DETERIORATION OF RUNWAY FACILITIES AT SELFRIDGE AIR FORCE BASE

HEARINGS

BEFORE THE

SUBCOMMITTEE FOR SPECIAL INVESTIGATIONS

OF THE

COMMITTEE ON ARMED SERVICES

HOUSE OF REPRESENTATIVES

EIGHTY-EIGHTH CONGRESS

SECOND SESSION

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DETERIORATION OF RUNWAY FACILITIES AT SELFRIDGE AIR FORCE BASE

WEDNESDAY, MARCH 18, 1964

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE FOR SPECIAL INVESTIGATIONS
OF THE COMMITTEE ON ARMED SERVICES,
Washington, D.C.

The subcommittee met at 10 a.m., Hon. Porter Hardy, Jr. (chairman of the subcommittee), presiding.

Members present: Congressmen Hardy, Otis G. Pike, and Walter Norblad.

Staff members present: John T. M. Reddan, special counsel; Walton Woods, investigator; and Phyllis M. Seymour, secretary.

Mr. HARDY. Let the committee come to order.

We are opening a new hearing this morning under authority of rule 11 of the House of Representatives, and particularly under House Resolution 84 of the 88th Congress.

I have a brief opening statement that I would like to make. Before doing so I would like the record to show the presence of Mr. Pike, Mr. Norblad, and myself, constituting a quorum.

I want to extend a welcome to some of our colleagues who are present this morning. Mr. Nedzi, a member of the full committee, is with us, and we are glad to have our colleague, Mrs. Griffiths, who is intensely interested in the subject matter under consideration, with us.

I want to express appreciation to Mr. Nedzi and Mrs. Griffiths for their helpfulness in connection with some of the preliminary work the subcommittee has done in this matter.

The Chair would also like to acknowledge the presence of our colleague, Mr. McCulloch. We had the pleasure of a telephone conversation with him yesterday, and I appreciate his presence, indicating his interest also.

I have a brief opening statement that I would like to make.

On July 28, 1958, the Air Force entered into a contract with the Western Contracting Corp., of Sioux City, Iowa, in the amount of $9,552,000 for the construction of airfield concrete pavements and related facilities at Selfridge Air Force Base in Michigan. The contract was completed in June 1960, by which time the cost had risen to $9,872,000. By July of the following year, the runway had deteriorated so badly that the Corps of Engineers recommended extensive repairs.

On July 10 and 11, 1962, representatives of the Air Force and the Corps of Engineers attended a meeting at Selfridge to discuss pavement repair projects. A report of that meeting, dated July 16, 1962, has this to say, in part, concerning the primary runway:

> This runway, 150 feet wide by 9,000 feet long, was completely reconstructed in 1959.

Let me observe parenthetically it was just built in 1958.

> Portland cement concrete pavements were used throughout. Military construction program funds were utilized. The Corps of Engineers has reported that local aggregates were used and up to 6 percent of deleterious particles were allowed in the mix. Presently it is estimated 675,000 popouts, 1 inch in diameter and larger, have occurred. Chert particles which have expanded and fractured extensively have caused the major portion of popouts. However, there is evidence of a small percentage of lightweight porous particles which have expanded and popped out. The sharp ragged holes left by these deleterious particles and the sharp aggregate fragments emitted to the pavement surface are believed to be the major cause of tire cuts. Yearly popout counts have been maintained on several panels, and these observations indicate that from 10 to 15 percent new popouts can be expected each year. Mr. Arnett is of the opinion that such prospects of pop-out intensity over a 10-year period will cause secondary deteriorations such as laminations, sealing, and probable weakening of the structural capability.

Starting in July 1963, the primary runway was closed for a period of 3 months to permit its complete resurfacing at a cost of a half million dollars. This figure does not include the cost of aircraft tires which had to be replaced because of serious cuts caused by ragged holes in the pavement or sharp objects on the runway surface. For example, in less than 1 month during the summer of 1962, 119 such tires had to be replaced at an average cost of $120 per tire, plus an average of 4 man-hours consumed in each change. Neither does the half-million dollar figure include the cost of repairs to jet engines damaged by small stones sucked up from the runway through the air intake openings. Of course, we can't even begin to evaluate the threat to the lives of pilots due to these operating conditions.

Last October, the subcommittee initiated a study to determine, if possible, why the runway deteriorated so rapidly and fix responsibility therefor. Since that time, we have assembled what the Air Force and the Corps of Engineers report to be all pertinent documents relating to this matter, and have interviewed numerous witnesses both in Washington and in the field. We have a number of those witnesses present here this morning and it is my hope that we can move along rapidly so that we may conclude this phase of the study by the close of business tomorrow.

The General Accounting Office has also been making an investigation of this matter, and I have requested the Comptroller General, Mr. Campbell, to make Mr. James H. Hammond, Associate Director, Defense Accounting and Auditing Division, available to us this morning. We will begin with his testimony, since he will be able to sketch for us quickly the background for this construction work at Selfridge and lay the foundation for further examination of the matter under present inquiry.

