonder why an Army officer is here with the committee, and perhaps a brief explanation might clarify that. In respect to private bills the department most concerned is customarily requested to make a report, and I suppose you found out that the Army was quite concerned in this matter. Accordingly, if a bill is introduced, we are under the impression that the Army will be called upon to make a report. That being the case, it was thought by the committee staff that it would be an advantage to the Army to hear the evidence given here, and to assist us in evaluating the moral or equitable aspect of the claims as distinguished from the legal aspect considered by the court.

I trust, Mr. Chairman, that that is sufficient explanation of my presence here with the committee.

Mr. JONAS. I am sure it is, and I am sure the audience and the attorneys who are in attendance here, as well as those who have testified here, appreciate the fact that the Government has gone to the extent of sending one of its distinguished officers here so that he may have first impression of what went on and be an eyewitness to the transaction. We thank you for that statement you made in order that we may be fully cognizant of it when we read the record.

Congressman Thompson, is there anything you wanted to add before we close? As I already noted, I think you were a sort of motivating factor, sort of the first mountain climber in the problem we have taken upon ourselves, and we want you to know personally we appreciate what you have done; but it couldn't have been done, of course, if it hadn't been in accord with the spirit and will and the minds of your fellow citizens. If you wish to say a word or so we'll be glad to have you.

Mr. THOMPSON. Judge Jonas, on behalf of myself and also, of course, my people, I just want you to know how deeply and profoundly we all appreciate what you have done here, the manner in which you have heard the testimony and conducted the hearing, and that, of course, goes for the other members of the committee. I have

told the lawyers here present and I have told many citizens, just as I have told you, to me it was from its inception, from the first appointment of the members of the committee, an ideal committee to hear this case. I repeat that now. That's all I have to say to you except, perhaps, to add that if I can serve in any way I will be here till we reconvene and if you will call on me I will be very glad to act as your intermediary, get you any information, render any possible service to you.

Mr. JONAS. Thank you, sir. I appreciate that.

We are about to get to the hour when we adjourn, but I do want to say this, that it is probably immodest for me to blow my own horn—that's as clear as I can make it in parlance—but it isn't at all immodest for me to say how fortunate I am or have been in regard to the selection of the two other members of the committee, Congressman Hyde, of Maryland, and Congressman Lane, of Massachusetts, both experienced legislators and both gentlemen of wide understanding and broad conception pertaining to the general welfare of this country, and to that extent I want to underwrite everything you said, Mr. Thompson; I appreciate your complimentary remarks, but there is still something to be done and until that task is completed I don't think we merit or deserve the gracious encomiums that you have bestowed on the committee, although we all appreciate them, and thank you most sincerely again.

If there is nothing further from the floor, the committee now stands adjourned until further notice.

(Whereupon, at 1:05 p. m., the hearing was adjourned until further notice.)



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**APPENDIX**

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EXHIBIT No. 1

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**PUBLIC HEARING**

AT

**GALVESTON, TEXAS**

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Pursuant To

**H. RES. 296, 83d CONGRESS, 1st SESSION**

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**THE**

**TEXAS CITY DISASTER**

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**A NARRATIVE OF EVENTS LEADING UP TO  
AND OCCURRING AFTER THE EXPLOSIONS  
AT TEXAS CITY ON APRIL 16-17, 1947, TO-  
GETHER WITH A STATEMENT OF THE LAW  
OF MANUFACTURER'S AND SHIPPER'S LIA-  
BILITY.**

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**RUSSEL H. MARKWELL, of  
MARKWELL, STUBBS & DECKER,  
Cotton Exchange Building,  
Galveston, Texas;**

**AUSTIN Y. BRYAN, JR.,  
405 Esperson Building,  
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### **Preliminary Statement**

The purpose of this petition to Congress is to obtain redress for those persons who were injured or damaged by the explosion at Texas City on April 16, 1947. This petition has been made necessary by the decisions of the Federal Courts, who decided that the Federal Tort Claims Act does not cover the type of governmental action involved in this case. Thus, the petitioners are restored to the same position they would have been in before the passage of the Federal Tort Claims Act. They must petition Congress for their relief.<sup>1</sup>

Of all the judges who considered this case, only one concluded that the petitioners had no cause against the Government for relief. The basis for the decisions of the two appellate courts was that relief was not provided for under the provisions of the Tort Claims Act.

The basis of this petition is the explosion of over 3,000 tons of fertilizer grade ammonium nitrate (commonly called FGAN) on April 16-17, 1947, loaded aboard two ships at Texas City, Texas. The two ships were totally demolished and pieces of heavy cargo were later found as far as two miles from the scene of the explosion. The entire dock area of Texas City, occupied by large industrial plants, refineries, warehouses, wharves, railroad yards, a grain elevator and other structures was virtually leveled. Much of the commercial and residential area of Texas City was destroyed or severely damaged. Approximately 560 persons lost their lives and some 3,000 more were injured.

The FGAN had been manufactured at three government ordnance plants by a cost-plus-fixed-fee contractor under strict governmental direction and control over the details of the work. The government had shipped the FGAN to Texas City by rail under government bills of lading which showed that the FGAN was to be exported and which consigned it to the French Supply Council, an agency of the French Government.

Actions under the Federal Tort Claims Act were brought against the United States as manufacturer and shipper of the FGAN in the District Court for the Southern District of Texas where the Disaster occurred. These suits sought recovery for the wrongful deaths, personal injuries and property damage resulting from the explosion.

The suits were consolidated for trial of the common issue of liability of the government. One of the cases, ELIZABETH H. DALEHITE AND HENRY G. DALEHITE, JR. v. UNITED STATES OF AMERICA, CIVIL ACTION No. 787 was taken as a test case and fully tried on all the issues. References contained herein are to the printed record in such case. The findings, conclusions and judgment of the District Court may be summarized as follows:

The fire was caused by spontaneous ignition of the bagged FGAN; there was no dependable evidence that it was caused by a cigarette or other extraneous cause (Findings (b), (z) R. 887-88, 904-06).

The FGAN which exploded was produced under a program in which the Government controlled its manufacture, shipment and export (Findings (b), (bb), R-887-88, 906-07; Findings 44-45, 65, R. 834, 843).<sup>2</sup> In the preparation of FGAN the following facts were especially significant:

1. Ammonium nitrate, traditionally used in the manufacture of military high explosives, served as an element of FGAN (Finding (f) R. 889-90).
2. The ammonium nitrate was covered with a coating which made the product a very dangerous fire hazard and one of the most dangerous explosives (Finding (j) R. 892).
3. During manufacture, various foreign substances were allowed to become mixed with the FGAN, rendering the product more susceptible to fire and explosion (Finding (i) R. 891-92).

4. The coated and contaminated product was packed in bags at high temperatures, which rendered it even more susceptible to fire and explosion. Moreover, the FGAN was so packed that it did not cool, but continued at high temperatures during shipment (Finding (m), R. 893).

5. The paper bags in which the FGAN was packed were easily ignited by contact with fire or by spontaneous ignition of the FGAN (Finding (l), R. 892-93).

6. Such bags also became torn and ragged in shipping and particles of the bags became mixed with the FGAN, rendering it still more dangerous and more susceptible to fire and explosion (Finding (l), R. 892-93).

7. The Government failed to inspect and test the manufactured FGAN (Finding (k), R. 892).

Among the causes of the spontaneous ignition of the FGAN in the GRANDCAMP were the type of bag in which it was packed, the extraneous matter in the FGAN, and the high temperature at which it was bagged (Finding (b), (l), (m), (z), R. 887-88, 892-93, 904-06).

Before embarking upon this program the Government investigated to some degree whether FGAN was dangerous. Although the investigation was negligently terminated before all the pertinent facts were learned, it was pursued sufficiently to give the Government knowledge and place it on notice that FGAN was an inherently dangerous fire and explosive hazard (Finding (g), R. 890-91). Moreover, the Government knew, or should have known, from its explosives manufacturing experience, from the views of its technical personnel, from military tests, and from Army Ordnance Safety Manuals, bulletins and similar materials, of the inherently dangerous characteristics of FGAN (Finding 43, R. 833-34). This information, and further information acquired after manufacture of FGAN had

been begun, should have caused the Government to take steps to ensure the safety of persons handling FGAN and of the public (Finding (h), R. 891). LONG BEFORE THE MANUFACTURE OF THE PARTICULAR FGAN WHICH EXPLODED AT TEXAS CITY, THE GOVERNMENT WAS FULLY ON NOTICE OF THE DANGERS OF BOTH FIRE AND EXPLOSIONS (ibid) AND OF THE PARTICULAR HAZARD INVOLVED IN THE COATING FOR THE AMMONIUM NITRATE USED IN MAKING THE FERTILIZER (Finding (j), R. 892).

NEVERTHELESS THE GOVERNMENT FAILED TO GIVE NOTICE OF SUCH DANGERS TO THOSE WHO WOULD BE HANDLING THE FGAN OR WHO WOULD OTHERWISE BE EXPOSED TO ITS DANGERS. IT FAILED TO INFORM THE RAILROADS AND OCEAN CARRIERS, WAREHOUSEMEN AND OTHER HANDLERS, INTERESTED HARBOR AUTHORITIES AND THE GENERAL PUBLIC THAT THE FGAN WAS AN INHERENTLY DANGEROUS FIRE AND EXPLOSIVE HAZARD (Finding (e), (n), (o), (p), (q), (r), R. 889, 893-96; Finding 35, 38-43, R. 831-34).

The particular FGAN which was being loaded on the GRANDCAMP and the HIGH FLYER had been manufactured at three United States Ordnance plants (Findings 45, R. 834). The Government had complete control over these plants, and was in sole charge of the manufacturing, packaging, marking, labeling, loading, shipping and export of all FGAN produced at the plants, including that involved in the Texas City explosions (Finding 44-45, 65, R. 834- 843).

This FGAN had been shipped to Texas City by the Government under Government bills of lading (Finding (q), R. 894-95). The District Court concluded that it was not material to determine whether the Gov-

ernment owned the FGAN after its shipment to Texas City, but it did find that title remained in the Government at least to the time of loading aboard ship (Finding (q), (bb), R. 894-95, 906-07).

Regardless of title at any particular point, there never was a moment, from the time of the manufacture of the FGAN at the Government Ordnance plants to the time of the fire and explosion on the GRANDCAMP, when the Government did not have the authority to prevent and could not have prevented the disaster by the exercise of diligence (Finding (bb), R. 906-07).

MOREOVER, THE GOVERNMENT KNEW THAT THE FGAN WHICH IT WAS SHIPPING WAS BEING ACCUMULATED IN LARGE QUANTITIES IN TEXAS CITY FOR EXPORT (Finding 70, R. 844; Finding (q), R. 894-95). IT KNEW, TOO, THAT TEXAS CITY WAS A DENSELY POPULATED CENTER, ITS HARBOR BEING IN THE MIDST OF CHEMICAL PLANTS, REFINERIES, AND PETROLEUM PRODUCTS STORAGE AREAS (Finding 49-50, R. 835; Finding (t), R. 896-97; see also Finding 75, R. 845).

THE GOVERNMENT'S NEGLIGENCE REACHED ITS PEAK WHEN—ON NOTICE OF THE DANGEROUS CHARACTERISTICS OF FGAN AND KNOWING OF ITS LOADING IN SHIPS AT TEXAS CITY—THE GOVERNMENT DID NOTHING TO ADVISE EITHER THE PERSONS RESPONSIBLE FOR THE HANDLING OF THE FGAN AT TEXAS CITY OR THE LOCAL AND STATE AUTHORITIES OR THE GENERAL PUBLIC OF THE DANGERS INVOLVED (Findings (q), (r), R. 894-96). THE GOVERNMENT NOT ONLY FAILED TO ADVISE THE STEAMSHIP CARRIERS AND THE CITY AND OTHER LOCAL OFFICIALS OF THE INHERENTLY DANGEROUS QUALITIES OF THE FGAN, BUT ALSO FAILED TO ADVISE THEM WITH RESPECT

TO THE BEST METHODS OF STOWING FGAN AND OF PREVENTING FIRES AND EXPLOSIONS AND OF EXTINGUISHING AND FIGHTING FIRES IN STOCKS OF FGAN (Finding (r), R. 895-96; Finding 38-39, R. 832). NOR DID THE GOVERNMENT FURNISH SUPERVISION AT TEXAS CITY OF THE LOADING, STOWING AND HANDLING OF FGAN (Finding 72, 74, R. 844-845).

In the absence of warning of any kind, the handlers, stevedores and warehousemen in Texas City reasonably believed the FGAN to be a safe, harmless and inert material, similar in its characteristics to flour or cement, and treated it accordingly (Finding 36, 73, 76, 78, R. 831-32, 845, 846).

The Government's shipment of FGAN into congested Texas City was in sharp contrast with its war-time practice of shipping hazardous material through an isolated port under strict supervision by trained personnel. (Finding 81, R. 847).

The wrongful actions and omissions of the Government's employees proximately causing the disaster were within the scope of their offices and employment (Findings 94, 98, R. 851, 852). Of some 160 named persons who contributed to the ultimate wrong, one large group was involved in the negligent planning and carrying on of the FGAN enterprise, and another was involved in the negligent manufacture, sacking, shipment, etc. (Finding (y), R. 901-04). A third group—members of the Coast Guard—also failed to take adequate measures and failed properly to cope with the emergency when it arose. (Finding (u), (v), (y), R. 897-900, 904).

The District Court concluded that the Government was liable to the petitioners in accordance with Texas law for negligence in processing this dangerous fertilizer and in permitting its distribution, and especially its concentration in the congested Texas City area, and

in failing to give any warning or instructions, or to take any precautions, with respect to it (Conclusions, 5-8, R. 911-14). The Court also concluded that the shipment of the FGAN into Texas City was a dangerous public and private nuisance for which the Government was liable just as a private person, so maintaining a nuisance, would be liable under Texas law (Conclusion 9, R. 914-15); (see also Finding (s), R. 896).

The District Court entered final judgment for Mrs. Dalehite in the amount of \$60,000 and for Mr. Dalehite, Jr. in the amount of \$15,000, and in favor of all the petitioners on the issue of liability, with interest to run from the date of that judgment (R. 918-20).

The Government appealed to the Court of Appeals, the six judges sitting en banc. There were three diverging opinions in this Court 197 Fed. 2d 771. The majority opinion by Judge Rives, concurred in by Judges Holmes and Russel, concluded that the discretionary function exception of the Tort Claims Act applied to the case and, therefore, the Judgment of the District Court should be reversed and judgment rendered for the United States. The opinion contained this language:

“In this case it can hardly be argued that the dangers of explosion from FGAN were so well known prior to the disaster that judgment or discretion were not called into exercise as to whether it should be manufactured at all and under what safeguards and warnings it should be distributed. Even if some danger were recognized, the necessity of providing means of existence to devastated areas might have called for the exercise of discretion as to whether to take a ‘calculated risk’.”

“The very conception of negligence involves weighing the magnitude of the risk against the utility of the act

or the particular manner in which it is to be done 2. *Am Law Inst.*, (Restatement of Torts, Section 291). The authority to determine and consider the factors as to the utility of the conduct and the magnitude of the risk (see same text, Section 292 and 293) was vested in the executive officers or agents and not subject to the review of the Courts." 197 Fed (2d) 778.

Judge Strum thought that the discretionary function exception should not be applied in the case on the theory that due care must be exercised in the performance of even a discretionary function. He agreed to a reversal and rendering of judgment for the United States on the ground that the FGAN was improperly stowed by the ship operators which caused the explosion. Judge Strum was the only judge out of the fourteen who heard the case who concluded that there was not sufficient evidence to show that the explosion was the fault of the Government.

Of the fourteen judges, seven of them have directly considered and passed upon the merit and sufficiency of the facts. They are: Judge Kennerly of the District Court, Judges Jackson, Black and Frankfurter of the Supreme Court; Judges Hutcheson, Borah and Strum of the Circuit Court. Of these seven, six expressly held that the facts were sufficient to support a judgment against the United States, three of them writing, of course, the minority opinion of the Supreme Court. It is further significant to note that seven of the fourteen judges accepted the Findings of Fact of Judge Kennerly of the Trial Court as being supported by the evidence and as being unimpaired.

Analyzing the matter further it is apparent that out of the fourteen judges, thirteen have either found the facts sufficient to support a judgment against the United States, or have accepted the facts so found, but seven of them have

held that Congress has not waived immunity and conferred jurisdiction upon the District Court to hear the claims.

Chief Judge Hutcheson, with Judge Borah, concurred with the majority in reversing the judgment of the District Court, but dissented from the reasoning and from rendering judgment for the defendant. He stated that the judgments required reversal because of procedural errors in the trial. However, the opinion continues: "a case against the Government was pleaded" and "there was evidence which if believed, would have been sufficient to sustain a recovery." 197 Fed. 2d 786.

Thereafter the plaintiffs petitioned to the Supreme Court for a writ of certiorari which was granted on November 10, 1952. The Supreme Court, with Justices Douglas and Clark taking no part in the case, affirmed the decision of the Court of Appeals by a vote of four to three.—US—, 97 L. Ed. (Advance p. 929).

As in the Court of Appeals the majority opinion was based upon the discretionary function exception in the Federal Tort Claims Act. The opinion, by Justice Reed, assumed the correctness of the findings of the District Court, but stated that they did not establish a case within the jurisdiction of the Federal Courts under the provisions of the Tort Claims Act. 97 L. Ed. (advance p. 934).

The dissenting opinion by Justice Jackson, joined by Justices Black and Frankfurter, on the contrary concluded that the Tort Claims Act did cover the facts presented by the Texas City Disaster and that the plaintiffs were entitled to recover. The dissenting opinion states:

"We believe that whatever the source to which we look for the law of this case, if the source is as modern as the case itself, it supports the exaction of a higher degree of care than possibly can be found to have been exercised here;"

“the Government’s attack on the purely factual determination by the trial judge seems to us utterly unconvincing”; and

“it is unnecessary that each of the many findings of negligence by the trial judge survive the ‘clearly erroneous’ test of appellate review. Without passing on the rest of his findings, we find that those as to the duty of further inquiry and negligence in shipment and failure to warn are sufficient to support the judgment.” 97 L. Ed. (Advance pp. 950, 951).

No better summary of the facts can be given than that contained in the following language from the dissenting opinion:

“This was a man-made disaster; it was in no sense an ‘Act of God.’ The fertilizer had been manufactured in Government-owned plants, at the Government’s order and to its specification. It was being shipped at its direction as part of its program of foreign aid. *The disaster was caused by forces set in motion by the Government, completely controlled or controllable by it. Its causative factors were far beyond the knowledge or control of the victims; they were not only incapable of contributing to it, but could not even take shelter or flight from it.*” (Emphasis supplied) 97 L. Ed. (Advance p. 947).

### Statement of the Law of Manufacturer’s Liability

This petition is not based on an uncommon type of liability. It is one to which every private manufacturer is subject. In the production of FGAN the government was carrying on a commercial venture. It is our belief that the Government should take responsibility for the harm it caused just as a private manufacturer would have to do.

More than fifty years ago, Texas courts recognized that

a manufacturer of a dangerous commodity has a common law duty to warn subsequent handlers of its characteristics, and that injury from explosion of the product entails liability on the part of the manufacturer though there was no privity between the manufacturer and the injured party, and though the product, at the time of explosion, had passed quite beyond the manufacturer's ownership or control. *WATERS-PIERCE OIL COMPANY V. DAVIS*, 24 Tex. Civ. App. 508, 16 S.W. 453 (1900). Since that time the Texas courts have consistently adhered to this rule, holding a manufacturer or other supplier liable for injury caused by his failure adequately to test and inspect his product or to warn of its latent dangers.<sup>3</sup>

Texas Jurisprudence is by no means peculiar in this respect. It is a widely recognized tort for a person to manufacture a dangerous product and to introduce it into the stream of commerce without taking diligent precautions to insure that innocent people will not be harmed.<sup>4</sup> As Justice Jackson stated in his dissenting opinion in this case before the Supreme Court—"Speculation as to where the negligence occurred is unnecessary, since each of these jurisdictions recognizes the general proposition that a manufacturer is liable for defects in his product which could have been avoided by the exercise of due care." 97 L. ed. (Advance p. 949) Even in cases where a manufacturer has given notice of danger to the carrier transporting the product or to the immediate vendee, it is held that his duty has not been discharged; he must look beyond to the safety of whoever may be in the zone of danger in the normal course of events.<sup>5</sup> And the manufacturer cannot plead that he did not know the hazard where under the circumstances as a reasonable person he "ought to have known" or to have tested or experimented to find out.<sup>6</sup> It is the instruction

of Judge Cardozo in *MCPHERSON V. BUICK MOTOR COMPANY*<sup>7</sup> that the manufacturer must take the initiative in detecting danger. In that case the defendant automobile manufacturer had bought a defective wheel from a reputable supplier who had previously supplied the defendant with 80,000 sound wheels. Defendant had no reason to suspect a defect. In fact, the record showed that the Defendant had subjected the automobile to "severe usage" on a trial run with no defect revealed, and to find the fault the defendant would have had to remove iron and paint which had been applied by the supplier before the wheel was delivered to the defendant.

In Texas, moreover, "it is the rule that those who distribute a dangerous article or agent owe a degree of protection to the public proportionate to and commensurate with the dangers involved."<sup>8</sup> One chance out of many that something might go wrong with ordinary products can reasonably be risked; the same risk would be wholly unreasonable in the case of *FGAN* where, if something went amiss, the consequences would be extreme.

The law, then, is clear that a manufacturer of a dangerous product must fully test its properties and take adequate precautions and give adequate warning for the protection of those who may be exposed to danger.<sup>9</sup>

It is submitted that the Government was fully aware of the above principles. When the Government began the manufacture of *FGAN* that exploded at Texas City, it did so through the use of a recently organized corporation, subsidiary of Spencer Chemical Company for the purpose of operating the plant in accordance with Government direction. Spencer Chemical Company was not at all disposed to take a chance with this dangerous material and required of, and received from the Government, a contract provision, reading in part as follows:

"The Government recognizes that the work herein provided for is of a highly dangerous nature and that its accomplishment under existing conditions will be attendant with even greater risk of damage to property, injuries to persons."

Accordingly, the Government gave a 100% hold harmless clause to the Emergency Export Corporation, the subsidiary of Spencer Chemical. (R. Vol. 29, page 23364.)

### **Statement of the Law of the Liability of a Shipper of a Dangerous Commodity**

The United States, as the undisputed shipper of the fertilizer grade ammonium nitrate exploding at Texas City in both ships, had under its own laws and regulations certain absolute duties and obligations in the matter of giving notice and information concerning the dangerous characteristics of FGAN to the carriers and transporters, and those likely to come in contact with FGAN. It is submitted that the failure to perform these duties, statutory and at common law, amounted to negligence per se, and that such negligence was a proximate cause of the losses and damages occurring at Texas City. On the U. S. Government bills of lading used for all of the materials moving to the two ships at Texas City the dangerous commodity in question was described solely under the caption "Military Fertilizer Compound, (Manufactured Fertilizer), NOIBN, Dry, In Paper Bags (Fertilizer Grade Ammonium Nitrate)." Under this description is the language "For Export" (R. 22131-22132). It is submitted that this description is all that was given by the Government to the carriers including the railroads, the steamship lines, the stevedores, cargo loaders, warehousemen and others. No

pretense is made by the Government to claim that any other information was given.

Knowing the dangerous characteristics of FGAN as a high explosive, this failure to give any more information than indicated runs squarely afoul of the 18 U.S.C.A., Section 385-386, appearing after the recodification of 1948 as 18 U.S.C. 834. There are, in addition to these, of course the Coast Guard regulations and the ICC regulations. 24 AM. JUR., page 203, "Explosions and Explosives", Section 79, gives the standard to be applied in this case with this language:

"At common law it is the duty of the shipper to give notice to the carrier of the dangerous nature of the goods delivered to it in transportation, where it delivers an explosive to a carrier for shipment, and the nature of the contents is not apparent from inspection of the package and is unknown to the carrier; and the shipper will be liable for damages resulting from a failure to give proper notice."

This statement is in accord with the common law responsibility of a shipper expressed in many cases. See for instance *LEHIGH VALLEY RAILROAD v. STATE OF RUSSIA*, 21 Fed. 2d 396, certiorari denied 48 Sup. Ct. 159, 275 U.S. 571, 72 L. Ed. 432; *CINCINNATI N.O. AND T.P. RAILROAD COMPANY v. RANKIN*, 241 U.S. 318, 60 L. Ed. 1022; *ADAMS EXPRESS COMPANY v. CRONINGER*, 226 U.S. 490, 57 L. Ed. 314; *WATERS-PIERCE OIL COMPANY v. DESELMS*, 212 U.S. 159, 29 Sup. Ct. 270, 53 L. Ed. 453.

Thus the responsibility of the Government is established not only as a manufacturer of a dangerous commodity, but also as a shipper.

### Statement of Facts

Findings in the District Court for the Southern District of Texas in this case were amply supported by the evidence. They were reached after a long trial in which the Court made every effort to secure full presentation of the facts and full exposition of the parties' arguments.

The majority opinion of the Supreme Court turns not upon the facts, but upon an interpretation of the Tort Claims Act. In substance the Court is saying:

We accept fully the Findings of Fact by the District Court, convicting the Government of Negligence and finding that the facts support the charges of negligence and proximate cause in the manufacture of a dangerous material, the shipping of it without warning, the shipping and placing of it in Commerce without thoroughly testing its explosive characteristics, and many other grounds of negligence. But we cannot do anything about these findings, even though they are well sustained by the evidence, because Congress had the sole right to waive immunity to suit and grant jurisdiction to the District Court to hear claims. Because of the exception contained in the Act no jurisdiction was granted to the District Court to hear these claims.

That this is the correct interpretation of the majority opinion of the Supreme Court is made clear by the following language appearing in such opinion:

"Turning to the interpretation of the Act, our reasoning as to its applicability to the disaster starts from the accepted jurisprudential principle that no action lies against the United States unless the legislature has authorized it."

and again:

"An analysis of Section 2680 (a) the exception with which we are concerned, emphasizes the Congressional purpose to except the acts here charged as negligence from the authorization to sue."

and further:

"Even assuming their correctness arguendo, though, it is our judgment that they do not establish a case within the act. This is for the reason that as a matter of law the facts found cannot give the District Court jurisdiction of the cause under the Tort Claims Act."

The evidence showed that there were repeated warning signs to the Government, including warnings from its own experience in dealing with FGAN, that this "fertilizer" was a chemical mixture of very tricky and dangerous explosive properties. As the evidence demonstrated, the Government followed procedures in manufacturing and distribution which heightened the threat of disaster presented by the finished product. There was no serious conflict in the evidence on the essential point that the Government failed to test it adequately—as it very easily could have done—and failed to take any precautions or to give any warnings for the protection of persons receiving or handling the FGAN or persons who might otherwise be in the zone of hazard.

In the narrative of events leading up to the Texas City Disaster which follows, numerous references have been made to the record of trial of this case in the Federal Courts. Since the record is available, it is thought that these references will provide the most accessible substantiation for the facts stated herein.

Ammonium nitrate, the principal ingredient in FGAN had been used extensively in military explosives and was

also a major component in many commercial explosives (R. 21743, 22006). The military use was primarily in combination with TNT to form Amatol, an explosive used in World War I and in the first years of World War II. (R. 4627, 21029). With the development of the extremely powerful explosive RDX, ammonium nitrate was by 1943 no longer in demand for military explosive use and government facilities for its production became surplus (R. 13408-09, 25309).

Ammonium nitrate has a yield of almost 35% free nitrogen, an essential of plant growth (R. 21742). The Government, therefore, when it decided to market a fertilizer, turned its efforts to the development of a product which would be a satisfactory fertilizer and would also utilize the surplus ammonium nitrate facilities (R. 13409-10, 13413-14, 21722-24, 25309). Pure ammonium nitrate, aside from its fire or explosive dangers, was not suitable because its hygroscopic properties (i.e. its capacity to absorb moisture) caused it to harden and cake, making it impractical for general agricultural use. It had seen some use in fertilizers, but there was no form of ammonium nitrate fertilizer which could be stored without caking, especially in humid regions such as the southern United States.

The Government's proposed solution was the development of FGAN—Fertilizer Grade Ammonium Nitrate—designed as an efficient nitrogen fertilizer which would not cake. The evidence is undisputed that FGAN was a new material when it was introduced in 1943; the only similar ammonium nitrate mixtures used prior to that time were in the manufacture of explosives under the Cairns explosives patent.

The basic ingredient used in producing FGAN is granular ammonium nitrate. This is prepared from ammonium ni-

trate liquor (a solution of 80% ammonium nitrate and water R. 6403), which is produced at Government ammonia plants and shipped in tank cars to graining plants where it is placed in storage tanks.

In the graining process, the liquor is pumped into evaporating pans, known as hi-pans, where the water and liquor is driven off by heat and air agitation until the liquor reaches a concentration level known as the fudge point (R. 6403-04). At this point the molten nitrate liquor is discharged by gravity flow into graining kettles where it is crystallized into granular ammonium nitrate by agitation with a revolving plow. A coating to moisture-proof the granular ammonium nitrate is then poured into the kettles and agitation is continued to assure proper distribution of the coating on the individual grains (R. 6392-93).

For this coating, the government turned to various waxes, resins and petroleum products which had previously been used in explosives manufacture to counteract the hygroscopic qualities of ammonium nitrate.<sup>10</sup> Of the coatings used by the Government the principal one was PRP, a combination of petroleum, resin and paraffin, based on a Hercules Powder Company patent for blasting explosives (R. 4982-84, 13414, 21763-64). The coatings were organic and carbonaceous, they contained the element carbon and burned readily (R. 4757, 5565). The final step in producing FGAN was the addition of a separating agent, such as kieselguhr, kaolin, or some other clay.<sup>11</sup>

Government employees knew they had a good fertilizer in FGAN. They also knew it possessed dangerous qualities, although the extent of the danger was not certain. Ammonium nitrate itself had a formidable reputation for treachery. Over the years it had taken a substantial toll in lives and property in a series of explosions and fires.<sup>12</sup> This history and the extensive literature relating to its properties

were well known to the Government employees concerned with the development of FGAN.<sup>13</sup>

Berthelot, a French chemist acknowledged as "the founder of the field of the thermo chemistry of explosives" (R. 26152), on the basis of 15 years investigation, came to the conclusion that of seven basic reactions observed upon the application of heat to ammonium nitrate, three were explosive in nature (R. 21872, 22005).<sup>14</sup> Later studies confirmed Bethelot's conclusion that ammonium nitrate would explode from heat alone.<sup>15</sup> As Doctor Melvin A. Cook<sup>16</sup> testified, it was a matter of common knowledge among experts that ammonium nitrate would explode if heated to a high enough temperature (R. 13228).

The addition of organic or carbonaceous materials to ammonium nitrate heightened its dangerous qualities. The ammonium nitrate, an oxidizing agent, reacts with the carbonaceous materials (such as the PRP used in coating FGAN), a reducing agent, which promotes the decomposition of each other and reduces the temperature at which either of them individually will react (R. 13067, 15116, 21173).<sup>17</sup> The result, as was early recognized in the literature, is that the organic matter increases ammonium nitrate's sensitivity to explosion, and also presents a combination which is violently combustible (R. 21742, 21875).<sup>18</sup>

In 1916, C. G. Storm of the Bureau of Mines, in a bulletin which noted that roughly half of the explosives used in mining and similar operations were composed principally of ammonium nitrate, pointed out that the sensitivity of ammonium nitrate is increased by mixture with carbonaceous materials such as rosins, hydrocarbon oils and paraffin.<sup>19</sup> In 1924, R. M. Cook of the Atlas Powder Company laboratory reported the results of tests showing that small percentages of organic matter markedly increased the sensitivity of ammonium nitrate. He concluded that the maximum in-

crease in sensitivity was caused by the addition of 1% organic matter and pointed out that 1% of petrolatum increased sensitivity to detonation more than the addition of a like amount of TNT, which in itself is a sensitive explosive.<sup>20</sup> When this expert conclusion is applied to the existing conditions in Texas City at the time of the explosion the result is startling. There were 3915 tons of FGAN in the holds of both exploding ships. Thus using the 1% formula shows the existence of approximately 40 tons of a substance more sensitive to detonation than T.N.T. on the Texas City waterfront without warning. As George W. Jones, Senior Chemist of the Explosives Branch of the United States Bureau of Mines, confirmed at the trial, it had "been known for many years prior to Texas City that ammonium nitrate was terribly unpredictable in the presence of contamination of carbonaceous materials". (R. 5400).

The Government knew that ammonium nitrate, when subjected to high temperatures, contamination, or other sensitizing force would explode with great violence. The Army Ordnance Department, an agency of the Government traditionally concerned with explosives and their characteristics, listed it as a high explosive and so treated it. Section IX of the Ordnance Safety Manual, issued December 1, 1941, stated that ammonium nitrate "may be exploded by relatively light initiation if it has been sensitized by certain impurities, among which are many carbonaceous materials \* \* \* fires involving ammonium nitrate in large quantities become an explosive hazard".<sup>21</sup> The Manual accordingly provided that all manufacturing operations in ammonium nitrate lines were to be considered as explosive operations (R. 21035) and the standard container for the explosive was specified as a moisture-proof metal container (R. 21030).

In July 1943, when the Government was experimenting

with various types of coatings, the Bureau of Mines, as an agency of the Government intimately concerned with explosives testings (R. 14402) was requested to conduct tests on simple types of ammonium nitrate fertilizer made up by T.V.A.<sup>22</sup>

The Bureau advised that because of crowded conditions they were not in a position to make any large scale tests but that in general they did not favor the mixing of organic materials with ammonium nitrate (R. 25222).<sup>23</sup>

Thereafter a series of conferences took place, attended by representatives of the War Production Board, responsible for allocation of fertilizers, the Department of Agriculture, the Tennessee Valley Authority, producer of ammonium nitrate for use in military explosives and interested in development of fertilizers, and the Army Ordnance Department, operator of ammonium nitrate plants for the military explosives program. Representatives of the Hercules Powder Company and Canadian agencies also attended.<sup>24</sup> It was agreed that tests on the explosive nature of ammonium nitrate fertilizer were needed and that the tests be conducted by the Underwriters' Laboratories, a non-profit organization (R. 20007-10, 21512, 25222).<sup>25</sup>

On September 17-18 Canadian representatives visited TVA facilities and discussed the various aspects of FGAN production. The Canadians objected to the use of organic materials in coating because of fire and explosion hazards. The Canadians mentioned that they had suffered two explosions in their operations, one of considerable magnitude, and also pointed out an incident in which an empty barrel which had held ammonium nitrate ignited while being dried at 130 degrees C. (R. 20923-24).

At a WPB-sponsored conference on September 20, 1943, Ordnance Department representatives emphasized that they treated ammonium nitrate entirely as a high explosive

(R. 21724). A Bureau of Mines report on small scale impact and friction tests was sent to TVA on October 29, 1943 (R. 22097). The tests were negative as expected, but the report warned:

“Nevertheless accepted precautions in handling these ammonium nitrate mixtures should be observed because numerous disastrous explosions of ammonium nitrate have occurred in the past. These explosions have taken place under conditions that have never been satisfactorily established. Undoubtedly, such occurrences may recur from time to time.”<sup>26</sup>

This report was later furnished to Ordnance (R. 21228-29).

In November 1943, TVA and three Ordnance plants started production of FGAN—composed of 95% ammonium nitrate, 4% kaolin and 1% PRP coating—for commercial shipment (R. 13566, 25339-44).

Dr. Underwood of the WPB had written A. H. Nuckolls of the Underwriters' Laboratories on October 28, 1943, asking the Laboratories to conduct large scale safety tests on the ammonium nitrate—PRP mixture (R. 20022-23).<sup>27</sup> Nuckolls, for twenty years the Laboratories' Explosives Expert (R. 5088), agreed to conduct the tests, pointing out in his reply that the handling and storage of ammonium nitrate crystals covered with organic matter presented “an important safety problem in respect to both the fire and explosion hazards”. (R. 20024). A contract between WPB and the Underwriters' Laboratories was signed in March 1944 (R. 21505-11).

In a series of progress reports to WPB Nuckolls emphasized that the test results clearly demonstrated that ammonium nitrate coated with organic matter was more sensitive to detonation than straight ammonium nitrate (R.

21632, 21626, 21515, 21518, 21580). The tests also showed that the sensitiveness to explosion of the samples, both coated and uncoated, was further increased when subjected to increases in temperature (R. 21632, 21580-81). In accordance with the request of Ordnance Safety Officers, Nuckolls kept them advised of developments in his investigation (R. 21499-501, 5105-06, 21572).

Nuckolls was not able to complete an important phase of his research—the reactions of coated ammonium nitrate under fire conditions.<sup>28</sup> He had conducted only preliminary experiments but stated “at least it is clear that there is a definite exothermic (heat liberating) reaction under fire conditions and that, as we originally thought, this reaction is influenced to a considerable extent by the mass. Apparently it remains to carry the experiments to a point where we can say definitely whether or not this exothermic reaction will or will not become explosive under conditions comparable with those to be anticipated in practice” (R. 21624). Nuckolls urged in a report of October 16, 1944 that tests under fire conditions be continued<sup>29</sup> in order to determine the effect of increased mass, confinement and a long preheating period (R. 21581-82). Although the investigation thus far had served only to emphasize the extent of the hazard, WPB did not continue the tests as recommended by Nuckolls (R. 5099, 5128, 21598). An inter-office WPB memorandum of October 7, 1944, disposed of the need for further experiments by reasoning that since there was not much chance of mass caking of the material, breaking up large quantities would not be necessary and therefore there would be no occasion to dynamite the material. The memorandum continued, “In a burning building, it would of course constitute a fire hazard in which explosions might occur.” (R. 20931-32). In his final report to the WPB in April 1945, Nuckolls repeated warnings

previously given and pointed out that "the sensitiveness of ammonium nitrate to detonation is increased to a marked extent by the organic matter used in the compositions included in this investigation" (R. 21535).

In February 1944, consideration was given in the office of Colonel Crosby Field, Ordnance's Assistant Director of Safety, to the circulation of a letter to the plants relating to the hazards and handling of ammonium nitrate. A draft circular was prepared warning that fire and explosive hazards were aggravated by contamination with combustible or carbonaceous materials, and that water appeared to be the best extinguisher for ammonium nitrate fires (R. 25196-98). The letter was not distributed although Colonel Field's testimony at the trial indicated that he agreed with substantially all the points made in the draft. Why it was not distributed was never explained (R. 14151-72).

In March 1944 an explosion—resulting in several deaths—occurred at the Wolf Creek Ordnance Plant at Milan, Tennessee, where FGAN was being manufactured. Ordnance Department investigation disclosed that an oil-air deflagration (very rapid combustion) in an air-lance<sup>30</sup> resulted in the detonation of oil-contaminated ammonium nitrate in the lance. This explosion of a very small amount of contaminated ammonium nitrate under confinement in the lance in turn set off 4,800 pounds of ammonium nitrate in the hi-pan (R. 22252). The explosion caused the Ordnance Department to seek advice from the Bureau of Mines. The Bureau immediately sent Ordnance a warning of the danger in FGAN and the need for testing.<sup>31</sup>

At the same time Ordnance's Safety Branch sent letters to several companies with long experience in explosives manufacture requesting each company's estimate of the hazard of adding 1% PRP to ammonium nitrate in the

crystallizing or graining kettle at temperatures of 245 degrees to 265 degrees F. The letters noted that the "technical literature states that a very definite explosion and fire hazard exists when organic materials are added to ammonium nitrate." (R. 25127-29). In answer Hercules Powder Company, the du Pont Company and Atlas Powder Company each emphasized the extreme hazard involved in the Ordnance proposal and recommended that it not be followed (R. 21221-23, 25138). Du Pont reported that it had completely discontinued the coating of ammonium nitrate as a result of several explosions, including a fatal blast attributed to the presence of petrolatum in the evaporating pan. The company pointed out that it had formerly limited the addition of organic materials to ammonium nitrate to a temperature of 150 degrees F. (R. 21221-22).<sup>32</sup>

In May 1945, the dangerous nature of ammonium nitrate coated with organic material was again pointed out in the revision of the Ordnance Safety Manual. After describing ammonium nitrate as an explosive, the revision provided that "ammonium nitrate should preferably be stored in explosive-type magazines" (R. 25139, p. 11). It also pointed out that "when compounded with combustible substances, nitrates are violent fire and explosion hazards and may be subject to spontaneous ignition \* \* \* fire involving large quantities of ammonium nitrate may result in explosion." (R. 25139, p. 12).

In mid-1946, the production of FGAN was increased in order to provide fertilizer for Japan, Korea and Germany (R. 13986-92). Production was expanded by the reactivation of Ordnance plants which had been turned over to the War Assets Administration (R. 13986-87, 13989). The Chief of Ordnance was designated as the officer-in-charge (R. 20004), and he in turn delegated responsibility for the program to the Office of the Field Director of Ammunition

Plants (FDAP) which was in charge of the current Ordnance production of FGAN (R. 8563-64, 23130). Immediate needs for fertilizer in occupied areas were filled by securing fertilizer from commercial sources upon condition that the War Department would replace the borrowed fertilizer from Ordnance production in 1947 (R. 13998, 14012, 14048-49, 25815-19).

In expanding its FGAN production Ordnance was pre-occupied with the suitability of FGAN as fertilizer. It viewed itself as an "industrial organization" and considered the FGAN program as a "commercial venture" in which the primary purpose was to insure only that its product met specification requirements as fertilizer (R. 4616, 26634). The interest was simply to turn out satisfactory fertilizer, without consideration of the resulting dangers to handlers and to the public. At an FDAP meeting, August 14-15, 1946, it was said:

"The inspection in this program should be held to the minimum that we need to determine that the material produced is in accordance with the specifications. \* \* \* This is a commercial venture, and a great deal of money has been entrusted to the Ordnance Department to produce a quantity of acceptable material." (R. 26634).<sup>33</sup>

FDAP prepared a detailed plan for implementation of the FGAN program covering all aspects except the need for safety precautions (R. 26417-543). In the conduct of this program the subject of safety precautions<sup>34</sup> was constantly glossed over.

In the period before the reactivated plants came into production there was ample time for tests to be conducted on FGAN to determine the extent of the fire and explosive hazards involved, and to formulate measures to minimize

the hazards. As the Chief of the Operations Branch of FDAP, J. N. Pearre, testified, FDAP could have requested Picatinny Arsenal, the traditional Ordnance station for testing explosives (R. 5316), to make tests on the fire and explosion hazards of FGAN by merely filling out a simple request form (R. 4632). No such request was made prior to the Texas City Disaster (R. 4630, 5313-15, 5358-59). Before the end of 1946, the need to test the flash point of carbonaceous coatings used for FGAN was recognized. On the basis that the tests would involve a hazardous operation, they were never conducted and the data were not obtained.<sup>35</sup>

At each of the Ordnance plants producing FGAN there was a combined military and civilian staff, controlled and administered by an Army Ordnance Officer as commander who in turn was directly responsible to FDAP (R. 6074, 6345). The actual operation of the Government-owned facilities was conducted by a private company, the Emergency Export Corporation (R. 23344, 23346).<sup>36</sup> Supervision of all aspects of operations was retained by the Ordnance Department. As the contract provided, "the work to be done by the contractor \* \* \* shall be subject to the general supervision, direction, control and approval of the Contracting Officer to whom the Contractor shall report and be responsible." (R. 23345). Both the Ordnance representatives and the contractor's officials testified that all phases and details of the plants' operation were under strict control of Ordnance personnel (R. 4561, 6869-70, 8378, 9826).

The War Department, in accordance with the "sell-back" arrangements made with commercial producers, had contracted to sell the FGAN which exploded at Texas City to Lion Oil Company of El Dorado, Arkansas, one of the commercial producers which had furnished fertilizer in

1946 (R. 25705-14). The sale to Lion Oil was covered by a contract of January 10, 1947, which expressly provided that title to the FGAN being sold by the War Department was to pass to Lion Oil upon its making payment for the FGAN to the Quartermaster Purchasing Office in New York City. Payment for the major portion of the FGAN was not made by Lion Oil until May and August, 1947, after the Texas City Disaster, with the last portion of the purchase price being paid in November 1947. The agreement between Lion Oil and the War Department had specifically contemplated that the FGAN to be replaced by the War Department would be delivered either to Lion Oil or to a third party designated by Lion Oil (R. 25706). Although Lion Oil needed the FGAN for its customers in this country, the United States Government, through its system of priorities and because of its prior commitments to France required Lion Oil Company to permit the Government to fulfill such commitments by selling in the name of Lion Oil Company to purchasers in France the FGAN covered by the sell-back agreement. At no time did Lion Oil have any connection with the manufacturing, shipping, inspection, testing, handling, etc. of the product. (R. 25751, 9225-28, 9239-40, 9584-86, 21776-79). As said by General Everett S. Hughes, Chief of Ordnance: " "Ordinance reserved and had both the power and the authority to supervise and control the operation in its entirety." (R. 4560-1).

In accordance with shipping instructions from the French Supply Council, FGAN was shipped to Texas City, a highly industrialized and densely populated port. Within a radius of 7,000 feet from the berth at which the GRANDCAMP was tied there were located oil refineries, chemical plants, more than ten warehouses, nine piers, a grain elevator and two-thirds of the residential area of Texas City. The Gov-

ernment's failure to isolate shipments of FGAN from this congested area contrasts strikingly with the requirements of the Ordnance Safety Manual enforced at Ordnance establishments. These common-sense precautions required that dangerous materials be kept an appreciable distance from inhabited buildings.<sup>37</sup> In contrast to the wartime supervision of the loading of dangerous cargo by the Army and Coast Guard (R. 12119-22), no supervision of the loading of FGAN at Texas City was furnished by any branch of the Government (R. 12121-22, 12242, 12290, 12544-45).