The committee has no preconceived notions of what we will find, though we have gathered a lot of information. But we want to develop the facts in this case as fully and completely as possible.

We will start with Mr. Hammond, whom we are glad to have with us this morning, along with his associates.

Mr. HAMMOND. Thank you.

Mr. HARDY. Do you have a prepared statement?

STATEMENT OF JAMES H. HAMMOND, ASSOCIATE DIRECTOR, DEFENSE ACCOUNTING AND AUDITING DIVISION; ACCOMPANIED BY S. P. HAYCOCK, OFFICE OF THE GENERAL COUNSEL; CHARLES H. MOORE, MANAGER, DETROIT REGIONAL OFFICE; ROBERT C. EADY, AUDIT MANAGER, DETROIT REGIONAL OFFICE; GENERAL ACCOUNTING OFFICE

Mr. HAMMOND. Yes, sir.

I have with me Mr. Haycock, from the General Counsel's Office; Mr. Eady, audit manager of our Detroit office; and Mr. Moore, the manager of our Detroit office.

Mr. HARDY. Thank you, Mr. Hammond. Just go ahead with your statement.

Mr. HAMMOND. We appear before you today at the request of the chairman to report the information we have obtained in our examination into the construction and repair of concrete airfield pavements at Selfridge Air Force Base, Mount Clemens, Mich. In order to present our information to the committee at this time, it has not been possible to follow our usual procedure of obtaining formal comments from the interested parties before concluding our evaluations and reporting on our findings. We understand, however, that these parties are to be given an opportunity to appear before this subcommittee to present their views in this matter.

Mr. HARDY. You can be sure they will not only be given an opportunity, but they will probably be requested.

Mr. HAMMOND. Thank you, sir.

Our findings on unsuitable materials used to construct airfield pavements at Selfridge Air Force Base follow.

The General Accounting Office has examined into the construction and subsequent repair of concrete airfield pavements constructed at Selfridge Air Force Base, Mount Clemens, Mich., in 1958 and 1959 by the Western Contracting Corp., under the supervision of the U.S. Army Engineers. Our examination was made pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53) and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

The primary purpose of our review was to examine into pavement deficiencies which impaired operating conditions for jet aircraft and necessitated major repairs. We reviewed construction specifications, material test reports, and available information on previously experienced pavement defects. We also interviewed Air Force and Army Engineer construction officials. Our examination was made principally at the Army Engineer District, Detroit, and Selfridge Air Force Base. Other locations visited included: Office of the Chief of Engineers, Headquarters, Department of the Army, and the Directorate of Civil Engineering, Headquarters, U.S. Air Force, Washington, D.C.; Army Engineer Division, North Central, Chicago, Ill.; Offices of the Air Force Regional Civil Engineer at Cincinnati,

Ohio, and Omaha, Nebr.; Ent Air Force Base, Colo.; and Offutt Air Force Base, Nebr.

Background

Under the fiscal year 1958 supplemental military construction program, about 587,000 square yards of concrete airfield pavements were constructed at Selfridge Air Force Base, Mount Clemens, Mich., at a cost of approximately $8.7 million. The construction was required to enable Selfridge, an Air Defense Command base for fighter aircraft, to accommodate KC–97 tanker aircraft of the Strategic Air Command. The new pavements consisted of the main runway, an aircraft parking apron, and various taxiways. Paving was done in two increments, September to November 1958, involving about 173,000 square yards, and May to September 1959 involving about 414,000 square yards.

The Army Engineer District, Detroit, as construction agent, designed the pavements in accordance with Air Force operational requirements. The Detroit district also administered the construction contract and supervised the work of the contractor, under the general supervision of the Army Engineer Division, North Central. The Air Force was responsible for reviewing the design and specifications to determine that they were adequate for its needs. Air Force liaison with the Army Engineers for the Selfridge construction was the responsibility of the Air Force Regional Civil Engineer, Ohio River region, a field representative of the Directorate of Civil Engineering, Headquarters, U.S. Air Force.

We found that about $2.7 million will be required to repair an airfield runway, parking apron, and taxiways at Selfridge Air Force Base because unsuitable materials were used when the pavements were constructed during 1958 and 1959. Similar pavement problems experienced in earlier construction should have alerted the Air Force and the Army Engineers to the fact that materials permitted by the construction specifications would cause serious pavement defects and impair operating conditions for jet aircraft. Moreover, the pavement problem was made more acute when the contractor furnished and the Army Engineers accepted materials that did not meet even the inadequate specifications.

The Selfridge pavements and related facilities were constructed by the Western Contracting Corp., Sioux City, Iowa, under advertised firm fixed-price contract DA–20–064–ENG–2985, dated July 28, 1958. The Air Force accepted the runway in December 1958 and the remaining pavements in November 1959. The total contract amount was $9.9 million, of which about $8.7 million was for airfield pavements. Final payment was made on March 7, 1962.