In the procedures followed by Ordnance, there was no substantial opportunity for the coated ammonium nitrate to cool after being processed at high temperatures before being packed into asphalt-laminated paper bags and loaded into sealed box cars for shipment.<sup>38</sup> Metal or other containers of suitable strength would have minimized the danger from bagging at such high temperatures. The use of such containers had, however, been rejected, largely because they were more expensive than paper bags.<sup>39</sup> The inescapable result of bagging hot FGAN in paper containers was a continuing history of charred, broken and burst bags. Texas City and other ports constantly received large numbers of damaged bags. Complaints brought no remedial action other than the sending of extra bags in each car for use in re-bagging. (R. 6165, 22202).

W. H. Sandberg, Vice-President of the Texas City Terminal Railway Company (warehouseman for the FGAN at Texas City) testified that trouble with hot and damaged bags started in the first week of the movement of FGAN through Texas City and continued until the disaster (R. 12484-85, 12499, 12622-24). Mr. Sandberg complained to one Ordnance Plant in June 1946 that the "bags are scorched to the breaking point" and are "so hot, in many instan-

ces, that it is impossible for our men to handle the bags until they have been allowed to cool off" (R. 20111 A-B). A representative of the plant investigating this complaint admitted that the bags "had been loaded excessively hot" and promised improvement (R. 10273, 12624). He inspected the Terminal Company's handling of FGAN and was in no way critical (R. 10121, 10278, 12625). When Sandberg, noting that the material came from Ordnance plants, inquired whether it was explosive, this representative assured him that it was not (R. 10273, 12494).

The damage caused by the hot FGAN ranged from small parched spots to the charring of a whole side of the bag. Charred areas tore easily and frequently crumbled in the loader's hands. Sometimes the whole bottom of the bag would be deteriorated and the contents would be spilled on the floor (R. 11730, 11745, 12049-50, 12213-14, 12286, 12443).

In November, 1946, the Commanding Officer of one of the Ordnance plants requested FDAP to establish a maximum temperature for loading FGAN, calling attention to damaged bags and spillage in transit. He suggested that the FGAN was being bagged at temperatures higher than the melting point of the asphalt used to laminate the bags (R. 22596). He was told that loading temperature was "not properly an item to be incorporated into specifications" (R. 22597). He took this to mean that he should not take any active interest in the condition that the fertilizer reached its destination (R. 22599).

Bag manufacturers prior to the disaster warned the Ordnance plants, in letters that were passed on to FDAP (R. 4635-36), that the bags would not stand up under high temperature loading. Union Bag & Paper Corporation stated that:

"No Multi-Wall paper unit, regardless of the basis weight, would do a satisfactory job under what we believe to be your current operating conditions." (R. 23412).

In January 1947, the Bureau of Explosives complained to Ordnance on a recent fire in a boxcar being loaded with FGAN at the Cornhusker Plant (R. 21408). Investigation had revealed that bags were being loaded at temperatures ranging from 180 degrees to 210 degrees F. and were frequently found to be badly charred and disintegrated when unloaded. The Bureau recommended that shipments be cooled to a temperature of not to exceed 120 degrees F. at time of loading (R. 21408). FDAP requested the commanding officers of the Ordnance plants to advise it as to current loading temperatures and the effect on production of reducing loading temperatures to 120 degrees F. (R. 21407). Major Starr of the Nebraska Plant (which produced some of the FGAN which exploded at Texas City) reported temperatures up to 200 degrees F. and recommended against lowering them since it would result "in greatly increased production costs and/or greatly reduced production" (R. 21403). Lt. Col. Jefferds at Iowa Ordnance (also producing FGAN shipped to Texas City) reported loading temperatures between 180 degrees and 210 degrees F. (R. 22194).

Ordnance was not willing to add even storage facilities in which the FGAN could be cooled for shipment. Instead, on March 3, the Office of the Chief of Ordnance wrote the Bureau of Explosives that the Cornhusker fire was not caused by high loading temperatures (R. 20916). This statement as to the cause of the Cornhusker fire was completely at odds with the views actually held by Ordnance. On March 4, the day after Ordnance wrote the Bureau of

Explosives, it officially requested Picatinny Arsenal to test the ignitability of the paper bagging because Ordnance suspected that the high bagging temperatures in combination with the paper bagging had caused a recent series of freight car fires (R. 23793). The Bureau of Explosives replied that:

“The most likely cause of trouble must be either hot loading, or the presence of free acid in the material. In any event, it appears that unless the material is properly prepared, fires are liable to occur in transportation, and section 170 of the Interstate Commerce Commission’s regulations requires that manufactured articles or processed materials, which are liable to spontaneous heating or combustion in transit must be packed in hermetically sealed metal-lined wooden boxes or airtight metal containers.” (R. 22765).

Another in the series of boxcar fires (R. 23189) occurred on March 19, 1947. FGAN had been bagged at approximately 200 degrees F. and loaded immediately, and fire broke out more than four hours after loading was completed (R. 23189). Although the reports on this and most of the prior fires admitted that the cause was unknown, refuge was taken by Ordnance in the suggestion that a dropped cigarette caused the blaze (R. 23189, 23183, 23191). The appreciable lapse of time between loading and the outbreak of fire pointed with equal likelihood to spontaneous ignition.<sup>40</sup>

Because of Ordnance failure to provide for proper precautions, the FGAN was exposed to a wide variety of contaminants during manufacture. Workmen testified to the presence of many foreign substances—ranging from paint flakes to nuts and bolts (R. 6893-94, 6944, 6962-63, 6973, 6979, 7003, 8311-14). Workmen used their shoes to force oversize pieces of FGAN through screens above the con-

veyor belts going to the bagging areas (R. 6102-03, 6606, 6980-81, 7118). Oil from the sewing machines used to stitch the paper bags was permitted to drip on the bags (R. 6297, 8397-98). Ammonium nitrate dust was allowed to settle in the bagging area and throughout the plant so that it contaminated the outside of the bags (R. 6169-70, 6990-91, 7007-08).

There is no doubt that Ordnance and other Government personnel knew that FGAN was dangerous. However, no notice of its hazardous characteristics was ever given to those persons handling or otherwise coming in contact with the shipments or to the general public. Instead the Government emphasized the product as a fertilizer. An immediate reason for this emphasis was that rail tariffs applicable to a fertilizer product were lower than those covering pure ammonium nitrate (R. 24019, 24649-51, 25512-14, 25656).

The labeling on the bagged FGAN produced at the Ordnance plants was as follows (R. 21288):

“ F E R T I L I Z E R ” in large letters; in smaller letters underneath “AMMONIUM NITRATE, NITROGEN 32.5%”

This label not only failed to give warning of the fire and explosive hazards presented by FGAN, but emphasized the word “Fertilizer” normally regarded as a familiar and harmless substance. There was no indication on the Government rail bills of lading that FGAN was inflammable or explosive (R. 20781-83).

The Government emphasized in dealing with the carriers that FGAN was fertilizer and in fact could be used for no other purpose (R. 9880, 9882, 24374-75, 24207). Ordnance officials assured the carriers that the FGAN was neither explosive nor dangerous (R. 9481-89, 9783, 9785).

<sup>41</sup> The warehousemen, the Texas City Terminal Railway Company received no warning of FGAN's dangerous qualities (R. 12541-44, 12028), and no instructions on handling, rebagging or stowing (R. 21542-44, 12443-44).<sup>42</sup>

As a long succession of longshoremen testified, they had no idea that FGAN would explode, and they viewed the FGAN as no less safe and inert than flour or cement.<sup>43</sup> The officers and crew of the GRANDCAMP and the HIGH FLYER believed the FGAN to be an inert fertilizer (R. 12935, 13044, 20366, 20542). Neither the longshoremen nor the crew were given special instructions on rebagging or stowing FGAN or in fighting FGAN fires. <sup>44</sup> There was the same failure to give notice or warning either to the local authorities or to the Coast Guard (R. 11910, 20514, 8829).

The culmination of the Government's failure to warn was that the people of Texas City had no idea whatever of the dangers. Crowds of spectators, gathered on the piers to watch the burning GRANDCAMP, were caught in the explosion (R. 21814-15). Two small airplanes circling over the ships were destroyed (R. 21814, 21817). Many of the executives and employees of companies with facilities in the area, including the president of the Terminal Company and the vice president of Republic Oil, were killed by the explosions (R. 10072, 12017-18).<sup>45</sup>

The longshoremen at Texas City, unaware of the hazardous nature of FGAN treated it as inert cargo. As a result, precautions were not taken in handling and rebagging of FGAN spilled from broken or charred bags. Spilled FGAN in the boxcars was sometimes accumulated in large piles until a work gang could be spared for rebagging. In view of the substantial number of broken bags received, the amount of FGAN rebagged was appreciable, with as much as half a carload of FGAN accumulating in a day (R. 12628-29).

In rebagging, the FGAN was swept up with a broom and shovel and dumped into a new bag, with portions of the charred paper sacking being rebagged with the FGAN (R. 11773-74, 12050-51), 12072-73, 12242-43, 12287).

The customary method of stowing inert bagged cargo, which was the accepted method of stowing FGAN, was followed in loading the GRANDCAMP and the HIGH FLYER (R. 12351-52, 12910-11, 20136, 20166-67, 20445-46, 20613). Dunnage, consisting of wooden boards and paper to protect the cargo, was laid in the holds (R. 12350, 20167, 20365-66). This dunnage, of course, was combustible and carbonaceous (R. 4758, 5565). The bags of hot FGAN<sup>46</sup> were then packed one on top of the other in a solid layer (R. 12241, 12297, 12349-51, 12914). No space was left between the columns of bags; the ends of the bags were packed tight against each other with no provision for ventilation (R. 12351, 12431, 12903-05). The bags were packed solid against the cargo or batten boards, with an open space of 8-10 inches between the batten boards and the outer steel skin of the ship (R. 12229-30, 12352-53).

On April 15, 1947, the loading of FGAN into numbers 2 and 4 holds of the GRANDCAMP was in progress. Loading of number 4 hold, where the fire started, ceased at 5:00 in the afternoon of April 15 and its hatch was closed and battened down (R. 12084-87, 12220-22, 12292, 12333, 12383) until 8:00 the following morning, when longshoremen boarded the ship and started removing the hatch covers (R. 12225, 12293-94). The uncovering of the hatches was completed by approximately 8:15 A.M. and the longshoremen entered hold number 4 to resume loading (R. 12335-36, 12384-86). Shortly thereafter, they observed a thin wisp of smoke coming from the hold which was traced to a point near the skin of the inshore side of the ship (R. 12337-39, 12388, 12421-23). Three or four layers of bags<sup>47</sup>

were removed by the longshoremen and the French crew members (who had entered the hold when the fire alarm was given) before any flame was seen (R. 12316, 12340 12391-92). The smoke came from bags—four or five feet below the top level of bags—which were smoldering like coals, with no open flame (R. 12389-92).

In accordance with the normal and accepted practice of fighting a fire on board ship (R. 7324-25, 12105) the master of the vessel ordered the hatch covered and battened down and steam was then introduced into the sealed hold (R. 12102, 12104, 12107-10). Texas City fire engines soon arrived at the dock (R. 12107, 12116-17), but efforts to extinguish the fire were unsuccessful (R. 12117-18). At 9:12 A.M. the 880 tons of FGAN in the number 4 hold exploded with tremendous force, detonating also the 1400 tons of FGAN in the number 2 hold (R. 20671, 21812).

The explosion resulted in the spread of fire to warehouses and other nearby structures and to the HIGH FLYER which was loaded with a cargo of 961 tons of FGAN in number 3 hold, with cargoes of sulphur in her numbers 2 and 4 holds (R. 12838, 12869-70, 21817). At approximately 1:10 A.M., April 17, the FGAN on the HIGH FLYER exploded, completely demolishing that vessel and the S. S. WILSON B. KEENE which had been lying alongside (R. 20674).

The explosions destroyed virtually the entire dock area of Texas City. Approximately 1,000 residences, industrial plants and other buildings were either totally destroyed or suffered major structural damage (R. 11972-74, 21789). Flying steel fragments and portions of the cargo of the GRANDCAMP—including a 30 foot long drill stem weighing over a ton—were found more than two miles distant (R. 21789, 21815). Portions of the GRANDCAMP were blown as much as two miles from the point of explosion

(R. 21789). More than 500 persons lost their lives in the disaster and about 3,000 more were injured (R. 11932, 21797).

As a Bureau of Mines explosives expert who investigated the disaster testified, Texas City was a classic case of the simple factors of mass, density, heat and confinement (R. 5402). The evidence demonstrates, and the District Court found at the trial, that the substantial tonnage of coated FGAN—hot, inadequately bagged and tightly packed in the hold of the GRANDCAMP—ignited spontaneously and the confined molten FGAN then exploded.

In keeping with the Government practice of attributing any FGAN fire to a discarded cigarette, the Government claimed at the trial that the fire on the GRANDCAMP was started by a cigarette butt or match. Without exception the testimony of the surviving longshoremen and supervisors showed that there was no smoking in the hold of the GRANDCAMP on the morning when the fire was discovered or on the previous day when the hold was worked until late afternoon and then closed for the night (R. 12136-37, 12310, 12337, 12359-63, 12371-73, 12433, 12474). Although there was some evidence of smoking on the deck of the GRANDCAMP by members of its crew, there was not the slightest indication that any butts were dropped into the hold by the crew.<sup>48</sup>

Government studies, as well as expert testimony, recognized that the bagged FGAN could ignite spontaneously at approximately 150 degrees C. (302 degrees F.) (R. 22035, 21045, 21985, 13090, 13145). In the Courts the Government maintained that the temperatures at which the fertilizer was shipped were not that high. This ignores a basic characteristic of FGAN; the reaction of ammonium nitrate in combination with carbonaceous matter is exothermic, i.e., it generates its own heat (R. 21583, 21516, 21581,

21624, 21628, 20857-90, 13059). If only a small quantity of the material was present, which was true in Government tests (R. 21046, 21055-57), the additional heat produced would probably be lost to the surroundings. When the factors of mass and confinement are present, however, as they were in the hold of the GRANDCAMP, the heat produced by this exothermic reaction will be contained within the fertilizer, particularly in those bags near the center of the massed cargo. Mass thus serves as an insulator (R. 23935, 21303). Since heat promotes chemical reactions, that which has been retained in the bagged FGAN will speed the decomposition, generating still more heat, until a spiralling action results (R. 15086). Whether or not the self-heating of the material will result in ignition depends on such factors as quantity (R. 21876, 13145) ventilation (R. 22120, 15247) and the length of time the material is subjected to these conditions (R. 13145).<sup>49</sup>

The summary of the official Picatinny Arsenal Report on the disaster is typical of official Government reports:

"b. When the hatch covers were removed on the following morning, the warm air in the hold started to rise and the air currents quickly fanned the smoldering fire and caused it to spread rapidly. The fire probably progressed most rapidly where the greatest amount of fuel—wooden dunnage and paper—was in contact with the bagged FGAN and the air could circulate most freely. During this time, molten FGAN probably flowed down the burning face to the bottom of the hold.

"c. Within a relatively short time, some of the wooden dunnage burned away and the cargo began to shift and settle, probably against the shell of the ship, thus confining some of the molten, burning FGAN in a closed space where gas pressure could develop rapidly.

It was probably here that detonation originated and was propagated to the rest of the cargo." Report No. 1675 (April 15, 1948) (R. 23581).

This analysis of the cause of the explosion in hold number 4—which in turn detonated the FGAN in hold number 2 and caused the fires which resulted in similar detonation of the FGAN on the HIGH FLYER—is firmly buttressed by Government tests, by a wealth of scientific authority and by the testimony of expert witnesses.<sup>50</sup>

The only dissent from this conclusion was that of W. H. Rinkenbach, a Picatinny Arsenal employee who appeared as an expert witness for the Government. As late as 1948, he had delivered a lecture to the technical personnel at Picatinny Arsenal (R. 14931-32) on the explosibility of FGAN which unequivocally adopted the position—in language strikingly similar to that contained in the official report quoted above—that the FGAN on the GRANDCAMP had been detonated by heat under confinement. In his testimony, however, Rinkenbach took the position that the pressure in the hold could not have been sufficient for the FGAN to explode from heat (R. 14976-83). This position is at odds with official reports made to the Chief of Ordnance by Rinkenbach's superiors at Picatinny Arsenal. In April 1948 the Commanding Officer of the Arsenal had reported to the Chief of Ordnance that tests:

"indicate very definitely that when confinement is such that a relatively low gas pressure can be developed by the products of combustion, bagged fertilizer grade ammonium nitrate can be caused to detonate by the application of heat alone. This previously unknown characteristic affords a credible explanation of the mechanism of the explosions of the GRANDCAMP and HIGH FLYER cargoes."<sup>51</sup>

Furthermore, it is clear that the heating, ignition and building up of pressure in a small amount of FGAN, such as only one of the bags loaded in its hold, could detonate the entire tonnage. The situation is much like that which caused the hi-pan explosion at Wolf Creek in 1944. Just as the relatively small amount of ammonium nitrate confined with carbonaceous matter in the air lance at Wolf Creek set off an explosion of a large tonnage of ammonium nitrate in the hi-pan, the reaction in a bag of hot molten FGAN confined at the bottom or center of the FGAN in the GRANDCAMP could result in the detonation of the entire tonnage stored in the hold (R. 23550-72, 23573-95).

There was some suggestion that the injection of steam into hold number 4 of the GRANDCAMP and an initial explosion of some small arms ammunition stowed in the adjacent hold were important contributing factors in the explosion of the FGAN on the GRANDCAMP. Proper instructions by the Government might have enabled the crew to extinguish the fire on the GRANDCAMP.<sup>52</sup> The Government's own reports revealed, however, that the injection of steam had not caused the explosion. As the Government materials disclosed, steam is non-reactive with nitrate, so that its presence would retard rather than accelerate decomposition of the molten FGAN (R. 26138-39, 26173-74).

The theory that the explosion on the GRANDCAMP was initiated by detonation of the ammunition in number 5 hold was also ruled out in Government analyses (R. 26137-38, 26174). Evidence shows that the munitions on the GRANDCAMP were small arms ammunitions (R. 12273-74, 12348-49, 12396-97). As a Government study pointed out, the thick steel bulkhead between holds numbers 4 and 5 made the possibility of transmission of a detonation wave remote (R. 26174).<sup>53</sup>

### Attorneys Fees

Section 16 of the RULES OF THE COMMITTEE ON THE JUDICIARY provides as follows:

"16. In all bills carrying an appropriation, a 10% attorneys fee clause shall be added: *Provided*, that this rule shall not apply to claims based upon findings of the Court of claims, court decisions, or where extraordinary services have been rendered. In such cases the Committee will determine the amount of fee to be allowed."

It is respectfully submitted that the cases now under consideration are of the type in which the Committee should determine the fee. The negligence of the Government has been determined by Court decisions, and it is upon such negligence that the claims are founded. That extraordinary services have been rendered by the attorneys representing the claimants cannot be disputed. For six and one-half years the claimants' attorneys have been gathering and presenting evidence as to the cause and effect of the man-made disaster which brought about such terrible destruction in Texas City. In addition a tremendous amount of legal research has been involved. Preparatory to trial, depositions were being almost continuously taken from August 7, 1948, to January, 1949, in many parts of the United States. Thousands of pages of factual documents were examined. A multitude of witnesses were interviewed. The actual trial in the District Court began on or about April 25, 1949, and continued except for periods of rest and one thirty-day vacation until November 1, 1949. Briefs were filed in the Trial Court and subsequently in the United States Circuit Court and the Supreme Court containing in excess of two thousand printed pages. The entire record developed in the trial of the case including exhibits consisted of over 40,000 pages.

Certainly in view of the time involved and the extraordinary labor performed and further because of the fact that unlike most claims presented to Congress the instant claims have already been reviewed by competent courts and fact findings made as to the negligence of the Government a fee of 33-1/3%, which is the ordinary fee allowed in simple workmen's compensation cases in Texas would be reasonable and appropriate for the Committee to allow each counsel appearing herein.

### Conclusion

The facts show that the petitioners have valid claims against the Government. They show a clear knowledge on the part of the Government officers and employees that FGAN was a new product presenting fire and explosive hazards. Despite this knowledge, and developments which constantly re-emphasized the hazards, FGAN was never adequately tested. The Government's officers and employees knew it was dangerous; as to the extent of the hazards and what could be done to minimize them, there was a startling lack of concern. The necessary tests could have been conducted easily and effectively prior to the Texas City Disaster.

Paralleling this lack of concern with charting the extent of the hazards involved, the Government in the procedures followed in manufacturing and distributing FGAN habitually failed to adopt necessary safeguards and precautions. Dealing with a hazardous product with an enormous potential for harm, it was to be expected that Ordnance and other Government agencies would have taken all possible precautions to minimize risks, not only in manufacturing, but in the threat of disaster represented by the finished product. Precisely the contrary was the case. The procedures followed heightened rather than minimized the dangers. Then, with no conceivable justification, the Government completely failed to warn anyone of the dangers.

It was only a question of time before the Government's disregard of its responsibilities as a manufacturer of a new and hazardous mixture would result in injury to innocent persons. That time came at Texas City.

Although under the interpretation of the Tort Claims Act by the Supreme Court, the courts do not have jurisdiction of the Texas City Disaster Claims against the Government, it is morally right that the Government should reimburse the petitioners for the injury and damage caused by its officers and employees in so negligently carrying out the FGAN program. If this same disaster had occurred in some foreign port, under the policies adopted by our Government, the claims of those injured or damaged would undoubtedly have been satisfied long ago.

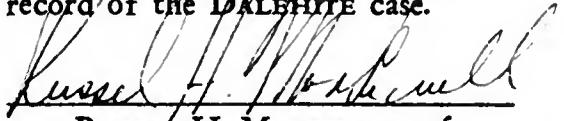
Judge Rives stated in the majority opinion of the Court of Appeals for the Fifth Circuit:

“Even if some danger were recognized, the necessity of providing means of existence to the devastated areas might have called for the exercise of discretion as to whether to take a ‘calculated risk’.”

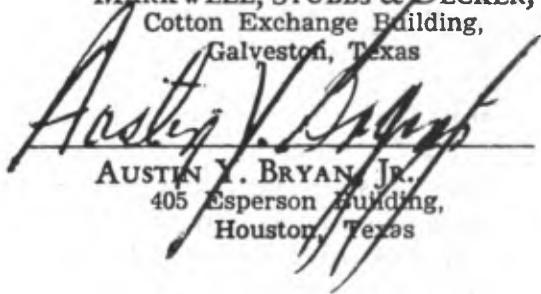
The “calculated risk” was taken for the benefit of the devastated areas of the world. It resulted in benefit to the United States as a whole by preventing unrest and disorders which would have resulted from hunger and mass starvation. Such disorders would have required the maintenance of adequate military forces in occupied areas, as stated in Judge Rives' opinion, 197 F. 2d at 777, and might have lost some of our allies to Communism. Should not the whole population who benefited from this program reimburse, insofar as it is humanly possible, the comparatively few people who happened to be injured or damaged because of it? The “calculated risk” was taken by the United States Government

and we ask that Congress see to it that the consequences are shouldered also.

This narrative statement is presented on behalf of all claimants represented by the undersigned attorneys and all others who may file claims with the Committee provided for in H. Res. 296 83 d Congress; First Session and who adopt it as their statement. All statements of facts contained in this narrative are supported by the sworn testimony contained in the record of the **DALHITE** case.



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## FOOTNOTES

1. See, P.L. 637, U. S. Code Congressional Service, 80th Congress, 2d Session, 1948, p. 405 (explosions in naval ammunition depot at Port Chicago), P.L. 400, U. S. Code Congressional Service, 79th Congress, 2d Session, p. 226 (crash of Navy Plane at San Diego, Texas).
2. Reference to numbered, as contrasted with lettered, findings are to findings requested by petitioners which the District Court adopted and incorporated by reference in its Finding (w), R. 900.
3. *Cohn v. Saenz*, 211 S.W. 492 (Tex. Civ. App. 1919, writ of error refused) (delivery of gasoline labeled "coal oil"); *Texas Drug Co. v. Cadwell*, 237 S.W. 968 (Tex. Civ. App. 1922, writ of error refused) (delivery of overfilled bottle of ammonia "in such condition as to render same inherently dangerous to one not apprised of the danger of handling same"); *Honea v. Coca Cola Bottling Co.*, 143 Tex. 272, 183 S.W. 2d 968 (1944) (negligent failure of bottler to discover defect in coca cola bottle); *S. Blockman, Inc. v. Chilton*, 114 S.W. 2d 646 (Tex. Civ. App. 1938) (negligent construction of lunch counter stool); *Liggett & Myers Tobacco Co. v. Wallace*, 69 S.W. 2d 857 (Tex. Civ. App. 1934, writ of error dismissed) (negligent failure of manufacturer to discover metal particles in chewing tobacco); *Brown Cracker & Candy Co. v. Jensen*, 32 S.W. 2d 227 (Tex. Civ. App. 1930) (negligent failure of manufacturer to discover caustic substance in chocolate candy); *Armstrong Packing Co. v. Clem*, 151 S.W. 576 (Tex. Civ. App. 1912, writ of error refused) (negligent failure of manufacturer to discover poisonous substance in soap).
4. E.g., *Waters-Pierce Oil Co. v. Deselms*, 212 U.S. 159 (1909) (negligent failure to warn that gasoline had been mixed with coal oil sold by defendant); *Kieffer v. Blue Seal Chemical Co.*, 196 F. 2d 614 (3d Cir. 1952) (Minnesota law—negligent failure to warn that chem-

ical mixture, manufactured by defendant for cleaning drains, was highly explosive); *Standard Oil Co. v. Lyons*, 130 F. 2d 965 (8th Cir. 1942) (Iowa law—negligent failure to warn that waterproofing compound manufactured by defendant was highly inflammable); *Tingey v. E. F. Houghton & Co.*, 30 Cal. 2d 97, 179 P. 2d 807 (1947) (negligent failure to warn that chemical salt manufactured by defendant contained cyanide, resulting in explosion); *Wolcho v. Arthur J. Rosenbluth & Co.*, 81 Conn. 358, 71 Atl. 566 (1908) (negligent failure to warn that stovepipe enamel manufactured by defendant was inflammable when applied to a hot stove; liability imposed despite fact that many thousands of cans had been previously sold and used without incident); *Boston & Albany R.R. v. Shanly*, 107 Mass. 568 (1871) (negligent failure to warn carrier that substance which defendant manufactured and delivered to carrier in apparently harmless package was highly explosive because containing nitroglycerin); *Maize v. Atlantic Refining Co.*, 352 Pa. 51, 41 A. 2d 850 (1945) (negligent failure to warn that cleaning fluid manufactured by defendant gave off poisonous fumes when used in confined place). The manufacturer's or dealer's duty, moreover, is not confined to the users of his product. *Flies v. Fox Bros. Buick Co.*, 196 Wis. 196, 218 N.W. 855 (1928) (used car dealer selling car with defective brakes liable to injured pedestrian); *Hopper v. Charles Cooper & Co.*, 104 N.J.L. 93, 139 Atl. 19 (1927) (bottler liable to bystanders for explosion of negligently bottled acid delivered to customer). See, generally, Prosser, *Torts* 673-88 (1941).

5. In *Standard Oil Co. v. Tierney*, 92 Ky. 367, 17 S.W. 1025 (1891), a manufacturer and shipper was held liable to a railroad employee injured by the explosion from an open light of naphtha which had been shipped under the label "carbon oil". The court held that the fact that the carrier knew the true nature of the material was no defense (92 Ky. at 375-76, 17 S.W. at

1026-27). Other decisions to the same effect are *Bryson v. Hines*, 268 Fed. 290 (4th Cir. 1920) (railroad which constructed and delivered to Government an unsafe railroad track for use in a military reservation, held liable for injuries to soldiers caused by such defective construction; irrelevant that Government officials, who were in exclusive control of tracks at time of accident, had knowledge of the defect); *Farley v. Edward E. Tower Co.*, 271 Mass. 230, 171 N.E. 639 (1930) (manufacturer of combs held liable to ultimate consumer for failure to warn of inflammability of combs, regardless of whether dealer knew of dangerous character of combs); *Clement v. Crosby & Co.*, 148 Mich. 293, 111 N.W. 745 (1907) (manufacturer of stove polish held liable to ultimate consumer for failure to warn of its inflammable character; no defense that retailer had "full knowledge of the dangerous nature of the article" and sold it without warning). See also *Restatement, Torts*, section 388, comment 1 (1934).

6. In *Genesee County Patrons, etc. v. L. Sonneborn Sons, Inc.* 263 N.Y. 463, 189 N.E. 551 (1934), a manufacturer was held liable for property damage resulting from an explosion of a highly inflammable waterproofing compound with respect to which no adequate labels, notices, or warnings were given to prospective users. In affirming a judgment for the plaintiff the New York Court of Appeals held that the manufacturer either knew or should have known that the preparation "was inherently dangerous if exposed to an open flame in an inclosed structure", stating that the jury could have found that "in the exercise of reasonable care, the manufacturer could have acquired such knowledge". 263 N.Y. at 468, 189 N.E. at 553. In *Green v. Standard Wholesale Phosphate & Acid Works*, 29 F. 2d 746 (D. Md. 1928), a manufacturer and shipper of acid phosphate, an ingredient of fertilizer, was held liable for personal injuries sustained by stevedores when bags of the phosphate gave off carbon dioxide while being stored in the hold of a ship. The poisonous gas was

generated because the manufacturer had treated each bag with a small amount of hydrate of lime, which, when brought in contact with acid phosphate, forms carbon dioxide. District Judge Soper, in holding that defendant either knew or ought to have known that this combination of substances would produce a dangerous gas, stated: "The manufacturer who causes the component parts of an article to be put together must be presumed to know the nature and quality of the resultant compound. Proof of actual knowledge is not required where the article is so made up as to be inherently harmful, and he cannot excuse himself upon the ground that he did not know its dangerous qualities." *Id.* at 748.

See also *Collins v. Pecos & N.T. Ry.*, 110 Tex. 577, 580, 212 S.W. 477 (1919) (defendant knew, "or by reasonable diligence could have known," that freshly creosoted railroad ties would injure employee's hands); *Hopkins v. E. I. du Pont de Nemours & Co.*, 199 F. 2d 930, 933-34 (3d Cir. 1952) (manufacturer of dynamite negligent for failing to warn of danger of placing dynamite in freshly drilled boreholes; jury could have found that manufacturer, "because of its technical knowledge, should have foreseen the danger, while the workers, without such technical information, might not have foreseen it"); *Farley v. Edward E. Tower Co.*, 271 Mass. 230, 237, 171 N.E. 639, 642 (1930) (manufacturer of inflammable combs "must be presumed to know the nature and quality" of the combs which it made, and proof of this knowledge was not required"); *O'Brien v. American Bridge Co.*, 110 Minn. 364, 376, 125 N.W. 1012, 1016 (1910) (corporation which constructed a defective foundation for a bridge "ought to have known" of the danger it thereby created, in the sense that a man of ordinary prudence "must have known" of it").

7. 217 N.Y. 382, 111 N.E. 1050 (1916).
8. *McAfee v. Travis Gas Corp.*, 137 Tex. 314, 322, 153

S.W. 2d 442, 447 (1941). See also *Robert R. Walker, Inc. v. Burgdorf*, 244 S.W. 2d 506, 508-09 (Tex. Sup. Ct. 1951); *Atex Construction Co. v. Farrow*, 71 S.W. 2d 323, 325 (Tex. Civ. App. 1934, writ of error refused); *Texas Pub. Serv. Co. v. Armstrong* 37 S.W. 2d 294, 295-96 (Tex. Civ. App. 1931, writ of error refused).

9. Nor can there be any doubt that, under Texas law, the negligence was the proximate cause of the injury and damage in this case. Even if the District Court had not made explicit findings that the fire on the GRAND-CAMP started from spontaneous combustion; and the fire had in fact started from a lighted match or cigarette tossed aside by a longshoreman, Texas decisions make it clear that that act would not break the causal connection between the Government's negligence and the injury to petitioners. E.g., *Robert R. Walker, Inc. v. Burgdorf*, 244 S.W. 2d 506 (Tex. Sup. Ct. 1951) (gasoline station attendants negligent in draining a mixture of gasoline and water into an open gutter; no break in causal connection because a third person deliberately threw a lighted match into the mixture); *McAfee v. Travis Gas Corp.*, 137 Tex. 314, 153 S.W. 2d 442 (1941) (owner of gas line negligent for failure to repair leaks in line; causal connection not broken by fact that explosion which injured plaintiff was set off by another person's striking a match); *Texas Co. v. Gibson*, 88 S.W. 2d 757 (Tex. Civ. App. 1935) approved on this ground, rev'd on other grounds, 131 Tex. 598, 116 S.W. 2d 686 (1938) (defendant negligent for removing pumps from gasoline station without closing pipes connecting pumps with underground tanks; defendant's conduct still a proximate cause of burning of station although fire was started by a third person's throwing to the ground a lighted match); *Texas & N.O. R.R. v. Bellar*, 51 Tex. Civ. App. 154, 112 S.W. 323 (1908, writ of error refused) (Defendant negligent for permitting oil to leak from oil tank onto adjoining property; causal connection not broken by fact

that origin of fire was unknown and defendant may have been "in no wise responsible for the origin of the fire").

10. See, e.g., R. 13695, 21223. In 1920, the Underwriters' Laboratories of Chicago had tested a sample of ammonium nitrate coated with petrolatum which was being considered for use as commercial fertilizer (R. 25262). The test report on the product was never released (R. 25290) and the product was never marketed (R. 21566).
11. Another method of producing a granular ammonium nitrate which is suitable for fertilizer (R. 22846-47, 22975-76) is the "shotting" or "prilling" method adopted by Canadian interests (R. 20922-25). Under this process ammonium nitrate liquor is concentrated to 96 per cent strength in a vacuum evaporator. It is then put through a shot tower from which it emerges as small "shots" or droplets. These are dried and cooled to approximately 38 degrees C. (100 degrees F.), screened, and bagged at even lower temperatures. Approximately 2 per cent kieselguhr is added, but no PRP or other carbonaceous coating is utilized (R. 20923).
12. There had been a long and disquieting history of serious accidents involving ammonium nitrate (R. 21743-44, 21863-65, 26168-69). The incidents ranged from relatively localized fires and blasts to major disasters. At Oppau, Germany, in 1921, 5000 tons of ammonium nitrate, even though diluted with more stable ammonium sulphate, exploded with the loss of 586 lives, injury to 2,000 persons, and the substantial wiping out of the entire town of Oppau, (R. 21743, 21864, 21069). Although the exact causes of the majority of these accidents had never been conclusively established, there were many explosions in which no detonator was involved and where, on the basis of available information, it appeared that either confinement, processing and the application of heat, or the presence of organic impurities was the prime cause of the explosion (R.

21743-44, 21863-66, 26168-69). For example, in Kensington, England, in 1896, ammonium nitrate exploded while being heated in an iron retort to produce nitrous oxide (laughing gas) for dental use and destroyed the plant (R. 21863).

13. See generally for surveys of the pertinent literature Department of Agriculture Circular No. 719 (1945) circulated to interested Government agencies in January 1944 (R. 4691, 27709-51), and TVA Report No. 571 (1945), representing formal compilations of material available to the Government employees from the time the FGAN program was launched (R. 21741-62, 20927-29A).
14. Berthelot, *Explosives and Their Power* 5-6, 410 (Hake and MacNab transl. 1892).
15. See, e.g., Saunders, *The Decomposition of Ammonium Nitrate by Heat*, 121 *J. Chem. Sec.* 698, 710 (1922) ("At some point near 300 degrees other oxides of nitrogen are evolved, the action proceeding explosively.") (R. 21873); TVA Report No. 406 at 9 (1943) ("In industrial operation, explosive decompositions of ammonium nitrate have been known to take place at temperatures as low as 140 degrees to 150 degrees C.") (R. 20953).

It was early recognized that the sensitivity of ammonium nitrate markedly increased with temperature. See, e.g. Jones, *The Influence of Temperature on the Explosibility of Ammonium Nitrate*, 5 *Army Ordnance* 599-603 (1924) (R. 21780-85).

16. Dr. Cook, professor of theoretical metallurgy at the University of Utah (R. 13048), had ten years' experience with the du Pont Company in research on explosives (R. 13049), with much of his work being devoted to the development of ammonium nitrate explosives (R. 13050, 13104).
17. See also Bureau of Mines Technical Note No. 29 of April 1944, noting that " \* \* \* in testing mixtures in

which oxygen is furnished by the mixture itself and oxidation occurs within the mixture, the size of the sample and its confinement have a significant effect on the so-called ignition temperature." (R. 21210).

18. Dr. R. O. E. Davis, a Department of Agriculture authority on the chemistry of soils and fertilizers (R. 4657-58), testified that it had been known for some time that ammonium nitrate in contact with carbonaceous materials is capable of spontaneous combustion (R. 4809).
19. Bureau of Mines Bulletin 96, The Analysis of Permissible Explosives 8 (1916) (R. 22006).
20. Cook, Ammonium Nitrate as an Explosive, 31 Chem. Met. Eng. 231, 233 (1924) (Defendant's Trial Exhibit 559, not printed). Among the other experts warning of the sensitizing effect of organic materials on ammonium nitrate were N. S. Torsuev and Tenney L. Davis.
21. R. 21029-30. The opening provision of the Manual emphasizes that the "(s)afety requirements which are outlined herein are the minimum compatible with proper safeguarding of personnel and property" (R. 21003).  
As early as 1924, when the first Ordnance Safety Manual appeared, ammonium nitrate was described as an explosive. The Manual warned that the explosive hazard presented was frequently underrated and that fires involving ammonium nitrate in larger quantities became an explosive hazard, giving the Oppau, Germany, explosion as an example (R. 26347).
22. The letter requesting the tests stated that TVA had been advised that organic substances such as PRP increased sensitivity of ammonium nitrate and TVA therefore believed "a few tests should be made" (R. 22093).
23. A supporting Bureau of Mines memorandum had concluded that any small tests which could be made by

the Bureau would undoubtedly be negative and therefore had to be used with clear reservations in view of the disastrous ammonium nitrate explosions which had occurred in the past and might recur in the future (R. 25221).

24. These Canadian producers utilized the prilling or shotting method. This method, which eliminates the hazards of carbonaceous coatings, was apparently never seriously considered by the United States Government agencies until after the Texas City disaster (R. 22973-81). A May 1944 WPB and Department of Agriculture evaluation of processes for producing FGAN expressed approval of the prilling process and specifically noted that hi-pan type graining plants were hazardous and made an inferior product (R. 22975-76).
25. At this meeting, Dr. Underwood of WPB suggested that each bag be labeled with proper warning regarding its safe disposal (R. 20010). His suggestion was incorporated into a statement which TVA distributed to farmers who purchased the TVA product, warning them not only of the fire hazards of ammonium nitrate in combination with combustible material, but also of the extreme danger of exposing the fertilizer to dynamite (R. 13490).
26. R. 22105-06. A month later, on November 26, 1943, a Bureau of Mines memorandum, approved by D. Harrington and marked "Not for Publication," was sent to members of the Bureau's Health and Safety Service (the division responsible for promoting safety in the mining and mineral industries) cautioning that "extreme care should be taken in fighting fires where ammonium nitrate is present and persons should be warned of the possibility of explosions" (R. 27871-73).
27. Dr. Underwood's letter reveals that the fertilizer program contemplated the storing of large quantities of FGAN in bags or piles (R. 20022).
28. In the final report of April 30, 1945, Nuckolls stated that the "explosion hazard of ammonium nitrate under

fire conditions is not within the scope of this report) (R. 21523, 21538).

29. The contract with WPB provided that the work should not extend beyond September 15, 1944, unless authorized in writing by the contracting officer (R. 21506).
30. The hi-pans in which ammonium nitrate liquor was evaporated contained air pipes or "lances" through which air was forced in order to agitate the solution and keep it in constant contact with the steam coils producing the heat.
31. In response to a telephone request from Lt. Col. Ensinger of Ordnance, Dr. Huff of the Bureau of Mines sent Ordnance a copy of its 1943 report to TVA on small-scale tests with the following warning contained in his covering letter to Ordnance:  
"Before these tests were made, I repeatedly called the attention of representatives of the Department of Agriculture, the Tennessee Valley Authority, and the War Production Board to the hazards of the mixture of ammonium nitrate with organic materials. I pointed out that the tests made by us at Bruce-ton must necessarily be of rather small scale and that I did not believe that they could be deemed conclusive enough to cover the potentialities that might exist if large quantities of ammonium nitrate were mixed with organic material. Thus, I cited that conditions of heat transfer, confinement, combustion, and detonation were markedly affected by pressure, thermal loss and mode of initiation. For that reason, I was quite unwilling to endorse any ammonium nitrate that contained organic materials on the basis of our small scale study at Bruce-ton alone.  
"In any event, I hope that you will not consider that the enclosed report is sufficient to establish the safety of ammonium nitrate coated with organic material."  
(R. 21228-29).
32. The Ordnance Department's continuing awareness that ammonium nitrate coated with PRP was a dangerous

product was again shown by Lt. Col. Ensminger's inquiry of TVA in April 1944 relating to a patent covering the treatment of ammonium nitrate with sodium silicate. Pointing out that the use of sodium silicate "would eliminate the use of the petrolatum-rosin-paraffin mixture and hence remove the hazard involved in such treatment," Ordnance requested TVA's views on the silicate coating (R. 21235). The TVA response indicated that a silicate coating did not produce as satisfactory a fertilizer product as a PRP coating (R. 21236).

33. The effect of this policy was illustrated by the testimony of Lt. Lucas, Ordnance inspection officer at the Nebraska plant, one of the three plants supplying the FGAN which exploded at Texas City. Lt. Lucas, who most obviously was not technically qualified for his responsibilities (R. 8086-88), had at least six other duties, including that of transportation officer (R. 8091, 8133-35). He was completely unfamiliar with the qualities of FGAN (R. 8131-32, 8148, 8152-53, 8159-60, 8188). His inspections were infrequent and totally superficial (R. 8151-52, 8164, 8169).

Col. C. H. Deitrick, Chief of the Safety and Security Branch of Ordnance, testified that his inspectors were concerned with industrial hazards such as loose boards on a building and protruding nails, but not with the safety aspects of the manufacture of FGAN (R. 7893).

34. In July 1946, the staff at the Iowa Ordnance plant, one of the plants which produced the FGAN which exploded at Texas City, prepared a tentative set of safety standards. These were largely based on the Ordnance Manual and other Ordnance publications (R. 6222-24, 22255), and repeated the warning of the Ordnance Manual on the explosive and fire hazards presented by ammonium nitrate if sensitized by carbonaceous materials. The tentative standards cautioned that "fires involving ammonium nitrate in large quantities become an explosive hazard" and also provided: "In intimate mixture or combination with carbon-

ceous or fuel type materials, ammonium nitrate may develop the sensitivity and explosive characteristics of Army black powder. (Par. 86 (e) of the Manual states that 'black powder may explode violently on suitable initiation by flame or spark') Dry ammonium nitrate may be detonated if given the proper stimulus. Detonating qualities are enhanced by contamination with carbonaceous materials, confinement and heat." (R. 22256).

The proposed standards were never published or made generally available and they never were circulated beyond the plant (R. 6223).

35. The flash points (i.e., the ignition points) of PRP and Wax B, another carbonaceous coating approved by Ordnance for use in making FGAN, were requested by Col. Deitrick of the Safety and Security Division of the Office of the Chief of Ordnance (OCO). He asked FDAP for the flash points of the two products by themselves and in combination with ammonium nitrate (R. 23740). Pearre of FDAP in turn passed on the inquiry to a cost-plus-fixed-fee contractor operating Ordnance plants producing FGAN. It replied that a test for the flash point of ammonium nitrate mixed with either coating would be difficult, if not impossible, for it to make since the ammonium nitrate might decompose violently at temperatures approaching the flash point of the waxes, but strongly urged that such tests be made by an outside laboratory (R. 23742-43). Pearre, forwarding the contractor's reply to Col. Deitrick and Col. Jank, Chief of the Ammunition Division of OCO, concluded that making such tests "would be a hazardous operation". He evidenced no concern, however, and recommended only "that no further attempts be made to obtain this data". (R. 23741).
36. Emergency Export Corporation, recognizing the highly dangerous nature of the work it was undertaking, obtained the following provisions in the contract:  
" \* \* \* because of the abnormal conditions existing, it is agreed \* \* \* ; "(a) \* \* \* the Government shall

indemnify and hold the contractor harmless against any loss, expense (including expense of litigation) or damage (including personal injuries and deaths of persons and damage to property) of any kind whatsoever arising out of \* \* \* the work \* \* \* (b) The Government recognized that the work herein provided for is of a highly dangerous nature \* \* \* ” (R. 23364, 8383).

37. Section X (12) of the 1945 Ordnance Safety Manual specifies that an explosive such as ammonium nitrate, where exposed to an explosive hazard, must be stored in accordance with the requirements for Class 9 explosives. When the ammonium nitrate is stored in an area with fire hazards only, less exacting requirements are imposed and it may be stored in accordance with the requirements for smokeless powder (R. 25139, p. 23). Among the storage requirements for the various classes of explosives are those contained in quantity-distance tables. These tables specify, for given quantities of each class of explosive, the distances at which such quantities should be kept from inhabited buildings, public railways, highways and magazines. In addition, the tables set the maximum quantity of each explosive which may be stored in one location (R. 25139, p. 14). The Ordnance Safety Manual prescribes the minimum safeguards for personnel and property (R. 25139, p. 4).

Taking only the FGAN on board the GRANDCAMP (2,300 tons R. 21812) and the HIGH FLYER (961 tons R. 21817) and applying the most lenient quantity-distance table (Class 2, “smokeless powder in containers”, R. 25139, p. 19), the 6,522,000 pounds of FGAN in the two ships amounted to over 13 times the maximum quantity permitted by the table. Even ignoring the prohibition against storing quantities larger than 500,000 pounds in one location, the FGAN in the ships would have to be over 7,800 feet from the nearest inhabited building. The Class 9 table (R. 25139, p. 24) prohibited over 250,000 pounds in one location and would require a distance of 112,428 feet (over 21

miles) between the ship and the nearest inhabited building.

38. In December 1946, Christensen, chief chemist of Emergency Export Corporation, had prepared an article for Ordnance and contractor personnel which reviewed the literature on ammonium nitrate and discussed its properties and behavior. Among his conclusions were: " \* \* \* Confinement is very effective in promoting the detonation of ammonium nitrate charges." (R. 27698).

"Under favorable conditions of pressure, rapid heating, and retention of heat, ammonium nitrate, may be exploded partially from heat alone near 300 degrees C. \* \* \* Ammonium nitrate supports the combustion of oxidizable materials. \* \* \* If mixed with carbonaceous materials it is exploded more readily." (R. 27702-03).

Major Starr, the Nebraska Ordnance Commanding Officer, admitted that he was familiar with the study (R. 6475-80) and that FDAP had a copy (R. 6480).

39. Dr. Davis of the Department of Agriculture testified that the question of containers had been discussed at the time of the 1943 inter-agency meetings and from time to time during the succeeding years and steel drums and even wooden barrels had been rejected on economic grounds. Dr. Davis stated that the Government officials realized that the container had to be relatively cheap "or else (FGAN) could not be used as a fertilizer material" (R. 4762). He admitted that even plain ammonium nitrate had been shipped in steel drums, but that steel was at a premium and its cost would be prohibitive for use as a fertilizer container (R. 4916-17).

40. The fire hazard presented by hot FGAN was revealed not only in the box car fires but also in other blazes. For example, fire broke out in the graining kettle because of the presence of wood or paper (R. 22269-70). Hot ammonium nitrate spilling from the graining kettle or during loading operations started fires in bags

and wooden pallets (R. 6184-88, 7171, 22227-29). FGAN spilled from a truck which had gone off the shoulder of the road set the grass on fire (R. 7158).

41. The attitude of Ordnance is indicated by the "test" volunteered by Army officers during a conference with three railroad employees and an inspector of the Bureau of Explosives, an agency of the Association of American Railroads with authority under ICC regulations to investigate and inspect methods of handling explosives and other dangerous articles (R. 9434-35). The test was made during a visit to the Nebrsaka plant for the purpose of determining the equipment to be supplied by the railroad (R. 9477-78, 9764). The test, conducted by Ordnance personnel, Capt. Howard Keller and Lester Ehliers (R. 9473-74, 9478-79), consisted of the setting off of a blasting cap in a small pile of pure ammonium nitrate about the size of a man's hat (R. 9473). The ammonium nitrate was not coated (R. 9414-15), and there was no confinement whatever (R. 9486-88). The material was merely scattered by the blasting cap and did not explode or ignite (R. 9405-06). The Ordnance representatives did not explain the peculiar qualities that coating gave to ammonium nitrate, the hazards presented by large confined masses of the coated product, or other dangerous characteristics of FGAN (R. 9417-18, 9490, 9497-98, 9768-72). On the basis of this superficial and ill-conceived demonstration, the railroad agents departed the plant convinced that FGAN was safe. (R. 9418, 9473-76, 9764-65, 9792-93).
42. As has been seen, the Ordnance man who investigated the Terminal Company's complaints of charred bags assured the Company that the contents were not explosive (R. 10273-75, 10461, 12494, 12578-79) and did not object to the Company's methods of handling (R. 10121, 10278, 12625).
43. See, e.g., R. 11733-34, 11768-70, 12051-52, 12090, 12330, 12429.

- R. 12211, 12287-88, 12431, 20979.
44. R. 11747, 11773-74, 12051, 12068, 12089, 12241-43, 12287-90, 12330-31, 12350-51, 12379, 12431, 12471-72, 12784, 12835-36, 12896-97, 20166, R. 12279, 12300, 12330, 12430, 12893-94. R. 20267, 12934-36.
  45. By contract, in the manufacturing operations where introductions of contaminated material into the ammonium nitrate in the hi-pans presented dangers of explosion exactly like those in a FGAN fire under confinement in a ship's hold, restrictions were placed on the total number of people who could be present in the hi-pan area (R. 6602-03), and barricades and escape chutes were provided (R. 6632-34, 6687-90; see diagram, R. 21398). Ordnance also expressed its concern with the hazards to its own personnel presented in hi-pan operations, particularly with the contamination of the molten ammonium nitrate by organic materials, in various bulletins and directives. See, e.g., Field Director Instructions on May 1946 (R. 22265).
  46. The time-keeper for the longshoremen loading the FGAN on the GRANDCAMP testified that, on April 15, the night before the GRANDCAMP exploded, he warmed his hands on the FGAN (R. 12717).
  47. The hold, which was over 20 feet in height, was already about three-fourths full and contained some 880 tons of FGAN (R. 21812-13, 12298, 12430-31). A propeller shaft tunnel (6 to 8 feet high) in the hold was covered with the bagged FGAN (R. 12356-57).
  48. The location of the fire under the 'tween deck near the skin of the ship could not be reached by a cigarette dropped from the hatch coaming. See photographs of number 4 hold of vessel identical to GRANDCAMP (R. 21806-08, 21804). Aside from some smoking by the crew, the only person smoking on the GRANDCAMP was Corbett, who operated the winch located six to eight feet from the hatch and disposed of cigarette butts by throwing them in a pool of water on

the deck formed from steam in the ~~winch~~ cylinders (R. 12250-52).

It should be emphasized that, as a matter of law this entire factual issue is quite irrelevant to the Government's liability. (See Supra n. 9)

49. On July 28, 1947, the S.S. OCEAN LIBERTY, which had been loaded with a cargo of FGAN at Baltimore, Maryland, exploded at Brest, France. With respect to the cause of the fire on the OCEAN LIBERTY, District Judge Chesnut found, in the suits against the charterer and its agent, that it resulted from spontaneous combustion. *Accinanto, Limited v. Cosmopolitan Shipping Co.* 99 F. Sup. 261, 264, 274 (D. Md. 1951). The Court of Appeals accepted this finding that the fire was due to spontaneous combustion. 199 2d at 138.
50. The Interagency Committee on the Hazards of Ammonium Nitrate Fertilizer concluded that the GRANDCAMP explosion was due to the fire involving ammonium nitrate and combustible materials under confinement which served to retain the heat and permit the building up of pressure (R. 21106). Substantial agreement with this position was expressed by the President's Conference on Fire Prevention (R. 21138). Tests conducted by the Bureau of Mines on pure ammonium nitrate, FGAN and FGAN mixed with 1.5 per cent by weight of paper bagging showed that all three materials would explode when heated under confinement (R. 21932-39). The FGAN-paper bagging mixture proved to be the most sensitive of the three (R. 21934). Tests conducted by Dr. Melvin A. Cook confirmed the earlier conclusions of R. M. Cook, that the addition of from 3/4 to 1-1/2 per cent of carbonaceous coating, the range used by the Government in FGAN, produced the maximum sensitivity of ammonium nitrate to explosion (R. 13071-72). He testified that it is "very probable" that the fire in hold number 4 of the GRANDCAMP started by spontaneous ig-

inition (R. 13099-102). See also the testimony of Dr. Kistiakowsky at R. 15276.

51. Dr. Melvin A. Cook also testified that it is not possible to calculate accurately the amount of pressure required for an explosion (R. 13330). The Bureau of Mines pointed out the difficulty of measuring pressure (R. 21881) and reported in July 1949 that "(p)ressures necessary for explosion have not been determined" (R. 20981).
52. The best method of fighting ammonium nitrate fires is inundation with large amounts of water. Although this was known to Government personnel (R. 21762) (R. 22256, 27872) no instructions were issued to carriers, warehousemen and others handling the material.
53. Dr. Cook testified that the only conceivable conditions under which the ammunition could have initiated the explosion were (1) if the ammunition itself, which is fairly stable, had been subjected to a direct application of heat, which might have exploded it, and (2) if the FGAN had been sufficiently heated so that it was at the point of explosion anyway. In this stage of sensitivity the impact from the discharge of the small arms ammunition might have produced an explosion slightly sooner than it would have otherwise occurred (R. 13348-53).

## EXHIBIT No. 2

COMPENDIUM OF STATEMENTS OF KNOWLEDGE OF DANGEROUS AND EXPLOSIVE CHARACTERISTICS OF FGAN AND ADMISSIONS OF FACT, AND FAULT AND NEGLIGENCE ON THE PART OF THE GOVERNMENT, ITS AGENTS, SERVANTS, EMPLOYEES, AND REPRESENTATIVES, BY RESPONSIBLE PERSONS AND OFFICIALS AND AUTHORIZED AGENCIES OF THE UNITED STATES, APPEARING IN THE PRINTED RECORD OF EVIDENCE IN No. 308, OCTOBER TERM, 1952, UNITED STATES SUPREME COURT, A CASE ENTITLED "ELIZABETH H. DALEHITE ET AL., PETITIONERS, V. UNITED STATES OF AMERICA, RESPONDENT"

Because the first manufacture of fertilizer grade ammonium nitrate occurred in 1943, under the Hercules Cairns Explosives Patent 211738, covering blasting explosives, which was licensed to the United States Government for its use (R. vol. 18, p. 13574), the statements and admissions here contained will begin with that year, 1943.

## YEAR 1943

*August 20*

Wilbert J. Huff, consulting explosives chemist, Bureau of Mines, replies to TVA request for opinion of Bureau on use of FGAN that "In general we do not favor the mixing of organic materials with ammonium nitrate, and are of the opinion that, while such mixtures may not be unduly sensitive, accidents due to other causes may be attributed to such mixtures. \* \* \* We are very conservative in the recommendation of mixtures that have not been subjected to extended experience and tests. \* \* \* (R. vol. 33, p. 25222).

*August 18*

J. E. Tiffany, of Bureau of Mines, to Dr. Huff, on question of FGAN and its hazards, says:

"We know that there have been disastrous explosions with ammonium nitrate and undoubtedly these may recur from time to time. The conditions to bring about these explosions have never been satisfactorily established" (D. T. 11).

*September 18*

Canadian scientists at TVA conference objected to the use of FGAN as it was manufactured and shipped to Texas City, because "It might increase the fire and explosion hazards" (P. T. 239, R. vol. 24, pp. 20922-20925).

*September 20*

Conference of Government and explosives manufacturing experts, considering the beginning of manufacture of FGAN, were told by two ordnance captains attending, of the dangerous materials involved, the minutes reflecting:

"Representatives from the Ordnance Department stated that in their handling of ammonium nitrate it was treated entirely as a high explosive" (R. vol. 26, pp. 21722-21724).

*October 29*

Tiffany, of Bureau of Mines, to Huff, with report forwarded to TVA, October 29: "Nevertheless, accepted precautions in handling these ammonium nitrate mixtures should be observed because numerous disastrous explosions of ammonium nitrate have occurred in the past. These explosions have taken place under conditions that have never been satisfactorily established. Undoubtedly such occurrences may recur from time to time" (Tiffany, exhibit 5). (Not printed.)

*November 26*

Official Bureau of Mines Report No. M-1871, marked "Confidential Memo, Not for Publication," dated November 26, prepared by D. Harrington, quotes from letter of Hylton Brown, reading in part:

"As this information indicates, extreme care should be taken in fighting fires where ammonium nitrate is present, and persons should be warned of the possibility of explosions" (P. T. exhibit 216).

## YEAR 1944

*February 17*

J. E. Underwood, WPB, writing to members of Chemical Referee Board, states: "Considerable data are available in connection with the explosiveness of straight ammonium nitrate, and some mixtures of this material and other salts. *But practically nothing is known regarding the hazards involved through the introduction of organic materials to ammonium nitrate itself*" (R. vol. 23, pp. 20026-20027). [Italics supplied.]

February 24

Circular letter, Col. Crosby Field, Ordnance Department, Assistant Director of Safety, directed to all Government plants:

"(1) That ammonium nitrate is an explosive and that its fire and explosive hazards are aggravated when the material is contaminated with combustible or carbonaceous materials as is the case with all oxidizing agents" (R. vol. 33, p. 25196).

March 3

Letter, Wilbert J. Huff, consulting explosives chemist, Bureau of Mines, to Lt. Col. George Ensminger, Safety and Security Branch, Office of Chief of Ordnance, War Department. After stating that the small tests made by the Bureau of Mines would not be conclusive:

"Before these tests were made I repeatedly called attention of representatives of the Department of Agriculture, the Tennessee Valley Authority, and the War Production Board to the hazards of the mixture of ammonium nitrate with organic materials \* \* \*. For that reason I was quite unwilling to endorse any ammonium nitrate mixture that contained organic materials on the basis of our small-scale study at Bruceeton alone."

March 9

Ordnance Department letter to Hercules Powder Co., Du Pont Co., and Atlas Powder Co., concerning the adding of PRP to ammonium nitrate, which is the same FGAN exploding at Texas City, carried this statement in part:

"The technical literature states that a very definite explosion and fire hazard exists when organic materials are added to ammonium nitrate. \* \* \*

"Would the experience of the Du Pont Co. allow you to form an estimate of the hazard involved in the coating of ammonium nitrate with a mixture of organic materials at temperatures indicated in the above paragraph?" (R. vol. 33, pp. 25127-25130).

March 14

Answer, DuPont to Ordnance Department letter quoted above. After reciting explosions in DuPont plant attributed "to the presence of petrolatum which found its way to the evaporating pan," Du Pont stated:

"As a result of this occurrence and previous explosions in the ammonium nitrate plant, this company discontinued the coating of ammonium nitrate with any organic compound" (R. vol. 25, pp. 21221-21222).

April 6

At conferences occurring on this date between Dr. Harry Curtis, consultant of TVA, and dean of engineering of the University of Missouri, and other Government officials, Dr. Curtis stated:

"That the hazard involved in the production of ammonium nitrate has long been recognized, that it is probably no greater than that involved in some of our other operations, and that we are justified in continuing our present method of operation as long as the war continues. He believed, however, that for the peacetime production of fertilizer, a safer production method should be developed" (vol. 24, p. 20919). [Italics supplied.]

#### YEAR 1945

May

Ordnance Department brought out its 1945 edition of the Safety Manual (R. vol. 33, pp. 25139-1 to 25139-34). Subdivision (e) of paragraph 70, headed "Nitrates (Inorganic)," paragraph 3, reads:

"When compounded with combustible substances, nitrates are violent fire and explosive hazards, and may be subject to spontaneous ignition."

Paragraph 4, in part, reads:

"Ammonium nitrate may be exploded by relatively light initiation if it has been sensitized by impurities such as carbonaceous materials."

May 11

Conference notes of WPB conferences on dangers and explosibility of FGAN, which discusses the nonsafety of storage of ammonium nitrate in large quantities, saying further:

"With relation to potential hazards, Dr. P. Miller cited a preliminary report by Underwriters Laboratory on their tests of TVA conditioned ammonium nitrate fertilizer which indicated that the organic coating increased the sen-

sitivity of ammonium nitrate to detonation. \* \* \* That the presence of such conditioner increased the sensitivity of the ammonium nitrate to detonation" (Bulletin 571, P. T. exhibit 246, R. vol. 24, p. 20929).

TVA Report No. 571, captioned "Conditioning of Nitrogenous Fertilizer, Literature Survey," in part says:

"It has been reported in an earlier literature survey (5) that the presence of organic combustible matter as impurity and ammonium nitrate increases the tendency of the ammonium nitrate to explode. *According to that survey 1 percent of petrolatum in ammonium nitrate is a better sensitizer than 1 percent of TNT. It has been recognized (4) that the use of organic materials for conditioning ammonium nitrate possibly may be dangerous in that it may increase the explosibility*" (R. vol. 24, p. 20928). [Italics supplied.]

#### YEAR 1946

July 22

Lt. Col. J. S. Jefferds, commandant, Iowa Ordnance Plant, undertook to get up a set of safety standards. Subdivision (c) read:

"Dry ammonium nitrate may be detonated if given the proper stimulus. Detonating qualities are enhanced by contamination of carbonaceous materials, confinement, and heat" (R. vol. 7, pp. 6222-6223).

When queried about this information, on deposition this testimony occurred:

"Q. Now, then, in July 1946, you had already discovered what to be fearful of in handling this unpredictable material, ammonium nitrate fertilizer grade?—A. We were aware of the hazards" (R. vol. 7, p. 6224).

Colonel Jefferds also copied from 1941 Ordnance Manual this language: "Ammonium nitrate is not very inflammable at atmospheric temperatures, but fires involving ammonium nitrate in large quantities become an explosive hazard" (R. vol. 25, pp. 21029-21030).

July 24

Maj. Edwin J. Grayson, commanding officer, Nebraska Ordnance Plant, writing for request of waiver of section X, paragraph 80, Ordnance Safety Manual, dealing with manufacture of FGAN and method of shipment, states:

"Consideration must be given to the fact that the nitrate, before leaving the ammonium nitrate line, will be coated with a mixture of clay, petrolatum, rosin, and paraffin, and will be in pellets of about 35 mesh. *It is shipped as a fertilizer rather than as explosive*" (R. vol. 25, p. 21449). [Italics supplied.]

December 30

The contract between Emergency Export Corporation and the United States Government covering the production of FGAN at the ordnance plants of the Government, under subdivision (b) of article 6-a, provided in part:

"The Government recognizes that the work herein provided for is of a highly dangerous nature, and that its accomplishment under existing conditions will be attendant with even greater risk of damage to property, injuries to persons, and failures or delays in performance due to uncertain and unexpected causes that would normally exist. The Contractor is unwilling to assume said risk for the consideration herein provided. It is therefore agreed that the Contractor shall not be liable to the Government in any amount whatever for failure or delay in performance by it hereunder or for any damage to or destruction of property or for any injury to or death of persons arising out of or in connection with the work hereunder, no matter what the cause thereof may be or may seem to be" (R. vol. 29, p. 23364). [Italics supplied.]

December

Report of B. T. Christiansen, chief chemist for Emergency Export Corporation, the supervising agent of the Government in the manufacture of FGAN. Mr. Christiansen says, in this volume, which was circulated to Army Ordnance: "Ammonium nitrate supports the combustion of oxidizable materials" and "If mixed with carbonaceous materials it is exploded more readily" (R. vol. 38, p. 27703).

(NOTE.—Major Starr, commanding officer, Nebraska Ordnance Plant, admits that the information in Christiansen's bulletin and article was in the Ordnance files when he, Starr, arrived as the commander at the ordnance plant, Starr stating (R. vol. 8, p. 6476): "Well, the information reported on there has been known for some time.")

## REPORT OF EMERGENCY EXPORT CORPORATION, DATED AUGUST 27, 1946

"It was brought out at the time of discussion that experience Emergency Export Corporation had in making export shipments of grained ammonium nitrate in paper bags had brought out the fact that approximately 20 percent of the bags had been broken open upon arrival at overseas destinations. It was suggested that certain containers which were surplus to the needs of the War Department might be utilized in shipping ammonium nitrate" (R. vol. 29, p. 23261).

## YEAR 1947

## January 16

H. A. Campbell, chief inspector, Bureau of Explosives, writes Chief of Ordnance in alarm over boxcar fires of FGAN, stating:

"Inquiry developed that loading temperatures have been ranging from 180° to 210° F. It was also developed that it has not been uncommon to find that paper bags in which the nitrates were shipped badly charred and disintegrated when unloaded at destination. *I am of the opinion that loading temperatures in this material are excessively high and continued spontaneous heating in material loaded at these temperatures is liable to result in fires in transportation. Your assistance is solicited in handling the matter so that future shipments will be cooled to a temperature not to exceed 120° F. at time of loading*" (R. vol. 29, pp. 22989-22990). [Italics supplied.]

## March 7

Advice of Campbell handled this manner:

"Duncan Smith took letters from plant to D. C. and discussed with Mr. H. D. Reynolds, who answered Mr. Campbell's letter to the effect that it is not feasible to accept his recommendation" (R. vol. 29, pp. 22989-22990).

## January 27

Letter from Chief of Ammunition Supply Division, Office of the Commanding General of Ordnance Department, stating in part, in reference to Campbell letter:

"This matter has been discussed with Colonel Tibbitts, of the Safety and Security Division, and they have no objection to the ammonium nitrate being loaded at a maximum temperature of 190° F. It is realized that the request to not exceed 120° F. at time of loading is not practical" (R. vol. 13, p. 9444).

## May 28

Col. Joel E. Holmes, field director, Ordnance Department, reports to Chief Field Director of Ammunition Plants on paper bag tests, same paper bags used at Texas City:

"The Union Bag Co. has reported that ammonium nitrate dust on paper bags, upon absorbing sufficient moisture from the air to become damp will cause serious damage to the paper. \* \* \* Special tests conducted at Iowa Ordnance Plant show that the inner ply of multiwall bags suffers degradation after 24 hours heating in an oven maintained at 100° C. (212° F.) under conditions wherein the paper is embedded in a dish of ammonium nitrate fertilizer."

## January 22

Union Bag & Paper Corp. report, after a series of tests, on the same bags used to sack the ammonium nitrate exploding at Texas City:

"At 90° relative humidity we found that paper in a bag will pick up moisture to a point where it has a moisture content of 15 percent or over. This amount of moisture in the bag walls, when filled with hot ammonium nitrate, will cause the disintegration which occurred. *This disintegration will occur even at temperatures as low as 200° and probably lower, although we did not experiment at temperatures under 200°.*" [Italics supplied.]

Because of its findings, the bag company recommends:

"If this is not possible from a warehousing point of view, it would be our suggestion to reduce the packing temperature to a range of 160° F.-175° F. \* \* \* From our understanding of your operations it is questionable if you have the facilities to warehouse these bags under the relative humidity conditions suggested. \* \* \* It has been our observation in other plants where ammonium nitrate is packed with little or no deterioration of the bags, that their packing is done within the range of approximately 160° F. to 170° F. and that they experienced none of the difficulties which currently face you. *It would be our strong recommendation that if possible your packing temperature range be reduced to that noted above*" (R. vol. 29, p. 23411). [Italics supplied.]

*January 1947 to April 15, 1947*

Testimony of Colonel Jefferds, commanding officer, Iowa Ordnance Plant:

"Q. Let's move on. We are at a temperature of 250 to 258. What happened to the material at that point?—A. At that point the material is dropped down through the shaker screen.

"Q. That is the Ro-Ball screen?—A. Yes, I believe that is the name. They were shaker screens.

"Q. Through the screen passed whatever the size of the screen was in the way of grains of material, is that right?—A. Yes.

"Q. Into what?—A. Into bags.

"Q. Bags immediately under your kettles, is that right?—A. That is right.

"Q. How much time elapsed occurring between the bagging under the kettles and the delivery to the sewing machines at Central Bagging?—A. Oh, 15 or 20 minutes, perhaps" (R. vol. 7, pp. 6096-6097). [Italics supplied.]

*January to April 15*

Colonel Jefferds, commanding officer, Iowa Ordnance Plant, testified as follows:

"Q. So far as FDAP was concerned, notwithstanding what Lieutenant Colonel Meldrum sent you, and notwithstanding what you were telling them, that they could either take production or lower temperature, but that you could not give them both, you told them that, didn't you?—A. In effect, yes."

Jefferds further testifying:

"Q. FDAP never ordered you to reduce temperatures and sacrifice production, did they?—A. They never ordered us to go to 120°.

"Q. Or never less than 200°, did they, before Texas City?—A. That is correct.

"Q. In fact, never less than 210° F. at Texas City, did they?—A. I believe that is also correct."

*October 30, 1946*

Letter, International Paper Co., on bag damage, stating, in part:

"It is my understanding that the temperature of your material at the time it is filled into the bags is well above 212° F., and in addition, that your filled bags are normally loaded quite rapidly into cars which are closed and transhipped in the main to gulf ports, so that upon arrival at these ports the paper in the bags has not only been thoroughly dried out, but has had little if any opportunity to regain its normal moisture content" (R. vol. 29, p. 23414).

*March 4, 1947*

Col. Carroll H. Deitrick, now Brigadier General Deitrick, then head of Safety and Security Division of Ordnance, and executive officer to Maj. Gen. Everett S. Hughes, Chief of Ordnance, wrote Picatinny Arsenal asking for certain tests and stating:

"Because of the similarity of the accidents, and owing to the fact that the fertilizer is bagged at temperatures of approximately 190° F. to 240° F. in duplex paper bags placed immediately into boxcars under relatively restricted conditions of free air circulation, this office suspects that the fires may have resulted from the normal high temperatures fertilizer in combination with easy ignitability of the duplex paper sack" (R. vol. 30, p. 23829).

*May 21*

J. C. Holtz and R. L. Grant made an official investigation for the Bureau of Mines of the ammonium nitrate fertilizer exploding at Texas City entitled "Manufacture of Ammonium Nitrate Fertilizer of the Type That Exploded at Texas City." On the matter of heating and bag conditions, this was stated:

"According to plant experience (56) fertilizer packed in the multiwall paper bags at 93° C. (199° F.) does not heat further. If packed at 104° C. (219° F.) and loaded promptly into railroad cars, the asphalt in the bags begins to bleed. If packed at 110° C. (230° F.) the insides of the bags show charring, particularly if heat losses are minimized. At 118° C. (244° F.) the three inner sheets are considerably weakened by charring and embrittlement. At 150° C. (302° F.) simulated bags ignited spontaneously in 5 or 6 hours."

*May 7*

Col. Gordon C. Tibbitts, assistant to Col. Carroll H. Deitrick, executive officer to Maj. Gen. Everett S. Hughes, Chief of Ordnance, was ordered to Texas City to make an official investigation and report of the catastrophe there occurring. A part of that report states:

"The ammonium nitrate fertilizer on both ships, at least the greater portion, obviously detonated with high order as a result of fire. It is known that ammonium nitrate will detonate under certain conditions of elevated temperature when in the presence of carbonaceous materials. \* \* \* There is ample carbonaceous material available in the bags in which the fertilizer is packed in addition to a wide variety of contaminants in the hold of a ship with which material from broken bags would come in contact. \* \* \* Despite the fact that the bags are raised off the floor by the dunnage a broken bag will permit the nitrate to sift down through the dunnage onto the floor. This condition will always be present when the fertilizer is packed in paper bags" (R. vol. 25, pp. 21171-21172).

*January to April 15*

Capt. George E. McCabe, United States Coast Guard, Chief of Staff, Eighth Coast Guard District, including Texas City, testified as follows:

"Q. Now, prior to April 16-17, 1947, the dates of the great Texas City disaster, did you ever know before that time that ammonium nitrate could or might explode? A. No.

"Q. Up to that time, from the standpoint of cargo, you viewed it as a harmless material, such as cottonseed meal, or flour, or sugar, or things of that sort?—A. Yes, or coal, or anything else" (R. vol. 9, p. 7311).

*April 29 to May 6*

Official United States Coast Guard Board of Inquiry into explosion and fire on steamship *Grandcamp*, Texas City, in its finding No. 2, condemned the United States Government as follows:

"The shipping officers of the United States Army, Iowa Ordnance Plant, West Burlington, Iowa, the Cornhusk Ordnance Plant, Copland, Nebr., and the Nebraska Ordnance Plant, Firestone, Nebr., violated section 417 of the Interstate Commerce Commission Regulations governing the transportation of explosives and other dangerous articles, dated January 7, 1941, and in effect at time of shipment by describing the substance offered for transportation by rail under a shipping name not authorized by subject regulations" (R. vol. 24, p. 20675). [Italics supplied.]

*March 17, 1947*

Certificate by Capt. Albert F. Hine, Transportation Corps, at Gulfport, Miss., October 19 through November 4, 1946, November 6 through 26, 1946, and November 8 through December 1, 1946. First report shows 4,600 bags out of 188,832 bags, listed as damaged with first cause "deterioration and partial charring of bags due to ammonium nitrate being bagged hot, contents of some bags remained at a relatively high temperature as long as 48 hours after cars were unloaded and ammonium nitrate placed on wharf" (Jefferds exhibits 19-C, 19-D. and 19-E). (Not printed.)

*May 13, 1948*

Letter B. T. Christiansen, chief chemist of Emergency Export Corporation, to Dr. John C. Holtz, of the Bureau of Mines, in part stated:

"The tests were made in an effort to determine the factors relevant to the charring of bags. The tests were precipitated because of reports of ammonium nitrate bags arriving at their destination in a charred condition. *The reports of charred bags were not investigated and the fact as to whether or not they were actually charred has never been established*" (R. vol. 27, p. 22066). [Italics supplied.]

*May 19, 1947*

Report, Colonel Stribling, commanding officer, Ravenna Arsenal, to Field Director of Ammunition Plants, on trip to port of Baltimore, stated in part:

"Throughout the visit it was apparent that personnel handling fertilizer at the port had not been given complete instructions as to the type of material which can be stored with fertilizer, nor are they fully familiar with the problems incidental to proper handling" (R., p. 23092).

*June 12, 1947*

Confidential circular to branches of the Ordnance Department from Colonel Deitrick, Chief of Safety Division, and executive officer to Commanding Officer of Ordnance. In part it said:

"The Ordnance Department has recognized the explosive properties and capabilities of ammonium nitrate under certain conditions as cited in paragraph 70(a) 1, 70(e) 2, 3, and 4, of the Ordnance Safety Manual, O. O. Form 7224, extracts of which are as follows:

"(c) 'It (ammonium nitrate) should preferably be stored in explosive type magazines;

"(b) 'When compounded with combustible substances, nitrates are violent fire and explosive hazards and may be subject to spontaneous ignition;

"(c) 'A fire involving large quantities of ammonium nitrate may result in an explosion. It may be exploded by relatively light initiation, if it has been sensitized by impurities, such as carbonaceous materials.'

2. "The Ordnance Department manufactures and supplies ammonium nitrate with the ideas expressed in paragraph 1 in mind" (R. vol. 33, p. 25130). [Italics supplied.]

July 3, 1947

Report of Picatinny Arsenal on testing FGAN:

"The most significant result included in this summary is the detonation and extensive bomb fragmentation obtained by heating externally fertilizer ammonium nitrate and bagging paper with the air ordinarily present in the bomb removed by evacuation prior to test. \* \* \* It is believed that the conditions and results of these tests reflect fairly accurately those of the explosion on board the *Grandcamp* on April 16, 1947" (O. C. O. 101). (Not printed.)

August 11, 1947

Lieutenant Colonel Gaines, Ordnance Department, memorandum to Field Director of Ammunition Plants states, after careful and exhaustive survey:

"None of the literature published by OFDAP has defended or justified the use of paper bags as containers for fertilizer. If metal containers were used we could eliminate all this confusion over bagging temperatures. Most important of all, we would increase very greatly the safety of handling, shipping, and storage of ammonium nitrate fertilizer. Breakage and spillage at ports and other transfer points would be negligible. It would reduce the amount of combustible material and perhaps many of the numerous recent fires. There are numerous advantages to packaging this fertilizer in metal containers. It is recommended that a study be made to determine the feasibility of using metal containers. So long as countless other items of commercial use and manufacture are packaged in metal containers, it seems on the face of it inexcusable that we continue bagging fertilizer in paper bags" (R. vol. 29, p. 2309). [Italics supplied.]

August 19, 1947

Letter, Col. Merle H. Davis, of Chief of Ordnance Office, to Colonel Dutton, head of Picatinny Arsenal, in part stated:

"General Hughes (Chief of Ordnance) has stated definitely, and we all agree with him on this stand, that the Ordnance Department is not justified in pulling \$58,000, or any comparable sum, into tests of material which has little or no significance to the Ordnance Department after the completion of the current fertilizer program" (O. C. O. exhibit 20). [Italics supplied.]

July 3, 1947

Again report of Picatinny Arsenal on testing FGAN stated:

"The results of small-scale tests obtained to date are considered to fulfill adequately one of the primary purposes of this investigation by showing that bagged fertilizer ammonium nitrate which is undergoing combustion can be detonated by heat alone, even when the mass is only a few pounds" (O. C. O. exhibit 101). (Not printed.) [Italics supplied.]

December 18, 1947

Aberdeen Proving Ground tests on FGAN contain these conclusions:

"Large quantities of fertilizer grade ammonium nitrate will detonate when exposed to heat or flame in strong and enclosed containers. Large vented quantities, 1 to 2 tons of fertilizer grade ammonium will not detonate when exposed to heat or flame in vented containers. This conclusion may not be valid for quantities greatly in excess of several tons." [Italics supplied.]

Under the caption "Recommendations," it is stated:

"Fertilizer grade ammonium nitrate should be stored and transported in compartments which are well vented and will not allow high pressures to build up in the event of a fire" (R. vol. 30, p. 23552).

This same report contained this admission:

"The explosive nature of ammonium nitrate has been known since the First World War" (p. 23554).

2. "The recent disastrous explosions of the steamship *Grandcamp* and the steamship *Highflyer*, at Texas City in April 1947, and that of the steamship *Ocean Liberty* at Brest, in July 1947, however, showed that the substance was not being handled properly" (R. vol. 30, p. 23554). [Italics supplied.]

## YEAR 1948

## February

Official report, Bureau of Mines, Bulletin RI-4245, contains these admissions:

1. "One longshoreman told the Coast Guard Board of Investigation that he and his coworkers considered the fertilizer compound in a class with cement \* \* \*" (p. 21814).

Again: "Some of these longshoremen told the Board that the fertilizer was considered to be the same as any manure fertilizer or in a class with such inert materials as cement \* \* \*" (p. 21825).

And again this same report contains this statement:

"From this published material it can be seen that the literature available to the general public and to those persons who normally would be expected to handle the shipping of ammonium nitrate did not indicate an explosion hazard even when the material was involved in a fire" (R. vol. 26, p. 21829). [Italics supplied.]

## February 13

Lecture by William H. Rinckenbach on explosibility of ammonium nitrate fertilizer, prepared officially for the Technical Division, Picatinny Arsenal, contains, in part, these statements:

"It is only recently that nearly pure ammonium nitrate as such has been produced and marketed for use as a fertilizer" (vol. 35, p. 26169).

Again: "As stated previously, the interest of the Ordnance Department arose from the fact that the FGAN which exploded has been produced in ordnance plants. It is a regrettable fact that whenever an explosion occurs, the first loud chorus to be heard above the dying echoes of the explosion is what was wrong with the material, and not what was done that was wrong. \* \* \* In the case of the Texas City disaster, the implications were so great that it was possible to apply the manpower required to work out the answers to both questions simultaneously" (R. vol. 35, p. 26172). [Italics supplied.]

On the question of the 16 cases of small arms ammunition as being the originating cause of the detonation, Rinckenbach in his report denies this with this statement:

"His hypothesis of the cause of the cargo explosion, therefore, may be considered very improbable, although not outside range of possibility."

And again: "With the new knowledge of the explosibility of FGAN from heat alone, it will be necessary to approach the problems of its handling, storage, and transportation with a greater awareness of its potential hazard and the necessity for close control of conditions in order to assure safety" (R. vol. 35, p. 26180).

## April 16

Picatinny Arsenal Serial Report No. 1675:

"16. These intermediate scale tests demonstrate clearly that FGAN can be detonated by heat alone under the proper conditions, and emphasizes the point that it differs from other explosives only with respect to its relative degree of sensitivity. The detonation of a shipload of TNT and picric acid at Halifax in 1917, after catching fire, was very comparable with the explosions on the *Grandcamp* and *Highflyer*" (R. vol. 30, p. 23581). [Italics supplied.]

## April 20

C. W. Jones, one of the principal technical men at Bureau of Mines, gave a statement to the FBI on behalf of the Government, in part reading:

"It is my opinion that the labeling on the bags of FGAN did not properly reflect the contents of ammonium nitrate" (R. vol. 226, pp. 21885-21886).

## June

Official Bulletin, Bureau of Mines, 7463, entitled "Ammonium Nitrate" makes these admissions:

"Ammonium nitrate from the point of view of its volatility and on account of many considerations may be regarded as a typical explosives substance."

Again: "It (ammonium nitrate) is an oxidizing agent and as such may react with reducing material such as carbonaceous matter, certain metals, phosphorus, sulfur, etc. Such mixtures may lead to spontaneous heating, and the temperature

at which this may take place is governed by the specific materials concerned and their environment. *With certain mixtures, and the proper environments, spontaneous heating can occur at ordinary temperatures*" (R. vol. 26, p. 21883). [Italics supplied.]

July 16

Picatunny Arsenal Technical Report No. 1696 states:

"FGAN causes a deterioration of standard 6-ply asphalt laminated paper bags at temperatures of 100° F. and above. *The effect is accelerated by increase in temperature.*" [Italics supplied.]

And again from recommendation, same report:

"It is recommended that 6-ply asphalt laminated paper bags loaded with FGAN be subjected to storage temperatures not greater than 120° F. *It is recommended that the temperature of FGAN being loaded into 6-ply asphalt laminated paper bags from grainers should not exceed 140° F.*" (R. vol. 30, p. 23607). [Italics supplied.]

July 16

Picatunny Arsenal Technical Report No. 4, serial No. 1696:

"Under caption 'Discussion of Results on Paper Bags and Charring of Same,' these statements made:

"An examination of the data on the physical properties as measured by the tensile and Mullen tests, the results of which are given in tables 1 and 2, shows that at 160° F. there is evidence that FGAN has an adverse effect on the strength and characteristics of the inner layer of the paper bag. *At 190° F. this effect becomes very pronounced. In fact, the inner layer was charred black and the next layer was considerably darkened. At 225° F. the effect is such that all the layers of the bag were deteriorated. At this last temperature the inner two layers were charred black while the remaining layers were embrittled and crumbled on handling, particularly after 4 and 8 weeks of storage*" (R. vol. 30, p. 23609). [Italics supplied.]

The same report concludes:

"With respect to safe storage temperatures the data indicates that 140° F. should be the maximum temperature permitted for extended periods of time of the order of 2 to 3 months. However, it is believed that *even at this temperature, bags loaded with FGAN and stored longer than this would undergo serious deterioration. To maintain the maximum strength of the bags for the longest period of time, storage temperatures should be lower than 140° F., preferably not more than 120° F.*" (R. vol. 30, p. 23609). [Italics supplied.]

#### YEAR 1949

July

The Bureau of Mines issued its Bulletin 4502, written by Bernard Lewis, head of Division of Explosives, and others, entitled "Report of Research and Technologic Work on Explosives, Explosions, and Flames, Fiscal Years 1947-48." Appearing therein, in part, is this language:

"Because the paper bags containing the ammonium nitrate fertilizer *were not marked so as to indicate the hazardous and oxidizing nature of the material, longshoremen and others handling the material considered it to be in the same class as cement. A complete lack of understanding of the hazardous nature of ammonium nitrate fertilizer in the presence of fires and open flames was revealed by all persons who were charged with handling, transporting and storing this material*" (R. vol. 24, p. 20979). [Italics supplied.]

#### ADMISSIONS OF FACT MADE BY OFFICERS, EMPLOYEES, AGENTS, AND REPRESENTATIVES OF THE UNITED STATES IN DEPOSITIONS AND TESTIMONY TAKEN IN THE COURT PROCEEDINGS

##### MAJ. GEN. EVERETT S. HUGHES, CHIEF OF ORDNANCE AT TIME OF MANUFACTURE OF FGAN

(a) As Chief of Ordnance he was responsible for Ordnance Department connection with FGAN program (R. vol. 5, p. 4524).

(b) "Ammonium nitrate fertilizer" is a different animal from a pure ammonium nitrate (R. vol. 5, p. 4548).

(c) Knew that FGAN was going for export because there were hundreds of thousands of tons being shipped, and they had to be concentrated (R., p. 4566).

(d) Took no steps to determine whether FGAN was safe for concentration in communities such as Texas City (R., p. 4575).

September 1947

While attending as a member of President's conference, stated:

"I can give you only a very general picture, which is to the effect that after the Texas City explosion, the officer and civilian personnel of the Ordnance Department immediately undertook the task of examining into every phase of the manufacture of ammonium nitrate, how it was manufactured, its shipment, and storage. We conducted certain tests, the most important one of which was conducted at Picatinny Arsenal, which is our explosion plant, *where we verified the point that ammonium nitrate becomes a high explosive under certain conditions, and those conditions are represented in a vessel in a confined space where there is a fire. \* \* \** I think that the conclusion to which I have come, and I have been in constant touch with the people in the office at the arsenal who have been conducting the experiments, is that ammonium nitrate has always been regarded as dangerous, and that it is no more dangerous now than it ever has been. There have always been restrictions on the handling of ammonium nitrate. There have always been restrictions on the storage of ammonium nitrate, and the shipping of ammonium nitrate. And the two explosions to which you have made reference a moment ago, General Fleming, are, in my opinion, from the best evidence that I can get, the direct result of fire aboard ship and under those circumstances we believe that ammonium nitrate is a high explosive" (R., p. 4597). [Italics supplied.]

DR. GEORGE W. JONES, SUPERVISING CHEMIST, GASEOUS EXPLOSIVES SECTION, EXPLOSIVES BRANCH, UNITED STATES BUREAU OF MINES

(a) Learned as early as 1923 that explosibility of ammonium nitrate increased with increased temperature. Worked with C. E. Monroe, the great Ordnance and Bureau of Mines writer, who stated in an article, 1922:

"Notwithstanding the many records in the literature and the relatively recent and definite statement of the Bureau of Mines, these articles manifest a rather general feeling of surprise at the fact that ammonium nitrate is under certain circumstances explosive per se" (R., p. 5377).

DR. BERNARD LEWIS, CHIEF OF EXPLOSIVES BRANCH, BUREAU OF MINES

Made this statement to Interagency Conferences at Washington, 1947, touching explosion at Texas City:

"There is just one other point I would like to make, and that has been touched upon already by Dr. Davis. *I have always felt that we could never be sure, even at ordinary temperatures, what reactions are going on in ammonium nitrate*" (R., p. 5547). [Italics supplied.]

DR. R. O. E. DAVIS, PRINCIPAL CHEMIST ASSISTANT, SOILS DIVISION, DEPARTMENT OF AGRICULTURE

(a) Reported in WPB Conference, September 1943, as to the making of FGAN, that:

"The hazards were not discussed very extensively. There were people who made ammonium nitrate for munitions, *and they knew very well what the hazards were*" (R., p. 4684). [Italics supplied.]

(b) It was well known in Washington and in Government departments that FGAN was coming from ordnance plants and was headed for export and transportation in ships' holds (R., p. 4771). Testifying at that time in this fashion:

"Q. Of course, you were conscious of what a dangerous material ammonium nitrate was?—A. Oh, yes." (R., pp. 4773-4774).

(c) Testified he would not approve bagging at 200° because of his expert knowledge.

(d) Testified as follows:

"Q. Isn't it true that it had been known for some time that ammonium nitrate, if put in contact with carbonaceous materials, is capable of spontaneous combustion?—A. Yes, I have two publications on that subject" (R., p. 4809).

(e) Was author of Circular 719, of the Department of Agriculture (Davis exhibit 5, vol. 26, pp. 21741-21762).

(f) Testified as follows:

"Q. Simply from curiosity, let me ask you this here. You did not ship this material in steel drums. Was that ever discussed?—A. Ammonium nitrate had been shipped in steel drums before that; in fact, that was the usual way of shipping it. I believe it was required to be shipped in steel drums. But there are two

reasons in considering steel drums. One reason was that steel was at a premium, and would be very difficult to get, and the second was that the cost would be prohibitive for use as a fertilizer" (R., p. 4916).

(g) Made this statement at President's conference on Texas City:

"So that it is a relatively safe material if properly handled, but for some reason there was either not sufficient information or instruction as to the hazards of this material and it was being loosely handled. I think everybody will realize that. Certainly after the Texas City disaster, if not before" (R., pp. 5015-5016). [Italics supplied.]

(h) And testified further on the trial:

"Q. And that represented a strong belief and suspicion that warnings you had given your select group in 1943, 1944, and 1945 had not been followed in the handling; is that correct?—A. I think so" (R., p. 5016).

LT. COL. J. S. JEFFERDS, COMMANDING OFFICER, IOWA ORDNANCE PLANT, UP TO AND PRIOR TO TEXAS CITY EXPLOSION

(a) No cooling drum or system for cooling the material, FGAN, was installed in the bagging plant at Iowa before Texas City.

(b) Prior to Texas City FGAN at Iowa plant was bagged at 250°-258° and was put on pallets and taken to the bagging house, and there let stand until it cooled down to somewhere around approximately 215°, then moved into the boxcars, and 900 to 1,200 sacks of FGAN would be loaded in boxcars in about an hour and 15 minutes (R., pp. 6109-6110).

(c) Testified as follows:

"Q. You consider ammonium nitrate in the same class as an explosives truck?—A. Ammonium nitrate I know is classified as an explosive and therefore the truck must be so classified.

"Q. It was classified by Army Ordnance long before Texas City as a high explosive. The pure ammonium nitrate?—A. Ammonium nitrate is an explosive" (R., p. 6129).

(d) Ordered no tests performed to determine whether FGAN was a dangerous high explosive. Made no tests prior to Texas City to determine effect on paper bags of loading FGAN at temperatures stated.

(e) As commanding officer of Iowa Ordnance Plant, made no effort and took no steps to advise and inform those persons recovering and picking up material which had spilled from broken and torn bags how to handle it, nor did he send any written instructions, bulletins, wires, or otherwise, to transporters, handlers, and persons likely to be in the area of the material, advising the hazards attached to such handling and rebagging of the material.

(f) As late as March 7, 1947, FGAN was being dropped at the Iowa Ordnance Plant from the graining kettle at temperatures of 235° F. (R., pp. 6237-6238).