The specifications for the concrete airfield pavements constructed at Selfridge Air Force Base in 1958 and 1959 were not sufficiently restrictive to preclude the use by the contractor of a type of coarse aggregate that previously had caused serious pavement popouts at a number of airbases. Most popouts are caused by deleterious (injurious) materials in the coarse aggregate used in the concrete mix. These materials absorb moisture which in cold weather freezes and expands, causing bursting or popout of the pavement surface.

The specifications for the Selfridge pavements contained percentage limits on certain common deleterious materials as established jointly by the Office of the Chief of Engineers and Directorate of Civil Engineering, Headquarters, U.S. Air Force, in the guide specification for concrete military pavement. The specifications for the Selfridge pavements also contained limits of 3 percent on a local material known as "chert" and 5 percent on the total of deleterious materials. However, we were advised that they were established by the Army Engineer Division, North Central, since the guide specification did not contain limits on local materials or on total deleterious materials.

Mr. HARDY. Excuse me. I don't want to interrupt. But are you going to tell us somewhere by whom you were advised?

Mr. HAMMOND. Yes, sir, we will furnish that information and where we got it.

Mr. HARDY. All right, thank you.

Mr. HAMMOND. Our review disclosed that between 1955 and 1958 Air Force and Air National Guard bases had experienced popout problems with sufficient frequency to have indicated a need to revise airfield pavement specifications for aggregates to be used in colder areas where popouts were prevalent. In 1955 excessive popouts, some measuring as large as eight inches in diameter, were found at the Air National Guard base at Alpena County Airport, Mich. Numerous popouts, some of which measured 5 inches in diameter, were found in 1956 in the airfield pavement constructed in 1953 at Sioux City Air Force Base, Iowa. Similar defects were found in 1957 at Minot Air Force Base, N. Dak. In all cases the popouts were attributed by the Army Engineers to the presence of deleterious material in the coarse aggregate used in the concrete mix. In an engineers' report on Sioux City Air Force Base, dated February 1957, it was recommended that deleterious material causing popouts be limited to 1 percent for future airfield pavement construction at Sioux City.

The revision of specifications would have been the responsibility of the Directorate of Civil Engineering, Headquarters, U.S. Air Force. However, we found no evidence that these problems were reported to that office until February 1959 when the Office of the Chief of Army Engineers requested the Directorate to consider revising airfield pavement specifications to prevent recurrence of the popout problem such as had occurred at Minot and Sioux City Air Force Bases. In its reply in March 1959, the Directorate advised the Army Engineers not to revise the specifications on the grounds that popouts were not a serious enough problem to warrant the added costs of using aggregates which would reduce or prevent them.

In June 1959, the Directorate was again advised, through a field trip report submitted by a consultant in its Base Structures Branch, Base Maintenance Division, that popouts were a cause for concern. In his report the consultant stated that use of deleterious types of aggregates in nearly 1 million square yards of pavement at Bunker Hill Air Force Base, Ind., including new pavements not yet accepted by the Air Force, had caused popouts that were a continuous hazard to aircraft. He also stated that previous experience showed resurfacing would be required in about 2 years. Despite the mounting evidence of the relationship of deleterious materials to the popout

problems the Directorate took no action to review or revise the specifications for the 414,000 square yards of pavement constructed at Selfridge Air Force Base during the period May 1959 to September 1959.

The limitations on deleterious material prescribed for the Selfridge airfield pavements contrast sharply with the limitations of 0.1 percent on chert and 1 percent on total deleterious material currently prescribed by the Army Engineers for airfield pavements.

The number of popouts on the pavements constructed at Selfridge Air Force Base was increased because the Army Engineers accepted materials which laboratory reports show did not meet specifications. The material was drawn from a source proposed by the contractor, the Oxford pit of the American Aggregates Corp., which, immediately prior to the contract award, had been removed from the list of approved sources. When the North Central Division, prior to the award of the contract, notified the Detroit District of the limits of 3 and 5 percent for chert and total deleterious material, respectively, mentioned above, it ordered the district to remove the Oxford pit from the list of approved aggregate sources contained in the invitation for bid. This action was taken because tests showed that samples of Oxford aggregates contained 4 to 5 percent chert and cherty limestone.

We were informed by Army Engineer officials of the Detroit District that after the contract was awarded, the contractor proposed use of Oxford pit aggregate although the invitation for bids listed five qualified sources in Michigan. Samples of aggregate from the Oxford pit were submitted for testing on August 11, 1958. They were tested for the Detroit District by the Ohio River Division Laboratories, Army Engineers, since neither the Detroit District nor the North Central Division had facilities for testing aggregates. The test report dated August 13, 1958, showed that the samples contained 3.9 percent chert, or 30 percent more than the limit allowed by the specifications.

On August 15, 1958, the contractor submitted to the Ohio River Division Laboratories new samples of Oxford aggregate which had been modified by a blending process in an effort to bring the chert content within the 3 percent limit required by the contract. The report of the test of these samples dated August 18, 1958, showed that they contained 1.6 percent chert and 2.45 percent cherty limestone, a combined total of 4.05 percent. The Ohio River Division Laboratories in its test report stated that cherty limestone, in its opinion, should be considered as having the same physical and chemical properties as chert. Despite this adverse test report, Mr. Elmer A. Sorensen, Chief of the Construction Division, Detroit District, and Mr. James E. Hampton, formerly Chief of the Soils and Paving Branch of the Construction Division, Detroit District, advised us that they had favored approval of the Oxford pit as a source of aggregate for the Selfridge pavements.

In qualifying the Oxford pit, the construction division considered only 50 percent of the cherty limestone to be chert. This was contrary to the Ohio River Division Laboratory's opinion that cherty limestone in its entirety should be considered as equivalent to chert. In response to our inquiry the Chief of Soils and Materials Branch, Engineering Division, North Central Division, could not explain why the

division failed to require the Detroit district to consider cherty limestone in its entirety in computing the chert limit for Selfridge Air Force Base. We were advised by Col. Jeff W. Boucher, district engineer, Detroit, that although the Chicago district considered cherty limestone to be entirely deleterious this merely represented an interpretation which the Detroit district would not have been obliged to accept. Colonel Boucher pointed out that it was not the responsibility of the Ohio River Division Laboratories to judge whether material submitted for testing conformed to the specifications. This, he stated, was the responsibility of the construction division of the Detroit district. We were informed by Mr. Hampton that he considered it proper to consider only 50 percent of the cherty limestone as deleterious.

Acceptance by the Detroit District, Army Engineers, of the Oxford pit as a qualified source permitted the Western Contracting Corp. to reduce its cost for the aggregate by an estimated $240,000 to $540,000 depending upon the source selected. This represents the difference in total price for the less expensive material purchased from American Aggregates Corp. and the estimated cost which would have been incurred for material purchased from one of the five approved sources contained in the invitation for bid.

Before construction started, the Detroit district had established a project laboratory at Selfridge under the general supervision of Mr. Hampton to test construction materials including aggregates. The percentages of deleterious material content found in aggregates tested by the Selfridge project laboratory during construction were considably lower than those found by the Ohio River Division Laboratories in its preconstruction tests. The Selfridge records of tests done in 1959 showed an average deleterious content, which we were told included cherty limestone, of only 1.25 percent. Only three 1958 Selfridge laboratory test records were available and two of these showed chert content of 0.0 percent.

We were told by the testing supervisor and personnel who performed the tests for deleterious materials in the Oxford aggregates at Selfridge that they had little or no experience in such tests. The records indicate that they were given about 2 hours training in the visual identification of deleterious materials. Some of the individuals received 1 additional day's training at the Ohio River Division Laboratories. We were also advised by the Selfridge laboratory test personnel that they had not been informed of the Ohio River Division Laboratories test results.

During an inspection of the Selfridge laboratory in June 1959, the Chief of Soils and Materials Branch, Engineering Division, North Central Division, Army Engineers, concluded from visual observation of stockpiles that the percentages of total deleterious materials in the aggregates appeared to be near the contract limits. The Selfridge and Ohio River Division Laboratories were immediately requested to test the same sample of aggregates in order to check the accuracy of the Selfridge laboratory tests. The Selfridge test showed that deleterious materials in the aggregates was 3.2 percent, that is, within contract limits. In contrast, the Ohio laboratory test from the same sample showed the percentage was 5.6 percent or 12 percent in excess of the contract limits.

In 1963, as part of a general Air Force study of the popout problem, the Ohio River Division Laboratories tested two slabs, 3 by 3 feet, of the 1958 and 1959 Selfridge pavements and found they contained about 8.5 percent deleterious materials, including 5 to 6 percent chert. These percentages contrasted sharply with the contract specification limits of 5 percent on total deleterious material and 3 percent on chert. According to the Chief, Concrete Division, Ohio River Division Laboratories, the number of pavement popouts occur in direct ratio to the percentages of deleterious materials in the aggregates.

Within 1 year after completion in November 1958, numerous popouts occurred on the main runway at Selfridge Air Force Base. Shortly thereafter popouts began to appear on the operational apron and taxiways. In November 1959, the Detroit district requested the Western Contracting Corp. to repair the popouts on the main runway. The contractor refused on the grounds that it had constructed the runway with methods and materials that were acceptable to the Army Engineers, Detroit District. The Deputy Director for Construction, Directorate of Civil Engineering, U.S. Air Force, informed us that concrete airfield pavements normally have a life expectancy of about 15 years. However, by December 1962, there were an estimated 675,000 popouts 1 to 6 inches in diameter on the main runway at Selfridge Air Force Base. Between 1960 and 1963 the Air Force incurred expense (we could not determine the amount) in attempting to repair the popouts by patching them individually. In 1963 it was necessary to place a concrete overlay on the main runway at a contract cost of $456,000. Design and inspection, under separate contracts, increased this cost to about $493,000. About $200,000 was incurred to transfer personnel and aircraft to other bases for the 2-month repair period, during which Selfridge was closed to normal flight operations. Thus, the total cost was about $700,000. It is estimated that an additional $2 million will be required to place a similar overlay on the operational apron and taxiways.