LT. COL. MORTON E. TOWNES, TRANSPORTATION CORPS, UNITED STATES ARMY

(a) With Transportation Corps prior to Texas City.

(b) Though in charge of the subject, never isolated the points or ports for concentration shipment of FGAN (R., p. 5727).

(c) Was responsible for Transportation Corps safety prior to Texas City, beginning July 1946, continuing to date of testimony (R., p. 5746).

(d) Never made any inspection at Texas City from safety point of view, nor did he cause any to be made, nor cause any investigation to be made to see whether Army Regulations were being enforced and carried out at Texas City.

(e) Between July 1946 and May 1947, he issued no bulletins, letters, or instructions, from a safety standpoint, covering the handling, storage, and stowage of FGAN (R., pp. 5749-5750).

(f) Organized and joined in the formation of an interagency committee for purposes of studying and evaluating hazards in transportation of FGAN, and in so doing made a report which contained these statements:

"The explosions of ammonium nitrate fertilizer on the French steamship *Grandcamp* and steamship *Highflyer* at Texas City are recognized as primarily caused by the high temperature reached due to fire in the hold of the vessel involving combustible material, consisting of the 6-ply paper bags in which the fertilizer was packed, the wood dunnage laid in the hold, the wood cargo battens, and paper used as dunnage to protect the cargo from damage" (R. vol. 25, p. 21107).

(g) The foregoing report was signed by 12 senior officers and representatives and agents and employees of the United States in their high official positions,

as well as 2 representatives of the Bureau of Explosives. Some of those signing were: J. W. Connelly, from the Office of Chief of Naval Operations of the Navy Department; F. F. Dick, of the Bureau of Ordnance, Navy Department; Dr. Bernard Lewis, Chief of the Explosives Division; George W. Jones, chemist, Bureau of Mines; Dr. R. O. E. Davis, Department of Agriculture; John A. Diekinson, Chief of Section of Safety Codes, National Bureau of Standards, Department of Commerce; Francis H. Van Riper, United States Maritime Commission; William T. Butler, United States Coast Guard; Col. Carroll H. Deitrick, War Department; H. A. Campbell and W. G. McKenna, Bureau of Explosives.

MAJ. DONALD F. STARR, COMMANDING OFFICER, NEBRASKA ORDNANCE PLANT

(a) Made this statement:

"On March 29, 1947, this installation commenced earloading of ammonium nitrate to load limit upon direction of the Chief of Ordnance as a result of instructions from the Office of the Chief of Transportation. *Since that date this installation has repeatedly received complaints from points of destination, principally the New Orleans point of embarkation of damage of bags upon arrival*" (R., p. 21378). [Italics supplied.]

(b) Did not send expert assistants in loading and storing to Texas City, Tex., under the provisions of Army Regulations AR-55-470 (R., p. 6583).

COL. CARROLL H. DEITRICK, CHIEF OF SAFETY BRANCH, ORDNANCE DEPARTMENT AND EXECUTIVE OFFICER TO CHIEF OF ORDNANCE MAJ. GEN. EVERETT S. HUGHES

(a) Made this statement to President's conference:

"The most outstanding thing that we have found in our laboratory work was the hypothesis which we are apt to repeat in the laboratory, which leads us to believe that you have ideal conditions on a ship to cause an explosion, which you do not have under any other conditions of transport or storage, that is, by rail or storage in a warehouse" (R., pp. 7919-7920).

J. N. PEARRE, INDUSTRIAL ENGINEER AT FDAP, JOLIET, ILL.; FORMERLY LIEUTENANT COLONEL IN ORDNANCE, 1942-46

(a) Became Chief of Operations, section over FGAN, at FDAP (R., p. 4626).

(b) Ammonium nitrate and FGAN are substantially different primarily because of the carbonaceous materials in the form of PRP or Wax-B which puts it in a different category from pure ammonium nitrate (R., pp. 4620-4621).

(c) That prior to the letter of May 1947, after Texas City, there were no instructions to any of the plants as to the maximum temperature at which FGAN could be bagged, or upon being bagged, loaded into boxcars (R., pp. 4633-4634).

COMMANDER HUGH F. COBB, COMMANDER, UNITED STATES COAST GUARD; OFFICER IN CHARGE OF MARINE INSPECTION, CAPTAIN OF THE PORT, GALVESTON AREA, AT TIME OF EXPLOSIONS

(a) He was a member of the Coast Guard Board of Inquiry that examined the Texas City disaster.

(b) He was satisfied that the only cargo in hold 4 of the *Grandcamp* was FGAN and that the fire was only in that hold (R., pp. 8794-8795).

(c) In April 1947, there was only one copy of the explosives or other dangerous articles regulation of the Coast Guard in the Galveston office.

(d) His office didn't keep up with the movements of the various cargoes that moved through the district, unless they happened aboard a vessel and saw certain commodities being handled.

(e) As commander he had no special instructions to his inspectors on ammonium nitrate or FGAN.

(f) Prior to the disaster he had never specifically looked for ammonium nitrate in regulations on explosives, although when he discovered that there was a commodity called FGAN, he did look for that and didn't find it. This was after the disaster.

(g) From the way FGAN was labeled "I had no idea what the commodity consisted of" (R., p. 8837).

(h) If he had known that FGAN was capable of explosion before Texas City, he would have brought it to the attention of the commander of the district, and immediately acted accordingly (R., p. 8841).

(i) Prior to Texas City he had no official or personal knowledge of the manner which should be employed in fighting a fire in ammonium nitrate or FGAN (R., p. 8843).

(j) "We didn't have the men, I don't know about the money but such regulations weren't in force to the best of my knowledge because I received no instructions that we had to station men at each ship or vessel to determine what kind of cargo it was handling, and to see that it was packaged or crated to comply with the regulations" (R., p. 8862).

(k) Agreed with Admiral Shepherd's testimony read to him that the Coast Guard did not have the funds to buy the personnel to make the necessary investigations and enforce the ordinances and regulations (R., p. 8864).

(l) Testified as follows:

"A. No, sir, there is no doubt in my mind what you are talking about, that if the material was as dangerous as it proved to be during that explosion, there should have been more publicity.

"Q. Now, the only way you, as an officer in charge of the safety of merchant shipping in this area, could intelligently carry out your duties, as you would have, I know, was by accurate knowledge about the product; that is correct, isn't it?—A. Yes, sir. I would have to have additional information.

"Q. And you needed such information as reasonably was obtainable and available, did you not?—A. If there was any information out on the handling of that special material, to have had it" (R., p. 8977).

ROY J. CALKINS, SUPERINTENDENT OF EMERGENCY EXPORT CORPORATION,  
NEBRASKA ORDNANCE PLANT

(a) Stated that—

"All of our shipping instructions were given to us by the Government. It was Government material and we made out bills of lading on Government shipping documents according to instructions at the time" (R., p. 8287).

(b) Again testified as to how the name on the shipping bags came about, and from whom:

"Ammonium nitrate fertilizer and percentage of nitrogen in cubic feet, that was all. That description was given us by the Ordnance Department" (R., pp. 6367-6368).

DR. A. H. NUCKOLS, CHIEF EXPLOSIVES EXPERT, UNDERWRITERS LABORATORIES,  
INC., CHICAGO, ILL., EMPLOYED BY GOVERNMENT TO MAKE TESTS ON FGAN

(a) Replied in answer to question by Government Counsel:

"A. No, I have come to believe that where we don't know, we should play safe where life, particularly other people's lives, are involved. I just can't take any other belief" (R., p. 5196).

A. F. MATSON, CHIEF EXPLOSIVES ENGINEER, UNDERWRITERS LABORATORIES, INC.,  
SUCCEEDING DR. NUCKOLS

(a) In deposition taken of Matson by United States Government, stated that he understood the Army, in handling ammonium nitrate, required it to be shipped in metal containers and not paper bags (R., pp. 5301-5302).

(b) That the Canadian manufacturers of ammonium nitrate fertilizer, long prior to Texas City, ceased using a coating material and went to what is known as the prilling method (R., p. 5302).

ARTHUR M. MILLER, DIRECTOR OF CHEMICAL ENGINEERING FOR TVA THROUGH 1945

(a) Discussing Bureau of Mines tests on FGAN requested by TVA, stated, in part:

"\* \* \* But we knew as well as the Bureau of Mines that there had been explosions, unexplained explosions, previously" (R., p. 13419).

(b) Says that Bureau of Mines warned them to be cautious (R., p. 13421).

(c) The only tests TVA ran were whether the coating material would go through a farmer's drilling machine, and ran no explosibility tests (R., pp. 13445-13446).

(d) On the mixture of pure ammonium nitrate with added organic material, such as PRP, this testimony occurred:

"Q. Underwood had discussed with TVA those very hazards and the possibility of eliminating this coating entirely?—A. I don't know whether we did or not but everybody thought that.

"Q. It was known as a hazard, wasn't it?—A. Yes" (R., p. 13483).

## CASPAR KAFFKE, WITNESS FOR UNITED STATES IN LEGAL PROCEEDING

(a) Admitted that there was a tremendous literature or bibliography before Texas City which was available to give the various characteristics, nature, and manifestations of ammonium nitrate under various conditions (R., pp. 14285-14286).

(b) Stated that if there were conflict of opinion as to hazards or nonhazards, it would be up to the scientist or the maker to determine or resolve the question by study, tests, and examination of the literature.

(c) Testified as follows:

"Q. That is one of the obligations of a scientist, he takes those factors into consideration, if the material you are dealing with is liable to cause loss of life or injury?—A. Yes.

"Q. Now, again, the examination of the scientific honor and integrity that attends the work of you people. If that material you are dealing with is a new material, or a compound or an admixture, one that is unknown to the public, do you feel any greater sense of duty to clear that matter up?—A. *You would run some tests if it is entirely new, or something like that; you normally do.*

"Q. That is a continuation of the sense of obligation you have both to the clients and to the public?—A. Yes, sir" (R., pp. 14287-14288). [Italics supplied.]

## WILLIAM H. RINKENBACH, ASSISTANT CHIEF, TECHNICAL DIVISION, PICATINNY ARSENAL

(a) Made this statement and admission in testimony:

"Q. Now you know, of course, that the bags in which the fertilizer grade ammonium nitrate was bagged carried on their face no warning of the dangers or hazards to the stevedores or other people who might handle it.—A. That is true, as far as I know."

(b) Affirmed in a statement given to FBI, March 26, 1948, by the following language:

"These containers were marked to indicate the contents to be ammonium nitrate, *but were not marked to indicate this to be explosives or constitute a fire hazard*" (D. T. exhibit 495, R., pp. 14011-14012). [Italics supplied.]

(c) Stated that Picatinny Bureau of Mines and Aberdeen tests after Texas City could easily have been made before Texas City if anyone had desired them (R., p. 15022).

## MAJOR GENERAL HUGHES, CHIEF OF ORDNANCE

(a) Stated that if paper and wax coating used on FGAN be assumed to be carbonaceous, the combination of FGAN was against the provisions of Ordnance Safety Manual (R., pp. 4552-4553).

(b) Testified, on concentration at Texas City, as follows:

"Q. What steps did you take as head of Ordnance to assure yourselves that the fertilizer grade ammonium nitrate was safe for concentration in communities such as Texas City, Tex.?—A. I took none whatever.

"Q. The product did explode at Texas City, Tex., did it not?—A. It has been so reported to me."

As to what occurred after Texas City, testified:

"Q. Now, what steps, if any, had to be taken by Ordnance as the manufacturer of this product to know that it was safe for shipment?—A. Every possible examination and every phase of manufacture and preparation for shipment. The whole field was examined by the most skilled men that we have in the department" (R., pp. 4574-4575).

(c) Testified again in this fashion on failure to test before Texas City:

"Q. What steps, General Hughes, did you take as head of Ordnance, to assure yourself that safety procedures which had been set up for the manufacture of this product were being followed?—A. I was in Miami, Ariz., on leave, when I read in the morning paper the account of the explosion at Texas City. I took a glance at the headlines and went to the telephone and called up my office in Washington and told, I think, General Sailor, who was acting in my absence, that I wanted *every phase of the production of fertilizer and shipment of fertilizer, so far as we were concerned, examined into at once, and to institute all the tests necessary to check on every one of the phases.*

"Q. That was after Texas City? Would you detail now what you did prior to Texas City in that respect?—A. Nothing.

"Q. Nothing?—A. No, sir" (R., p. 4577). [Italics supplied.]

(d) After being shown Army Regulations AR-55-470, Townes exhibit 2, and section 7, and change No. 4, issued August 18, 1944, Townes exhibit 1, headed "Expert Assistance in Loading and Storing," reading, in part: "In all cases where any considerable quantity of ammunition (except small arms ammunition) or explosives is to be shipped by water, an ordnance officer, enlisted man, or civilian familiar with the handling and storing of explosives, will be present for the purpose of giving expert advice in laying out the cargo plan, and in handling and storing the explosives," stated that that was the first time he had ever seen those Army regulations, and did not know they existed, but that such regulations would be the particular responsibility of the people who were manufacturing and shipping the particular items, and then so testified as follows:

"Q. Then the commanding officers?—A. And my inspector, whose job it is to see that the people of the Department are doing what the regulations call for" (R., p. 4588).

DR. R. O. E. DAVIS, DEPARTMENT OF AGRICULTURE AND AUTHOR OF BULLETIN 719

(a) Stated: "Well, I think it was brought up that ammonium nitrate had been involved in explosions in the past, and that people that were going to manufacture fertilizer containing ammonium nitrate were not advised on the properties of ammonium nitrate and any hazards that might be attached to it" (R. vol. 26, p. 21722).

H. T. GREEN, TRANSPORTATION OFFICER AT FDAP, AT JOLIET, ILL.

(a) Green stated to FBI that he inserted the bill of lading description to be used by the manufacturing ordnance plants for FGAN, and denies that he ever contacted railroad carriers for proper description of material, stating further that such description was worked as his responsibility of the shipment to inform the carriers of the characteristics of FGAN and use the proper name (R., pp. 27284-27286).

COLONEL GILLESPIE, OFFICE CHIEF OF TRANSPORTATION, WAR DEPARTMENT

(a) Stated that the responsibility of the Transportation Corps was to exercise jurisdiction over and supervise the loading of FGAN at the ports of export, and admitted that no warning was given to civilian agencies (R. vol. 6, pp. 5715-5716).

COMDR. WILLIAM T. BUTLER, CHIEF, HAZARD PREVENTION SECTION, UNITED STATES COAST GUARD

(a) In statement and interview with FBI, April 9, 1948, showing difference between pure ammonium nitrate and FGAN, stated:

"The foregoing sections are applicable provided the theory is accepted that ammonium nitrate was being transported. However, *the substance that was being transported was ammonium nitrate fertilizer, and no such substance was authorized for transportation by the regulations except under the descriptive name 'nitrates N. O. S.', as shown on page N-196*" (R., p. 27323). [Italics supplied.]

(b) Commander Butler compiled the Coast Guard Regulations which formed the publication of explosives and other dangerous articles on board vessels and according to him these regulations were weak in that they did not prohibit smoking specifically while handling oxidizing material and ammonium nitrate (R., p. 27324).

(c) "Commander Butler advised that since the United States Coast Guard hearing held at Galveston, Tex., in April 1947, at which time he testified that ammonium nitrate was, in his opinion, the proper shipping name for the FGAN, *he feels he was in error in this conclusion as it is his belief that the fertilizer should have been called 'nitrates N. O. S.'* Therefore, according to Butler, it would also have been correct to have shipped the FGAN on bills of lading under the shipping name 'oxidizing material N. O. S.' This name was listed in the United States Coast Guard list of explosives and other dangerous articles and other combustible liquids. However, in Commander Butler's opinion, the shipping name of 'nitrates N. O. S.' should be given preference over the name 'oxidizing material N. O. S.' due to FGAN's high content of ammonium nitrate" (R., p. 27325).

(d) "Butler has stated that in the event he is called upon to testify, he feels conscience-bound to relate information as attributed to him in this report, although this information might be prejudicial to the Government's case" (R., p. 27326).

(e) "Butler has advised that if he were called on to testify and were asked, he would state that he believed the Ordnance Department, in manufacturing FGAN, placed this substance too soon into paper bags before it was sufficiently cool, and hence caused numerous fires to break out in railroad cars which were transporting the FGAN" (R., p. 27326).

(f) "Commander Butler advised that the Underwriters Laboratories, Inc., was contracted by the War Production Board to conduct an experimental investigation into the comparative sensitiveness to explosion of ammonium nitrate compositions containing organic material. *The results of these tests were published on April 30, 1945, in an article entitled "Miscellaneous Hazard Report No. 3463." Regarding this report, Butler has stated that the findings were to the effect that the presence of organic materials in ammonium nitrate rendered it more sensitive to detonation, and the Ordnance Department should have known about this research and should have handled FCAN in a more cautious manner*" (R., p. 27326). [Italics supplied.]

(g) "Commander Butler stated, Wednesday, October 8, 1947, in speech before 35th National Safety Congress:

"The Texas City disaster was a terrible casualty and all the more so because with ordinary care it could have been avoided. And furthermore, after the fire was discovered, proper fire extinguishing procedure would probably have prevented the explosion" (R., p. 27326).

(h) "Stated, under caption 'Lessons That May Be Learned From This Casualty':

"(1) Advanced dissemination of information. Manufacturers of substances, articles defined by regulations as dangerous, should disseminate complete information in the advance of shipment as to the hazards associated with their products. Shippers of such articles should advise carriers of this hazard at the time they book space. Carriers should inform their personnel of this hazard and of action to be taken in emergency. Alert manufacturers to ascertain any and all potential hazards associated with their products and provide the information to interested persons upon request. \* \* \* *Shippers (whether they be manufacturers or freight forwarders) are required by dangerous cargo regulations to advise the carriers of the hazard associated with the shipment being offered. \* \* \* The Coast Guard Board of Investigation of the Texas City disaster found that hardly without exception all persons associated with the shipment, storage, and the transportation of the ammonium nitrate fertilizer showed a lack of information regarding its hazard, or provisions of regulations governing its transportation*" (R., p. 27332). [Italics supplied.]

CAPT. EDWARD C. CLEAVE, BUREAU OF MARINE INSPECTION, UNITED STATES COAST GUARD

Perhaps the epitasis of the whole Texas City tragedy and catastrophe is developed in this testimony from Captain Cleave:

"Q. The singular fact remains, though, that immediately after Texas City your department issued orders requiring Coast Guard personnel to supervise and to know about and to prevent except in isolated ports and locations the loading of these ships, did it not?—A. Yes, sir.

"Q. You issued it under the same authority you had prior to Texas City, didn't you? They hadn't changed the statute, had they?—A. No, they had not changed the statute.

"Q. It was under the same authority you had prior, wasn't it?—A. Yes, sir.

\* \* \* \* \*

"A. No, we operated under our own regulations.

"Q. May I read you that again? I am reading you one of the front of Shephard exhibit 1-C. I read you as follows: 'The regulations in this booklet are applicable to all vessels subject to the provisions of R. S. 4472, as amended (46 U. S. C. 170).'

"I return now to the lower paragraph and quote: 'General authority over and responsibility for the administration and enforcement of the laws and regulations governing the transportation, storage, stowage, or use of explosives or other dangerous articles or substances and combustible liquids on board vessels in the

several Coast Guard districts are vested in and imposed upon the Coast Guard district commanders in charge of such districts,' signed by J. F. Farley, Admiral, United States Coast Guard, Commandant. You were familiar with that, were you not, sir?—A. Certainly.

"Q. That puts squarely on the shoulders of the district commanders the duty to enforce and carry out these general regulations and authorities, didn't it?—A. Yes, sir.

"Q. And that was true prior to Texas City, wasn't it?—A. Yes.

"Q. And it is under that very authority that immediately after Texas City, Coast Guard issued specific orders directing that they check to see that the ship holds were clean and properly prepared to receive cargo in accordance with present regulations, is it not, sir?—A. Yes, sir.

\* \* \* \* \*

"Q. You didn't write the shipping agents; you ordered your district commanders to enforce those regulations, didn't you?—A. Yes, sir.

"Q. But you hadn't done that prior to Texas City, had you?—A. No, sir.

"Q. The real truth about it is that they weren't enforcing those regulations prior to Texas City, because they had gotten the wartime attitude of taking a chance, wasn't it?—A. Yes, I think so" (R., pp. 9195-9198).

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This collection of statements and admissions is presented on behalf of all the claimants represented by the undersigned attorneys and any other claimants or counsel appearing and filing claims with this committee desiring to use and adopt the foregoing material. The statements and quotations herein appearing, as indicated in the forepart, are taken from and supported by the sworn testimony contained in the record of the Dalehite case.

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NOVEMBER 16, 1953.

## EXHIBIT No. 4

FINDINGS OF FACT AND CONCLUSIONS OF LAW  
PREPARED AND FILED BY THE TRIAL JUDGE  
UNDER RULE 52 OF THE FEDERAL RULES  
OF CIVIL PROCEDURE

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ELIZABETH H. DALEHITE, ET AL  
*Plaintiffs,*  
VERSUS  
UNITED STATES OF AMERICA,  
*Defendant.*

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CIVIL ACTION  
NO. 787

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Filed: 13 day of April, 1950

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**Statement of the Case.**

These are approximately 273 suits (including the above suit No. C.A. 787, Dalehite, et al v. United States of America) by approximately 8485 persons or Plaintiffs against Defendant, United States of America, under the Federal

Tort Claims Act (Sections 2671, et seq., Title 28, Judicial Code effective September 1, 1948, formerly Section 941, Title 28, U.S.C.A., Act of August 2, 1946 and Amendments), and arising out of what is generally known and referred to, and is referred to herein, as the TEXAS CITY DISASTER, in which much of the City or Town of Texas City, in Galveston County, Texas, was destroyed, with great loss of life, injuries to persons, and heavy property damage. The claim is that on April 16 and 17, 1947, fires and violent explosions occurred on the Steamships Grandcamp and High Flyer then being loaded with a cargo for foreign ports in the Texas City Harbor. It is claimed that such fires and explosions, and/or other fires and other explosions, etc., which followed and which were proximately caused thereby, killed or caused the death of approximately 560 persons—men, women and children—and wounded many other persons in and around Texas City and in the Texas City Harbor, and did vast and widespread damage and injury to property in that area. Of the 8485 Plaintiffs, approximately 1510 sue on death claims, approximately 988 on personal injury claims, approximately 5987 on property damage or destruction claims.

It is claimed and alleged that such fires and explosions were caused on the Grandcamp and the High Flyer by a cargo or part cargo of ammonium nitrate fertilizer, or fertilizer grade ammonium nitrate, or fertilizer ammonium nitrate, or FGAN (for brevity called herein FERTILIZER), thereon becoming ignited and burning and/or exploding. It is alleged that such Fertilizer was a known dangerous explosive and a fire hazard and was manufactured by Defendant and shipped and transported by Defendant or directed or permitted by Defendant to be shipped or transported into Texas City without warning to the public or to any City, State, or other Officer of Texas City, and loaded on such

Steamships. And that the Defendant and its agents and employees were guilty of negligence in so doing and also guilty of negligence in manufacturing such Fertilizer at all and in the manner of the manufacture, sacking, bagging, marking of bags, handling, shipping, transporting, loading, etc. of such Fertilizer.

After these suits were filed, the parties, including those in the above case No. C.A. 787, Dalehite, et al v. United States of America, moving under Rule of Civil Procedure 42, with the approval of the Court, entered into an Agreement or Stipulation for such suits to be consolidated for hearing and heard or tried on the question or issue common to all parties, of the negligence of Defendant or of the liability, if any, of Defendant to Plaintiffs under such Tort Claims Act. Reference is made to the Order of Consolidation, etc., dated July 21, 1948, and other subsequent Orders of Consolidation.

It appearing that the Plaintiffs in the 273 or more consolidated suits were represented by perhaps 50 or 100 different counsel, with the approval of the Court, counsel for Plaintiffs in such suits agreed upon a Working Committee of Attorneys, whose names appear on the first page hereof, to prosecute such consolidated suit, and they have appeared and so prosecuted same.

It was also agreed between the parties, in order that a complete case should be presented to the Court, that one of the consolidated cases, i.e., Cause No. 787, Elizabeth Dalehite and Henry G. Dalehite, Jr. v. United States of America, should be fully tried. This is a suit by the surviving wife and son of Captain Henry G. Dalehite, who it was alleged was killed in such Disaster.

Each of the Plaintiffs in the suits filed and which were consolidated, as stated, alleges many and numerous acts of negligence upon the part of Defendant, all of which, to the

number of 80 or more were carried into Plaintiffs' Consolidated Pleadings in this Consolidated Cause, filed March 16, 1949. It does not seem appropriate to set them forth in detail here, but reference is made to such pleadings for particulars and details. Generally speaking, it is charged and alleged that the Fertilizer which burned and/or exploded in such Steamships was a known very dangerous explosive and fire hazard which was manufactured by Defendant and/or under its direction. That such Fertilizer being a very dangerous commodity, Defendant was negligent in manufacturing it at all, and negligent in the manner in which it manufactured, handled, transported, shipped, etc. same. Particularly it is claimed that Defendant was greatly at fault and negligent in, without warning to anyone of the danger, shipping such Fertilizer or permitting it to be shipped into and handled in the densely populated city or town of Texas City, etc., where as stated such fires and explosions occurred.

In a Trial Amendment, filed with leave of the Court July 20, 1949, Plaintiffs more specifically allege and set out the names of the persons, agents, servants, or employees of Defendant claimed to be guilty of negligence.

Defendant in its Answer, filed April 4, 1949, brought forward some fifteen defenses.

Its First Defense that Plaintiffs should be required to make a more definite statement of their case was denied.

Its Second Defense that Plaintiffs fail to state a claim upon which relief may be had was denied.

Its Third, Fourth, and Fifth Defenses that Plaintiffs in effect fail to state a case cognizable in this District were denied.

Its Eighth and Ninth Defenses questioning the authority of the Working Committee were denied.

Its Sixth and Tenth Defenses with respect to assigned

claims, its Seventh Defense raising the question of Limitation, and its Fifteenth Defense pleading contributory negligence, etc. are not within the scope of the Consolidation Agreement and are, therefore, not disposed of at this time.

By its Eleventh, Twelfth, Thirteenth and Fourteenth Defenses, Defendant denies, and there is put in issue, each and all of Plaintiffs' allegations, and same are herein disposed of under such Consolidation Agreement.

This is a trial on the merits under such Consolidation Agreement, lasting approximately 90 days, and on briefs and oral argument of counsel, and a trial on the merits of cause No. C.A. 787, Elizabeth Dalehite and Henry G. Dalehite, Jr. v. United States of America, on all issues.

The Record is enormous. The Transcript consists of nearly 20,000 pages, and there are hundreds of exhibits. This would of itself tend to show that all the sources of evidence bearing on the questions and issues now before the Court have been thoroughly explored and all the evidence produced that can be found and produced, except as hereinafter stated. In addition, counsel on both sides, at the close of the trial, assured the Court that they had no other evidence to present on the matters now before the Court, except as hereinafter stated. The exception is that Plaintiffs are still complaining of the failure of the Court to again enforce the production of some additional records, etc. of and/or in the possession of, the United States Federal Bureau of Investigation, which records such Bureau refused to produce, as is duly shown by the Transcript.

Counsel for Plaintiffs and Defendant have, at the Court's request, indicated what Findings of Fact they think should be made, but many of such requests for Findings are for Findings on *evidence* as distinguished from Findings on the *issues* as made by the pleadings. Such requests are herein-

after disposed of. An effort has been made to find the facts only on the *issues*, and thus bring the case within as small compass as possible.

### **Findings of Fact.**

(a) The 80 or more charges against Defendant of negligence contained in Plaintiffs' pleadings are substantially all supported and sustained by the evidence. This Record discloses blunders, mistakes, and acts of negligence, both of omission and commission, on the part of Defendant, its agents, servants, and employees, in deciding to begin the manufacture of this inherently dangerous Fertilizer. And from the beginning of its manufacture on down to and after the day of the Texas City Disaster, it discloses such disregard of and lack of care for the safety of the public and of persons manufacturing, handling, transporting, and using such Fertilizer as to shock one. When all the facts in this Record are considered, one is not surprised by the Texas City Disaster, i.e., that men and women, boys and girls, in and around Texas City going about their daily tasks in their homes, on the streets, in their places of employment, etc. were suddenly and without warning killed, maimed or wounded, and vast property damage done. The surprising thing is that there were not more of such disasters.

(b) For a day or so prior to April 16, 1947, there was being loaded onto the Steamship Grandcamp (for brevity called Grandcamp), which was tied up at the dock at Texas City, Galveston County, in this District and Division, and into Holds Two and Four of such Steamship, for shipment overseas, large quantities of such Ammonium Nitrate Fertilizer, or Fertilizer Grade Ammonium Nitrate, or Fertilizer Ammonium Nitrate, or FGAN (for brevity called Fertilizer), an inherently dangerous material, an explosive and

a fire hazard, manufactured by Defendant and/or under its direction. On the morning of April 16, 1947, such Fertilizer in Hold Four was discovered to be on fire. The evidence shows, I think beyond question, indeed beyond a reasonable doubt, that such fire had its origin in, commenced in, and was caused by the Fertilizer which had been loaded into and was in Hold Four on such Steamship, and I so find. The evidence does not enable me to state the exact process which produced the fire in the Fertilizer, but it was in the nature of spontaneous combustion or spontaneous ignition. However, there can be, I think, no question that the bags which contained such Fertilizer, the temperature of such Fertilizer, and the extraneous matter in such Fertilizer each played a part in producing such fire. There is no evidence, certainly no dependable evidence, that the fire started from a cigarette or other extraneous cause, or that the Fertilizer or the bags containing it, etc. were set on fire by some person.

(c) An unsuccessful effort was made to extinguish the fire on the Grandcamp or confine it to Hold Four or to such Steamship, but the heat, gases, vapors, etc. from the burning and/or heated Fertilizer proximately caused an explosion or explosions on such Steamship, resulting in the death of or injury to many, and perhaps most, of the persons killed or injured and much of the property damage in such Disaster. The effort or efforts to extinguish the fire did not in any way cause the explosion. After the explosions, or about the time of the explosions, the fire spread from the Grandcamp to surrounding property in Texas City and in the Harbor, and some of the deaths and injuries to persons and much of the injury to property in such Disaster was caused by such fire or fires.

(d) At or about the time such Fertilizer was being loaded onto the Grandcamp, it was also being loaded onto the

Steamship High Flyer, likewise tied up at the dock at Texas City, for shipment overseas, and the fire on the Grandcamp directly or indirectly spread from the Grandcamp to the Steamship High Flyer (called for brevity High Flyer), and the Fertilizer on the High Flyer became overheated or took fire, and the heat, gases, vapors, etc. from such burning and/or heated Fertilizer proximately caused an explosion or explosions on the High Flyer, resulting in the death or injury to some of the persons killed or injured and some of the damage to property in such Disaster. The fire spread from the High Flyer to surrounding property in Texas City and in the Harbor, and some of the deaths and injuries to persons and injury to property in such Disaster was caused by such fire or fires.

(e) All the deaths of persons, injuries to persons, and injury to property which occurred in such Disaster were directly traceable to and proximately caused by the presence of the Fertilizer, and the burning and the explosion of the Fertilizer on the Grandcamp and the High Flyer. All of said Fertilizer stored on the Grandcamp and High Flyer was manufactured or caused to be manufactured by Defendant, placed in sacks by Defendant, shipped by Defendant to Texas City, and caused or permitted by Defendant to be loaded onto such Steamships for shipment abroad, all as hereinafter more fully set forth. All was done with full knowledge by Defendant that such Fertilizer was an inherently dangerous explosive and fire hazard, and all without any warning to the public in Texas City, or to persons handling same.

(f) During World War I, Ammonium Nitrate was used by Defendant as an ingredient in the manufacture of military explosives. It was so used extensively in World War II, but due to the development of other explosives and perhaps other reasons, the facilities of Defendant and others used

for its manufacture became surplus or not needed. In view of the fact that Ammonium Nitrate was also under certain conditions, and when safely prepared, valuable as an element in a Fertilizer, Defendant, its agents and employees, about the year 1942, 1943, or 1944, or thereabouts, evolved plans to use such facilities, etc. in the manufacture of some type of Fertilizer to be sold or distributed by Defendant as a Fertilizer in this country and sold or given away or distributed in certain foreign countries. There may be some dispute about the details of the Program agreed upon and launched by Defendant, but that there was such a Program seems undisputed.

(g) Before embarking upon this enterprise and beginning the manufacture of a Fertilizer, Defendant made some investigation to determine whether such Fertilizer was dangerous to manufacture, handle, ship, distribute, and use, and whether it could be manufactured, handled, shipped, distributed, used, etc. without danger to those manufacturing or handling same and to the public generally. It learned many facts, but did not pursue such investigation far enough to learn all the facts, but negligently stopped short of learning all the facts. What facts it did learn, however, were sufficient to give Defendant knowledge and to put Defendant on notice, and if not, then upon inquiry that would if pursued, have led to knowledge and notice that such Fertilizer which it decided to and began to manufacture was an inherently dangerous and hazardous material, a dangerous explosive, and a fire hazard. Such facts learned by Defendant pointed to and showed that such Fertilizer should not be manufactured, in that it was, under certain conditions and circumstances, most dangerous to everyone handling it in any way and to the public. Yet Defendant's servants, agents and employees, in whose hands

Defendant had left the matter, negligently went forward in the manufacture, handling, distribution, shipping, etc. of such Fertilizer. All such negligence was a proximate cause of such fires and explosions at Texas City and the injuries complained of by Plaintiffs.

(h) After the manufacture and/or the shipping, distribution, and handling of Fertilizer had begun, there were experiments, events and incidents of which Defendant knew, or of which Defendant could have known by the use of the diligence of a reasonably prudent person, showing such Fertilizer to be very dangerous, both from the standpoint of fire and explosion. With this knowledge, Defendant should have ceased the manufacture and sale of such Fertilizer, or should have taken steps to insure the safety of persons manufacturing and handling such Fertilizer and the public. And long before the time Defendant manufactured the particular Fertilizer which as stated exploded on the Grandcamp and the High Flyer in Texas City, Defendant, its servants, agents, and employees were fully informed of the danger to all persons involved in manufacturing, handling, sacking, shipping, and distributing such Fertilizer, and the danger to the public. But nevertheless Defendant negligently continued such manufacture, handling, shipping, and distributing of such Fertilizer, which negligence was a proximate cause of such fires and explosions and the injuries of which Plaintiffs complain.

(i) Defendant in manufacturing such Fertilizer, and particularly the Fertilizer on the Grandcamp and High Flyer, allowed various substances to become mixed with such Fertilizer, thus rendering it more susceptible to fire and/or explosion. This was negligence, and such negligence was a proximate cause of such fires and explosions and the injuries of which Plaintiffs complain.

(j) Defendant in manufacturing such Fertilizer, and

particularly the Fertilizer on the Grandcamp and High Flyer, did so by a Formula made and evolved by Defendant or under its direction. It used as a coating of such Fertilizer, a substance or substances which rendered same highly susceptible to fire or explosion. There were various types of coating, but the coating finally used made the Fertilizer a very dangerous explosive and fire hazard. More than any other one thing, I think this coating made this commodity one of the most dangerous of explosives, and I find that Defendant knew this. Its experiments and experiences gave it full knowledge of such facts. This was negligence, and such negligence was a proximate cause of such fires and explosions and the injuries of which Plaintiffs complain.

(k) Defendant was negligent in failing to inspect and test such Fertilizer, including the Fertilizer on the Grandcamp and High Flyer, at the place or places of manufacture and at the time and before it was shipped, and to find and discover that it was highly inflammable and explosive and inherently dangerous to those who handled same and to the public. Such negligence was a proximate cause of such fires and explosions and the injuries complained of by Plaintiffs.

(1) Defendant was negligent in the manner in which it prepared such Fertilizer, including the Fertilizer on the Grandcamp and High Flyer, for shipment. Such Fertilizer was by Defendant, or under its direction, placed or sacked in bags made from paper or other substances which were easily ignited by contact with fire or by spontaneous combustion or spontaneous ignition of the Fertilizer. Such bags also became torn and ragged in shipping and particles of the bags became mixed with the Fertilizer and rendered same more dangerous and more susceptible to fire and explosion. Such negligence was a proximate cause of such fires and explosions and the injuries of which Plaintiffs complain.

(m) Defendant was negligent in the manner in which

it prepared such Fertilizer, including the Fertilizer on the Grandcamp and High Flyer, for shipment. Such Fertilizer was placed and packed in bags at high degrees of temperature, which temperature rendered the Fertilizer more susceptible to fire and explosion. Such Fertilizer was so packed that it did not get cool, but continued at high temperature while being shipped. This was particularly true of the Fertilizer which exploded on the Steamships Grandcamp and High Flyer. Same was packed in sacks at a high degree of temperature, which temperature continued with only slight reduction, if any, when the Fertilizer was shipped across the nation to Texas City and there loaded onto such Steamships. Such high temperature of such Fertilizer was a proximate cause of the fire and explosions and injuries of which Plaintiffs complain.

(n) Defendant was negligent in the manner in which it marked and labelled such sacks of Fertilizer, including the Fertilizer on the Grandcamp and High Flyer, in that same was not labelled and marked as a dangerous explosive and fire hazard as required by the Rules and Regulations of the Interstate Commerce Commission. Such negligence was a proximate cause of such fires and explosions and the injuries of which Plaintiffs complain.

(o) Defendant was negligent in delivering or causing to be delivered such Fertilizer, including the Fertilizer on the Grandcamp and High Flyer, so placed in paper bags to the railroad and other carriers over which it was shipped, without informing such carriers that it was dangerous, inflammatory, and explosive in character, and that it was dangerous to persons handling same and to the public. Such negligence was a proximate cause of such fires and explosions and the injuries of which Plaintiffs complain.

(p) Defendant was negligent in the manner in which it labelled and marked such sacks of Fertilizer, including

the Fertilizer on the Grandcamp and High Flyer, in that the labels and marks thereon did not show such Fertilizer to be a dangerous explosive and a fire hazard. Such negligence was a proximate cause of such fires and explosions and the injuries of which Plaintiffs complain.

(q) It seems to me that the negligence of Defendant reached its peak when it caused or permitted the Fertilizer manufactured by it, including the Fertilizer on the Grandcamp and High Flyer, to be shipped to Texas City to be there handled, unloaded, and loaded into ships for shipment abroad. Such Fertilizer was, and was known to Defendant to be, an inherently dangerous commodity and a danger and a menace to every person handling it and to the public. Yet it was shipped entirely across the nation to Texas City, and Defendant did nothing to protect either those handling it or the public against the danger, and did nothing to advise either such persons or the public or the officers or authorities of Texas City or the County or State Authorities at Texas City of the danger.

But Defendant says that it did not own all or some of the Fertilizer shipped to Texas City and loaded on the Grandcamp and High Flyer. Whether it did or did not own same is I think not material. I think, however, the facts clearly show that it did own same, and I so find. Defendant not only owned same, but shipped or caused same to be shipped to Texas City, issued or caused to be issued Government Bills of Lading, and paid the shipping and other similar charges thereon.

It will not do to say that Defendant did not know the dangerous character of such Fertilizer and could not reasonably foresee that more than 500 persons would be killed, many persons injured, and that there would be vast property damage. Defendant did know. It knew at the time the Fertilizer on the Grandcamp and High Flyer was manufactured, at the time it was shipped across the country to

be loaded at Texas City, at and after the time it was loaded on the ships, that it was dangerous to everyone handling it and to the public. Any reasonably prudent person having the same knowledge could and would have foreseen that dangerous fires and explosions would have occurred. The action of Defendant in so shipping such Fertilizer, or causing it to be so shipped, to Texas City to be loaded on the ships, was a culmination of the many negligent blunders of Defendant already pointed out in manufacturing, packing, or bagging and shipping such Fertilizer, and was gross negligence. Such negligence was a proximate cause of such fires and explosions and the injuries of which Plaintiffs complain.

(r) But that is not all. It was the duty of Defendant, well knowing as it did the dangerous nature and character of such Fertilizer which Defendant shipped or caused to be shipped to Texas City, to notify and advise all the carriers handling same, including the Steamships Grandcamp and High Flyer, and to notify and advise the City and State Officers at Texas City, of the dangerous nature and character of such Fertilizer, to the end that such carriers and their employees and such officers could, if possible, protect themselves and the public against the danger of fires from and explosions of such Fertilizer. It was the duty of Defendant to advise such carriers and such Officers with respect to the best and most approved method of preventing fires and explosions and extinguishing and fighting fire in such Fertilizer. All these duties Defendant negligently wholly failed to perform, which negligence was a proximate cause of such fires and explosions and the injuries of which Plaintiffs complain.

(s) I think it may be correctly said, and I so find, that such Fertilizer was a dangerous nuisance. I find that in manufacturing, shipping, and distributing same, Defend-

ant was creating and maintaining a nuisance. Such Fertilizer in Texas City was a nuisance and one that was dangerous to all handling it and to the public, and Defendant knowingly caused and maintained such nuisance.

(t) Defendant at and before the time of such explosions and fires, maintained on the Texas Coast in, and in the vicinity of, Texas City the United States Coast Guard, which organization was required by Law and the Rules and Regulations promulgated by it and by Defendant to make provision for the safety of persons handling commodities such as was such Fertilizer and particularly for the safety of the public. Yet Defendant failed to cause or require such Coast Guard to supervise and direct the handling of such Fertilizer at the Port of Texas City and particularly the loading of same onto the Grandcamp and High Flyer. Had such direction been given the Coast Guard, or had the different carriers, including the Steamship Companies, been advised by Defendant of the presence in Texas City of such Fertilizer and the grave danger therefrom, they would have doubtless called upon the Coast Guard, and the Coast Guard could have compelled the removal of the Fertilizer from Texas City. Or could have compelled its reconditioning as to bags and temperature before loading onto the Steamships, or could have required such Steamships to load same elsewhere, i.e., in some place away from a dense population and a large industrial center. As it was, such Coast Guard did nothing whatever about such Fertilizer, or its presence in Texas City, or its loading onto the Grandcamp and High Flyer. All of which was negligence which was a proximate cause of such fires and explosions and the injuries of which Plaintiffs complain.

(u) Chapter 7 (Sections 170 and its subdivisions) of Title 46, U.S.C.A., respecting the carriage or transportation of Explosives or Dangerous Substances on vessels on the

navigable waters of the United States, contains various provisions for the safety of not only the vessels and cargo and persons on board, but those handling such substances and the public on such waters and on shore. Among these are Sections 170(3), 170(4), and 170(5), as follows:

“(3) It shall be unlawful knowingly to transport, carry, convey, store, stow, or use on board any vessel fulminates or other detonating compounds in bulk in dry condition, or explosive compositions that ignite spontaneously or undergo marked decomposition when subjected for forty-eight consecutive hours to a temperature of one hundred and sixty-seven degrees Fahrenheit, or compositions containing an ammonium salt and a chlorate, or other like explosives.

(4) It shall be unlawful knowingly to transport, carry, convey, store, stow, or use on board any passenger-carrying vessel any high explosives such as, and including, liquid nitroglycerin, dynamite, trinitrotoluene, picrates, detonating fuzes, fireworks that can be exploded in masse, or other explosives susceptible to detonation by a blasting cap or detonating fuze, except ships' signal and emergency equipment, and samples of such explosives (but not including liquid nitroglycerin) for laboratory or sales purposes in restricted quantities as may be permitted by regulations of the Commandant of the Coast Guard established hereunder.

(5) It shall be unlawful knowingly to transport, carry, convey, store, stow, or use on board any vessel other than a passenger-carrying vessel, any high explosive referred to in subsection (4) of this section except as permitted by the regulations of the Commandant of the Coast Guard established hereunder.”

The Coast Guard is required to and did promulgate Regulations concerning such matters and is required by Section

170(12) to enforce the Law and such Regulations. Such Section 170(12) is as follows:

“(12) The provisions of this section and the regulations established hereunder shall be enforced primarily by the Coast Guard of the Department of the Treasury; which, with the consent of the head of any executive department, independent establishment, or other agency of the Government, may avail itself of the use of information, advice, services, facilities, officers, and employees thereof (including the field service) in carrying out the provisions of this section: Provided, That no officer or employee of the United States shall receive any additional compensation for such services, except as permitted by law.”

The evidence clearly shows that the Coast Guard, if it did not know of the presence of such Fertilizer in Texas City, could have known thereof by following the Law and its Regulations, and/or by the use of the slightest diligence. If it did not know, it was because it made no effort to discover the presence in Texas City of such Fertilizer and that it was to be or was being or had been loaded onto the Grandcamp and the High Flyer. In fact, the Coast Guard just did nothing about it. It was negligent, which negligence was a proximate cause of such fires and explosions and the injuries complained of by Plaintiffs.

(v) Defendant and such Coast Guard were negligent with respect to the fire on the Grandcamp and the subsequent explosion or explosions on the Grandcamp and the fires and/or explosions which followed, including the fire and explosion on the High Flyer, in the following particulars:

In failing to promptly and quickly learn of and discover the fire on the Grandcamp.

In failing to use proper and efficient efforts to extinguish such fire on the Grandcamp and to prevent the subsequent explosion which occurred.

In failing to remove the Grandcamp and/or have her removed from the Texas City Harbor after fire was discovered thereon and before such explosion thereon. If there had been diligence used, there was ample time for this to have been done, and it is most surprising that it was not done.

In failing to use proper and efficient efforts to extinguish and prevent the spread of the fires in Texas City and in Texas City Harbor caused by the fire and explosion on the Grandcamp, including the fire on the High Flyer and the explosion on the High Flyer.

In failing to remove the High Flyer from the Texas City Harbor after fire was discovered thereon and before the explosion occurred thereon.