In summary, the Government has incurred, or will incur, unnecessary costs amounting to about $2.7 million, to restore airfield pavements at Selfridge Air Force Base to operating condition. This waste resulted because (1) the Air Force and the Army Engineers approved construction of the pavements with aggregate containing an excessive percentage of deleterious materials which they should have known was unsuitable and would cause serious pavement defects, and (2) the Army Engineers approved the use of aggregate containing even greater percentages of deleterious material than were permitted by the inadequate contract specifications.

Mr. HARDY. Thank you, Mr. Hammond.

Before we get into questions, I failed to note earlier that in calling for this hearing the committee invited the Western Contracting Corp. and the American Aggregates Corp. to have representatives present at the hearing if they wished to do so. I am not sure whether they are both here. I presume they are. We are glad to have them.

Are there any questions? Mr. Pike?

Mr. PIKE. No, Mr. Chairman, I have no questions.

Mr. HARDY. Mr. Norblad?

Mr. NORBLAD. No, I have nothing.

Mr. HARDY. Mr. Hammond, as I indicated earlier, there are several points in here on which I have questions. On page 4 of your statement, you said:

> We were advised that they were established—

You were speaking of classifications—

> established by the Army Engineer Division, North Central, since the guide specification did not contain limits on local materials or on total deleterious materials.

Where did you get that information?

Mr. HAMMOND. There was a meeting in Vicksburg, Miss., of engineering districts, of all divisions of the Engineers. At that meeting it was decided to establish the limit of 3 percent for chert.

Mr. HARDY. Did that then become an official decision by the Corps of Engineers, binding on their representatives, all over, or was that just a recommendation?

Mr. HAMMOND. It was for the Detroit area, we understand.

Mr. HARDY. But the thing I am getting at is, was that a binding decision by the corps, or was it just a discussion?

Mr. EADY. May I answer, sir?

Mr. HARDY. Surely.

Mr. EADY. When they established this 3 percent for chert they added that to the invitation for bid by an Addendum No. 2, and all bidders were required before they submitted their bid to acknowledge receipt of that addendum to the contract.

Mr. HARDY. That was added to this particular invitation for bid?

Mr. EADY. That is right, sir.

Mr. HARDY. Even though it had not necessarily become a part of the corps' firm general specifications?

Mr. EADY. That is right.

Mr. HARDY. It was made a part of this invitation?

Mr. EADY. That is right, sir.

Mr. HARDY. We will probably cover that more fully with the Corps of Engineers.

On page 5 of your statement you speak about revision of specifications, and say it would have been the responsibility of the Directorate of Civil Engineering of the Air Force, and you point out that they were not advised of these popouts and this problem—I take it you mean by the Corps of Engineers?—until February 1959?

Mr. HAMMOND. By the airbase. It appears to us they were not advised by the airbases where the problems were being encountered.

Mr. HARDY. Then as far as you are able to determine, Air Force Headquarters did not know these runways were going to pot; is that what you are telling the committee?

Mr. HAMMOND. That is right, sir.

Mr. EADY. That is the information we have.

Mr. HARDY. That is almost inconceivable.

Mr. EADY. As we understand it, the chain of command is from the bases to the Air Force unit that they belong to. For example, Selfridge, an ADC base, reports to the 26th Air Force at Stewart Air Force Base, which in turn then reports into the ADC command at Ent Field, I believe it is, and then it goes to Headquarters

For the maintenance work the Air Force installations representatives, the regional civil engineers, are the people the maintenance

people report to, and they are supposed to report on up to Headquarters. It is a very—the chain of command on that is very—will permit this to be backstopped at the regional office of the civil engineers.

Mr. HARDY. We are talking at this time about the general problem of popouts determined to be the result of deleterious materials in the aggregate. I think your statement just prior to this observation, that the Directorate of Civil Engineering in the Air Force hadn't been advised of it until February 1959—you are talking about popouts that occurred at Air National Guard Base in Alpena County, Mich., at Sioux City Air Force Base, and Minot?

Mr. EADY. We were advised by the Chief of the Directorate that the first information they had on the popouts was in 1959.

Mr. HARDY. That is awful, and it's a little difficult for me to take in. If these things started to present a serious problem in 1955, it is hard to believe the civil engineering people didn't find it out until 1959. Of course, we will have to pursue that with the Air Force. Maybe someone was ashamed of the kind of contract job they had gotten done.

Mr. EADY. As we understand it, the first the Directorate heard of it is when the Office of the Chief of Engineers advised them, and that is when they replied they didn't think it was a serious enough problem to warrant expenditure of additional funds.

Mr. HARDY. On page 7 you speak about the Oxford aggregate, and you say that the Ohio River Division Laboratories had run some tests on it. I believe you said they recommended that this pit not be accepted. But despite that, some of the people in the construction division in the Detroit district went ahead and authorized it, despite the fact they had an adverse report?

Mr. EADY. At the time they established the 3-percent limit on chert and the 5-percent total limit—limit on total deleterious materials, the addendum No. 2 eliminated also the Oxford pit of the American Aggregates Corp. as an approved source in the same document.