In failing to use efficient methods, efforts and precautions to prevent the explosions and fires after the discovery of the fire on the Grandcamp.

(w) I am requested by Plaintiffs to make some 100 or more Findings of Fact. Many of these are findings on the evidence, rather than on the issues. To take up and dispose of each request would unduly prolong these Findings. I believe these Findings cover substantially all the issues on which Plaintiffs request Findings, but the following requests of Plaintiffs for Findings are meritorious and are supported by the evidence, and I make them. (In them Plaintiffs refer to such Fertilizer as FGAN). These are Plaintiffs' Requested Findings Nos. 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 47, 49, 50, 51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 62, 63, 65, 69, 70, 72, 73, 74, 75, 76, 77, 78, 81, 82, 83, 89, 90, 91, 94, 97, and 98, all set forth in Plaintiffs' Request for Findings, filed December 1, 1949, and to which I refer.

(x) I am requested by Defendant to make the following Findings of Fact:

“Plaintiffs have failed to prove by a preponderance of evidence the commission by Defendant, or any employee or agent thereof, of any act of negligence or omission such as would constitute negligence which proximately caused damage at Texas City.

Plaintiffs have failed on the whole case to prove by the preponderance of evidence any act of negligence proximately causing the damage at Texas City.”

I cannot see my way clear to make the Findings requested. As hereinbefore stated, and without reiterating what has been said, I think the evidence is clear that Defendant manufactured, or caused to be manufactured, the Fertilizer which exploded on the Grandcamp and the High Flyer, and that such commodity so manufactured or caused to be manufactured by Defendant was an inherently dangerous explosive and a fire hazard, not only to the persons manufacturing same, but to persons transporting and/or using same, and to the public. As stated, long before the particular Fertilizer which exploded on the Grandcamp and the High Flyer was manufactured, Defendants, its servants, agents, and employees were fully aware that such Fertilizer was a fire hazard and an inherently dangerous explosive, and Defendant was guilty of negligence as herein set forth in detail, which negligence was a proximate cause of the fire and explosions and the injuries of which Plaintiffs complain. And I further think and find that any reasonably prudent person with the information that Defendant had would have been expecting the fires and explosions at any time.

(y) I am requested by Defendant to make the following Finding of Fact:

“Plaintiffs have failed to name or otherwise identify any single employee or agent of Defendant who committed an act of negligence, or whose omission constituted negligence, which proximately caused damage at Texas City.”

This Record speaks to the contrary. The difficulty is that this large Record shows that in the error and mistake of manufacturing and distributing this dangerous commodity so many took part that in naming them some will be overlooked or omitted. They may well be grouped as follows:

Group I—Those who, among other things, negligently planned, launched, and carried on the enterprise of manufacturing, shipping, and distributing such Fertilizer. Among this group are the following: Maj. Gen. Everett S. Hughes, United States Army, Chief of Ordnance; Brig. Gen. J. L. Holman, Chief of Industrial Service Division, Ordnance Department; Col. Carroll H. Deitrick, Executive Officer to the Chief of Ordnance and Chief of Safety and Security Division, Ordnance Department; Col. O. M. Jank, Chief of Ammunition Division, Ordnance Department; H. D. Reynolds and Dr. R. O. Bengis, Technical Assistants, Chief of Ammunition Division; Lt. Col. George R. Ensminger, Safety and Security Branch, Ordnance Department; Col. Crosby Field, Ordnance Department; Gen. Alex Gillespie, Chief of Industrial Division, Office Chief of Ordnance; Col. W. L. Bell; Col. Merle H. Davis; Capt. Thos. F. Gibbs; Capt. S. M. Hulak; Col. R. R. Judson; Lt. Col. Gordon C. Tibbitts; J. A. Batley, J. B. Monier, J. J. Moore; Duncan Smith; J. A. Chalmers; F. M. McNamara; E. D. Lord; O. S. Davis; Col. J. H. Holmes; Lt. Col. C. W. Meldrum; Lt. Col. W. W. Knight, Jr.; Col. R. R. Klanderaman; Lt. Col. T. L. Gaines; Lt. Col. J. N. Pearre; Maj. S. W. Smiley; Maj. W. A. Evans; Capt. C. D. Lyons; H. T. Green; J. P.

Zeigler; D. K. Kring; E. G. Rapp; E. J. Cottrell; Perry Howard; Col. C. R. Dutton; Col. W. E. Larned; Wm. H. Rinckenbach; L. H. Eriksen; K. G. Ottoson; Brig. Gen. H. Feldman; Col. L. O. Grice; Lt. Col. Fred Kuhn; Lt. Col. Myer Fried; Capt. A. J. Downey; J. S. McIntosh; T. T. Cotnam; H. P. Kurth; Maj. Robert M. Livengood; Lt. Col. George S. Wise; F. W. Parker; J. R. Adams; Dr. R. O. E. Davis; W. H. Ross; Oliver E. Overseth; A. C. Fieldner; Wilbert J. Huff; G. M. Kintz; G. W. Jones; Charles B. Carpenter; G. S. Scott; R. L. Grant; J. J. Burns; Dr. Bernard Lewis; F. E. Scott; John C. Holtz; J. E. Tiffany; Dr. R. S. Dean; R. R. Sayers; D. Harrington; H. R. Brown; J. A. Dickinson; A. C. Hutton; Col. F. H. Miles; Col. E. W. Miles.

Group II—Those who among other things negligently manufactured, sacked, shipped, transported, and distributed such Fertilizer. Among this group are the following: Maj. Edwin A. Grayson; Maj. Donald F. Starr; Capt. Howard M. Keller; Capt. John E. Maxwell; First Lt. Joseph P. Lucas; First Lt. Howard E. Quiggle; B. T. Christiansen; Floyd Steed; R. J. Calkins; B. W. Woolsey; Philip J. Hofschire; Leo Morris; W. A. Johnston; Floyd Weaver; LaVerne Williams; E. F. Brown; E. F. McGill; John Evans; Lester Ehlers; Channing Daggett; Robert W. Spoonhauer; Claire McAtee; Ben Viken; Don Driskell; Fred Malmberg; Gilbert C. Oddell; Lester Schultz; Lester Wobig; Lynn Miller; Osa Scott; Ralph Chloupek; Joseph Rombach; D. E. Bradstreet; Clarence Folsom; Elmer Glen Krafka; Frank Styskal; Kenneth Young; C. B. Neimann; John M. Evan; Val Settermann; Fenton Allan; Marvin Williams; Blair W. Vintberg; Nels Nelson; Lt. Col. J. S. Jefferds; Maj. Fred E. Hansen; Capt. Wm. L. Pierce; Capt. Elbert W. Giles; First Lt. Theron W. Driscoll; First Lt. Robert J. Burns; First Lt. J. J. Petzak; First Lt. Wm. M. Tarr; J. R. Long;

Charles Mumme; Charles Benhart; Kenneth L. Dean; Delbert McNeill; Claus A. Peters; Walter McCannon; Marvin Allely; R. L. Foster; George H. Mathes; Capt. O. M. Hirsch; First Lt. Ivan C. Allen; First Lt. Robt. D. Cullen; First Lt. Robt. Sefranka; First Lt. George J. Trump; w. R. Hartwell; Arthur Lynch; Lt. Col. Morton E. Townes; Col. H. W. Gillespie; Maj. J. W. Higgins, Jr.; Maj. Dan L. Smith; Maj. L. D. Lally; Maj. Marion G. Stewart; Lt. Col. I. C. Olsen; C. R. Tasker; Earl Marshall; Lt. Col. D. C. Blake; Capt. A. F. Hine; Santos Shields; J. L. Lambert; Col. E. Lasher; Richard Vogel.

Group III—The United States Coast Guard, Officers, and men who may have been among other things charged with some duty with respect to such Fertilizer at the time of and after its arrival at Texas City and at the time of and after its explosion and the fires which followed. And including those charged with the duty of administering and enforcing Title 46, U.S.C.A., dealing with the shipment of dangerous explosives. Some of whom are as follows. Commandant of the United States Coast Guard; Capt. Edw. C. Cleave; Lt. Commander Hugh F. Cobb; Commander Wm. T. Butler; Commandant Eighth Coast Guard District; Officers in Charge and men, Galveston-Texas City District.

It is not meant that these groups or the members of these groups were negligent in the same way or to the same degree, but that they in some way and to some extent contributed to such negligence by acts of omission or commission.

(z) I am requested by Defendant to make the following Findings of Fact:

“The fire aboard the SS Grandcamp was not caused by spontaneous ignition in the Fertilizer Grade Ammonium Nitrate in Hold No. V.

The fire in Hold No. 4 of the SS Grandcamp did not cause the detonation of the Fertilizer Grade Ammonium Nitrate stowed in Hold No. 4.

The cause of the fire in Hold No. 4 of the SS Grandcamp is unknown.

The cause of the detonation of the Fertilizer Grade Ammonium Nitrate in Hold No. 4 of the SS Grandcamp is unknown.

The fire in Hold No. 4 of the SS Grandcamp was caused by the intervening acts of persons other than agents or employees of the Defendant.

The detonation of the Fertilizer Grade Ammonium Nitrate in Hold No. 4 of the SS Grandcamp was an extraordinary and unforeseeable event."

I cannot see my way clear to make such requested Findings. The evidence shows to the contrary almost beyond a reasonable doubt. As hereinbefore stated, the fire on the Grandcamp was caused by spontaneous combustion or spontaneous ignition, or something similar, of such Fertilizer, and the gases, vapors, etc. of such burning or heated Fertilizer exploded or brought about such explosion. Such fire and explosion was not caused by intervening acts of persons other than agents or employees of Defendant.

Such explosion was extraordinary in that it was the most serious one caused by such Fertilizer so far as shown by the Record. But it was not an unforeseeable event. With the knowledge which Defendant, its servants, agents, and employees had of the Fertilizer, the method of its manufacture, sacking, shipping, etc., and the knowledge of its dangerous and hazardous character as an explosive and as a fire hazard, I would have to find them to be below the average in intelligence in order to find that they or any other reasonably prudent person or persons with similar knowledge were not

expecting trouble. Definitely neither the fires nor the explosions were unforeseeable.

(aa) I am requested by Defendant to make the following Findings of Fact:

“The explosion aboard the SS Grandcamp and resulting damage was an unavoidable accident.”

The explosion on the Grandcamp was not an unavoidable accident. Had the Defendant not been guilty of the acts of negligence herein found, such explosions and such fires would not have occurred.

(bb) I am requested by Defendant to make the following Findings of Fact:

“The defendant had no title or control, or species of control, of the Fertilizer Grade Ammonium Nitrate at Texas City, or on board the SS Grandcamp and SS High Flyer.

The Defendant was not the shipper of the Fertilizer Grade Ammonium Nitrate as loaded on board the SS Grandcamp and SS High Flyer.”

The request is not meritorious. As stated, Defendant manufactured or caused the manufacture of such Fertilizer. It was the owner thereof from the time of its manufacture on. Only part of the cargo had been loaded at the time of the fires and explosions. Whether such ownership passed to another by such loading and was in another at the time of the fires and explosions, the evidence does not make clear. It is certainly true that control of and over such Fertilizer never passed out of Defendant. There never was a moment from the time of the manufacture of such Fertilizer to the time of the fire and explosion on the Grandcamp that Defendant did not have the authority and could not have by

the exercise of diligence prevented same. The claim that Defendant was not the shipper of such Fertilizer is without merit.

(cc) I am requested by Defendant to make the following Finding of Fact:-

“The Fertilizer Grade Ammonium Nitrate at Texas City was not shown to be defective in any way, and was not an inherently dangerous substance.”

Such Fertilizer was continuously an inherently dangerous substance from the time it was being manufactured and was manufactured on up to the time it exploded on the Grandcamp and the High Flyer. Further, as has been herein pointed out, Defendant well knew that it was an inherently dangerous substance. As a high powered and dangerous explosive, the Fertilizer certainly was not defective. It practically wiped out Texas City. As a Fertilizer, it was defective in that it was dangerous. It was dangerous to manufacture, dangerous to ship, and dangerous to use. If it was useful as a Fertilizer, such danger destroyed such usefulness.

(dd) Captain Henry G. Dalehite, of Galveston, Texas, was a Pilot and also Manager and Owner of the Dalehite Boat Line. On April 16, 1947, just a few minutes from the explosion on the Grandcamp, Captain Dalehite and his wife, Mrs. Elizabeth H. Dalehite, arrived in Texas City in their car from Galveston and Baytown. Mrs. Dalehite was driving their car. Captain Dalehite had important business with the Seatrains Company in Texas City. He left Mrs. Dalehite in the car and made his way on foot in the direction of the place of business of the Seatrains Company, with whom he had business as stated. The explosion on the Grandcamp occurred and Captain Dalehite was killed by such explosion. Mrs. Dalehite never saw him alive again. His body, badly mangled, was found and recovered and delivered to an under-

taker. It was seen and identified by Mrs. Dalehite and others and buried.

The only statutory beneficiaries surviving Captain Henry G. Dalehite were his two children, Henry G. Dalehite, Jr. and Mrs. Betty Lu Ellis, his wife, Mrs. Elizabeth H. Dalehite, and his mother, Mrs. Emma Dalehite. Mrs. Emma Dalehite and Mrs. Betty Lu Ellis have filed disclaimers, so that the only persons entitled to recover by reason of the death of Captain Henry G. Dalehite are his son, Henry G. Dalehite, Jr., and his wife, Mrs. Elizabeth H. Dalehite.

At the time of his death, Henry G. Dalehite was 47 years of age, and, according to the life expectancy tables in general use, had a life expectancy of 27 years. He was a man of good health and was engaged in the business of piloting steamships in and out of Texas ports, as well as the tow-boat and boat service business. He was the owner of 60% of the stock of the Henry G. Dalehite Boat Service, his wife owning 20% and his bookkeeper owning 20%. He owned 90% of the stock of the Coastwise Pilot Association, the remaining shares being owned by his wife and bookkeeper.

His earnings averaged between \$10,000 and \$12,000 per year and in addition thereto he was accumulating a substantial surplus in the corporations he owned.

At the time of the death of her husband, Mrs. Elizabeth H. Dalehite was 46 years of age, with a life expectancy of 32 years. She is a housewife with no earnings. Her health is good. She and Captain Dalehite had been married for 23 years at the time of his death. Captain and Mrs. Dalehite were devoted to each other and she assisted him materially in his business by driving him from port to port. As stated, at the time of his death, she had driven him to Texas City and was sitting in the car waiting for him to transact his business with the Seatrain Company in Texas City.

Henry G. Dalehite, Jr., was 18 years of age at the time

of the death of his father. His life expectancy was much longer than that of his father. He holds a Bachelor of Arts Degree in the University of Texas and is a junior in the University of Texas Law School and an honor student. His father was paying his tuition and expenses while in school, and planned, upon his graduation at the University, to give him a post-graduate course in Harvard or Columbia.

The evidence shows that Captain Dalehite was a devoted husband and father, and spent most of his earnings on his wife and son.

I find Mrs. Elizabeth H. Dalehite, the wife's, damages to be \$60,000, and the son, Henry G. Dalehite, Jr.'s, damages to be \$15,000.

### Conclusions of Law.

1:—The Rules require and the parties are entitled to have Findings of Fact, not of the evidence, but upon the issues. I think the foregoing Findings of Fact are adequate in that respect.

The question of the preparation of Conclusions of Law is more difficult. The case was well tried and has been well argued and briefed on both sides. Counsel have gotten up on tip-toe in their presentation of the Law. There are hundreds of pages of briefs and hundreds of cases, etc., cited therein. Some of the cases are in point and some are not. After reaching a conclusion in the case, I have had to decide whether to consume the time and delay judgment in order to write an opinion, citing and discussing the cases, or to simply state, as the Rules seem to require and contemplate, my Conclusions on the Law. I have decided upon the latter course.

2:—During the presentation of Defendant's case, there was much evidence offered by Defendant to which objec-

tions were made by Plaintiffs. Such objections were taken with the case. Many of such objections are well taken, but in reaching a conclusion herein upon the various issues which have been discussed, I have reviewed and weighed and considered *all* of the evidence offered by Defendant, notwithstanding such objections. I have done this in order to be sure that Defendant's case with respect to the Texas City Disaster be fully before and considered by the Court.

3:—Plaintiff at the trial offered in evidence many events, tests, statements, etc., occurring since April 16 and 17, 1947, the date of the Texas City Disaster. Defendant's objections thereto were taken with the case. These, of course, are not admissible for the purpose of showing that Defendant knew the Fertilizer was a dangerous commodity before the Texas City Disaster, but were offered and are admitted to show or tend to show that under the same or similar circumstances, the Fertilizer thereafter would and did cause fires and explosions. This is well illustrated by the explosion of the Steamship Ocean Liberty with a cargo of Fertilizer thereon on June 28, 1947, at Brest, France. However, the evidence as to the cause of the fires and explosions on the Grandcamp and the High Flyer is so clear and convincing that these subsequent events add little, if anything, thereto.

4:—During the presentation of Plaintiffs' case, Plaintiffs offered many letters, documents, statements, etc. as admissions by Defendant. Objections thereto by Defendant were taken with the case. I have determined and concluded that Defendant may in this proceeding be bound by such admissions the same as any other litigant. But I regard such admissions as having little probative force and have in the main based my findings upon other matters.

5:—Subdivisions (b) and (c) of Section 1346, Title 28, effective September 1, 1948, are as follows (*Italics mine*):

“(b) Subject to the Provisions of Chapter 171 of this title, the district courts, together with the District Court for the Territory of Alaska, the United States District Court for the District of the Canal Zone and the District Court of the Virgin Islands, shall have exclusive jurisdiction of civil actions on claims against the United States, for money damages, accruing on and after January 1, 1945, *for injury or loss of property, or personal injury or death caused by the negligent or wrongful act or omission of any employee of the Government while acting within the scope of his office or employment, under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred.*

(c) The jurisdiction conferred by this section includes jurisdiction of any set-off, counterclaim, or other claim or demand whatever on the part of the United States against any plaintiff commencing an action under this section.”

Section 2674 of such Title 28 is as follows (*Italics mine*):

“The United States shall be liable, respecting the provisions of this title relating to tort claims, in the *same manner and to the same extent as a private individual under like circumstances, but shall not be liable for interest prior to judgment or for punitive damages.*

If, however, in any case wherein death was caused, the law of the place where the act or omission complained of occurred provides, or has been construed to provide, for damages only punitive in nature, the United States shall be liable for actual or compensatory damages, measured by the pecuniary injuries resulting from such death to the persons respectively, for whose benefit the action was brought, in lieu thereof.”

Section 1402(b) of Such Title 28 is as follows:

“Any civil action on a tort claim against the United States under subsection (b) of Section 1346 of this title may be prosecuted only in the judicial district where the plaintiff resides or wherein the act or omission complained of occurred.”

The Fertilizer was an inherently dangerous commodity. It was in the main conceived outside of Texas and was manufactured outside of Texas. The earlier negligent acts of which Defendant is found herein to be guilty occurred outside of Texas. But with full knowledge by Defendant that such Fertilizer was an inherently dangerous commodity, Defendant caused it to be bagged in bags which made it more dangerous, caused it to be loaded in cars at temperatures which made it more dangerous, and shipped it into Texas and into Texas City, in this District and Division, to be loaded into vessels for foreign export. The details of which are set forth in the foregoing Findings of Fact. This was negligence and was a proximate cause of such fires and explosions and of Plaintiffs' injuries. Passing by the question of whether Plaintiffs may recover here by reason of such earlier Acts of Negligence outside of Texas, I conclude that a private individual would, under like circumstances, be liable in damages in Texas to Plaintiffs for the acts of negligence in Texas, and that Defendant is liable here.

6:—Texas City was a residential, industrial, and shipping area. Aside from many homes, there were wharfs, docks, warehouses, railroad terminals, oil refineries, and manufacturing concerns of many kinds. All were rather compactly grouped around the loading and unloading docks for vessels. With full knowledge of the inherently dangerous character of such Fertilizer, Defendant, as stated and as fully set forth in the Findings of Fact herein, manufactured, bagged, shipped, or caused such Fertilizer to be shipped into

Texas City, to be unloaded from the railroad cars and in turn loaded into vessels, without doing anything whatever to prevent fires and explosions such as occurred on April 16 and 17, 1947. For instance, Defendant could have alerted the Coast Guard whose special duty it was to enforce the Laws and Regulations concerning dangerous commodities, it could have notified the City or State Authorities in Texas City, it could have caused the Fertilizer to be sent out of Texas City, or had it shipped in the first place, to some less congested area, it could have, by the use of the diligence that any reasonably prudent person would have used, prevented the Texas City Disaster. See Findings of Fact. I conclude that a private individual would, under like circumstances, have been liable in damages in Texas to Plaintiffs, and that Defendant is liable.

7:—The negligence of Defendant, the Coast Guard, and other servants and employees of Defendant after the beginning of the fire on the Grandcamp is set forth in the Findings of Fact herein, and I conclude that a private individual would, under like circumstances, have been liable in damages in Texas, and that Defendant is liable here.

8:—Clearly such Fertilizer ought never to have been manufactured. From the beginning on down, it was a dangerous commodity and a dangerous nuisance. The continuing acts of negligence with respect thereto, some in Texas and some outside of Texas, as found in the Findings of Fact, resulted in and proximately caused the Texas City Disaster. I conclude that a private individual would, under like circumstances, have been liable in damages in Texas to Plaintiffs for all such acts of negligence from beginning to end, and that Defendant is liable here.

9:—I have not only found as a Fact, but I conclude as a matter of Law, that under the Facts as found herein, each shipment of such Fertilizer was a dangerous public and pri-

vate nuisance from the time it was manufactured, from the time it entered Texas, and from the time it entered, and during the time it remained in Texas City. I think a private individual so maintaining a nuisance or nuisances would have been liable in damages in Texas to Plaintiffs, and that Defendant is liable here.

10:—Upon the whole case, and under all the Facts found here, and according to the Rule in Texas and in many other States, I conclude that Defendant is liable to Plaintiffs for such damages as they may have suffered. *Waters-Pierce Oil Co. v. Davis, et ux.*, 60 S.W. 453. *Armstrong Packing Co. v. Clem*, 151 S.W. 576. *Cohn v. Saenz, et al.*, 211 S.W. 492. *Jacobson v. Thomas, et al.*, 220 S.W. 652. *Texas Drug Co. v. Cadwell*, 237 S.W. 968. *Liggett & Myers Tobacco Co. v. Wallace*, 69 S.W. (2d) 857. *S. Blickman, Inc., v. Chilton*, 114 S.W. (2d) 646. *Bubble-up Bottling Co. v. Lewis*, 163 SW (2d) 875. *Dawson v. McWilliams*, 146 Fed. (2d) 38. *Houston E. & W. T. Ry. Co. v. Cavanaugh*, 173 S.W. 619. *McGuffey v. Pierce-Fordyce Oil Assn.*, 211 S.W. 335. *King v. Columbian Carbon Co.*, 152 Fed. (2d) 636. *Columbian Carbon Co. v. Tholen*, 199 S.W. (2d) 825. *Ccmminge v. Stevenson*, 13 S.W. 556. *Cameron Mill & Elevator Co. v. Anderson*, 81 S.W. 282. *Loyd v. Herrington*, 182 S.W. (2d) 1003. *Jacob E. Decker & Son, Inc. v. Capps, et al.*, 164 S.W. (2d) 828. *Natatorium Laundry Co. v. Saylor, et al.*, 131 S.W. (2d) 790. *O'Connor v. Andrews*, 16 S.W. 628. *Gonzales v. City of Galveston*, 19 S.W. 284. *Texas Power & Light Co. v. Culwell, et al.*, 34 S.W. (2d) 820. *Texas Public Service Co. v. Armstrong, et al.* 37 S.W. (2d) 294. *Texas & N.O. Ry. Co. v. Bellar*, 112 S.W. 323. *Collins v. Pecos & N.T. Ry. Co.*, 212 S.W. 477. *Gulf Coast & Santa Fe. Ry. Co. v. Ballew*, 66 S.W. (2d) 659. *Apex Construction Co. v. Farrow, et al.*, 71 S.W. (2d) 323. *Texas Co. v. Gibson, et al.*, 88 S.W.

(2d) 757. *Atchison v. Texas & Pacific Ry. Co.*, 186 S.W. (2d) 228; *McAfee v. Travis Gas Corp.*, 153 S.W. (2d) 442. *Kimbriel Produce Co., Inc., v. Mayo, et al*, 180 S.W. (2d) 504. *Horne Motors, Inc., et al v. Latimer*, 148 S.W. (2d) 1000. *Fort Worth & R.G. Ry. Co. v. Pickens*, 153 S.W. (2d) 252.

11:—Section 2671 of Title 28, effective September 1, 1948, is as follows:

“As used in this chapter and sections 1346(b) and 2401(b) of this title, the term—‘Federal agency’ includes the executive departments and independent establishment of the United States, and corporations primarily acting as, instrumentalities or agencies of the United States, but does not include any contractor with the United States.

‘Employee of the government’ includes officers or employees of any federal agency, members of the military or naval forces of the United States, and persons acting on behalf of a federal agency in an official capacity, temporarily or permanently in the service of the United States, whether with or not without compensation.

‘Acting within the scope of his office or employment’ in the case of a member of the military or naval forces of the United States, means acting in line of duty.”

The evidence shows that the persons found to have been negligent in the foregoing Findings of Fact came within both the letter and spirit of this Section.

12:—Section 2680 of Title 28, effective September 1, 1948, sets out certain exceptions to Section 1346(b), but it is only necessary to discuss Subdivision (a) thereof as follows:

"The provisions of this chapter and section 1346(b) of this title shall not apply to—

(a) Any claim based upon an act or omission of any employee of the Government, exercising due care, in the execution of a statute or regulation, whether or not such statute or regulation be valid, or based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused."

I have concluded that under the Facts found here, Defendant is not exempt from liability by reason of this Section.

13:— Finally, I conclude that Plaintiffs are entitled to Judgment. Let appropriate Decree be drawn and presented:—

(a) Awarding Elizabeth H. Dalehite Judgment in the sum of Sixty Thousand Dollars (\$60,000) and Henry G. Dalehite, Jr., Judgment in the sum of Fifteen Thousand Dollars (\$15,000) against Defendant.

(b) Finding and adjudging that Defendant is similarly liable to Plaintiffs and each of them for such damages each may prove and show at the final hearings and trials that they sustained. At such hearings and trials, there will be considered Defendant's Sixth, Seventh, Tenth, and Fifteenth Defenses set forth in Defendant's Answer, filed April 4, 1949.

Such judgment and Decree now to be entered to be also as provided by Law, Rule 42, and the Orders of Consolidation.

T. M. KENNERLY,  
United States District Judge.

IN THE UNITED STATES COURT OF APPEALS FOR THE FIFTH CIRCUIT

No. 13314

IN RE: TEXAS CITY DISASTER LITIGATION <sup>1</sup>

Appeals from the United States District Court for the Southern  
District of Texas

(June 10, 1952)

Before Hutcheson, Chief Judge, Holmes, Borah, Russell, Strum, and  
Rives, Circuit Judges, En Banc

RIVES, Circuit Judge:

This litigation arises under the Federal Tort Claims Act.<sup>1a</sup>

For an understanding of the questions presented, we quote the statement of the case as made by the learned district judge:

"These are approximately 273 suits (including the above suit No. C. A. 787, *Dalehite, et al. v. United States of America*) by approximately 8485 persons or Plaintiffs against Defendant, United States of America, under the Federal Tort Claims Act (Sections 2671, et seq., Title 28, Judicial Code effective September 1, 1948, formerly Section 941, Title 28, U. S. C. A., Act of August 2, 1946, and Amendments), and arising out of what is generally known and referred to, and is referred to herein, as the TEXAS CITY DISASTER, in which much of the City or Town of Texas City, in Galveston County, Texas, was destroyed, with great loss of life, injuries to persons, and heavy property damage. The claim is that on April 16, and 17, 1947, fires and violent explosions occurred on the Steamships Grandcamp and High Flyer then being loaded with a cargo for foreign ports in the Texas City Harbor. It is claimed that such fires and explosions, and/or other fires and other explosions, etc., which followed and which were proximately caused thereby, killed or caused the death of approximately 560 persons—men, women and children—and wounded many other persons in and around Texas City and in the Texas City Harbor, and did vast and widespread damage and injury to property in that area. Of the 8485 Plaintiffs, approximately 1510 sue on death claims, approximately 988 on personal injury claims, approximately 5987 on property damage or destruction claims.

<sup>1</sup> 197 F. 2d 771.

<sup>1a</sup> 60 Stat. 842, reenacted in the codification of Title 28 (Judicial Code), 62 Stat. 869, 992. The rights of parties under the original enactment are preserved. See *United States vs. Yellow Cab Co.*, 340 U. S. 543, 547, footnote 4. For convenience we shall refer to the sections of Title 28 of the Code, though we call attention to an apparent inconsistency between the scope of Sections 2674 and 1346 (b) which inconsistency does not appear in the terms of the original Act.

"It is claimed and alleged that such fires and explosions were caused on the Grandcamp and the High Flyer by a cargo or part cargo of ammonium nitrate, or fertilizer ammonium nitrate, or FGAN (for brevity called herein FERTILIZER), thereon becoming ignited and burning and/or exploding. It is alleged that such Fertilizer was a known dangerous explosive and a fire hazard and was manufactured by Defendant and shipped and transported by Defendant or directed or permitted by Defendant to be shipped or transported into Texas City without warning to the public or to any City, State, or other Officer of Texas City, and loaded on such Steamships. And that the Defendant and its agents and employees were guilty of negligence in so doing and also guilty of negligence in manufacturing such Fertilizer at all and in the manner of the manufacture, sacking, bagging, marking of bags, handling, shipping, transporting, loading, etc. of such Fertilizer.

"After these suits were filed, the parties, including those in the above case No. C. A. 787, *Dalehite, et al. v. United States of America*, moving under Rule of Civil Procedure 42, with the approval of the Court, entered into an Agreement or Stipulation for such suits to be consolidated for hearing and heard or tried on the question or issue common to all parties, of the negligence of Defendant or of the liability, if any, of Defendant to Plaintiffs under such Tort Claim Act. Reference is made to the Order of Consolidation, etc., dated July 21, 1948, and other subsequent Orders of Consolidation.

"It appearing that the Plaintiffs in the 273 or more consolidated suits were represented by perhaps 50 or 100 different counsel, with approval of the Court, counsel for Plaintiffs in such suits agreed upon a Working Committee of Attorneys, whose names appear on the first page hereof, to prosecute such consolidated suit, and they have appeared and so prosecuted same.

"It was also agreed between the parties, in order that a complete case should be presented to the Court, that one of the consolidated cases, i. e., Cause No. 787, *Elizabeth Dalehite and Henry G. Dalehite, Jr. v. United States of America*, should be fully tried. This is a suit by the surviving wife and son of Captain Henry G. Dalehite, who it was alleged was killed in such Disaster.

"Each of the Plaintiffs in the suits filed and which were consolidated, as stated, alleges many and numerous acts of negligence upon the part of Defendant, all of which, to the number of 80 or more were carried into Plaintiffs' Consolidated Pleadings in this Consolidated Cause, filed March 16, 1949. It does not seem appropriate to set them forth in detail here, but reference is made to such pleadings for particulars and details. Generally speaking, it is charged and alleged that the Fertilizer which burned and/or exploded in such Steamships was a known very dangerous explosive and fire hazard which was manufactured by Defendant and/or under its direction. That such Fertilizer being a very dangerous commodity, Defendant was negligent in manufacturing it at all, and negligent in the manner in which it manufactured, handled, transported, shipped, etc., same. Particularly it is claimed that Defendant was greatly at fault and negligent in, without warning to anyone of the danger, shipping such Fertilizer or permitting it to be shipped into and handled in the densely populated city or town of Texas City, etc., where as stated fires and explosions occurred.

"In a Trial Amendment, filed with leave of the Court, July 20, 1949, Plaintiffs more specifically alleged and set out the names of the persons, agents, servants, or employees of the Defendant claimed to be guilty of negligence.

"Defendant in its Answer, filed April 4, 1949, brought forward some fifteen defenses.

"Its First Defense that Plaintiffs should be required to make a more definite statement of their case was denied.

"Its Second Defense that Plaintiffs fail to state a claim upon which relief may be had was denied.

"Its Third, Fourth, and Fifth Defenses that Plaintiffs in effect fail to state a case cognizable in this District were denied.

"Its Eighth and Ninth Defenses questioning the authority of the Working Committee were denied.

"Its Sixth and Tenth Defenses with respect to assigned claims, its Seventh Defense raising the question of Limitation, and its Fifteenth Defense pleading contributory negligence, etc. are not within the scope of the Consolidation Agreement and are, therefore not disposed of at this time.

"By its Eleventh, Twelfth, Thirteenth and Fourteenth Defenses, Defendant denies, and there is put in issue, each and all of Plaintiffs' allegations, and same are herein disposed of under such Consolidation Agreement.

"This is a trial on the merits under such Consolidation Agreement, lasting approximately 90 days, and on briefs and oral argument of counsel, and a trial on the merits of cause No. C. A. 787, *Elizabeth Dalehite and Henry G. Dalehite, Jr. v. United States of America*, on all issues.

"The Record is enormous. The Transcript consists of nearly 20,000 pages, and there are hundreds of exhibits. This would of itself tend to show that all the sources of evidence bearing on the questions and issues now before the Court have been thoroughly explored and all the evidence produced that can be found and produced, except as hereinafter stated. In addition, counsel on both sides, at the close of the trial, assured the Court that they had no other evidence to present on the matters now before the Court, except as hereinafter stated. The exception is that Plaintiffs are still complaining of the failure of the Court to again enforce the production of some additional records, etc. of and/or in the possession of, the United States Federal Bureau of Investigation, which records such Bureau refused to produce, as is fully shown by the Transcript.

"Counsel for Plaintiffs and Defendant have, at the Court's request, indicated what Findings of Fact they think should be made, but many of such requests for Findings are for Findings on *evidence* as distinguished from Findings on the *issues* as made by the pleadings. Such requests are hereinafter disposed of. An effort has been made to find the facts only on the *issues*, and thus bring the case within as small compass as possible."

On May 4, 1950, the court entered judgment in the composite case, with a decree as to amount with interest from the date of judgment in the one actual case, and a "final" decree as to liability, subject to certain reserved defenses and future determination of quantum, with interest from May 4, 1950, in all other suits.

The United States entered appeals in all cases. By order of this court, the appeal was heard on the record in the composite case alone.

The claimed errors of which the United States complains are succinctly set forth in its "Specifications of Errors" as follows:

"Specification of Errors

"The district court erred:

"1. In failing to hold that the pleadings and proof furnished neither basis of jurisdiction in the district court nor liability against the United States under the Federal Tort Claims Act, for the reason that the claims asserted

a. fell within specific exceptions under the statute, for claims based upon

(1) 'the exercise or performance, or the failure to exercise or perform, a discretionary function or duty'; or

(2) 'an act or omission of an employee of the government, exercising due care, in the execution of a statute or regulation'; and

b. did not fall within the affirmative statutory requirements that claims be based upon

(1) *respondeat superior* arising from an identifiable employee's negligent act or omission; and

(2) an act or omission for which 'a private individual under like circumstances' would be liable.

"2. In finding that, by the manufacture and distribution of FGAN, the United States 'was creating and maintaining a nuisance'.

"3. In holding preliminary motions filed in behalf of the United States, for a deposition, discovery, interrogatories, more definite pleading, and for procedural rulings, in abeyance until it knew 'more about the cases'; and in its rulings thereon; in failing to rule on hundreds of objections to evidence noted by counsel for the United States, and in 'taking them with the case'; and in denying the motion of the United States, at the close of plaintiffs' case, to rule on the objections, and to strike the inadmissible evidence, and in its ultimate rulings thereon.

"4. In holding the United States negligent in any way in the initiation of the ammonium nitrate fertilizer program, in the production and distribution of fertilizer, or in connection with the activities of the Coast Guard.

"5. In holding that the '80 or more' charges of negligence against the United States as such were 'all supported and sustained by the evidence', and that each of these '80 or more' acts and omissions 'constituted a proximate cause' of the disaster.

"6. In holding that the United States was the shipper of the fertilizer on the Steamships *Grandcamp* and *Highflyer*, and the owner thereof at least up to the time of its loading, and 'that control of and over such fertilizer never passed out of' the United States.

"7. In denying the motion for judgment in behalf of the United States at the close of plaintiffs' case, in refusing to make the findings proposed on behalf of the United States, and, while expressly reserving various defenses of the United States, in entering 'final judgment' against the United States in the more than 300 cases pending, for

'damages as later ascertained by the court, with interest on such figures so subsequently determined, from the date hereof.'

The claimed errors may be broadly divided into three classes: (1) errors of substantive law in the interpretation of the scope of the Federal Tort Claims Act, (2) procedural errors, and (3) erroneous findings of fact on negligence.

If the plaintiffs have any right to recover damages from the United States, the case must come under the terms of the Federal Tort Claims Act, approved August 2, 1946, and, to be specific, must meet each of the following requirements of that Act:

1. The only jurisdiction conferred on the district court is of actions on claims "for injury or loss of property, or personal injury or death caused by the negligent or wrongful act or omission of any employee of the Government while acting within the scope of his office or employment." (28 U. S. C. A. 1346b.)

2. "Under circumstances where the United States, if a private person, would be liable to the claimant." (Sec. 1346b.)

3. "In accordance with the law of the place where the act or omission occurred." (Sec. 1346b.)

4. The jurisdiction conferred does not apply to "any claim based upon an act or omission of an employee of the Government, exercising due care, in the execution of a statute or regulation, whether or not such statute or regulation be valid." (Sec. 2680a.)

5. Nor does it apply to "any claim \* \* \* based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused." (Sec. 2680a.)

The purpose of the Act was not "the creation of new causes of action but acceptance of liability under circumstances that would bring private liability into existence. \* \* \* Its effect is to waive immunity from recognized causes of action and was not to visit the Government with novel and unprecedented liabilities." *Feres v. U. S.*, 340 U. S. 135, 141, 142.

This Act does not subject the Government to a previously unrecognized type of obligation. Through hundreds of private relief acts, each Congress for many years has recognized the Government's obligation to pay claims on account of damage to or loss of property or on account of personal injury or death caused by negligent or wrongful acts of employees of the Government. This Act merely substitutes the District Courts for Congress as the agency to determine the validity and amount of the claims. It suggests no reason for reading into it fine distinctions between various types of such claims." *U. S. vs. Yellow Cab Co.*, 340 U. S. 543, 548.

Repeatedly, throughout the Act, the term used is "act or omission of an employee of the government." For any cause of action to exist, the "negligent or wrongful act or omission" must be that of an "employee of the Government." "Employee of the Government" is defined, at least in part, in Section 2671.

A judgment or compromise under the statute effects complete release of a claim, and a bar to an action "against the employee of the

government whose act or omission gave rise to the claim." (Secs. 2672, 2676.)

Section 424(b) of the original Act provided that nothing contained in the statute is to be deemed as repealing authority, under other provisions of law, to settle claims for damages "not caused by any negligent or wrongful act or omission of an employee of the Government."

Excluded from the jurisdiction of the Court are "any claims based upon an act or omission of an employee of the government exercising due care, in the execution of a statute or regulation" and any claim based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government." For the Government to be held liable for the breach of any duty as an entity in the manufacture or shipment of FGAN, these two exclusions would have to be disregarded. The event around which the entire statute is built is an "act or omission of an employee of the Government", and for the statute to be construed as a harmonious whole it must be so limited. See *Sickman v. United States*, 184 F. 2d 616, 619; *United States v. Campbell*, 172 F. 2d 500, 503. This court has recognized that liability because of the ownership of property is not included in the Act. *Hubsch vs U. S.*, 174 F. 2d 7, 10.

The necessity of some definite act of commission or omission on the part of some particular employee or employees of the Government as a predicate for its liability is emphasized by the requirement of Section 1346(b) that liability be determined "in accordance with the law of the place where the act or omission occurred." So construed, the Act merely subjects the Government to the same liability as the delinquent employee in accordance with the local law.

We have found no place in the legislative hearings where the liability of the United States as a manufacturer or shipper was discussed. Typical of the kind of immunity intended to be waived is that for injury or damage resulting from the negligent operation of motor vehicles repeatedly referred to in the hearings before the legislative committees (See for example Hearings before the House Judiciary Committee on H. R. 5375 and H. R. 6463, 77th Congress 2nd Session (1942), 24, 28, 65, 66). The most common claims that were the subjects of hundreds of relief acts were for injury or damage caused by negligent or wrongful acts of employees of the Government. Congress sought relief from the burden of determining the validity and amounts of such claims, and substituted the District Courts for Congress as the agency therefor. See *United States v. Yellow Cab Co.*, 340 U. S. 543, 548, 549. Another reason why it cannot be assumed that Congress intended to place upon the United States the legal liability of a manufacturer as an entity, is that as such the Government would be charged with all of the knowledge or notice of any of its agents or employees, acquired or possessed in the course of their employment. (See 1 Am. Law Inst. Restatement of Agency Sec. 272; 13 Am. Jur. Corporations, Secs. 1110 et seq.). The evidence in this case illustrates that the application to the Government of that theory of imputed knowledge would require the Government to be regarded as practically omniscient, and probably, in the many cases where employees differ in their opinions, as being an infallible judge of the

right. It would impose on the Government as manufacturer an unreasonably high degree of duty, almost to the point of being an insurer. Upon consideration of the terms of the Act, we conclude that it imposed no duty on the Government as an entity in the manufacture or shipment of FGAN.

Plaintiffs, in their consolidated complaint, failed to charge any specific negligent or wrongful act or omission against any particular employee or agent of the United States, simply resting on their eighty averments of negligence on the part of the United States as such. On July 20, 1949, the day on which they rested in the taking of testimony, the plaintiffs filed an amendment to their consolidated complaint, charging that various departments of government, from the Office of War Mobilization to the Bureau of Standards, some 200 named or designated officials, and others, "the remaining federal agencies, executive departments, [and] independent establishments of the United States" and "the head of [each] such department and all subordinate personnel whether civilian or military" all contributed to "each ground of negligence and fault alleged in plaintiff's consolidated pleadings \* \* \*." Plaintiffs' counsel well summarized in his closing argument to the district court: "It is the whole Government. It is everybody in organization. Everybody from the President to dishwashers in the cafeteria."

The district court in its findings said in part:

"The difficulty is that this large Record shows that in the error and mistake of manufacturing and distributing this dangerous commodity, so many took part that in naming them some will be overlooked or omitted. They may well be grouped as follows:

"Group I—Those who, among other things negligently planned, launched, and carried on the enterprise of manufacturing, shipping, and distributing such Fertilizer. Among this group are the following: \* \* \*

"Group II—Those who among other things negligently manufactured, sacked, shipped, transported, and distributed such Fertilizer. Among this group are the following: \* \* \*

"Group III—The United States Coast Guard, Officers and men who may have been among other things charged with some duty with respect to such Fertilizer at the time of and after its arrival at Texas City and at the time of and after its explosion and the fires which followed. And including those charged with the duty of administering and enforcing Title 46, U. S. C. A., dealing with the shipment of dangerous explosives. Some of whom are as follows: \* \* \*

"It is not meant that these groups or the members of these groups were negligent in the same way or to the same degree, but that they in some way and to some extent contributed to such negligence by acts of omission or commission."

The district court named some 160 persons as among these three groups.

Let us consider separately the three groups of employees:

"Group I—Those who, among other things, negligently planned, launched and carried on the enterprise of manufacturing, shipping, and distributing such fertilizer."

The fertilizer program was designed to meet the immediate and pressing problem of increasing the food supply of the devastated areas

of the world following the holocaust of World War II. Two basic solutions were available: One, maintenance of adequate military forces of occupation to quell unrest resulting from hunger; Two, the increase of the supply of food to sustain enemy populations during occupation. Humanitarian considerations required that at least subsistence feeding be provided to the people of conquered areas to insure public order and safety. The populations of the devastated areas aggregated nearly that of the United States themselves. If there had been enough food to supply those areas directly there would not have been enough bottoms to transport it. Early in 1947 the President expressed his views "that our relief contribution should be used only for providing the basic essentials of life, such as \* \* \* items which will aid in the production of foodstuffs." Message of President Truman to 80th Congress (1st Session), 93 Cong. Record 1301.

While fertilizer production in the United States was the greatest in the world, the minimum requirement for the devastated areas was more than half the United States production. There was discussion of the production of ammonium sulphate which would have been desirable but the facilities for such production were not available. Ammonium nitrate was decided upon as the only type of fertilizer which could be produced in sufficient quantities. There were available a number of wartime ordnance plants, idle with the close of hostilities, and readily convertible to the production of fertilizer grade ammonium nitrate.

The Act does not apply to "any claim \* \* \* based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused." (Sec. 2680 (a).) This is a "highly important exception". (H. Report 1287, 79th Cong., 1st Session, 1945, pp. 5 & 6.) As Judge Woodrough, speaking for the Eighth Circuit, pointed out in *Coates vs. United States*, 181 F. 2d 816, 817, 818, "the term 'discretionary function or duty' has a long history of precise meaning in a legal sense". It was meant "to continue to exclude judicial authority from interference with lawful legislative and executive action." See also 56 Yale Law Journal, p. 545.

In the fields open to litigation before this Act was passed in 1946, such as suits against municipal corporations, against individual public officers, and suits before the Court of Claims, the courts had devised various legal formulas by means of which they scrupulously refrained from unwarranted interference with the legislative and executive departments of Government. As to municipal corporations see *Barnes vs. District of Columbia*, 91 U. S. 540, 551; *Harris vs. District of Columbia*, 256 U. S. 650; 38 Am. Jur. Municipal Corporations, Sec. 578. As to public officers see *Louisiana vs. McAdoo*, 234 U. S. 627, 633; *Standard Co. vs. Mellon*, 72 F. 2d 557; 43 Am. Jur. Public Officers, Secs. 278-9. As to suits on contracts before the Court of Claims see *Horowitz vs. U. S.*, 267 U. S. 458, 461. The Act did not adopt the old distinction between Governmental activities of a sovereign nature and those of a proprietary nature. See *Cerri vs. U. S.*, 80 F. S. 831, 833; *Somerset Seafood Co. vs. U. S.*, 193 F. 2d 631. Instead, in line with its consideration of particular acts or omissions of employees of the Government, the Act drew a sharp focus on the jurisdictional exclusion,

and forbade the courts to review "the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government."

The addition to this exception of the terms "whether or not the discretion involved be abused" clearly evidences the intention of Congress that the legislative and executive branches of Government were to be free from any unwarranted judicial supervision. It is not necessary to determine how far Congress might have gone under the Constitution. It is sufficient to observe that in this Act the Congress prescribed limits in line with the wise and ancient landmarks that date from our earliest judicial history. *Marbury vs. Madison*, 1 Cranch (5 U. S.) 137, 170. Much the same public policy forbids the courts to exercise jurisdiction over discretionary functions or duties of executive officers as protects the Government from being sued for the errors of the courts themselves in the exercise of their discretionary functions—See *Cromelin vs. U. S.*, 177 F. 2d 275. In this case, it can hardly be argued that the dangers of explosion from FGAN were so well known prior to the disaster that judgment or discretion were not called into exercise as to whether it should be manufactured at all and under what safeguards and warnings it should be distributed. Even if some danger were recognized, the necessity of providing means of existence to the devastated areas might have called for the exercise of discretion as to whether to take a "calculated risk".

The very conception of negligence involves weighing the magnitude of the risk against the utility of the act or the particular manner in which it is to be done. 2 Am. Law Inst., Restatement of Torts, Sec. 291. The authority to determine and consider the factors as to the utility of the conduct and the magnitude of the risk (see same text, secs. 292 and 293) was vested in the executive officers or agents and not subject to the review of the courts.

We are clear to the effect that the court had no jurisdiction to review many, if not all of the acts or omissions of employees within the first group because they were exercising or performing a discretionary function or duty. (Sec. 2680 (a).)

"Group II—Those who among other things negligently manufactured, sacked, shipped, transported, and distributed such fertilizer."

The employees in this group also were vested with considerable discretion. The plaintiffs complained that the United States was negligent in allowing FGAN to be bagged at too high temperatures. Determination of bagging temperatures was clearly within the discretion of the proper officers. A suggestion was made to the Chief of Ordnance that it would be better practice to bag the product at 120 degrees Fahrenheit rather than at 200 degrees. The commanding officers at the ordnance plants reported that this procedure would reduce production to less than half of that demanded by the fertilizer program and the world situation; and that the paper bags were not being damaged by the current practice. This was nothing more nor less than the exercise of the discretionary function by reaching conclusions on balanced considerations for which the United States are exempt from liability "whether or not the discretion involved be abused". Like considerations show the United States to be exempt

from liability for various other steps in the manufacture and shipment of the product, such as the coating used for the fertilizer and its shipment in bags made from paper.

Distribution was as essential to the use of FGAN as its manufacture, and both called for the overall and authoritative determination at the highest policy level of the existence and degree of any dangerous qualities and of what precautions and warnings were necessary. Once that discretionary function or duty had been exercised or performed there ordinarily would be no duty upon subordinate officers or employees to review or revise the exercise or the failure to exercise such discretion. Any contrary rule would make a program of such magnitude impossible of accomplishment. The subordinate officers or agents are protected in the performance of their duty according to the directions of those vested with the discretionary functions or duties. See *Moore Ice Cream Co. vs. Rose*, 289 U. S. 373, 381, and cases there cited. As said in *Sickman vs. United States*, 184 F. 2d 616, 620, "There is no allegation that any government employee failed to exercise due care in carrying out the determinations made by those granted the discretionary function."

Many, if not all of the acts or omissions of employees in this group come also within the exception of "any claim based upon an act or omission of an employee of the Government, exercising due care, in the execution of a statute or regulation, whether or not such statute or regulation be valid." Sec. 2680 (a). While the exercise of due care is required to come within this exception, the negligence or wrong cannot inhere in the statute or regulation itself but must be in some act or omission not expressly permitted thereby.

Under the War Mobilization and Reconversion Act of 1944 (Act of October 3rd, 1944, Chapter 480, 58 Stat. 785, 50 U. S. C. A. War Appendix 1651 et seq.) the Director appointed by the President was authorized to make plans "to meet the problems arising out of the transition from war to peace" and "to issue \* \* \* orders \* \* \* to executive agencies" for that purpose.

By executive order (Order 9599 dated August 20th, 1945, 10 Federal Register 10155, as amended by Executive Order 9651 dated October 31st, 1945, 10 Federal Register 13487) the President directed all departments and agencies "concerned with the problems arising out of the transition from war to peace \* \* \* to assist in the maximum production of goods and services required to meet domestic and foreign needs", by using "war plants and facilities."

Upon approval at the highest governmental levels,<sup>2</sup> and recommendations by the State and War Departments,<sup>3</sup> appropriations for the fertilizer program were voted by Congress.<sup>4</sup> The War Department

<sup>2</sup> Secretary of War Patterson "reported in substance this decision to the Cabinet" where it was "approved and the decision was to go ahead with this production."

<sup>3</sup> Hearings before House Subcommittee on War Department Appropriation Bill, H. R. 3550, 79th Cong., 1st sess., p. 51; Public Law 126, approved July 3, 1945 (59 Stat. 384, 404).

<sup>4</sup> See Military Appropriation Act, 1947, approved July 16, 1946, Public Law 515, 79th Cong. (60 Stat. 541, 560), and Hearings before the Subcommittee of the Senate Committee on Appropriations, held June 25, 1946, on H. R. 6837, especially memorandum by Secretary of War Patterson (p. 7), and testimony by General Eisenhower (pp. 16, 28), and Assistant Secretary Peterson (p. 85). "There is hereby authorized to be appropriated to the President not to exceed \$350,000,000 for the provision of relief assistance to the people of countries devastated by war, such relief assistance to be limited to \* \* \* fertilizer \* \* \* " Public Law 84, 80th Cong. (61 Stat. 125).

was ordered to carry it out, and the wartime plants were released to the Secretary of War by the Director of the Office of War Mobilization and Reconversion, to provide facilities for the production, through independent contractors, of some 90,000 tons of Fertilizer Grade Ammonium Nitrate (FGAN) per month.

"The discretionary authority of the Secretary of War was delegated down to" his subordinates, and he directed the Chiefs of Ordnance and Transportation and the Quartermaster General to carry the program into effect. These, in turn, established Standard Operating Procedures (SOPs) covering all phases of, and steps in, the proposed operation from the commencement of manufacture to shipment.<sup>5</sup>

The plaintiffs were under the burden of proving that the employees of the Government were acting within the scope of their office or employment (Sec. 1346(b)). Perhaps for that reason, there was virtually no claim that in the execution of the fertilizer program there had been any departure from the regulations, directives and orders. That fact brought the case within an exception to the Act (28 U. S. C. A. 2680a).

"Group III. The United States Coast Guard, officers and men, who may have been among other things charged with some duty with respect to such fertilizer at the time of and after its arrival at Texas City and at the time of and after its explosion and the fires which followed. And including those charged with the duty of administering and enforcing Title 46, U. S. C. A. dealing with the shipment of dangerous explosives."

Some, if not all, of the duties of employees within this group come within one or the other of the exceptions to the Act already discussed.

The Act further limits the jurisdiction of the district court to cases involving "circumstances where the United States, if a private person, would be liable" (28 U. S. C. A. 1346 (b)); and provides that the "test of allowable claims" is that governing liability of "a private individual under like circumstances". 28 U. S. C. A. 2674.

The Supreme Court has held that recovery will be denied in cases in which "plaintiffs can point to no liability of a 'private individual' even remotely analogous to that which they are asserting against the United States." *Feres vs. United States*, 340 U. S. 135, 141.

There are no functions of private individuals comparable to those with which the Coast Guard is charged by statute. As to such functions of the Coast Guard, therefore, there can be no "liability 'under like circumstances,' for no private individual has power to conscript or mobilize a private army" (*Feres vs. United States*, 340 U. S. 135, 141) or a Coast Guard which is "a branch of the armed forces of the United States at all times" (14 U. S. C. A. 1). Furthermore, the evidence does not establish that the Coast Guard failed to perform any duty required of it under the circumstances.

<sup>5</sup> "Standard Operating Procedures for the War Department Fertilizer Grade Ammonium Nitrate Program", "Plan for Ammonium Nitrate Production Program", "Standing Operating Procedure (Office of Quartermaster General) Distribution of Ordnance Produced Fertilizer Grade Ammonium Nitrate".

The findings of the district court do not specifically relate to any employee of the United States any particular negligent or wrongful act or omission not within one of the exceptions to the Act. The district court took notice of the enormous length of the record and that, except for some records in the possession of the Federal Bureau of Investigation called for by plaintiffs and for the deposition of a witness denied to the defendant, all of the evidence had been produced that could be found or produced. From an examination of the record, we are of the opinion that the proof does not establish a case within the scope of the Federal Tort Claims Act, and that it would serve no useful purpose to remand this case for the taking of additional evidence.

The judgment of the district court is therefore reversed and judgment here rendered for the defendant.

Reversed and Rendered.

STRUM, Circuit Judge, concurring specially:

I am in accord with the view that the Tort Claims Act confers no jurisdiction upon the courts to review or supervise the executive or legislative departments in the performance of their discretionary functions, and that the Act does not apply to "the exercise or performance, or the failure to exercise or perform, a discretionary function or duty." I am further of the view, however, that when even a discretionary duty or function is undertaken, due care must be exercised in its performance, failing in which the United States is liable for the acts of its employees, within the scope of their authority.

Whether or not a project shall be undertaken, or the policies to be followed in executing it, may be discretionary, and as to those things there is no liability or review under the Tort Claims Act. But if a discretionary project is undertaken, then the United States is held to due care, to the same extent as a private individual. So it is here. The government need not have undertaken the manufacture of FGAN at all. Whether or not it did was discretionary, and it would be subject to no liability for declining. Having undertaken the function, however, it is held to due care in its performance, even though it had a discretionary choice as to whether it would undertake it.

Though the complaint asserts that there was a failure to exercise due care in the manufacture, labeling, and handling of the FGAN, and in failing to give warning of its explosive character, the allegations in that respect clearly are not supported by the evidence. There is no evidence of any circumstance which would indicate to a reasonably prudent person that fertilizer grade ammonium nitrate (FGAN) would be likely to explode, due to its inherent qualities, if dealt with in a normal manner. It did not explode here under normal conditions, but only when too closely confined on the ships, with which the United States had nothing to do.

The government was manufacturing, not an inherently dangerous explosive such as gun powder, dynamite, or the like, but fertilizer which was safe if dealt with normally. The evidence is that ammonium nitrate is not inherently an explosive, but that it becomes explosive only when combined with other explosive compounds, such as T. N. T., or other nitrate organic bodies. When not combined with substances such as these, it constitutes only a fire hazard. In other

words, it will burn but not explode. There is no evidence that in the manufacturing, sacking, or transportation of this FGAN to shipside, there was any failure to use ordinary and reasonable care. Nor did the FGAN explode while being transported in railroad cars to shipside.

It is also clear to me that the explosion was due, not to the inherent qualities of the FGAN, but to faulty stowage on the ships, a delinquency not chargeable to the United States. The United States is not an insurer here. It is held only to the exercise of reasonable care. The paper sacks containing this FGAN were plainly labeled in large letters: "Fertilizer-Ammonium Nitrate-Nitrogen 32.5%." This was sufficient to put the ship operators on notice as to the nature of the substance they were handling. The evidence definitely and firmly convinces me that the proximate cause of the explosion was not the inherent nature of the fertilizer, nor any lack of due care in its manufacture, labeling, or transportation to shipside, but that it was improperly stowed in too compact a mass, confined between decks, so that the rising temperature produced by such faulty stowage caused it to explode. The United States is not chargeable with the faulty stowage. As stated, the bags were clearly labeled "Fertilizer-Ammonium Nitrate-Nitrogen 32.5%." It is true that the bags were not labeled "Explosive." But there was no known instance of a previous explosion of FGAN under normal conditions. This explosion was wholly unprecedented. Prior to this disaster, there had been no known instances of explosions during land transit, while in stowage awaiting export, in the many shiploads previously shipped over-seas, nor in this FGAN while part of it was stacked at the Texas City Terminal awaiting loading.

The finding of the district court that the explosion was due to the inherently dangerous character of the FGAN, and that it was the duty of the United States to have given a more adequate warning of its dangerous character, is clearly erroneous. Although there may be some evidence to support the finding, the evidence when appraised as a whole creates with me "the definite and firm conviction" that the United States was not guilty of negligence, but that the negligence which caused the explosion was wholly and solely that of the ship operators, who were not agents of the United States. *United States v. United States Gypsum Co.*, 333 U. S. 364, 395, 92 L. Ed. 746, 765, 766.

In cases where a manufacturer has been held liable for the explosion of some bottled or canned product, or for damage caused by some other processed product, liability has always been conditioned upon the normal handling or use of the product. Where, as here, the product has been subjected to some abnormal treatment, such as stowing this fertilizer too compactly in a confined space between decks, the abnormal treatment, not the inherent qualities of the product, is the proximate cause of the damage. In such circumstances, there is no liability upon a "private party" manufacturer, hence none upon the United States.

Nor is there any basis in the evidence upon which the United States can be charged with negligence because of acts or omissions of the Coast Guard in the circumstances shown.

As there is no claim that there is any other evidence which would change the result, there would be no advantage in remanding the cases for a new trial. I therefore concur in the judgment of reversal, and in the rendition of judgment here for the United States.

HUTCHESON, Chief Judge with whom BORAH, Circuit Judge, joins  
Concurring in part and Dissenting in part:

I concur in the view of the majority that the judgments appealed from cannot stand and must be reversed.

I dissent, however, from the reasons given for the reversal and also from the rendition of the judgments for defendant.

Of the clear opinion that the judgments should be reversed and the causes remanded for a retrial, freed from the errors that attended the former trial, I am, as briefly as possible, stating the reasons for my opinion.

#### APPELLANT'S CONTENTION

Appealing on an enormous record from judgments based on profligate, prolific, and sweeping findings, all of which, stemming from the basic conclusion of the district judge,<sup>1</sup> taken together, give blanket support to all of plaintiffs' contentions and reject all of those advanced by it, defendant below, appellant here bases its case for reversal on three broad propositions.

The first of these propositions is that the case made, taken at its best for plaintiffs, is not sufficient to fasten liability upon defendant for the reason that what is complained of as a tort, for which the United States has made itself liable by statute, is not such, and, since the basis of the liability must be found in the statute, plaintiffs cannot recover.

In support of this fundamental theory, the appellant takes two positions. The first is the affirmative one, that the claims asserted are negatived by the act as they fall within specific exceptions from the reach of the statute, that is, they are claims based upon (1) "the exercise or performance, or the failure to exercise or perform, a discretionary function or duty;" or (2) "an act or omission of an employee of the government, exercising due care, in the execution of a statute or regulation". The second is the negative one that the claims asserted are not brought within the affirmative requirements of the act that claims must be based upon (a) "*respondeat superior* arising from an identifiable employee's negligent act or omission"; and (b) "an act or omission for which 'a private individual under like circumstances' would be liable."

The second of appellant's propositions is further subdivided into two. One of these is that, assuming that the case pleaded and sought to be made is one which, if made out, would entitle plaintiffs to recovery, the judgment was wrong and must be reversed and rendered, because: (a) the defendant had nothing to do with, and was in no way responsible for, the material after it had been loaded on the cars; (b) the evidence shows as a matter of law that the title and control of the material had passed from the defendant when the accident occurred; and (c) as matter of law no negligent act of an

<sup>1</sup> "Record discloses blunders, mistakes, and acts of negligence, both of omission and commission, on the part of the defendant, its agents, servants, and employees. In deciding to begin the manufacture of this inherently dangerous Fertilizer"; that by the manufacture of FGAN, the United States "was creating and maintaining a nuisance", and that "each shipment of such Fertilizer was a dangerous public and private nuisance from the time it was manufactured."

employee of the defendant is shown which would, if defendant were a private person, make him liable.

The other is that, if the judgments are not to be reversed and rendered, they must be reversed and remanded, because the findings convicting defendant's employees are clearly erroneous. In support of this view, the appellant insists: that the force and effect of the testimony, considered as a whole is convincing that the findings are so against the great preponderance of the credible evidence that they do not reflect, or represent, the truth and right of the case. *Sanders v. Leech*, 158 F (2) 486. Or, putting it as the Supreme Court has put it in *United States v. Gypsum Co.*, 333 U. S. at p. 395, "A finding is clearly erroneous, when, although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed."

Appellant's third proposition, which is, in treatment, necessarily intertwined with its second above, is that the method and manner of the trial including particularly the advocative violence of the committee, so infected the case with error that instead of its liability *vel non* having been determined in the calm judicial atmosphere of a trial, in which appellant was accorded its full procedural rights, and the members of the committee were held to those to which they were entitled, this was determined in an atmosphere of bickering and contention and by the use of trial procedures which denied it a fair trial. It insists, in short, that the trial was permitted to go so out of bounds<sup>2</sup> that the findings cannot be approved, the judgment cannot stand.

#### APPELLEES COUNTER CONTENTION

Appellees take full issue with appellant on these propositions. On the first proposition, their position is that the terms of the statute and the decisions of the Supreme Court and of the Courts of Appeals, in effect declare that the liability of the United States, in connection with the fertilizer involved in this case, was, and is, properly measured by the liability controlling a private manufacturer of, what appellees say was, an inherently and imminently dangerous, and ultra hazardous, material and commodity.

Insisting that the statute in authorizing suit did not limit the right to sue except as precisely set out in the exceptions, appellees particularly urge upon us that since the statutory exceptions do not specifically exclude liability as a manufacturer, appellant's position on this point is without basis. Pointing to the broad terms of Sec. 2674, Title 28, "The United States shall be liable respecting the provisions of this title relating to tort claims in the same manner and to the same extent as a private individual under like circumstances", appellees insist: that the United States must be held liable in the case of manufactured articles as a private manufacturer would be; and that, since a manufacturer is held liable without fault for putting dangerous articles on the market, which cause injury, the United States must also be held liable without fault. In the alternative, they argue that if it is necessary to prove fault in the sense of negligence or wrong doing on the part of individuals, they have proven this by pointing out the derelictions of named persons in regard to the manufacture and ship-

<sup>2</sup> Cf. *Maryland Cas Co. v. Reid*, 76 F. (2) 30.

ping, the labelling for shipping, and the failure to advise persons who might come in contact with the fertilizer of its dangerous character. So insisting, they say that it is immaterial whether liability without fault is imposed here, as is imposed upon manufacturers of dangerous articles, or liability is imposed for negligence of particular persons.

When it comes to appellant's second proposition, the state of the evidence, appellees insist: *that the evidence is all one way on the issue of negligence; that in fact negligence is established as a matter of law; and that there is no credible evidence to the contrary. They insist, therefore, that the question of errors in the conduct of the trial or in the making of the findings must be disregarded as completely harmless, since, under the evidence, a verdict for them was demanded as a matter of law.*

In the alternative, they urge: that if the findings were not demanded as a matter of law, there was certainly ample evidence to support them; that it cannot be said that they were contrary to the truth and right of the case; and that this being so, they may not be set aside as clearly erroneous.

Upon appellant's third proposition, the procedural points urged, they insist that in the main the district judge precisely followed prescribed procedure, and in the rulings that he made, or did not make, he committed no error. They urge further that if any error was committed, it was harmless since the district judge took the evidence with the case and, though he declined to rule when requested and later he ruled against appellant on many of its objections, he made it clear in his findings: that, in arriving at them, he did not attach any weight or importance to the evidence admitted or excluded by him over defendant's objection, and that the judgment was based only upon evidence wholly unobjected to and undisputed, which fully supported his findings.

They insist, therefore, *that the judgments must be affirmed, on the ground that, as a matter of law, the defendant was liable, as DuPont, or Lion Oil Co., or other manufacturers of fertilizer, would have been for putting out an inherently dangerous article, without taking adequate steps to prevent its becoming dangerous to persons who should come in contact with it, and without giving adequate warning of any dangers that might inhere in it.*

#### APPELLANT'S REPLY

The appellant, while meeting all of these contentions head on, presses hardest upon us, as its primary point: that it was not intended by the statute to make the United States liable except in the special case of specific negligent conduct by specific agents in respect of matters not excluded by the exceptions; that the statute precisely excluded liability without fault, and limited the liability of the United States to cases of specific acts of negligence by specific employees.

Further insisting that the statute was not intended to introduce new and strange liabilities, such as the liability without fault of a manufacturer, and that the whole doctrine of manufacturer's liability is wholly inapposite and inapplicable to the United States, as a tortfeasor under the Act, appellant further argues that it cannot be said upon this record: that the evidence established its liability as matter of law; that it showed that the agents of the government charged

with the manufacture and handling of the fertilizer knew, or were charged with knowledge, of its propensity to explode, and failed to take adequate precautions against, or warn people of, this propensity. They particularly insist: that this is a case of hindsight teaching foresight; that the district judge based his finding of liability for the Texas City explosion, which, when it occurred was a completely unlooked for, unprecedented, and wholly unforeseeable occurrence, indeed a nine days' wonder, not upon facts then known and understood, but upon experiments and investigations made afterwards, and upon the erroneous view that these experiments, and the testimony of witnesses who made them, were admission against interest of appellant.

*Appellant points out: that it is fundamental law that negligence must be proved and not presumed; that the standard is not insurance, but the exercise of due care; that the foreseeability required is not an absolute foreseeability, but the foreseeability of a reasonably prudent person.*

So pointing, it insists that, except for the worked up tension and excitement in the case, because of the size of the explosion and the large amounts being sued for, the findings would not have been made; that, in short, had this been a small case of a small loss, no one would have found the defendant negligent for not knowing what nobody else knew until after the explosion and the Picatinny and other tests were made; and that the findings must be disregarded as clearly erroneous because contrary to the great weight and sense of the testimony taken as a whole.

Finally, it urges upon us that, if all the evidence that was admissible had been allowed to come in, and all that was inadmissible had been kept out, and the really admissible evidence supported the findings, the case was yet tried under such pressures and in such an atmosphere and the procedures adopted and carried out through the trial present so many errors, both of omission and commission, that the trial and the findings are deprived of effect, and defendant is entitled to have the issues, presented by the pleadings and the evidence, retried. Pointing out that this is especially necessary in this case when the result of so many suits were made to depend upon the decision of one trial, appellant insists that for this trial to stand, as the standard and measure of liability in all of these cases, is to work a complete perversion and denial of justice, and that if the case is not reversed and rendered, there should certainly be a reversal and remand.

As a last resort, it complains of the fact that the court attempted to start interest running on all the claims by entering judgment settling liability on all of them before any adjudication on the amounts thereof had been had.

Approaching these claims and counter-claims from the small end of the telescope, I am of the clear opinion that appellant is right in its attack upon the judgments as providing for interest in violation of the statute before the amounts have been determined, and that to that extent the judgments should be reversed. I am also of the clear opinion that the judgments must be reversed for procedural errors inherent in the way and manner in which the case was tried.

Particularly erroneous and prejudicial were (1) the refusal of the court to allow the government to take depositions because it would not turn over to the plaintiffs the F. B. I. records; (2) the admission of the Picatinny and other arsenal tests and testimony as admissions

against the interest of the government ; and (3) the conduct of the trial generally with undue limitation of the procedural rights of the defendant and undue enlargement of the procedural rights of the plaintiffs.

The next step which the appellant urges us to take, to downrightly hold that, procedural errors aside, the findings are clearly erroneous, would not, if it were not for the procedural points, be so easy to take. Because, however, of the way the case was tried, because, too, of the too sweeping nature of the findings and conclusions, I agree with the appellant that the findings are contrary to the truth and right of the case and clearly erroneous, and the judgments should, therefore, be reversed and the cause remanded for trial anew.

When it comes to the final step which appellant urges us to take, to reverse and render because no recoverable claim was alleged, or, if alleged, as a matter of law none was proven, I find myself unable to take the step. It seems to me that a case against the government was pleaded that and if the trial had not been marred by errors of procedure in the reception and rejection of evidence and in other respects, there was evidence which, if believed, would have been sufficient to sustain a recovery.

Judge Rives has, in his opinion, put the case for the government, as to its non liability as matter of law, as well I think as it could be put, and, if I could agree with his primary position, I should agree with his conclusions. I find nothing, however, in the statute itself, nothing in any decided case, which, in my opinion, supports the application of the views advanced by him to facts of this kind. What was said in the *Sickman* case, 184 F (2) 616, about discretion does not, in my opinion, carry the matter to the point Judge Rives' opinion seems to me to carry it, that because of the discretionary character of the operation, the government would not be liable for negligence in the higher echelons, and that if persons in these should direct the doing of something in its nature completely dangerous, there could be no responsibility in tort for what was done or not done in connection with it.

As I understand the reasoning it is that, since the matter was within the discretionary sphere, neither those who gave the orders, nor the government, would be responsible, and, therefore, those who carried out their orders exactly as given could not be.

I am in no doubt that the district judge erred in holding that the program was in its nature so dangerous that it constituted a public nuisance and its mere undertaking was wrongful. Neither am I in any that the appellees are wholly mistaken in claiming, as they do at page 195 of their brief, that the government can be held liable without fault for putting out an ultra hazardous material.

I find it very difficult though to understand how, under the precise language of the Tort Claims Act, liability can be escaped if it is made to appear that the act or omission of an employee of the government in the execution of a statute or regulation was not in the exercise of due care.

It seems to me that such decisions as we have rendered under the Tort Claims Act, *St. Louis, etc. v. U. S.*, 187 F (2) 925, and *Costley v. U. S.*, 181 F (2) 723, are contrary to this view. It seems to me, too, that all of the decisions of the Supreme Court and of the other federal courts, which I have read, are in favor of a broad construction of the act and against what seems to me the extremely narrow view invoked and applied here.

In the situation, then, in which I find myself, I am compelled to dissent from the opinion of the majority that no case was stated on the pleadings, and, as matter of law, none was made out. I think the contrary is true, and that a case was stated on the theory: that the product was ultra hazardous and dangerous; that this was known, or, in the exercise of due care, ought to have been known; that a reasonably prudent person, therefore, manufacturing and putting it out, as the United States was doing, ought to, and would have known its liability to explode and would have given more warning of that fact than was done here. I think too that if, on a retrial the proof makes out the case alleged, the United States must be held liable as Hercules Powder Co. or Du Pont Co., or any other private manufacturer would be, not for having undertaken to make FGAN, or even for making and shipping it as it did, *but, if it did not, because it did not, give the warnings* required of a reasonably prudent person to put people dealing with it on notice of its character and the dangers of dealing with it.

I am in no doubt, though, that, because of the procedural errors attending its trial, and because the sweeping findings and conclusions are, upon this record, clearly erroneous and cannot stand, all of the judgments must be reversed and the causes remanded for further and not inconsistent proceedings.

# SUPREME COURT OF THE UNITED STATES

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346 U. S. 15

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<p>Elizabeth H. Dalehite, Henry G. Dalehite, Jr., et al., Petitioners,  v. United States of America.</p>	}	<p>On Writ of Certiorari to the United States Court of Appeals for the Fifth Circuit.</p>
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[June 8, 1953.]

MR. JUSTICE REED delivered the opinion of the Court.

Petitioners seek damages from the United States for the death of Henry G. Dalehite in explosions of fertilizer with an ammonium nitrate base, at Texas City, Texas, on April 16 and 17, 1947. This is a test case, representing some 300 separate personal and property claims in the aggregate amount of two hundred million dollars. Consolidated trial was had in the District Court for the Southern District of Texas on the facts and the crucial question of federal liability generally. This was done under an arrangement that the result would be accepted as to those matters in the other suits. Judgment was rendered following separate proof of damages for these individual plaintiffs in the sum of \$75,000. Damages in the other claims remain to be determined. The Court of Appeals for the Fifth Circuit unanimously reversed, however, *In re Texas City Disaster Litigation*, 197 F. 2d 771, and we granted certiorari, 344 U. S. 873, because the case presented an important problem of federal statutory interpretation.

The suits were filed under the Federal Tort Claims Act, 28 U. S. C. §§ 1346, 2671-2678, 2680. That Act waived sovereign immunity from suit for certain specified torts of federal employees. It did not assure injured persons damages for all injuries caused by such employees.

The Act provides that the federal district courts, “[s]ubject to the provisions of [the act],” are to have:

“exclusive jurisdiction of civil actions on claims against the United States, for money damages, accruing on and after January 1, 1945, for injury or loss of property, or personal injury or death caused by the negligent or wrongful act or omission of any employee of the Government while acting within the scope of his office or employment, under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred.” § 1346 (b).

There is an exception from the scope of this provision. Section 2680 reads:

“The provisions of this chapter and § 1346 (b) of this title shall not apply to—

“(a) Any claim based upon an act or omission of an employee of the Government, exercising due care, in the execution of a statute or regulation, whether or not such statute or regulation be valid, or based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused.”

Suing under this grant of jurisdiction, the plaintiffs claimed negligence, substantially on the part of the entire body of federal officials and employees involved in a program of production of the material—Fertilizer Grade Ammonium Nitrate (FGAN hereafter)—in which the original fire occurred and which exploded. This fertilizer had been produced and distributed at the instance, according to the specifications and under the control of the United States.

The adaptability of the material for use in agriculture had been recognized long prior to 1947. The Government's interest in the matter began in 1943 when the TVA, acting under its statutory delegation to undertake experiments and "manufacture" fertilizer, 48 Stat. 61, 16 U. S. C. § 831d, first began production for commercial purposes.<sup>1</sup> TVA used plant facilities formerly used for production of ammonium nitrate for explosives. In the year 1943, the War Production Board, responsible for the production and allocation of war materials, Exec. Order 9024, January 16, 1942, 7 Fed. Reg. 329, instituted a program of yearly production of 30,000 tons a month of FGAN for private domestic agricultural use through plants no longer required for ammunition production. Administration was to be carried on through the Army's Bureau of Ordnance. The TVA specifications were followed and advice given by its experts. This early production for domestic use furnished a test for manufacture and utility of FGAN.

The particular FGAN involved at Texas City came to be produced for foreign use for these reasons: Following the World War II hostilities, the United States' obligations as an occupying power,<sup>2</sup> and the danger of internal unrest, forced this Government to deal with the problem of feeding the populations of Germany, Japan and Korea. Direct shipment of foodstuffs was impractical; available fertilizer was in short supply, and requirements from the United States were estimated at about 800,000 tons. However, some 15 ordnance plants had been deactivated and turned over to the War Assets Administra-

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<sup>1</sup> The Hercules Powder Company held the original Cairns Explosives Patent on the FGAN process, which contemplated a product substantially similar to that finally produced by the Government including the use of an organic insulater. See p. 5, *infra*.

<sup>2</sup> The Hague Conventions of 1899 (II) and 1907 (IV) Respecting the Laws and Customs of War on Land, Article 43.

tion, 44 CFR, Part 401, for disposal. Under-Secretary of War Royall suggested in May of 1946, and Secretary Patterson agreed, that these be used for production of fertilizer needed for export.<sup>3</sup> The Director of the Office of War Mobilization and Reconversion, 58 Stat. 785, 50 U. S. C. App. § 1651 *et seq.* (1944 ed.) § 1651 (c), acting under the power delegated by the President in Exec. Order 9347, May 27, 1943, 8 Fed. Reg. 7207, and Exec. Order 9488, October 3, 1944, 9 Fed. Reg. 12145, ordered the plants into operation. Cabinet approval followed. The War Department allocated funds from its appropriations for "Supplies" and "Military Posts" for 1946; direct appropriations for relief in the occupied areas were made by Congress in the following year.<sup>4</sup> The Army's Chief of Ordnance was delegated the responsibility for carrying out the plan, and was authorized particularly to enter into cost-plus fixed fees contracts with private companies for the operation of the plants' facilities. He in turn appointed the Field Director of Ammunition Plants (FDAP) to administer the program. Thereafter the Department entered into a number of contracts with private firms—including the du Pont Co. and Hercules Powder Co.—to "operate the installations . . . described herein for the graining of ammonium nitrate (fertilizer grade)," but subjecting "the work to be done by the Contractor . . . to the general supervision, direction, control and approval of the Contracting Officer." A detailed set of specifications was drawn up and sent to each plant

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<sup>3</sup> These were capable of producing 70,000 tons a month.

<sup>4</sup> Military Appropriation Act of 1946, 59 Stat. 384, 390, 395 (1945), and Military Appropriation Act of 1947, 60 Stat. 541, 560 (1946). The latter was mentioned as directed toward the fertilizer program. Hearings before a Subcommittee of the Senate Committee on Appropriations on H. R. 6837, 79th Cong., 2d Sess. 16, 85. See also H. J. Res. 153, 61 Stat. 125, May 31, 1947, specifically appropriating moneys for relief assistance of all kinds.

which included "FDAP Specifications for Products" and a similar TVA paper. Army personnel were appointed for each plant. These were responsible for the application of these specifications, liaison with supply officials, and satisfaction of production schedules, pursuant to an Army Standard Operating Procedure. Beyond this, operations were controlled by the administering corporation which supplied the personnel and production experience required.<sup>5</sup>

FGAN's basic ingredient was ammonium nitrate, long used as a component in explosives. Its adaptability as a fertilizer stemmed from its high free nitrogen content. Hercules Powder Company had first manufactured a fertilizer compound in this form on the basis of Cairn's Explosive Patent, No. 2,211,738, of August 13, 1940. The Cairn's process contemplates a product substantially identical to the Texas City FGAN. The process was licensed to the United States. The Government produced ammonium nitrate at certain other federal plants, and shipped it in solution to the reactivated graining centers for concentration. Thereafter, in addition to clay, a mixture of petrolatum, rosin and paraffin (PRP hereafter) was added to insure against caking through water absorption. The material was then grained to fertilizer specification, dried and packaged in 6-ply paper bags, marked "Fertilizer Ammonium Nitrate."

At the inception of the program, however, it appeared that these particular plants were unable to produce sufficient quantities of fertilizer to meet the early needs of the planned allocation. So early shipments to the occupied territories were made up of lots privately produced, and released to the War Department by the Combined

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<sup>5</sup> By 1946, at least two companies in addition to Hercules were producing FGAN commercially.

Food Board and purchased by the United States, pursuant to an allocation arrangement approved by the Board acting through the Civilian Production Administration, established by Exec. Order 9638, October 4, 1945, 10 Fed. Reg. 12591. Thereafter the private producers could replenish their supply for private sale by purchasing government-produced FGAN, if they so desired.

The particular FGAN transported to Texas City had been produced at three of the plants activated by the Government for the foreign fertilizer program, and allotted to the Lion Oil Co., which had previously sold FGAN to the Army pursuant to their sell-back agreement. The agreement provided that title was to pass to Lion on payment. The original contract of sale to the Army having provided that Lion could designate a recipient other than itself for the replacement FGAN, Lion contracted with the Walsen Company for resale. Walsen operated as broker for the French Supply Council representing the French Government which had secured a preferential fertilizer allocation from the Civilian Production Administration. Pursuant thereto Walsen transmitted the French shipping orders to Lion who turned them over to the Army for execution. The FGAN was consigned to the French Supply Council at Texas City by government bills of lading. The Council insured the shipment in its own name, arranged for credit with New York banks and assigned part thereof to Lion, sufficient to cover the shipments here involved, payable on presentation of shipping documents. It also directed Lion to "consign all lots French Supply Council for storage and eventual exportation Texas City Terminal Texas."

By April 15, 1947, following three weeks warehouse storage at Texas City on orders of the French Council, some 1,850 tons of the FGAN thus resold had been loaded on the French Government-owned steamship *Grandcamp*, and some 1,000 tons on the privately-owned

*High Flyer* by independent stevedores hired by the French.<sup>6</sup> The *Grandcamp* carried in addition a substantial cargo of explosives, and the *High Flyer* 2,000 tons of sulphur at the time. At about 8:15 a. m. of the next day smoke was sighted in the *Grandcamp* hold and all efforts to halt the fire were unavailing.<sup>7</sup> Both ships exploded and much of the city was leveled and many people killed.

Since no individual acts of negligence could be shown, the suits for damages that resulted necessarily predicated government liability on the participation of the United States in the manufacture and the transportation of FGAN. Following the disaster of course, no one could fail to be impressed with the blunt fact that FGAN would explode. In sum petitioners charged that the Federal Government had brought liability on itself for the catastrophe by using a material in fertilizer which had been used as an ingredient of explosives for so long that industry knowledge gave notice that other combinations of ammonium nitrate with other material might explode. The negligence charged was that the United States, without definitive investigation of FGAN properties, shipped, or permitted shipment to a congested area without warning of the possibility of explosion under certain conditions. The District Court accepted this theory. His judgment was based on a series of findings of causal negligence which, for our purposes, can be roughly divided into three kinds—those which held that the Government had been

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<sup>6</sup> Seventy-five thousand tons of FGAN had been shipped through Texas City during the previous six months.

<sup>7</sup> The *Grandcamp* exploded about an hour after the fire was noticed. Meanwhile the captain of the ship had ordered all personnel off and the hatches closed. Steam was introduced into the holds. All admit that this is normal fire-fighting procedure aboard ships, but that it was less than effective in this case because of the oxidizing properties of the FGAN. Whether or not the captain was negligent this Court is not called upon to say.

careless in drafting and adopting the fertilizer export plan as a whole, those which found specific negligence in various phases of the manufacturing process and those which emphasized official dereliction of duty in failing to police the shipboard loading. The Court of Appeals *en banc* unanimously reversed, but since only three of the six judges explicitly rejected the bulk of these findings, we shall consider the case as one in which they come to us unimpaired. Cf. *Labor Board v. Pittsburgh Steamship Co.*, 340 U. S. 498, 503; *United States v. United States Gypsum Co.*, 333 U. S. 364, 395. Even assuming their correctness *arguendo*, though, it is our judgment that they do not establish a case within the Act.<sup>8</sup> This is for the reason that as a matter of law the facts found cannot give the District Court jurisdiction of the cause under the Tort Claims Act.

I. The Federal Tort Claims Act was passed by the Seventy-ninth Congress in 1946 as Title IV of the Legislative Reorganization Act, 60 Stat. 842, after nearly thirty years of congressional consideration. It was the offspring of

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<sup>8</sup> We are therefore not required to weigh each finding anew as "clearly erroneous." They were characterized below as "profuse, prolific, and sweeping." We agree. Fed. Rules Civ. Proc., Rule 52 (a), in terms, contemplates a system of findings which are "of fact" and which are "concise." The well-recognized difficulty of distinguishing between law and fact clearly does not absolve district court's of their duty in hard and complex cases to make a studied effort toward definiteness. Statements conclusory in nature are to be eschewed in favor of statements of the preliminary and basic facts on which the District Court relied. *Kelley v. Everglades Drainage District*, 319 U. S. 415, and cases cited. Otherwise, their findings are useless for appellate purposes. In this particular case, no proper review could be exercised by taking the "fact" findings of "negligence" at face value. And, to the extent that they are of law, of course they are not binding on appeal. *E. g.*, *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Co.*, 340 U. S. 147, 153-154, and concurring opinion at 155-156.

a feeling that the Government should assume the obligation to pay damages for the misfeasance of employees in carrying out its work. And the private bill device was notoriously clumsy.<sup>9</sup> Some simplified recovery procedure for the mass of claims was imperative. This Act was Congress' solution, affording instead easy and simple access to the federal courts for torts within its scope.<sup>10</sup>

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<sup>9</sup> "In the Sixty-eighth Congress about 2,200 private claim bills were introduced, of which 250 became law. . . .

"In the Seventieth Congress 2,268 private claim bills were introduced, asking more than \$100,000,000. Of these, 336 were enacted, appropriating about \$2,830,000, of which 144, in the amount of \$562,000, were for tort.

"In each of the Seventy-fourth and Seventy-fifth Congresses over 2,300 private claim bills were introduced, seeking more than than \$100,000,000. In the Seventy-sixth Congress approximately 2,000 bills were introduced, of which 315 were approved for a total of \$826,000.

"In the Seventy-seventh Congress, of the 1,829 private claim bills introduced and referred to the Claims Committee, 593 were approved for a total of \$1,000,253.30. In the Seventy-eighth Congress 1,644 bills were introduced; 549 of these were approved for a total of \$1,355,767.12." H. R. Rep. No. 1287, 79th Cong., 1st Sess., p. 2.

<sup>10</sup> Certain tentative experiments in this direction should be noted. In 1855, Congress established the Court of Claims and consented to suit therein on claims based on contract or federal law or regulation. This consent was enlarged in 1887 to include all cases for damages not sounding in tort. At the same time United States District Courts were given concurrent jurisdiction of claims up to \$10,000. In 1910, Congress consented to suits in the Court of Claims for patent infringement. When the Government took over the operation of the railroads during the First World War, Congress made the United States subject to the same responsibility for property damage, personal injury, and death as the private owners would have been. In 1920 and 1925, the Government consented to suits in the district courts upon admiralty and maritime torts involving government vessels, without limitation as to amount.

From the Committee hearings we learn that the previous 85 years had "witnessed a steady encroachment upon the originally unbroken domain of sovereign immunity from legal process for the delicts of its

The meaning of the governmental regulatory function exception from suits, § 2680 (a) shows most clearly in the history of the Tort Claims Bill in the Seventy-seventh Congress. The Seventy-ninth, which passed the Act, held no hearings on the Act. Instead, it integrated the language of the Seventy-seventh Congress, which had first considered the exception, into the Legislative Reorganization Act as Title IV.

Earlier tort claims bills considered by Congress contained reservations from the abdication of sovereign immunity. Prior to 1942 these exceptions were couched in terms of specific spheres of federal activity, such as postal service, the activities of the Securities and Exchange Commission, or the collection of taxes.<sup>11</sup> In 1942, however, the Seventy-seventh Congress drafted a two-fold elimination of claims based on the execution of a regulation or statute or on the exercise of a discretionary function. The language of the bills then introduced in both the House and Senate in fact, was identical with that of § 2680 (a) as adopted.<sup>12</sup> The exception was drafted as a clarifying

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agents. Yet a large and highly important area remains in which no satisfactory remedy has been provided for the wrongs of Government officers or employes, the ordinary 'common law' type of tort, such as personal injury or property damage caused by the negligent operation of an automobile." Hearings before House Committee of Judiciary, 77th Cong., 2d Sess., on H. R. 5373 and H. R. 6463, p. 24.

<sup>11</sup> Such specific exceptions appeared first as an amendment to H. R. 9285, 70th Cong., 1st Sess. The amendment was offered from the floor of the House, 69 Cong. Rec. 3131. See also H. R. 7236 and S. 2690, 76th Cong., 1st Sess.; H. R. 5373, 77th Cong., 2d Sess.

<sup>12</sup> H. R. 6463, 77th Cong., 2d Sess.; S. 2207, 77th Cong., 2d Sess. The first broad governmental exemption was considered in S. 4567, 72d Cong., 1st Sess., and in S. 1833, 73d Cong., 1st Sess., where it was provided that the Government should not be liable for "[a]ny claim on account of the effect or alleged effect of an Act of Congress, Executive order of the President, or of any department or independent establishment."

amendment to the House bill to assure protection for the Government against tort liability for errors in administration or in the exercise of discretionary functions.<sup>13</sup> An Assistant Attorney General, appearing before the Committee especially for that purpose,<sup>14</sup> explained it as avoiding "any possibility that the act may be construed to authorize damage suits against the Government growing out of a legally authorized activity," merely because "the same conduct by a private individual would be tortious." It was not "intended that the constitutionality of legislation, the legality of regulations, or the propriety of a discretionary administrative act should be tested through the medium of a damage suit for tort. The same holds true of other administrative action not of a regulatory nature, such as the expenditure of Federal Funds, the execution of a Federal project and the like."<sup>15</sup> Referring to a prior bill which had not contained the "discretionary function" exemption, the House Committee on the Judiciary was advised that "the cases embraced within [the new] subsection would have been exempted from [the prior] bill by judicial construction. It is not probable that the courts would extend a Tort Claims Act into the realm of the validity of legislation or discretionary administrative action, but H. R. 6463 makes this specific."<sup>16</sup>

The legislative history indicates that while Congress desired to waive the Government's immunity from actions for injuries to person and property occasioned by the tortious conduct of its agents acting within their scope of

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<sup>13</sup> Hearings on H. R. 5373 and H. R. 6403, 77th Cong., 2d Sess., pp. 1, 4.

<sup>14</sup> Hearings before the House Committee on the Judiciary, 77th Cong., 2d Sess., on H. R. 5373 and H. R. 6463, p. 6.

<sup>15</sup> *Ibid.*, pp. 25, 33.