Mr. HARDY. Did that by specifying approval of certain other——

Mr. EADY. Sir, the contract previously listed five other sources in addition to the American Aggregate source, that were approved.

Mr. HARDY. There was a direction, then, that the Oxford pit be eliminated?

Mr. EADY. That is right, sir.

Mr. HARDY. And it is your testimony that notwithstanding this directive, Mr. Sorensen and Mr. Hampton approved the pit?

Mr. EADY. Our statement is, sir, that the contractor, under the terms of the contract, still had the right to supply or to attempt to justify a supply, from another source, or the same source that had been disapproved, if they could qualify it. That is what they attempted to do.

Now, the test report of August 18, which was just before the approval, which was prepared by the Ohio River division, stated that it was determined that the—there are two types of coarse aggregate involved in this, and 1- to 2-inch stones and No. 4 to ¾-inch stones; in other words, two gradations of coarse aggregate, the finer coarse aggregates and the heavier. They blend them. When they make the concrete they took 50 percent of each, in this particular case, and you have half of the heavier stones and half of the lighter stones.

Mr. HARDY. In your statement you indicate that there was supposed to be a blending of aggregates in order to pull the deleterious content down?

Mr. EADY. That is right, sir. That was accomplished by crushing the larger stones, as we understand it, and blending them into the finer of the coarse aggregates.

Mr. HARDY. Actually, they were continuing to use the aggregates out of the same pit?

Mr. EADY. Yes, sir.

Mr. HARDY. Entirely. But they were crushing the larger stones and blending it with the total?

Mr. EADY. That is right, sir.

Mr. HARDY. Somewhere in here you speak of considering only 50 percent of the cherty limestone to be chert, and you said that Mr. Hampton told you he considered it proper to do so?

Mr. EADY. Yes, sir. That was an engineering determination.

Mr. HARDY. Did he tell you why he considered it proper to do that?

Mr. EADY. No, sir. He said it was an "engineering determination."

Mr. HARDY. I wanted to see whether he gave you the basis of it. He didn't give you any documentation to support it?

Mr. EADY. Only an interview, sir. We could find no documentation to show who approved the Oxford pit as a source for the aggregates. There was no documentation of any kind on it. We were advised in a conference that written approval was not required. But it is $1 million worth of aggregates.

Mr. HARDY. Mr. Pike.

Mr. PIKE. Mr. Chairman, may I ask a question here?

With respect to the authority of a person to make a judgment in this case as to what percentage of cherty limestone should be considered as chert, is there any question as to the right of Mr. Sorensen and Mr. Hampton to make this determination? Did they have the authority, in other words, themselves, to overrule the opinion of the Ohio River Division Laboratories?

Mr. HAMMOND. We were told, sir, that the Ohio River Division Laboratories' test reports were for information and were not required to be followed.

Mr. EADY. That is right.

Mr. HAMMOND. And the local district would not——

Mr. PIKE. You were told this. But can you tell us, as a matter of fact or law, whether this is a proper statement? Do they, in law, have the authority to overrule the recommendation of the Ohio River laboratory?

Mr. HAMMOND. I don't know. We would have to research and furnish that information.

Mr. PIKE. It would seem to me what you are dealing with here is a question of the reasonableness of this determination as to whether or not cherty limestone is in fact properly considered 100 percent chert or 90 percent chert, or something else. I am simply trying to pin down who has the authority to make this determination. Because, again, it seems to me from there on up to 1963, when they ripped up the concrete and found up to 5 or 6 percent chert, the specifications were followed, if you assume that considering 50 percent chert was proper.

Mr. HAMMOND. As far as their authority to make this determination, we would have to research that.

Mr. PIKE. Do you know whether the opinions of other engineers were solicited in arriving at this judgment as to whether or not 50 percent was a reasonable proportion of chert to be attributed to cherty limestone?

Mr. EADY. Sir, may I read from the second page of the report of the Ohio River Division Laboratory report? First, the opening paragraph:

> It was determined that the 1- to 2-inch stone contained 2.990 deleterious material that included deeply weathered rock, cherty limestone, and chert and the three-quarters to No. 4 gravel contained 6-percent deleterious material, which included weathered rock, cherty limestone, and chert.

On page 2, under "cherty limestone," it says:

> Included are aggregate particles containing an appreciable and variable amount of chalcedonic chert as replacement of fossiline material and/or matrix. The greatest portion of the aggregate particle is, however, composed of carbonate.

We have been told that carbonate is limestone. So the greatest portion of the aggregate particle is composed of carbonate.

> It is common belief at this laboratory that cherty stone should be considered as having the same physical and chemical properties as massive chert.

This engineering instruction specifies that laboratory reports will indicate whether the material meets specifications requirements, but in no case will the laboratory be authorized to approve or disapprove such material.

Under the terms of the contract, the contracting officer was required to approve any source submitted by the contractor that had been—that was not on the approved list. As I said before, we have been unable to find any written evidence that the American Aggregates pit was approved by the contracting officer. Mr. Sorensen was delegated as acting contracting officer. We could find no written evidence from the district engineer, from Mr. Sorensen, or the other two people acting for the contracting officer; no written statement at all.