<sup>16</sup> Statement by the then Assistant Attorney General Francis M. Shea at Hearings before the Committee on the Judiciary, H. of Rep., 77th Cong., 2d Sess., on H. R. 5373 and H. R. 6463, p. 29.

business,<sup>17</sup> it was not contemplated that the Government should be subject to liability arising from acts of a governmental nature or function.<sup>18</sup> Section 2680 (a) draws this distinction. Uppermost in the collective mind of Congress were the ordinary common-law torts.<sup>19</sup> Of these, the example which is reiterated in the course of the repeated proposals for submitting the United States to tort liability, is "negligence in the operation of vehicles."<sup>20</sup> On the other hand the Committee's reports explain the boundaries of the sovereign immunity waived, as defined by this § 2680 exception, with one paragraph which

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<sup>17</sup> Hearings before a Subcommittee of the House Committee on Claims, 72d Cong., 1st Sess., on a general tort bill, p. 17; Hearings on H. R. 7236, 76th Cong., 3d Sess., pp. 5, 16; Hearings on S. 2690, 76th Cong., 3d Sess., p. 27; Hearings on H. R. 5373 and H. R. 6463, 77th Cong., 2d Sess., pp. 28, 37, 39, 66. H. R. Rep. No. 2428, 76th Cong., 3d Sess., p. 3; H. R. Rep. No. 2245, 77th Cong., 2d Sess., p. 10; H. R. Rep. No. 1287, 79th Cong., 2d Sess., p. 5; S. Rep. No. 1400, 79th Cong., 2d Sess., p. 31.

<sup>18</sup> H. R. Rep. No. 2800, 71st Cong., 1st Sess., p. 13; Hearings on H. R. 5373 and H. R. 6463, 77th Cong., 2d Sess., pp. 28, 33, 38, 45, 65-66; S. Rep. No. 1196, 77th Cong., 2d Sess., p. 7; H. R. Rep. No. 1287, 79th Cong., 2d Sess., p. 5. 86 Cong. Rec. 12021-12022.

<sup>19</sup> That congressional thought was centered on granting relief for the run-of-the-mine accidents, as distinguished from injury from performing discretionary governmental functions, is indicated by the message of President Franklin D. Roosevelt in 1942 to the 77th Congress recommending passage of a tort claims statute. The President favored a \$7,500 limit on jurisdiction and spoke chiefly of the interference from numerous bills introduced—around two thousand each Congress—and the simplification of procedure for recovery. 88 Cong. Rec. 313-314.

<sup>20</sup> H. R. Rep. No. 2428, 76th Cong., 1st Sess., p. 5; Hearings on H. R. 5373 and H. R. 6463, 77th Cong., 2d Sess., p. 66; Hearings on H. R. 7236, 76th Cong., 3d Sess., pp. 7, 16, 17; Hearings on S. 2690, 76th Cong., 3d Sess., p. 9. 69 Cong. Rec. 2192, 2193, 3118; 86 Cong. Rec. 12024. See also note 8.

appears time and again after 1942, and in the House Report of the Congress that adopted in § 2680 (a) the limitation in the language proposed for the 77th Congress.<sup>21</sup> It was adopted by the Committee in almost the language of the Assistant Attorney General's explanation. This paragraph characterizes the general exemption as "a

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<sup>21</sup> See H. R. Rep. No. 2245, 77th Cong., 2d Sess., p. 10; S. Rep. No. 1196, 77th Cong., 2d Sess., p. 7; H. R. Rep. No. 1287, 79th Cong., 1st Sess., pp. 5-6; Hearings before H. Com. on Judiciary on H. R. 5373 and H. R. 6463, 77th Cong., 2d Sess., p. 33. The paragraph reads as follows:

"Section 402 specifies the claims which would not be covered by the bill.

"The first subsection of section 402 exempts from the bill claims based upon the performance or nonperformance of discretionary functions or duties on the part of a Federal agency or Government employee, whether or not the discretion involved be abused, and claims based upon the act or omission of a Government employee exercising due care in the execution of a statute or regulation, whether or not valid. This is a highly important exception, intended to preclude any possibility that the bill might be construed to authorize suit for damages against the Government growing out of an authorized activity, such as a flood-control or irrigation project, where no negligence on the part of any Government agent is shown, and the only ground for suit is the contention that the same conduct by a private individual would be tortious, or that the statute or regulation authorizing the project was invalid. It is also designed to preclude application of the bill to a claim against a regulatory agency, such as the Federal Trade Commission or the Securities and Exchange Commission, based upon an alleged abuse of discretionary authority by an officer or employee, whether or not negligence is alleged to have been involved. To take another example, claims based upon an allegedly negligent exercise by the Treasury Department of the blacklisting or freezing powers are also intended to be excepted. The bill is not intended to authorize a suit for damages to test the validity of or provide a remedy on account of such discretionary acts even though negligently performed and involving an abuse of discretion. Nor is it desirable or intended that the constitutionality of legislation, or the legality of a rule or regulation should be tested through the

highly important exception, intended to preclude any possibility that the bill might be construed to authorize suit for damages against the Government growing out of authorized activity, such as a flood control or irrigation project, where no negligence on the part of any government agent is shown, and the only ground for the suit is the contention that the same conduct by a private individual would be tortious. . . . The bill is not intended to authorize a suit for damages to test the validity of or provide a remedy on account of such discretionary acts even though negligently performed and involving an abuse of discretion."

II. Turning to the interpretation of the Act, our reasoning as to its applicability to this disaster starts from the accepted jurisprudential principle that no action lies against the United States unless the legislature has authorized it.<sup>22</sup> The language of the Act makes the United States liable "respecting the provisions of this title relating to tort claims, in the same manner and to the same extent as a private individual under like circumstances." 28 U. S. C. § 2674. This statute is another example of the progressive relaxation by legislative enactments of the rigor of the immunity rule. Through such statutes that change the law, organized government

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medium of a damage suit for tort. However, the common-law torts of employees of regulatory agencies would be included within the scope of the bill to the same extent as torts of nonregulatory agencies. Thus, section 402 (5) and (10), exempting claims arising from the administration of the Trading With the Enemy Act or the fiscal operations of the Treasury, are not intended to exclude such common-law torts as an automobile collision caused by the negligence of an employee of the Treasury Department or other Federal agency administering those functions."

<sup>22</sup> *Feres v. United States*, 340 U. S. 135, 139; *United States v. Shaw*, 309 U. S. 495; *United States v. Eckford*, 6 Wall. 484. Cf. Blackstone, Book I, c. 7 (Sovereignty).

expresses the social purposes that motivate its legislation. Of course, these modifications are entitled to a construction that will accomplish their aim,<sup>23</sup> that is, one that will carry out the legislative purpose of allowing suits against the Government for negligence with due regard for the statutory exceptions to that policy. In interpreting the exceptions to the generality of the grant, courts include only those circumstances which are within the words and reason of the exception.<sup>24</sup> They cannot do less since petitioners obtain their "right to sue from Congress [and they] necessarily must take that right subject to such restrictions as have been imposed." *Federal Housing Administration v. Burr*, 309 U. S. 242, 251.

So, our decisions have interpreted the Act to require clear relinquishment of sovereign immunity to give jurisdiction for tort actions.<sup>25</sup> Where jurisdiction was clear,

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<sup>23</sup> *United States v. Yellow Cab Co.*, 340 U. S. 543, 555; *Keifer & Keifer v. Reconstruction Finance Corporation*, 306 U. S. 381.

<sup>24</sup> *United States v. Dickson*, 15 Pet. 141, 165; *Walling v. Jacksonville Paper Co.*, 317 U. S. 564, 571; *A. H. Phillips v. Walling*, 324 U. S. 490, 493.

<sup>25</sup> In *Feres v. United States*, 340 U. S. 135, this Court held that the Act did not waive immunity for tort actions against the United States for injuries to three members of the Armed Forces while on active duty. The injuries were allegedly caused by negligence of employees of the United States. The existence of a uniform compensation system for injuries to those belonging to the armed services led us to conclude that Congress had not intended to depart from this system and allow recovery by a tort action dependent on state law. Recovery was permitted by a service man for nonservice disabilities in *Brooks v. United States*, 337 U. S. 49.

In *United States v. Spelar*, 338 U. S. 217, we held that our courts did not have jurisdiction to try a tort action for injury by a federal employee to a complainant because of an accident at our air base in Newfoundland. This conclusion was reached because of the exception § 2680 (k) of "Any claim arising in a foreign country." The sovereignty of the United States did not extend over the base.

though, we have allowed recovery despite arguable procedural objections.<sup>26</sup>

One only need read § 2680 in its entirety to conclude that Congress exercised care to protect the Government from claims, however negligently caused, that affected the governmental functions. Negligence in administering the Alien Property Act, or establishing a quarantine, assault, libel, fiscal operations, etc., were barred. An analysis of § 2680 (a), the exception with which we are concerned, emphasizes the congressional purpose to except the acts here charged as negligence from the authorization to sue.<sup>27</sup> It will be noted from the form of the

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<sup>26</sup> *United States v. Aetna Casualty & Surety Co.*, 338 U. S. 366. Insurance Company, as subrogee of the person injured, may bring suit under the Act in spite of Anti-Assignment Statute.

*United States v. Yellow Cab Co.*, 340 U. S. 543. United States may be sued for contribution, and also be impleaded as a third party defendant.

<sup>27</sup> The statute is unique in Anglo-American jurisprudence in its explicit exception for discretion. The English Crown Proceedings Act, 1947, contains nothing directly comparable, though see § 11, saving the "prerogative of the Crown," 6 Halsbury's Statutes of England (2d ed.) 56. The extent of this provision is not entirely clear, but 6 Halsbury's Laws of England (2d ed.) 443-590, assumes the term to cover a wide area of official activities, including "the rules and regulations [and] the exercise of discretionary authority" by "the customary officers and department," under parliamentary enactments. *Ibid.*, 459-460. Street, Tort Liability of the State, 47 Mich. L. Rev. 341, 353, however, seems to indicate that the principal protection for the exercise of official discretion will come through the accepted principles of the common law as to torts of public officials acting within their delegated authority. See also Barnes, The Crown Proceedings Act, 1947, 26 Canadian Bar. J. 387, 390, and The Crown Proceedings Act, 1950, 28 New Zealand L. J. 49, 50, 52-53.

Australia and New Zealand had had similar statutes for some years. They left "open to grave doubt how far, if at all, it was intended by those Acts to give the subject rights of action which in result would interfere seriously with the ordinary administrative

Petitioners assert that in the manufacturing . . . of FGAN, . . . the Government was not charged with any discretionary function or opportunity of discretion, but was charged with the duty of due and reasonable care.

“This Court has always applied the theory of discretionary function only to the executive and legislative levels, and has made such function the basis of freedom from interference by the courts a personal one to the particular executive or the legislative branch. Such discretionary function may not be delegated down to subordinates and to others.”

“The Government’s argument, adopted by Judge Rives, is that the responsible Government employees were choosing between alternative courses of action in the steps they took. . . . The argument is that the alleged negligence was in the exercise of ‘discretion’ simply because it involved a choice.

“The negligence involved here was far removed from any Cabinet decision to provide aid to Germans and Japanese. . . . It is directed only to the mistakes of judgment and the careless oversight of Government employees who were carrying out a program of manufacturing and shipping fertilizer and who failed to concern themselves as a reasonable man should with the safety of others. . . . Congress delegated to Ordnance no ‘discretion’ thus to commit wrong.”

It is unnecessary to define, apart from this case, precisely where discretion ends. It is enough to hold, as we do, that the “discretionary function or duty” that cannot form a basis for suit under the Tort Claims Act includes more than the initiation of programs and activities. It also includes determinations made by executives or ad-

ministrators in establishing plans, specifications or schedules of operations.<sup>31</sup> Where there is room for policy judgment and decision there is discretion. It necessarily follows that acts of subordinates in carrying out the operations of government in accordance with official directions cannot be actionable. If it were not so, the protection of § 2680 (a) would fail at the time it would be needed, that is, when a subordinate performs or fails to perform a causal step, each action or nonaction being directed by the superior, exercising, perhaps abusing, discretion.<sup>32</sup>

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<sup>31</sup> There are, of course, American state cases which are premised on a similar policy judgment. *E. G. Barrett v. State of New York*, 220 N. Y. 423; *Golstein v. State of New York*, 281 N. Y. 396. Similarly in England the courts have been wary not to penalize discretionary acts of public bodies. One of the more interesting cases in the field is *East Suffolk Rivers Catchment Board v. Kent*, [1941] A. C. 74, involving certain allegedly negligence activities by the Board in draining inundated lands of the private plaintiffs. Lord Romer stated that the Board, under its enabling act, merely had the power to drain; "whether or not they should exercise that power was a matter entirely within their own discretion." "I know of no authority for the proposition that in selecting the time within which, the extent to which, and the method by which its statutory power is to be exercised [the Board] owes any duty whatsoever." *Ibid.*, at 97, 98. See also *Shappard v. Glossop Corporation*, [1921] 3 K. B. 132: "[the statute] leaves it to [the Corporation's] discretion whether they will light the district or any part of it, and how long the lamps shall be kept lit in any portion of the district which they elect to light." See also *Whiting v. Middlesex County Council*, [1948] 1 K. B. 162.

<sup>32</sup> The courts that have passed upon the application of § 2680 (a) to suits under the Tort Claims Act have interpreted the exception of discretionary functions, generally, in conformity with our holding that negligence in policies or plans for authorized governmental activities cannot support damage suits.

Plaintiff in *Boyle v. United States*, 93 F. Supp. 866, charged that he had suffered damage by virtue of certain governmentally-conducted blasting operations. The United States by way of affirmative defense, showed that the blasting had been conducted pursuant to

III. That the cabinet-level decision to institute the fertilizer export program was a discretionary act is not seriously disputed. Nor do we think that there is any doubt that the need for further experimentation with

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detailed plans and specifications drawn by the Chief of Engineers who, in turn, had been specifically delegated "discretion of the broadest character" to draft a plan for deepening the Mississippi River channel. The exception was applied. There have been several cases of like import dealing with the execution of waterway projects. In *Coates v. United States*, 181 F. 2d 816, damages were sought for injury to crops and land from action of the Government in negligently changing the course of the Missouri. It was held that no jurisdiction existed under the Act. The case was followed in *North v. United States*, 94 F. Supp. 824. There the plaintiff was denied recovery for injury to his cellar and cess pool occasioned by a Government dam having raised the level of the local ground water. A like result obtained in *Lauterback v. United States*, 95 F. Supp. 479, where claimant sued to recover damages resulting from release of flood waters at Bonneville Dam.

*Olson v. United States*, 93 F. Supp. 150, involved another claim of water damage. In that case, employees of the Fish and Wildlife Service were alleged to have "wilfully and intentionally opened the gates" of a certain dam, causing loss of plaintiff's livestock. The dam was operated for "the purpose of storing water for the propagating of fish and wildlife" and the court held that "when flood waters are to be released and how much water is to be released certainly calls for the exercise of judgment." 93 F. Supp., at 152-153. *Sichman v. United States*, 184 F. 2d 616, also invoked § 2680 (a). There plaintiff unsuccessfully sought recovery for crop deprivations by wild birds induced to feed on his land by a nearby governmental game preserve.

In *Toledo v. United States*, 95 F. Supp. 838, plaintiffs automobile had been damaged by a partially rotten tree falling perchance at a time when he had parked under it. The tree had been planted and grown at a government plant experimental station in Puerto Rico. It was open to the public for instruction and observation. The opinion holds that the operation of the station itself, and the decision to plant and preserve this particular tree to further its experimental purposes, was "peculiarly within the discretion of the appropriate employees of the Station," but that negligent removal would not have been. 95 F. Supp., at 841.

FGAN to determine the possibility of its explosion, under conditions likely to be encountered in shipping, and its combustibility was a matter to be determined by the discretion of those in charge of the production. Obviously, having manufactured and shipped the commodity FGAN for more than three years without even minor accidents, the need for further experimentation was a matter of discretion. Reported instances of heating or bag damage were investigated and experiments, to the extent deemed necessary, were carried on. In dealing with ammonium nitrate in any form, the industry, and of course Ordnance, was well aware that care must be taken. The best indication of the care necessary came from experience in FGAN production. The TVA had produced FGAN since 1943, and their experience, as we have indicated, pp. 4-5, was not only available to Ordnance but was used by them to the most minute detail. It is, we think, just such matters of governmental duties that were excepted from the Act.

We turn, therefore, to the specific acts of negligence charged in the manufacture. Each was in accordance with, and done under, specifications and directions as to how the FGAN was produced at the plants. The basic "Plan" was drafted by the office of the Field Director of Ammunitions Plants in June, 1946, prior to beginning production.<sup>33</sup> It was drawn up in the light of prior experience by private enterprise and the TVA. In fact it was,

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<sup>33</sup> This Plan "contains a tabulation of the installations involved together with pertinent information on those installations for use both in this part and in connection with Part 400; rates of production; description of production processes; information on inspection and acceptance; and information on shipping and storage. This part does not include requirements for the production facilities, recommendations for the operation of these facilities, and problems and methods involved in their administration, which are covered in succeeding parts."

as we have pointed out, based on the latter agency's engineering techniques, and specifically adopted the TVA process description and specifications.<sup>34</sup> This Plan was distributed to the various plants at the inception of the program.

Besides its general condemnation of the manufacture of FGAN, the District Court cited four specific acts of negligence in manufacture.<sup>35</sup> Each of these acts looked upon as negligence was directed by this Plan. Applicable excerpts follow. Bagging temperature was fixed.<sup>36</sup> The type of bagging<sup>37</sup> and the labeling thereof<sup>38</sup> were also established. The PRP coating, too, was included in the specifications.<sup>39</sup> The acts found to have

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<sup>34</sup> "The provisions of this chapter and section 1346 (b) of this title shall not apply to . . . any claim based on the activities of the Tennessee Valley Authority." 28 U. S. C. § 2680 (1).

<sup>35</sup> See Appendix, p. 30, this opinion.

<sup>36</sup> "Water shall be turned off and discharging of kettle commenced when temperature reaches 200° F."

The relevance of the bagging temperature apparently stemmed from certain testimony that large masses of FGAN, if maintained at temperatures of around 300° F. might spontaneously ignite under certain conditions of mass and confinement. The Government proffered extensive evidence, however, that the FGAN shipped to Texas City did not leave the plants at nearly that temperature, and of course there is no evidence as to the temperature at which it was loaded on the ships.

<sup>37</sup> "*Packaging.*—Ammonium nitrate for fertilizer shall be packed 100 lbs. per bag. Moisture proof paper or burlap bags, as described below, shall be used. (Specifications as to size may have to be altered to meet the manufacturer's requirement)." Then follow detailed specifications.

<sup>38</sup> Marking: Fertilizer (Ammonium Nitrate) 32.5% Nitrogen.

Notice of contents appeared on the bill of lading, so far as important, as follows: 1,000 Bags, Fertilizing Compounds (manufactured fertilizer) NOIBN, dry in paper bags.

<sup>39</sup> "The PRP mixture is composed of one part Paraffin, three parts rosin, and one part petrolatum, thoroughly mixed and melted. This provides a coating which repels moisture and holds the clay in place around each granule."

been negligence were thus performed under the direction of a plan developed at a high level under a direct delegation of plan-making authority from the apex of the Executive Department. The establishment of this Plan, delegated to the Field Director's Office, *supra*, p. 4, clearly required the exercise of expert judgment.

This is to be seen, for instance, in the matter of the coating. The PRP was added in order to insure against water absorption. At stake was no mere matter of taste; ammonium nitrate when wet cakes and is difficult to spread on fields as a fertilizer. So the considerations that dictated the decisions were crucial ones, involving the feasibility of the program itself, balanced against present knowledge of the effect of such a coating and the general custom of similar private industries.

And, assuming that high bagging temperatures in fact obtained as the District Court found, the decision to bag at the temperature fixed was also within the exception. Maximum bagging temperatures were first established under the TVA specifications. That they were the product of an exercise of judgment, requiring consideration of a vast spectrum of factors, including some which touched directly the feasibility of the fertilizer export program, is clear. For instance, it appears several times in the record that the question of bagging temperatures was discussed by the Army plant officials, among others. In January, 1947, the Bureau of Explosives of the Association of American Railroads wrote to Ordnance concerning a box-car fire of FGAN. The letter suggested a reduction of bagging temperatures. The Field Director of Ammunition Plants consulted the commanding officers on the matter. Those of two of the plants which manufactured the Texas City FGAN replied that loading was effected at about 200°. Both, however, recommended that reduced temperatures would be inadvisable. It would be possible to keep the product in graining kettles for a longer

period or to install cooling equipment. But both methods would result in greatly increased production costs and/or greatly reduced production. This kind of decision is not one which the courts, under the Act, are empowered to cite as "negligence"; especially is this so in the light of the contemporary knowledge of the characteristics of FGAN.<sup>40</sup>

As well, serious judgment was involved in the specification of the bag labels and bills of lading. The importance of this rests on the fact that it is the latest point in time and geography when the Government did anything directly related to the fire, for after bagging the FGAN was of course physically in the hands of various non-governmental agents. So, since there was serious room for speculation that the most direct operative fact causing the immediate fire on the *Grandcamp* arose from errors that the French Council, longshoremen or ship staff committed, it was and is important for the petitioners to emphasize the seriousness of the alleged labeling mistake.

This, too, though, falls within the exception for acts of discretion. The Plan had been prepared in this regard

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<sup>40</sup> Captain Hirsch, commanding one of the three plants which manufactured the Texas City FGAN, wrote to the Field Director's Office requesting "that your office stipulate a maximum temperature at which the fertilizer may be loaded in order to eliminate" bag deterioration through heat. In reply, the Office stated that it "has had discussions concerning a loading temperature lower than 200° F. for ammonium nitrate fertilizer, but it is felt that this is a matter of process control and not properly an item to be incorporated into specifications." Hirsch interpreted this as meaning that "this facility should not take any active interest in the condition that the ammonium nitrate fertilizer reaches its destination." In reply from the Field Director's Office, this was labeled a distortion of our statement concerning the bagging temperature as a matter of process control into indifference to any aspect of acceptability or suitability." The specifications were left unchanged as to bags or bagging temperatures.

by the Transportation Officer of the Director's Office. His decision in the matter was dictated by the ICC regulations. These did not provide for a specific classification for the material other than as fertilizer. Labeling it as anything but "oxidizing material" was not required—indeed was probably forbidden—and even this requirement was waived for bags of less than 200 pounds. To the extent, then, that the Army had a choice in the matter, its decision not to seek to list its FGAN in any other fashion was within the exception. The immunity of a decision as to labeling, in fact, is quite clearly shown by the fact that the ICC's regulations, for instance, could not be attacked by claimants under the Act by virtue of the first phrase of § 2680 (a).

In short, the alleged "negligence" does not subject the Government to liability. The decisions held culpable were all responsibly made at a planning rather than operational level and involved considerations more or less important to the practicability of the Government's fertilizer program.

"There must be knowledge of a danger, not merely possible, but probable," *MacPherson v. Buick Motor Co.*, 217 N. Y. 382, 389. Here, nothing so startling was adduced. The entirety of the evidence compels the view that FGAN was a material that former experience showed could be handled safely in the manner it was handled here. Even now no one has suggested that the ignition of FGAN was anything but a complex result of the interacting factors of mass, heat, pressure and composition.

IV. The findings of negligence on the part of the Coast Guard in failing to supervise the storage of the FGAN, and in fighting the fire after it started, were rejected by a majority of the Court of Appeals. 197 F. 2d 777, 780, 781. We do not enter into an examination of these factual findings. We prefer, again, to rest our decision on the Act.

The District Court's holding that the Coast Guard and other agencies were negligent in failing to prevent the fire by regulating storage or loading of the fertilizer in some different fashion is like his specific citations of negligence discussed above. They are classically within the exception. "The power to adopt regulations or by-laws . . . for the preservation of the public health, or to pass ordinances prescribing and regulating the duties of policemen and firemen . . . are generally regarded as discretionary, because, in their nature, they are legislative." *Weightman v. Corporation of Washington*, 1 Black 39, 49. The courts have traditionally refused to question the judgments on which they are based. *Zywicki v. Jos. R. Foard Co.*, 206 F. 975; *Gutowski v. Mayor of Baltimore*, 127 Md. 502; *State v. General Stevedoring Co.*, 312 F. 51.

As to the alleged failure in fighting the fire, we think this too without the Act. The Act did not create new causes of action where none existed before.

". . . the liability assumed by the Government here is that created by 'all the circumstances,' not that which a few of the circumstances might create. We find no parallel liability before, and we think no new one has been created by, this Act. Its effect is to waive immunity from recognized causes of action and was not to visit the Government with novel and unprecedented liabilities." *Feres v. United States*, 340 U. S. 135, 142.

It did not change the normal rule that an alleged failure or carelessness of public firemen does not create private actionable rights. Our analysis of the question is determined by what was said in the *Feres* case. See 28 U. S. C. §§ 1346 and 2674. The Act, as was there stated, limited United States liability to "the same manner and to the same extent as a private individual under like cir-

cumstances." 28 U. S. C. § 2674. Here, as there, there is no analogous liability; in fact, if anything is doctrinally sanctified in the law of torts it is the immunity of communities and other public bodies for injuries due to fighting fire. This case, then, is much stronger than *Feres*. We pointed out only one state decision which denied government liability for injuries incident to service to one in the state militia. That cities, by maintaining fire-fighting organizations, assume no liability for personal injuries resulting from their lapses is much more securely entrenched. The Act, since it relates to claims to which there is no analogy in general tort law, did not adopt a different rule. See *Steitz v. City of Beacon*, 295 N. Y. 51. To impose liability for the alleged nonfeasance of the Coast Guard would be like holding the United States liable in tort for failure to impose a quarantine for, let us say, an outbreak of foot-and-mouth disease.

V. Though the findings of specific and general negligence do not support a judgment of government liability, there is yet to be disposed of some slight residue of theory of absolute liability without fault. This is reflected both in the District Court's finding that the FGAN constituted a nuisance, and in the contention of petitioner here. We agree with the six judges of the Court of Appeals, 197 F. 2d 771, 776, 781, 786, that the Act does not extend to such situations, though of course well known in tort law generally. It is to be invoked only on a "negligent or wrongful act or omission" of an employee. Absolute liability, of course, arises irrespective of how the tortfeasor conducts himself; it is imposed automatically when any damages are sustained as a result of the decision to engage in the dangerous activity. The degree of care used in performing the activity is irrelevant to the application of that doctrine. But the statute requires a negligent act. So it is our judgment that liability does not arise by virtue either of United States ownership of an "inherently

dangerous commodity" or property, or of engaging in an "extra hazardous" activity. *United States v. Hull*, 195 F. 2d 64, 67.

Petitioners rely on the word "wrongful" though as showing that something in addition to negligence is covered. This argument, as we have pointed out, does not override the fact that the Act does require some brand of misfeasance or nonfeasance, and so could not extend to liability without fault; in addition, the legislative history of the word indicates clearly that it was not added to the jurisdictional grant with any overtones of the absolute liability theory. Rather, Committee discussion indicates that it had a much narrower inspiration: "trespasses" which might not be considered strictly negligent. Hearings before a Subcommittee of the Senate Committee on the Judiciary on S. 2690, 76th Cong., 3d Sess. 43-44. Had an absolute liability theory been intended to have been injected into the Act, much more suitable models could have been found, see *e. g.*, the Suits in Admiralty Act, 41 Stat. 525, 46 U. S. C. § 742-743, in regard to maintenance and cure. Street, *Tort Liability of the State*; the Federal Tort Claims Act and the Crown Proceedings Act, 47 Mich. L. Rev. 341, 350.

*Affirmed.*

MR. JUSTICE DOUGLAS and MR. JUSTICE CLARK took no part in the consideration or decision of this case.

## APPENDIX.

The District Court's analysis of the specific aspects of the manufacture was foreshadowed by his theory of the foreseeability of the risk which he set out early in the findings. His first finding of fact contained these words: "This record discloses blunders, mistakes, and acts of negligence, both of omission and commission, on the part of Defendant, its agents, servants, and employees, in deciding to begin the manufacture of this inherently dangerous Fertilizer." It was his conclusion that, through early experiments, the United States had "learned many facts, but did not pursue such investigation far enough to learn all the facts, . . . . What facts it did learn, however, were sufficient to give Defendant knowledge and to put Defendant on notice, and if not, then upon inquiry that would if pursued, have led to knowledge and notice that such Fertilizer which it decided to and began to manufacture was an inherently dangerous and hazardous material, a dangerous explosive, and a fire hazard. Such facts learned by Defendant pointed to and showed that such Fertilizer should not be manufactured, in that it was, under certain conditions and circumstances, most dangerous to everyone handling it in any way and to the public. Yet Defendant's servants, agents and employees, in whose hands Defendant had left the matter, negligently went forward in the manufacture, handling, distribution, shipping, etc. of such Fertilizer. . . .

"After the manufacture and/or the shipping, distribution, and handling of Fertilizer had begun, there were experiments, events and incidents of which Defendant knew, or of which Defendant could have known by the use of the diligence of a reasonably prudent person, showing such Fertilizer to be very dangerous, both from the standpoint of fire and explosion. With this knowledge, Defendant should have ceased the manufacture and sale of such Fertilizer, or should have taken steps to insure the safety of persons manufacturing and handling such Fertilizer and the public. . . ."

"Defendant in manufacturing such Fertilizer, and particularly the Fertilizer on the Grandcamp and High Flyer, did so by a Formula made and evolved by Defendant or under its direction. It used as a coating of such Fertilizer, a substance or substances which rendered same highly susceptible to fire or explosion. There were various types of coating, but the coating finally used made the Fertilizer a very dangerous explosive and fire hazard. More than any other one thing, I think this coating made this commodity one of the most dangerous of explosives, . . . ."

“ . . . Such Fertilizer was by Defendant, or under its direction, placed or sacked in bags made from paper or other substances which were easily ignited by contact with fire or by spontaneous combustion or spontaneous ignition of the Fertilizer. Such bags also become torn and ragged in shipping and particles of the bags became mixed with the Fertilizer and rendered same more dangerous and more susceptible to fire and explosion.”

“ . . . Such Fertilizer was placed and packed in bags at high degrees of temperature, which temperature rendered the Fertilizer more susceptible to fire and explosion. Such Fertilizer was so packed that it did not get cool, but continued at high temperature while being shipped. This was particularly true of the Fertilizer which exploded on the Steamships Grandcamp and High Flyer. Same was packed in sacks at a high degree of temperature, which temperature continued with only slight reduction, if any, when the Fertilizer was shipped across the nation to Texas City and there loaded onto such Steamships.”

“Defendant was negligent in the manner in which it marked and labelled such sacks of Fertilizer, including the Fertilizer on the Grandcamp and High Flyer, in that same was not labelled and marked as a dangerous explosive and fire hazard as required by the Rules and Regulations of the Interstate Commerce Commission. . . .

“ . . . It was the duty of Defendant, well knowing as it did the dangerous nature and character of such Fertilizer which Defendant shipped or caused to be shipped to Texas City, to notify and advise all the carriers handling same, including the Steamships Grandcamp and High Flyer, and to notify and advise the City and State Officers at Texas City, of the dangerous nature and character of such Fertilizer, to the end that such carriers and their employees and such officers could, if possible, protect themselves and the public against the danger of fires from and explosions of such Fertilizer.”

The District Court concluded:

“Clearly such Fertilizer ought never to have been manufactured. From the beginning on down, it was a dangerous commodity and a dangerous nuisance.”

# SUPREME COURT OF THE UNITED STATES

No. 308.—OCTOBER TERM, 1952.

<p>Elizabeth H. Dalehite, Henry G. Dalehite, Jr., et al., Petitioners,  v. United States of America.</p>	}	<p>On Writ of Certiorari to the United States Court of Appeals for the Fifth Circuit.</p>
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[June 8, 1953.]

MR. JUSTICE JACKSON, joined by MR. JUSTICE BLACK and MR. JUSTICE FRANKFURTER, dissenting.

All day, April 15, 1947, longshoremen loaded bags of ammonium nitrate fertilizer aboard the S. S. *Grandcamp*, docked at Texas City, Texas. Shortly after 8 a. m. next morning, when work resumed, smoke was seen coming from the No. 4 hold and it was discovered that fire had broken out in the fertilizer. The ship's master ordered the hatch covered and battened down and steam was introduced into the hold. Local fire-fighting apparatus soon arrived, but the combined efforts to extinguish the fire were unavailing. Less than an hour after smoke was first seen, 880 tons of fertilizer in the No. 4 hold exploded and, in turn, detonated the fertilizer stored in the No. 2 hold. Fire spread to the dock area of Texas City and to the S. S. *High Flyer*, berthed at an adjoining pier and carrying a cargo of sulphur and ammonium nitrate fertilizer. Further efforts to extinguish or even contain the fire failed and, about 11 p. m., tugs unsuccessfully attempted to tow the *High Flyer* out to sea. Shortly after one o'clock on the morning of April 17, the sulphur and fertilizer aboard the *High Flyer* exploded, demolishing both that ship and the S. S. *Wilson B. Keene*, lying alongside. More than 560 persons perished in this holocaust, and some 3,000 were injured. The entire dock area of

a thriving port was leveled and property damage ran into millions of dollars.

This was a man-made disaster; it was in no sense an "act of God." The fertilizer had been manufactured in Government-owned plants at the Government's order and to its specifications. It was being shipped at its direction as part of its program of foreign aid. The disaster was caused by forces set in motion by the Government, completely controlled or controllable by it. Its causative factors were far beyond the knowledge or control of the victims; they were not only incapable of contributing to it, but could not even take shelter or flight from it.

Over 300 suits were brought against the United States under the Federal Tort Claims Act, alleging that its negligence was responsible for the disaster. After consolidating the suits, the District Court ordered the case of the present petitioners to be tried. The parties to all of the suits, in effect, agreed that the common issue of the Government's negligence should abide the outcome of this test litigation. The Court of Appeals for the Fifth Circuit reversed the trial court's judgment in favor of petitioners.<sup>1</sup> Supporting that reversal, the Government here urges that (1) a private person would not be liable in these circumstances, and (2) even if a private person were liable, the Government is saved from liability by the statute's exception of discretionary acts.<sup>2</sup>

This is one of those cases that a judge is likely to leave by the same door through which he enters. As we have been told by a master of our craft, "Some theory of liability, some philosophy of the end to be served by tightening or enlarging the circle of rights and remedies, is at the root of any decision in novel situations when analogies

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<sup>1</sup> *In re Texas City Disaster Litigation*, 197 F. 2d 771.

<sup>2</sup> 28 U. S. C. § 2680.

are equivocal and precedents are silent.”<sup>3</sup> So, we begin by avowing a conception of the function of legal liability in cases such as this quite obviously at variance with the approach of the Court.

Congress has defined the tort liability of the Government as analogous to that of a private person. Traditionally, one function of civil liability for negligence is to supply a sanction to enforce the degree of care suitable to the conditions of contemporary society and appropriate to the circumstances of the case. The civil damage action, prosecuted and adjusted by private initiative, neither burdening our overworked criminal processes nor confined by the limits of criminal liability, is one of the law's most effective inducements to the watchfulness and prudence necessary to avoid calamity from hazardous operations in the midst of an unshielded populace.

Until recently, the influence of the Federal Government has been exerted in the field of tort law to tighten liability and liberalize remedies.<sup>4</sup> Congress has even imposed criminal liability without regard to knowledge of danger

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<sup>3</sup> Cardozo, *The Growth of the Law*, p. 102. (Emphasis his own.)

<sup>4</sup> See, *e. g.*, the Federal Employers' Liability Act, 45 U. S. C. § 51 *et seq.*, which abolished the defense of assumption of risk and changed contributory negligence from a complete bar to recovery to a factor which mitigated damages; the Jones Act, 46 U. S. C. § 688 *et seq.*, which gave a cause of action against their employers to seamen, under the substantive rules of the F. E. L. A.; the Federal Employees Compensation Act of 1916, 5 U. S. C. § 751 *et seq.*, in which the Government set up a compensation system for its own employees; the Longshoremen's and Harbor Workers' Compensation Act, 33 U. S. C. § 901 *et seq.*, which sets up a system of workmen's compensation for the described employees and imposes liability without fault on their employers. In cases arising under the last-named Act, the Government is a party to judicial review of any award, representing the interests of the claimant. See *O'Leary v. Brown-Pacific-Maxon, Inc.*, 340 U. S. 504.

or intent where potentially dangerous articles are introduced into interstate commerce.<sup>5</sup> But, when the Government is brought into court as a tort defendant, the very proper zeal of its lawyers to win their case and the less commendable zeal of officials involved to conceal or minimize their carelessness militate against this trend. The Government, as a defendant, can exert an unctuous persuasiveness because it can clothe official carelessness with a public interest. Hence, one of the unanticipated consequences of the Tort Claims Act has been to throw the weight of government influence on the side of lax standards of care in the negligence cases which it defends.

It is our fear that the Court's adoption of the Government's view in this case may inaugurate an unfortunate trend toward relaxation of private as well as official responsibility in making, vending or transporting inherently dangerous products. For we are not considering here every-day commodities of commerce or products of nature but a complex compound not only proven by the event to be highly dangerous, but known from the beginning to lie somewhere within the range of the dangerous. Ammonium nitrate, as the Court points out, had been "long used as a component in explosives." This grade of it was manufactured under an explosives patent, in plants formerly used for the manufacture of ordnance, under general supervision of the Army's Chief of Ordnance, and under the local direction of the Army's Field Director of Ammunition Plants. Advice on detailed operations was sought from such experienced commercial producers of high explosives as the du Ponts and the Atlas and the Hercules powder concerns. There is not the slightest basis for any official belief that this was an innocuous product.

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<sup>5</sup> *Boyce Motor Lines v. United States*, 342 U. S. 337.

Because of reliance on the reservation of governmental immunity for acts of discretion, the Court avoids direct pronouncement on the duty owing by the Government under these circumstances but does sound overtones and undertones with which we disagree. We who would hold the Government liable here cannot avoid consideration of the basic criteria by which courts determine liability in the conditions of modern life. This is a day of synthetic living, when to an ever-increasing extent our population is dependent upon mass producers for its food and drink, its cures and complexions, its apparel and gadgets. These no longer are natural or simple products but complex ones whose composition and qualities are often secret. Such a dependent society must exact greater care than in more simple days and must require from manufacturers or producers increased integrity and caution as the only protection of its safety and well-being. Purchasers cannot try out drugs to determine whether they kill or cure. Consumers cannot test the youngster's cowboy suit or the wife's sweater to see if they are apt to burst into fatal flames. Carriers, by land or by sea, cannot experiment with the combustibility of goods in transit. Where experiment or research is necessary to determine the presence or the degree of danger, the product must not be tried out on the public, nor must the public be expected to possess the facilities or the technical knowledge to learn for itself of inherent but latent dangers. The claim that a hazard was not foreseen is not available to one who did not use foresight appropriate to his enterprise.

Forward-looking courts, slowly but steadily, have been adapting the law of negligence to these conditions.<sup>6</sup> The

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<sup>6</sup> Judge Lummas, for the Supreme Judicial Court of Massachusetts, articulated this development in *Carter v. Yardley Co., Ltd.*, 319 Mass. 92, 64 N. E. 2d 693. That opinion contains what is perhaps

law which by statute determines the Government's liability is that of the place where the negligent act or omission occurred.<sup>7</sup> This fertilizer was manufactured in Iowa and Nebraska, thence shipped to Texas. Speculation as to where the negligence occurred is unnecessary, since each of these jurisdictions recognizes the general proposition that a manufacturer is liable for defects in his product which could have been avoided by the exercise of due care.<sup>8</sup> Where there are no specific state decisions on the

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a more decisive statement of the trend than does the earlier landmark opinion of Judge Cardozo for the New York Court of Appeals, *MacPherson v. Buick Motor Co.*, 217 N. Y. 382, 111 N. E. 1050. The following cases represent examples of the type of claims based on damage from complex manufactured products which come before appellate tribunals in the present day. *Coleman Co. v. Gray*, 192 F. 2d 265 (absence of safety device on gasoline vapor pressing iron); *Roettig v. Westinghouse Mfg. Co.*, 53 F. Supp. 588 (explosion of heating unit in electric stove); *Escola v. Coca-Cola Bottling Co. of Fresno*, 24 Cal. 2d 453, 150 P. 2d 436 (defect in Coca-Cola bottle); *Gall v. Union Ice Co.*, 108 Cal. App. 2d 303, 239 P. 2d 48 (absence of warning label on drum of sulfuric acid which burst); *Lindroth v. Walgreen Co.*, 407 Ill. 121, 94 N. E. 2d 847 (defective vaporizer which melted, causing fire which burned plaintiff); *Ebers v. General Chemical Co.*, 310 Mich. 261, 17 N. W. 2d 176 (damage from chemical designed to kill peach-tree borers); *Willey v. Fyrogas Co.*, — Mo. —, 251 S. W. 2d 635 (defect in automatic cutoff valves on gas heater); *Di Vello v. Gardner Machine Co.* (Ohio Com. Pl.), 102 N. E. 2d 289 (disintegrating grinding wheel); *Saena v. Zenith Optical Co.*, — W. Va. —, 65 S. E. 2d 205 (exploding gas coffee maker). Recovery was not had in all of these cases, but all of them have emphasized that the manufacturer owes some duty of care to certain classes of people who might be injured by defects in his product.

<sup>7</sup> 28 U. S. C. § 1346.

<sup>8</sup> *McAfee v. Travis Gas Corp.*, 137 Tex. 314, 153 S. W. 2d 442; *Texas Drug Co. v. Caldwell* (Tex. Civ. App.) —, writ dismissed, 237 S. W. 968; *Tegler v. Farmers Union Gas & Oil Co.*, 124 Neb. 336, 246 N. W. 721. As recently as 1949, Circuit Judge Duffy, in discussing Iowa law which was applicable in a diversity suit in

point, federal judges may turn to the general doctrines of accepted tort law, whence state judges derive their governing principles in novel cases. We believe that whatever the source to which we look for the law of this case, if the source is as modern as the case itself, it supports the exaction of a higher degree of care than possibly can be found to have been exercised here.

We believe it is the better view that whoever puts into circulation in commerce a product that is known or even suspected of being potentially inflammable or explosive is under an obligation to know his own product and to ascertain what forces he is turning loose. If, as often will be the case, a dangerous product is also a useful one, he is under a strict duty to follow each step of its distribution with warning of its dangers and with information and directions to keep those dangers at a minimum.

It is obvious that the Court's only choice is to hold the Government's liability to be nothing or to be very heavy, indeed. But the magnitude of the potential liability is due to the enormity of the disaster and the multitude of its victims. The size of the catastrophe does not excuse liability but, on its face, eloquently pleads that it could not have resulted from any prudently operated Government project, and that injury so sudden and sweeping should not lie where it has fallen. It should at least raise immediate doubts whether this is one of those "discretionary" operations Congress sought to immunize from

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federal court, said that the Supreme Court of Iowa had not yet passed squarely on the question, but was of the opinion that they would follow the weight of authority. *Anderson v. Linton*, 178 F. 2d 304. An older Iowa case imposes a duty of care on dealers in potentially dangerous substances, at least as to those in contractual privity. *Ellis v. Republic Oil Co.*, 133 Iowa 11, 110 N. W. 20; and even the Government here does not rely on the absence of contractual privity to bar petitioners from recovery.

liability. With this statement of our general approach to the liability issue, we turn to its application to this case.

In order to show that even a private person would not be liable, the Government must show that the trial court's findings of fact are clearly erroneous.<sup>9</sup> It points to what it claims are patent errors in the lengthy findings made upon a record of over 30,000 pages in 39 printed volumes and apparently urges upon us a rule of "*error in uno, error in omnibus*." We cannot agree that some or even many errors in a record such as this will impeach all of the findings. We conclude that each individual finding must stand or fall on the basis of the evidence to support it. The trial judge found that the explosions resulted from a fire in the fertilizer which had started by some process akin to spontaneous combustion, and that the Government was negligent in failing to anticipate and take precautions against such an occurrence.

The Government's attack on the purely factual determination by the trial judge seems to us utterly unconvincing. Reputable experts testified to their opinion that the fire could have been caused by spontaneous combustion. The Government's contention that it was probably caused by someone smoking about the hold brought forth sharp conflict in the testimony. There was no error in adopting one of two permissible inferences as to the fire's origin. And, in view of the absence of any warning that FGAN was inflammable or explosive, we would think smoking by longshoremen about the job would not be an abnormal phenomenon.

The evidence showed that this type of fertilizer had been manufactured for about four years at the time of the explosion in Texas City. Petitioner's experts testified

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<sup>9</sup> Rule 52 (a), Fed. Rules Civ. Proc.

to their belief that at least a segment of informed scientific opinion at the time regarded ammonium nitrate as potentially dangerous, especially when combined with carbonaceous material as it was in this fertilizer. One witness had been hired by the War Production Board to conduct tests into explosion and fire hazards of this product. The Board terminated these tests at an intermediate stage, against the recommendation of the laboratory and in the face of the suggestion that further research might point up suspected but unverified dangers. In addition, there was a considerable history over a period of years of unexplained fires and explosions involving such ammonium nitrate. The zeal and skill of government counsel to distinguish each of these fires on its facts appears to exceed that of some of the experts on whose testimony they rely. The Government endeavored to impeach the opinions of petitioner's experts, introduced experts of its own, and sought to show that private persons who manufactured similar fertilizer took no more precautions than did the Government.

In this situation, even the simplest government official could anticipate likelihood of close packing in large masses during sea shipment, with aggravation of any attendant dangers. Where the risk involved is an explosion of a cargo-carrying train or ship, perhaps in a congested rail yard or at a dock, the producer is not entitled as a matter of law to treat industry practice as a conclusive guide to due care. Otherwise, one free disaster would be permitted as to each new product before the sanction of civil liability was thrown on the side of high standards of safety.