Mr. PIKE. And you didn't know whether other engineers at any time were brought into the picture in the decisionmaking, in the judgment made by these people to the effect that they could overrule this recommendation of the Ohio Division Laboratories?

Mr. EADY. Well, we don't know, sir.

Mr. HARDY. In a submission from the Corps of Engineers there is the statement:

> In addition to the laboratory testing and engineering services mentioned above, the Ohio River Division Laboratory is designated the construction engineering laboratory for the Corps of Engineers.

Now, if it is "the construction engineering laboratory" of the Corps of Engineers, I have a little difficulty in understanding how a subordinate contracting officer can ignore the findings on whether or not they can approve or disapprove a particular material. If they make a finding that material contains more of the deleterious material than the contract permits I have trouble understanding how a contracting officer can override that determination. Do you have an explanation for that?

Mr. EADY. No, sir.

Mr. HARDY. Thank you. I know this is a little out of your field, but——

Mr. EADY. That is.

Mr. HARDY. Anything further?

Thank you very much, gentlemen.

I think now we might call General Hyzer. You might bring up Colonel Boucher also, and some of the others involved in this. They might as well come up at the same time.

General, would you identify for the members of the committee your associates with you?

TESTIMONY OF BRIG. GEN. PETER C. HYZER, DISTRICT ENGINEER, NEW ENGLAND DISTRICT; ACCOMPANIED BY COL. JEFF W. BOUCHER, DISTRICT ENGINEER; ELMER A. N. SORENSEN, CHIEF, CONSTRUCTION-OPERATIONS DIVISION; JOHN MECHLER, CHIEF, DESIGN BRANCH, ENGINEERING DIVISION, DETROIT DISTRICT; WILSON L. DAVIS, CHIEF, SOILS AND MATERIALS BRANCH, NORTH CENTRAL DIVISION, CORPS OF ENGINEERS

General HYZER. Yes, sir.

On my left is Mr. Elmer Sorensen, Chief of the Construction Division of the Detroit District. On my right is Mr. Mechler, who at that time was the pavement design engineer.

At the far end is Mr. Davis, from the North Central Division Laboratories.

Mr. HARDY. You don't have Colonel Boucher with you?

General HYZER. He is right behind us.

Mr. HARDY. Fine.

General HYZER. He is currently the District Engineer.

Mr. HARDY. Thank you.

Ordinarily I would ask you each for a brief biographical sketch. I believe it has been already submitted, so we will include that in the record.

(See app. I, p. 195.)

Mr. HARDY. General, I don't think we asked you for a specific statement. Do you have a prepared statement you wish to make?

General HYZER. No, Mr. Chairman. I would like an opportunity sometime to discuss the background of this.

Mr. HARDY. Sometimes the background is important but, you know, we try to avoid giving you fellows the opportunity to get off on a wild goose chase, so let's save that and see if we have time.

General HYZER. I consider it most important.

Mr. HARDY. The last time we had a hearing here there was an Air Force officer, I believe, who wanted to do the same thing. The further he got into the background the more complicated he made his own situation. I don't know whether that would apply to your case or not.

General HYZER. I am perfectly willing to take that risk.

Mr. HARDY. Well, he was anxious to take that risk too. We will be perfectly happy to listen to it later.

Mr. Reddan.

Mr. REDDAN. Were you the contracting officer on this contract?

General HYZER. Yes, sir.

Mr. REDDAN. How long had you been in the Detroit District at that time?

General HYZER. I reported to the Detroit District in July 1956, and departed in August 1959.

Mr. REDDAN. During the time that you were there as the contracting officer did you delegate any of the functions of the contracting officer to someone else?

General HYZER. Oh, yes, sir.

Mr. REDDAN. Specifically with respect to the approval of sources of aggregate which had not been approved in the specifications already, did you delegate that to anyone?

General HYZER. Yes, normally to Mr. Sorensen, Chief of the Construction Division.

Mr. REDDAN. Did you delegate this authority to him?

General HYZER. Yes. This was many years ago. Normally I did that in writing.

Mr. HARDY. Let's stay away from the business of what one would "normally" do. So many "normal" things don't get done. You don't recall how you did it, I take it?

General HYZER. I don't have the file available, no.

Mr. REDDAN. Did you approve the Oxford pit of American Aggregates as a source of coarse aggregate under this contract?

General HYZER. I recall the situation where we had—expected great trouble from American Aggregates Co. in providing aggregate that would meet the specifications.

Mr. REDDAN. Did you have anything to do with the preparation of specifications, initially?

General HYZER. From the supervisory point of view I knew the problems involved in the preparation.

Mr. HARDY. Gentlemen, before we proceed, you mentioned that you don't have the file. Did you have a chance to review that file before you came here?

General HYZER. Yes, sir, I read some of the GAO reports and so forth.

Mr. HARDY. It was quite a while ago. I don't think we ought to try to trust your memory entirely.