It is unnecessary that each of the many findings of negligence by the trial judge survive the "clearly erroneous" test of appellate review. Without passing on the rest of his findings, we find that those as to the duty of

further inquiry and negligence in shipment and failure to warn are sufficient to support the judgment.<sup>10</sup> We construe these latter findings not as meaning that each omission in the process of bagging, shipping, and failure to warn, if standing alone, would have imposed liability on the Government, but rather that due care is not consistent with this seriatim resolution of every conflict between safety and expediency in favor of the latter. This Court certainly would hold a private corporation liable in this situation, and the statute imposes the same

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<sup>10</sup> The following are excerpts from the findings of the trial judge: "(g) . . . [Defendant] learned many facts, but did not pursue such investigation far enough to learn all the facts, but negligently stopped short of learning all of the facts. What facts it did learn, however, were sufficient to give Defendant knowledge and to put Defendant on notice, and if not, then upon inquiry that would if pursued, have led to knowledge and notice that such fertilizer which it decided to and began to manufacture was an inherently dangerous and hazardous material, a dangerous explosive, and a fire hazard. . . . (l) Defendant was negligent in the manner in which it prepared such Fertilizer, including the Fertilizer on the Grandcamp and High Flyer, for shipment. Such Fertilizer was by Defendant, or under it [sic] direction, placed or sacked in bags made from paper or other substances which were easily ignited by contact with fire or by spontaneous combustion or spontaneous ignition of the Fertilizer. Such bags also became torn and ragged in shipping and particles of the bags became mixed with the Fertilizer and rendered same more dangerous and more susceptible to fire and explosion. Such negligence was the proximate cause of such fires and explosions and the injuries of which Plaintiffs complain. . . . (o) Defendant was negligent in delivering or causing to be delivered such Fertilizer, including the Fertilizer on the Grandcamp and High Flyer, so placed in paper bags to the railroad and other carriers over which it was shipped, without informing such carriers that it was dangerous, inflammatory, and explosive in character, and that it was dangerous to persons handling same and to the public. Such negligence was the proximate cause of such fires and explosions and the injuries of which Plaintiffs complain."

liability upon the Government unless it can bring itself within the Act's exception, to which we now turn.<sup>11</sup>

The Government insists that each act or omission upon which the charge of negligence is predicated—the decisions as to discontinuing the investigation of hazards, bagging at high temperature, use of paper-bagging material, absence of labeling and warning—involved a conscious weighing of expediency against caution and were therefore within the immunity for discretionary acts provided by the Tort Claims Act. It further argues, by way of showing that by such a construction the reservation would not completely swallow the waiver of immunity, that such discretionary decisions are to be distinguished from those made by a truck driver as to the speed at which he will travel so as to keep the latter within the realm of liability.

We do not predicate liability on any decision taken at "Cabinet level" or on any other high-altitude thinking. Of course, it is not a tort for government to govern, and the decision to aid foreign agriculture by making and delivering fertilizer is no actionable wrong. Nor do we find any indication that in these deliberations that any decision was made to take a calculated risk of doing what was done, in the way it was done, on the chance that what did happen might not happen. Therefore, we are not deterred by fear that governmental liability in this case

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<sup>11</sup> 28 U. S. C. § 2680: "The provisions of this chapter and section 1346 (b) of this title shall not apply to—

"(a) Any claim based upon an act or omission of an employee of the Government, exercising due care, in the execution of a statute or regulation, whether or not such statute or regulation be valid, or based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused. . . ."

would make the discretion of executives and administrators timid and restrained. However, if decisions are being made at Cabinet levels as to the temperature of bagging explosive fertilizers, whether paper is suitable for bagging hot fertilizer, and how the bags should be labeled, perhaps an increased sense of caution and responsibility even at that height would be wholesome. The common sense of this matter is that a policy adopted in the exercise of an immune discretion was carried out carelessly by those in charge of detail. We cannot agree that all the way down the line there is immunity for every balancing of care against cost, of safety against production, of warning against silence.

On the ground that the statutory language is not clear, the Government seeks to support its view by resort to selections from an inconclusive legislative history. We refer in the margin to appropriate excerpts which, in spite of the Court's reliance on them, we believe support our conclusion in this case.<sup>12</sup>

The Government also relies on the body of law developed in the field of municipal liability for torts which deal with discretionary, as opposed to ministerial, acts. Whatever the substantiality of this dichotomy, the cases which have interpreted it are in hopeless confusion; some have used "discretionary" and "ministerial" interchangeably with "proprietary" and "governmental," while others have rather uncritically borrowed the same terminology

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<sup>12</sup> See n. 21 of the Court's opinion. We believe that this oft-repeated paragraph appearing in the House Reports shows quite plainly that what was meant is that type of discretion which government agencies exercise in regulating private individuals. The majority chooses instead to fix an amorphous, all-inclusive meaning to the word, and then to delimit the exception not by whether an act was discretionary but by who exercised the discretion. The statute itself contains not the vaguest intimation of such a test which leaves actionable only the misconduct of file clerks and truck drivers.

from the law of mandamus.<sup>13</sup> But even cases cited by the Government hold that, although the municipality may not be held for its decision to undertake a project, it is liable for negligent execution or upkeep.<sup>14</sup>

We think that the statutory language, the reliable legislative history, and the common-sense basis of the rule regarding municipalities, all point to a useful and proper distinction preserved by the statute other than that urged by the Government. When an official exerts governmental authority in a manner which legally binds one or many, he is acting in a way in which no private person could. Such activities do and are designed to affect, often deleteriously, the affairs of individuals, but courts have long recognized the public policy that such official shall be controlled solely by the statutory or administrative mandate and not by the added threat of private damage suits. For example, the Attorney General will not be liable for false arrest in circumstances where a private person performing the same act would be liable,<sup>15</sup> and such cases could be multiplied.<sup>16</sup> The official's act might inflict just as great an injury and might be just as wrong as that of the private person, but the official is not answerable. The exception clause of the Tort Claims Act protects the public treasury where the common law would protect the purse of the acting public official.

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<sup>13</sup> See Patterson, Ministerial and Discretionary Official Acts, 20 Mich. L. Rev. 848.

<sup>14</sup> *E. g.*, *Keely v. Portland*, 100 Me. 260, 262, 61 A. 180, 183; *Cumberland v. Turney*, 177 Md. 297, 311, 9 A. 2d 561, 567; *Gallagher v. Tipton*, 133 Mo. App. 557, 113 S. W. 674.

<sup>15</sup> *Gregoire v. Biddle*, 177 F. 2d 579.

<sup>16</sup> *Spalding v. Vilas*, 161 U. S. 483 (Postmaster General); *Wilkes v. Dinsman*, 7 How. 89 (officer of Marine Corps); *Otis v. Watkins*, 9 Cranch 339 (Deputy Collector of Customs); *Yaselli v. Goff*, 12 F. 2d 396, aff'd 275 U. S. 503 (Special Assistant to the Attorney General). The overwhelming weight of authority in the states is to the same effect. See 42 Am. Jur. § 257.

But many acts of government officials deal only with the housekeeping side of federal activities. The Government, as landowner, as manufacturer, as shipper, as warehouseman, as shipowner and operator, is carrying on activities indistinguishable from those performed by private persons. In this area, there is no good reason to stretch the legislative text to immunize the Government or its officers from responsibility for their acts, if done without appropriate care for the safety of others. Many official decisions even in this area may involve a nice balancing of various considerations, but this is the same kind of balancing which citizens do at their peril and we think it is not within the exception of the statute.

The Government's negligence here was not in policy decisions of a regulatory or governmental nature, but involved actions akin to those of a private manufacturer, contractor, or shipper. Reading the discretionary exception as we do, in a way both workable and faithful to legislative intent, we would hold that the Government was liable under these circumstances. Surely a statute so long debated was meant to embrace more than traffic accidents. If not, the ancient and discredited doctrine that "The King can do no wrong" has not been uprooted; it has merely been amended to read, "The King can do only little wrongs."

TENNESSEE VALLEY AUTHORITY,  
DEPARTMENT OF CHEMICAL ENGINEERING,  
Wilson Dam, Ala., July 28, 1945.

SPECIFICATIONS AND INFORMATION RELATIVE TO PRODUCTION  
OF AMMONIUM NITRATE FOR AGRICULTURAL PURPOSES

INTRODUCTION

The successful use of ammonium nitrate for agricultural purposes depends upon making a product having desirable physical characteristics. To provide the best possible product, the producer can (a) make a coarsely granular material, (b) coat the granules to prevent caking, and (c) ship the product in moistureproof containers.

Proper granulation plus the use of moistureproof bags will maintain the uncoated product in a drillable condition for a short period, about 10 days. However, if the granules are carefully coated according to the method specified herein and then packaged in moistureproof containers, the product may be kept in a drillable condition for several months.

Coarsely granular ammonium nitrate can be produced by controlling the hi-pan fudge point and by careful cooling in the kettles. The plus 35-mesh material in a well-grained product will approach 80 percent.

The coating operation is performed in two steps: (1) application of liquid paraffin-rosin-petrolatum (PRP) mixture and (2) addition of very fine inert clay. The PRP mixture is composed of 1 part paraffin, 3 parts rosin, and 1 part petrolatum, thoroughly mixed and melted. This provides a coating which repels moisture and holds the clay in place around each granule.

EVAPORATING AND GRAINING PROCEDURE

Using TVA or similar ammonium nitrate solution, the instructions given below should result in production of properly coated large grains of ammonium nitrate:

1. Fudge point: 302° to 304° F. The best granulation cannot be obtained with a fudge point below 302° F. There is no objection to a fudge point as high as 308° F.

2. When steaming out line before dumping a hi-pan batch, the condensate shall be caught in a bucket and returned to an unfinished pan. Water getting into the kettle from any source is to be avoided, since in effect this is the same as running a low fudge point.

3. Kettles shall be preheated with 40-pound steam for 10 minutes before filling. Steam shall be turned off as soon as liquor starts running into the kettles. This preheating is necessary because the shock cooling that occurs if the liquor runs into a cold kettle yields a small size grain.

4. Batch size may be varied to suit size of kettles, but it is convenient to fill kettles with 2,000-pound batches when feasible.

5. Water shall be admitted to kettle jacket when temperature of material therein is 258° F. This temperature is the maximum at which water cooling should be started. Any higher temperature will materially reduce the grain size. There is no objection to allowing the kettle to cool to a lower temperature before adding cooling water.

6. Add 1 percent PRP mixture to the kettle when the temperature of the material therein reaches 240° F. For a 2000-pound batch, this will be 20 pounds of PRP mixture. See page 6 for preparation of PRP mixture. (See p. 342 of this appendix.)

7. Add the crushed material from the previous batch after the PRP mixture has become thoroughly incorporated. The temperature of material in the kettle at this point should be about 230° F.

8. Add 4 percent of conditioning material (clay, kieselguhr, or whatever other material has been specially authorized). The conditioning material should be added sufficiently in advance of dumping to permit thorough mixing with the ammonium nitrate. With this restriction, it is desirable to add the conditioner as late as possible in the cycle.

9. Water shall be turned off and discharging of kettle commenced when temperature reaches 200° F.

10. The sample for the hatch should be obtained as follows: Using a 2-ounce dipper, one dip shall be taken from each kettle before the kettle is half empty and then poured through an 8- or 10-mesh screen into the sample bottle.

11. If the kettles are to be refilled immediately, the preheating steam may be turned on them as soon as the water is cut off.

12. *It is dangerous to put sweepings or any other treated ammonium nitrate into the hi-pans.* The following rules should be followed:

- (a) Keep the floors thoroughly clean.
- (b) If there is any trash in the material when swept up, pick it out carefully by hand.
- (c) Clean up after each run and dump the cleaned sweepings into the next kettle when ready to discharge. *Never put any sweepings into the hi-pan.*
- (d) Oversize ammonium nitrate shall be crushed and recycled to the kettle as specified in item 7. *Never remelt the oversize.*

#### BAGGING AND LOADING

The material from the kettles is to be bagged in moistureproof bags meeting the specifications shown on page 11. Each bag must contain a minimum of 100 pounds net of ammonium nitrate fertilizer. The allowable limits of gross weight variation (bag plus material) are 101 to 102½ pounds. The importance of accurate weighing cannot be overemphasized. The producer does not want to give material away through overweight and the consumer does not want to receive less than he has purchased. A platform scale shall be available for checking purposes. Any bag that is not weighed to the mark on the bagging scale shall be set on this platform scale and material added or taken out of the bag until the weight is correct.

The head operator shall see that both scales are checked at the beginning of his shift and shall weigh bags periodically during the shift as a check on the bagger and the scales. Each scale should be checked as follows:

1. The scale shall be cleaned and the weights removed from the counterbalance. An empty bag of the type in use shall be hung on the scale.
2. The sliding weights shall be adjusted on the bar until the hand comes to the pointer. The weights shall then be tightened.
3. Scale weights shall be placed back on the counterbalance.
4. Two 50-pound test weights shall be placed in the bag and hung on the scale. If the scale is in good order, the hand will come to the pointer.

A maintenance man shall check on the scales daily for worn or defective parts and for accuracy. Operators shall be made entirely responsible for cleaning the scales.

Unless valve-type bags are used or a bag-sewing machine is available, it will be necessary to close the bag with a wire tie. These ties should be applied above the middle of the empty part of the bag and must be pulled tight enough so that the wire cannot be slipped off the top of the bag. Two wire ties should be used on all export orders. Before tying the multiwall paper bag, the two inner layers of paper should be folded down to make an airtight seal.

Railroad cars must be thoroughly cleaned and all protruding nails removed before any bags are placed in them. Rough floors or walls shall be covered with heavy paper. The whole car or only certain rough spots may need covering. The doorway shall be braced on all cars and the bracing shall be covered with heavy paper. After the last bracing is in place the bags shall be moved against it in order to prevent load shifting. When loading is completed, material in the car shall be nearly level from one end of the car to the other. Bags shall be so placed that no shifting is possible while in transit. Both the supervisor and the foreman shall assure themselves that each of these instructions is closely followed.

#### PREPARATION OF PARAFFIN-ROSIN-PETROLATUM MIXTURES

The PRP mixture shall contain one part paraffin, three parts rosin, and one part petrolatum, all by weight. The ingredients shall be melted and thoroughly mixed, after which the mixture is ready for use or storage either in liquid or solid form. If it is to be kept liquid, the temperature should be 150° F. or more. It is essential that the PRP mixture be kept moisture free. It is possible to buy the prepared PRP mixture.

## CONDITIONING MATERIALS

## VENDORS

Inquiries were sent to five to ten vendors for each of the following materials (except clay). The following list includes only those vendors that replied and indicated any possibility of being able to supply the material.

*Petrolatum*

Pennsylvania Refining Company, Butler, Pennsylvania.  
Valvoline Oil Company, 527 East Fifth Street, Cincinnati, Ohio.  
Sinclair Refining Company, 630 Fifth Avenue, New York, New York.  
Gulf Refining Company, Maison Blanche Building, New Orleans, Louisiana.  
Shell Oil Company, 32 Peachtree Street N.W., Atlanta, Georgia.  
Starlight Refining Company, Inc., Karns City, Pennsylvania.

*Rosin*

Newport Industries, Inc., New York, New York.  
Taylor and Lowenstein and Company, Mobile, Alabama.  
Hercules Powder Company, Wilmington, Delaware.  
Turpentine and Rosin Factors, Inc., Jacksonville, Florida.  
Peninsular-Lurton Company, Pensacola, Florida.  
Columbia Naval Stores Company, Savannah, Georgia.  
Continental Turpentine and Rosin Corporation, Laurel, Mississippi.  
Crosby Naval Stores, Inc., Picayune, Mississippi.

*Paraffin*

Mid-Continent Petroleum Corp., Rockefeller Plaza, New York, New York.  
Valvoline Oil Company, 527 East Fifth Street, Cincinnati, Ohio.

*PRP Mixture*

Mr. John O. Lewis, % Relaco Rosin Products, Inc., Box 4757, Jacksonville, Florida.

*Kieselguhr*

The Dicalite Company, 120 Wall Street, New York, New York.  
Johns-Manville Sales Corporation, 22 East Fortieth Street, New York, N. Y.

*Clay*

The following companies have branches in this area:

H. C. Spinks Clay Company, P. O. Box 256, Newport, Kentucky.  
Thomas Alabama Kaolin Company, Baltimore, Md. (Mr. Thomas, Hackleburg, Ala.).  
Edgar Plastic Kaolin Company, Metuchen, New Jersey.  
United Clay Mines Corporation, Trenton, New Jersey.  
Kentucky-Tennessee Clay Company, Mayfield, Kentucky.  
R. T. Vanderhilt Company, 230 Park Avenue, New York, New York.  
Harris Clay Company, Dillsboro, North Carolina.  
Ringold Clays, Wildersville and Huntingdon, Tennessee.

## SPECIFICATIONS AND PRICES

*Petrolatum*.—Commercial amber grade or dark crude grade, melting point 118° to 155° F. Petrolatum may vary in color from amber to dark green, depending on the grade. It is absolutely essential that the material be kept water free since any moisture when added to the kettle will affect grain size.

The price for petrolatum should be about \$45 per ton for the amber grade, or \$30 per ton for the crude grade, in tank-car lots, f. o. b. shipping point. Generally, drum lots would be more expensive; at this time, drums may not be available.

*Rosin*.—Wood grade FF or better. Grade FF material is a dark amber-colored solid with a melting point range of 180° to 200° F. No difficulty should be had in keeping this ingredient dry.

The cost for FF grade rosin should be about \$50 per ton in nonreturnable drums f. o. b. point of shipment in carload lots. Rosin may also be purchased in paper bags or barrels at approximately the same price. The drums contain about 500 pounds of the solid.

*Paraffin*.—Light yellow crude scale wax, melting point 124° to 126° F. semi-refined 128 AMP white crude scale. Any other wax which TVA tests and ap-

proves may be used. As in the case of petrolatum, drums may not be available for use in shipment of this material. The paraffin must also be kept moisture free.

In tank-car lots this material should cost about \$90 per ton f. o. b. shipping point.

*PRP Mixture.*—For best results the homogeneous mixture of petrolatum, rosin, and paraffin wax must conform to the following conditions and specifications:

1. The petrolatum, rosin, and paraffin wax used shall conform to the specifications given below.

2. The mixture shall contain the above ingredients in the following proportions by weight:

Petrolatum .....	20%
Rosin .....	60%
Paraffin Wax .....	20%

3. These ingredients shall be suitably mixed while in a liquid condition so as to form a homogeneous liquid mixture which will not separate into its components on standing.

4. If the consignee's tests on the individual samples or on the mixture delivered in a car show that any material does not meet the specifications or that incorrect proportions have been used, the consignee may reject said car and require the contractor to remove it at his expense. For this purpose the mixture will be tested for acid number by the Rohm and Haas method given in Gardner, for penetration by ASTM test D5-25 at 25° C. using a 100-gram load for five seconds with the standard ASTM needle, and for petroleum ether-insoluble content by the method referred to under the specifications for rosin. The mixture will be considered satisfactory if the values fall within the following ranges:

Acid number .....	90 ( $\pm 5$ ) (*)
Penetration .....	3.5 ( $\pm 1.5$ ) mm.
Petroleum ether-insoluble .....	Less than 7.2%

(a) Higher values are satisfactory if due to the use of higher grades of rosin such as gum rosin.

5. Shipments will be made in insulated tank cars suitably equipped with steam coils for melting the mixture to permit its removal from the car as a liquid.

6. Specifications for the materials are as follows:

*Petrolatum*

Grades: Crude, black, or better.  
Melting Point: 118° to 155° F. (ASTM D127-30).  
Moisture: None.

*Rosin*

Grades: Commercial FF wood, or better, F gum, or better.  
The petroleum ether-insoluble content must be less than 12% as determined by the method given on page 853 in "Physical and Chemical Exam. of Paints, Varnishes, Lacquers, and Colors" by Gardner.

*Paraffin Wax*

Grades:

Light yellow crude scale, melting point 124°–126° F. (ASTM D87-37).  
Semirefined white crude scale, melting point 128° F. (ASTM D87-37).

*Clay.*—Dry kaolin type, less than 1 per cent moisture, 97 per cent minus 200 mesh. Color, plasticity, and bonding power are immaterial. Clay probably will be available from the vicinity of each plant. After being tested and approved by TVA, any clay meeting the above specifications may be used.

*Kieselguhr.*—Dicalite 659 V, Celite 379, or equal. These grades were recommended by the vendors for conditioning ammonium nitrate. The price quotations for these two materials is about \$21 per ton f. o. b. plant in California.

## BAGS, TIES, AND TIERS

## VENDORS

*Burlap Bags*

Bemis Brothers Bag Company, 601 S. Fourth Street, St. Louis, Missouri.  
 Fulton Bag & Cotton Mills, Atlanta, Georgia.  
 Chase Bag Company, 300 W. Jackson Boulevard, Chicago, Illinois.  
 Arkell Safety Bag Company, 10 East Fortleth Street, New York, New York.  
 Cincinnati Industries, Inc., Cincinnati, Ohio.

*Paper Bags (sewn, open mouth or sewn valve)*

St. Regis Paper Company, Bates Valve Bag Division, 26 South 20th Street, Birmingham, Alabama.  
 International Paper Products Division, 220 East 42d Street, New York, N. Y.  
 Raymond Bag Company, Peoria, Illinois.  
 Union Bag & Paper Corp., Woolworth Building, New York, New York.  
 Bemis Brothers Bag Company, Peoria, Illinois.  
 Arkell & Smith, Canajoharie, New York.  
 The Jalte Company, Jalte, Ohio.

*Bag Ties*

St. Louis Steel Product Company, St. Louis, Missouri.  
 Henry A. Potter Supply Company, Paducah, Kentucky.  
 Young & Vann Supply Company, Birmingham, Alabama.  
 Moore and Handley Hardware Company, Birmingham, Alabama.

*Keystone Bag Tier*

Moore and Handley Hardware Company, Birmingham, Alabama.

## SPECIFICATIONS

The fertilizer shall be bagged in moistureproof, paper or burlap bags meeting the following specifications (specifications as to size may have to be altered to meet the manufacturer's equipment).

*Burlap Bags*

1. Moistureproof, burlap bags, size 36 in. cut 42½ inches, in accordance with the following specifications:

*Type Bag.*—Bag shall be open-mouth type, moistureproof burlap bag.

*Material.*—The bag shall have the following constructions, reading from inside to outside:

30 # crinkled kraft  
 55 # asphalt  
 30 # crinkled kraft  
 55 # asphalt  
 10-ounce burlap

*Creping.*—After creping, the paper shall be capable of stretching at least 10 percent in any direction without failure.

*Moistureproofing, Cementing Compound.*—Cementing compound shall be asphaltum having a minimum melting point of 175° F.

*Seam Construction.*—The bag shall have a waterproof cemented center seam with a sewn and taped-over bottom. For export shipment the best results can be obtained by using a sewn closer with bound-over crinkled paper tape, wax dipped.

*Paper Bags*

1. Moistureproof, multi-wall paper bags in accordance with the following specifications:

*Type Bag.*—Sewn, open mouth.

*Size.*—17" x 37¾" with 4" self-forming offset gussets (for bags to be wire tied).

*Construction.*—In order from inside to outside: 1 40-lb. natural, 1 90-lb. asphalt laminated, 2 50-lb. natural, 1 90-lb. asphalt laminated and 1 60-lb. natural kraft sheets. All plies are to be thumb notched. All plies are to be spot pasted except that there shall be no spot pasting or gusset pasting between the second and third plies, counting from the inside to outside. Asphalt used shall have a melting point of approximately 200° F., if possible, but in no case shall this be less than 175° F. Water resistant adhesive shall

be used throughout. Not less than a 12/8 cotton needle thread and a 12/5 cotton looper thread shall be used for stitching the bottom. Paper shall conform to specifications given in paragraph (g) of Schedule I of WPB Limitation Order L-279 (July 14, 1943). Construction details shall conform to specifications given in paragraph D-2 and E in the Federal Standard Stock Catalog UU-S-48 (October 1943).

1a. Same as Item 1 except size shall be 17" x 34½" with 4" self-forming offset gussets and bags shall not be thumb notched (for bags to be closed by sewing).

1b. *Kind.*—Multiwall paper bag.

*Type.*—Sewn valve.

*Size.*—18½" x 35¾" with 4½" gussets.

*Valve.*—5¼" right hand valve with 90 lb. asphalt laminated paper tuck-in sleeve.

*Construction.*—In order from inside to outside: 1 40-lb. natural, 1 90-lb. asphalt laminated, 2 50-lb. natural, 1 90-lb. asphalt laminated, and 1 60-lb. natural kraft sheets. Asphalt used shall have a melting point of approximately 200° F., if possible, but in no case shall this be less than 175° F. Water resistant adhesive shall be used throughout. Not less than 12/8 cotton needle thread and a 12/5 cotton looper thread shall be used for stitching the top and bottom. Paper shall conform to specifications given in paragraph (g) of Schedule I of WPB Limitation Order L-279 (July 14, 1943). Construction details shall conform to specifications given in paragraphs D-2 and E in the Federal Standard Stock Catalog UU-S-48 (October 1943).

#### Bag ties

Wire ties of black, 16-gage, annealed wire, 9 inches over-all length, and looped at both ends.

#### SPECIFICATIONS AND ANALYTICAL PROCEDURE DETAILED REQUIREMENTS

*Chemical Requirements.*—Ammonium nitrate fertilizer shall conform with requirements shown in Table I, as determined by the analytical procedures given below:

TABLE I.—*Chemical Requirements—Ammonium Nitrate Fertilizer*

Moisture, maximum.....	0.25%
Ether-soluble range.....	0.4-1.1%
Water-insoluble range.....	2.5-4.5%
Total nitrogen, minimum.....	32.5%

TABLE II.—*Granulation*

Through U. S. Standard No. 8 sieve, minimum.....	100%
Retained on U. S. Standard No. 35 sieve, minimum.....	55%
Through U. S. Standard No. 100 sieve, maximum.....	8%

*Methods of Sampling, Inspection, and Tests.*—Inspection of raw materials used in the manufacture of ammonium nitrate and inspection of product shall be at the point of ammonium nitrate manufacture by the Ordnance Department.

*Size of Lots.*—Maximum, one car load.

Sampling shall be done as follows: Use a 2-ounce stainless-steel dipper. Take one dip from the kettle during the time the first half of each kettle is discharging. Pour through a piece of 8- or 10-mesh screen into sample bottle. Mix each primary sample on a large sheet of paper by raising and lowering the diagonally opposite corners. When the sample is received in the laboratory, that portion of the sample to be used for the analysis is removed by means of a stainless steel rifle and pulverized. This prevents segregation of the sample. Enough sample to fill a quart jar is riffed from the original sample and placed in a tightly stoppered bottle. A label is attached which shows the name of the material, shipping order number, date manufactured, and number of pounds in the shipment. Use the pulverized sample for the other soluble, water insoluble and nitrogen determinations and a portion of the reserve sample for the moisture determination and granulation test. The remainder of this sample is stored for possible future examination. The reserve sample is to be retained for six months.

The chemical examination shall be made as follows:

*Moisture.*—Transfer an accurately weighed 10 gram sample to a tared moisture cup and place in a drying oven maintained at 70° C. After five hours,

remove the moisture cup from the oven, cool in a desiccator and weigh. Calculate the loss in weight to percentage moisture in the sample.

*Ether-Soluble Material.*—Weigh approximately 10 grams of the pulverized sample into a tared fritted glass funnel (30–50 ml. capacity) of medium porosity and dry in the 70° C. oven for one hour, drawing a slow stream of air through the sample by means of a slight suction (see Figure 1), remove from the oven, cool in a desiccator and weigh. Insert the stem of the funnel containing the dried sample into a two-hole rubber stopper which fits a 200-ml. wide-mouth Erlenmeyer flask. Apply gentle vacuum and add 100 mls. of anhydrous ether in 10-ml. portions, allowing the contents of the funnel to run dry between successive additions of ether. When the extraction has been completed, remove the funnel and place in the drying oven maintained at 140° C. and allow to remain for 30 minutes. Remove the funnel from the oven, cool in a desiccator and weigh. Calculate the loss in weight to percent ether-soluble in the sample.

*Water-Insoluble Material.*—Insert the stem of the funnel into a one-hole rubber stopper which fits a 500-ml. filter flask. Transfer most of the sample to a beaker by gently tapping the funnel. Add 100 ml. of hot water to the beaker and stir; allow about 2 minutes for the water-insoluble portion to settle, apply gentle vacuum to the flask and filter the supernatant liquid. Add 25 ml. of hot water, allow to settle, and again filter the supernatant liquid. Transfer the insoluble material to the funnel by means of a jet of hot water, then police and wash the beaker thoroughly, using as small portions of water as are practicable. Wash the residue on the filter with ten 10-ml. portions of hot water, allowing the liquid to run through completely between successive additions. Dry to constant weight at 140° C. Calculate the weight of residue to percentage of water-insoluble material in the sample.

*Total Nitrogen.*—Transfer the filtrate from the water-insoluble determination to a calibrated liter volumetric flask and dilute to the mark. Mix thoroughly and transfer 100 ml., using a calibrated pipette, to a 500-ml. Erlenmeyer flask. Add 25 ml. of a 20 percent formaldehyde solution which has been neutralized with 0.25 normal sodium hydroxide using phenolphthalein as the indicator. Warm the flask and contents to 60° C. and after cooling, titrate with 0.25 normal sodium hydroxide solution using phenolphthalein as the indicator.

#### Calculation

$$\text{Percentage nitrogen} = \frac{(A \times B \times 2.802)}{C}$$

where,

A = number of ml. of NaOH used in the titration,

B = normality of NaOH solution determined by standardization against ammonium nitrate of known purity.

C = weight of sample used.

**ARMY SPECIFICATIONS BASED ON TVA SPECIFICATIONS  
FOR PRODUCTION OF AMMONIUM NITRATE**

**PLAN FOR AMMONIUM NITRATE PRODUCTION PROGRAM**

*Part 200*

**SPECIFICATIONS FOR PRODUCTS**

200. *General.*—Anhydrous ammonia and ammonium nitrate solution, raw materials in the manufacture of ammonium nitrate, will be made to meet applicable U. S. Army Specifications as set forth below in order that uniform operations may be maintained at each of the succeeding manufacturing stages. A new specification has been prepared for the ammonium nitrate, fertilizer grade. Requirements for the AN are comparable to and based upon TVA Specification for AN. Special emphasis is placed upon the granulation and packaging requirements since these two factors greatly influence moisture resistance and the tendency toward caking of the grained AN.

210. *Anhydrous ammonia (AA).*—AA shall be inspected according to, and shall be required to meet the provisions of specification number JAN-A-182, Anhydrous Ammonia, and U. S. Army Specification No. 50-0-1, General Specification for Ammunition except Small Arms Ammunition.

(R. V.) 220. *Inspection of nitric acid.*—Nitric acid used in the manufacture of ANW will usually be produced at the ANW facility and need not be subjected to Government inspection. Nitric acid received from other sources will ordinarily have been subjected to Government inspection at the source and need not be inspected unless the car shows evidence of tampering or contamination during transit. In such cases tests will be run to determine whether contamination has occurred, and for strength of acid in accordance with Specification No. JAN-A-183, Acid, Nitric.

230. *Ammonium nitrate solution.*—ANW shall be inspected according to, and shall be required to meet the provisions of specification number PXS-898 (Rev. 1), Ammonium Nitrate Provisions of following shall also apply: U. S. Army Specification No. 50-0-1, General specification for Ammunition Except Small Arms Ammunition; and specification number JAN-A-182, Anhydrous Ammonia.

240. *Ammonium nitrate, fertilizer grade (AN).*—AN shall be inspected according to, and shall be required to meet the provisions of the following FDAP Specification: Ammonium Nitrate, Fertilizer Grade, 3 Jun 46.

**FDAP SPECIFICATION: AMMONIUM NITRATE, FERTILIZER GRADE**

1. *Requirements.*—Ammonium nitrate grained for use as fertilizer shall be required to meet the following requirements:

Molsture.....	0.25% max.
Ether soluble.....	0.75% ±0.35
Water insoluble.....	3.50% ±1.00
Total nitrogen.....	32.50% min.
Granulation:	
Thru U. S. Std #8 seive.....	min. 100
On U. S. Std #35 seive.....	min. 55
Thru U. S. Std #100 seive max.....	max. 0

2. *Size of Lots.*—Size of lots shall be not more than one carload.

3. *Inspection.*— Inspection shall be conducted as follows: An eight-ounce sample shall be secured from each graining kettle charge and identified as to line, kettle charge, date, etc. Stainless steel sampling scoops shall be used. Laboratory analyses shall be performed on batch samples on a random selection basis. Complete analyses ordinarily will not be run on batch samples. All portions of each lot shall be required to meet the above requirements. The minimum, maximum, and average of the values determined for each requirement shall be reported.

4. *Test Methods.*—The following test methods shall be used to determine the above requirements:

*Moisture.*—Transfer an accurately weighed 10-gram sample into a 100-mm watchglass or a low-form weighing dish, heat for two hours at 100° C., cool in a desiccator, and weigh. Calculate the loss in weight as percentage of moisture.

*Ether soluble material.*—Weigh 10 grams of pulverized ammonium nitrate into a filtering crucible (medium porosity). Place crucible in an adapter tube fitted into a 250 ml. orienmeyer flask thru a 2-hole stopper, and apply a slight vacuum to the flask. Add 100 ml. of anhydrous ether in 10 ml. portions, allowing the crucible to run dry between successive additions. Dry the crucible at 105°–110° C for 30 minutes, cool in a desiccator, and weigh. Calculate loss in weight as percentage of ether soluble material. A soxhlet or other suitable extractor may be used instead of the above described apparatus.

*Water insoluble material.*—Transfer as much of the residue from the above extraction as is possible to a beaker, dissolve in 100 ml. of boiling distilled water, and filter through the same crucible used above. Wash the insoluble residue from the beaker into the crucible and police the beaker thoroughly. Wash the residue in the crucible with a jet of hot water to remove all nitrates. Dry the crucible at 105°–110° C, cool in a desiccator, and weigh. Calculate the gain in weight as water insoluble material.

*Total nitrogen.*—Transfer the filtrate from the water insoluble determination to a calibrated liter volumetric flask and dilute with distilled water to the mark. Mix thoroughly and transfer a 100 ml. aliquot, by means of a calibrated pipette, to a 500 ml. orienmeyer flask. Add 25 ml. of 20 percent formaldehyde solution which has been neutralized with 0.25N NaOH solution using phenolphthalein as the indicator. Warm the mixture to 60° C, cool at once, and titrate with 0.25N NaOH to a phenolphthalein end point.

$$\text{Percent total nitrogen} = \frac{A \times B \times 2.802}{C}$$

Where

A=ml of NaOH used in the titration

B=Normality of NaOH standardized against  $\text{NH}_4\text{NO}_3$ , of known purity

C=Weight of sample

*Granulation.*—Transfer an accurately weighed 100 gm. portion to the upper sieve of an assembled nest of sieves with a bottom pan. Place a washer or disk in the upper pan, cover, and shake manually for 3 minutes or for 2 minutes on a Rotap or similar mechanical shaker. Weigh the portions retained on each sieve and calculate to percentage passed through, or retained on, each sieve as required.

5. *Packaging.*—Ammonium nitrate for fertilizer shall be packed 100 lbs. per bag. Moistureproof paper or hurlap bags, as described below, shall be used. (Specifications as to size may have to be altered to meet the manufacturer's requirement.)

a. *Burlap Bags*

1. Moistureproof, hurlap bags, size, 36 in. cut 42½ inches, in accordance with the following specifications:

*Type Bag.*—Bag shall be open-mouth type, moistureproof burlap bag.

*Material.*—The bag shall have the following construction, reading from inside to outside:

30 # crinkled kraft

55 # asphalt

30 # crinkled kraft

55 # asphalt

10-ounce burlap

*Creping.*—After creping, the paper shall be capable of stretching at least 10 percent in any direction without failure.

*Moistureproofing, Cementing Compound.*—Cementing compound shall be asphaltum having a minimum melting point of 175° F.

*Seam Construction.*—The bag shall have a waterproof cemented center seam with a sewn and taped-over bottom. For export shipment the best results can be obtained by using a sewn closer with bound-over crinkled paper tape, wax dipped.

**b. Paper Bags**

1. Moistureproof, multi-wall paper bags in accordance with the following specifications:

*Type Bag.*—Sewn, open mouth.

*Size.*—17'' x 37½'' with 4'' self-forming offset gussets (for bags to be wire tied).

*Construction.*—In order from inside to outside: 1 40-lb. natural, 1 90-lb. asphalt laminated, 2 50-lb. natural, 1 90-lb. asphalt laminated and 1 60-lb. natural kraft sheets. All plies are to be thumb notched. All plies are to be spot pasted except that there shall be no spot pasting or gusset pasting between the second and third plies, counting from the inside to outside. Asphalt used shall have a melting point of approximately 200° F., if possible, but in no case shall this be less than 175° F. Water resistant adhesive shall be used throughout. Not less than a 12/6 cotton needle thread and a 12/5 cotton looper thread shall be used for stitching the bottom. Construction details shall conform to specifications given in paragraph D-2 and E in the Federal Standard Stock Catalog UU-S-48 (October 1943).

a. Same as Item 1 except size shall be 17'' x 34½'' with 4'' self-forming offset gussets and bags shall not be thumb notched (for bags to be closed by sewing).

b. *Kind.*—Multiwall paper bag.

*Type.*—Sewn valve.

*Size* 16½'' x 35¾'' with 4½'' gussets.

*Valve.*—5¼'' right-hand valve with 30-lb. asphalt laminated paper tuck-in sleeve.

*Construction.*—In order from inside to outside: 1 40-lb. natural, 1 90-lb. asphalt laminated, 2 50-lb. natural, 1 90-lb. asphalt laminated, and 1 60-lb. natural kraft sheets. Asphalt used shall have a melting point of approximately 200° F., if possible, but in no case shall this be less than 175° F. Water resistant adhesive shall be used throughout. Not less than a 12/6 cotton needle thread and a 12/5 cotton looper thread shall be used for stitching the top and bottom. Construction details shall conform to specifications given in paragraphs D-2 and E in the Federal Standard Stock Catalog UU-S-48 (October 1943).

**c. Bag Ties**

Wire ties of black, 16-gage, annealed wire, 9 inches overall length, and looped at both ends.

**d. Marking.**

Unless otherwise specified, each container shall be plainly marked with the information completed:

Material-----

Manufacturer-----

(Net Weight)-----

(Gross Weight)-----

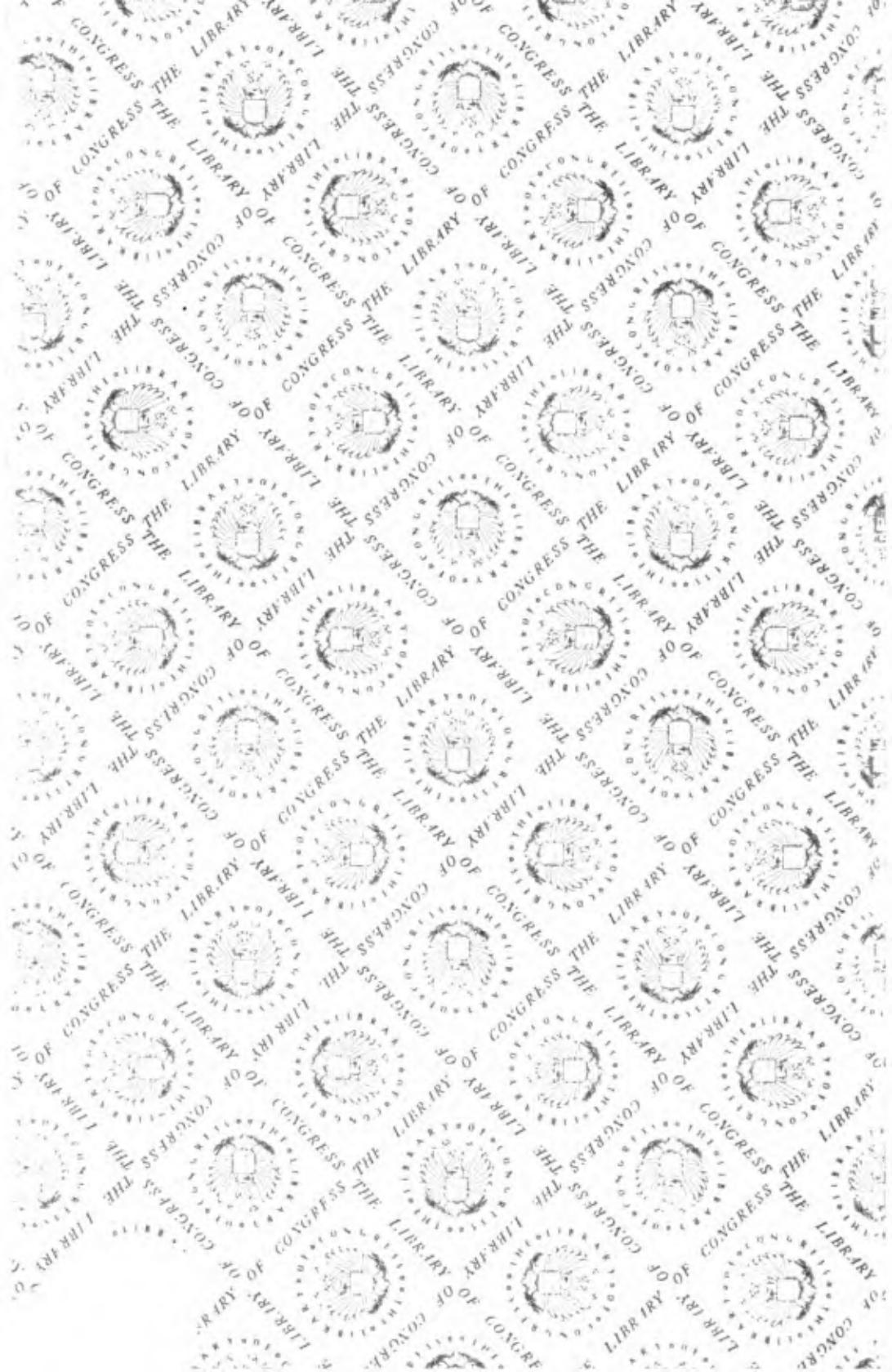
(Cubic Feet)-----

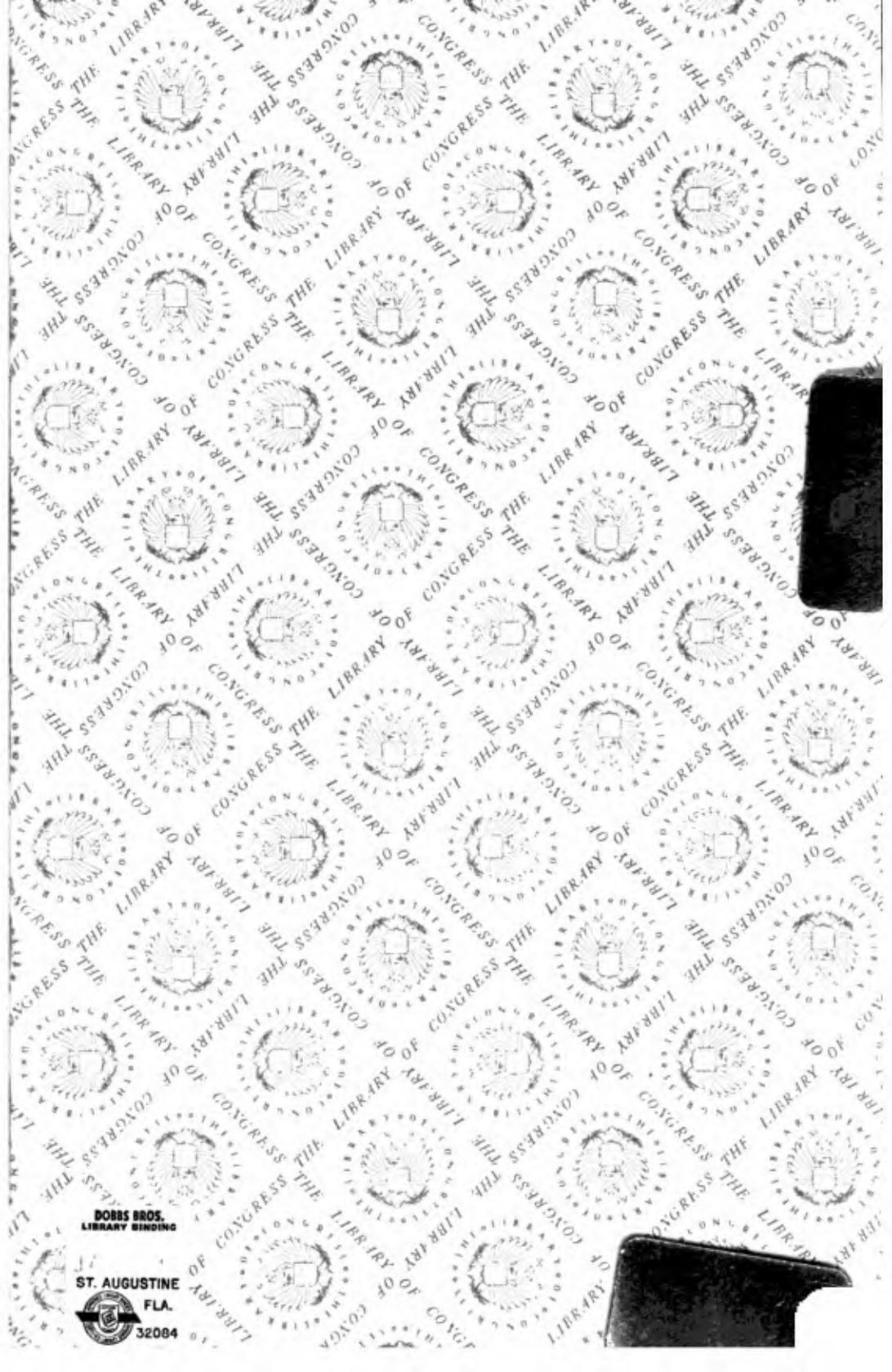
<b>FERTILIZER</b>	
(Ammonium Nitrate)	
32.5% Nitrogen	
100 lbs.	
Made In U. S. A.	



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