General HYZER. I am not acquainted with names, places, dates, and so forth. However, I am aware of the problems that were going on at the time.

Mr. HARDY. I would be surprised if a military man of your background hadn't reviewed the files. I would be most surprised to find you hadn't studied your lesson pretty well.

General HYZER. Yes, sir, but I haven't had time——

Mr. HARDY. I just want to be sure you are not trying to testify from memory.

General HYZER. I have refreshed my memory from reading the reports.

Mr. REDDAN. Who prepared the specifications for this contract, please?

General HYZER. We had many large paving contracts going on. I am not acquainted with this one. Mr. Mechler, under Mr. Graham, Chief of the Design Branch, had general supervision over the preparation of the pavement specifications.

Mr. REDDAN. Did you prepare the specifications of this contract?

Mr. MECHLER. Yes, sir.

Mr. REDDAN. Did you include in your original specifications the Oxford pit of American Aggregates as a source of coarse aggregate?

Mr. MECHLER. That was included originally as an approved source.

Mr. REDDAN. What was the basis of the approval of that source?

Mr. MECHLER. We had preliminary test results from the Ohio River division that indicated they would meet our requirements, and also on past test records, it indicated they could meet our specs.

Mr. REDDAN. Could you tell the committee where those test records can be found at the present time?

Mr. MECHLER. We have copies of the test records.

Mr. HARDY. We would like to have them. We have tried to get them, and I asked for everything in connection with this. If they are in existence they have not been provided to us.

Mr. MECLHER. These have been provided already. These are the test results.

Mr. REDDAN. Would you identify the tests you are referring to, sir?

Mr. MECHLER. The summary data sheet, dated May 1958.

(See app. III, p. 204, for Ohio River Division Laboratories petrographic report summary data sheet, May 1958, of test of American Aggregates Corp. coarse aggregate.)

Mr. HARDY. I think you are going to have to explain that. Let's get these data sheets and let them look at them and tell us about them.

Mr. MECHLER. Aggregate data sheet, dated May 1958. We did not receive this through the mail officially until July 1958. However, we did receive some of the information on material that was tested prior to July by phone.

Mr. REDDAN. Would you be able to show us the sheet you are talking about? That May 1958 test you referred to showed that the American Aggregates Oxford pit met the Corps of Engineering specifications?

Mr. MECHLER. On some of the tests.

Mr. REDDAN. What did it show with respect to cherty limestone and chert?

Mr. MECHLER. We didn't receive this material on the petrographic analysis until July, so we did not have this information.

Mr. REDDAN. Then did you not make your specifications on the basis of the Ohio River laboratory tests?

Mr. MECHLER. Yes; we received test results from that division by phone, not by mail.

Mr. REDDAN. What did you receive?

Mr. MECHLER. The fact that the gradation was adequate, gradation of the material, and also that the 7- and 14-day mix design tests were adequate.

Mr. REDDAN. That would not show chert, though, would it?

Mr. MECHLER. No.

Mr. HARDY. Do you have any evidence to support that, any memorandums? Does the laboratory have any data to support that statement?

Mr. MECHLER. No, sir; we were receiving quite a bit of information by phone on all these test results.

Mr. HARDY. Didn't the laboratory maintain a record of these test results?

Mr. MECHLER. Yes.

Mr. HARDY. Do you know? I wonder if they do? Do you know?

Mr. MECHLER. This is a record of the test results.

Mr. HARDY. You didn't base your decision on this, though? You just said you based it on a telephone conversation; isn't that right?

Mr. MECHLER. That is correct.

Mr. HARDY. What do you have to support the telephone conversation? The laboratory had to make a test to give you the information on the phone. Did you ask them to confirm it?

Mr. MECHLER. No, sir.

Mr. HARDY. Did you ever try to support a $9 million contract on the basis of telephone specifications?

Mr. MECHLER. No, sir.

Mr. HARDY. A telephoned laboratory report. Would that justify you in approving a specification for a $9 million contract without a blasted thing to back it up? What is in the record to support you? How do we know you even had such a telephone conversation? How does the laboratory know what you used or how you interpreted their statements? Can you give us anything at all to tie it to?

Frankly, I am trying to find something to anchor to. That is a self-serving statement. You can come in here and say they told you this stuff had gold in it.

Mr. MECHLER. Well, we received the final test results, in July 1958.

Mr. HARDY. What did they show?

Mr. MECHLER. An excess of chert content. And at that time we removed the pit from the approved list, based on this test result, on the final test results.

Mr. REDDAN. This test was conducted in May 1958?

Mr. MECHLER. Not the petrographic tests, no.

Mr. REDDAN. What were you just referring to?

Mr. MECHLER. Referring to the physical tests of gradation and some of the other preliminary tests.

Mr. REDDAN. You showed me a sheet dated May 1958, which shows a chert content far in excess of Corps of Engineers requirements. I understood you to say it was on the basis of that test that you approved the Oxford pit of American Aggregates as a source of coarse aggregate for this job.

Mr. MECHLER. I would like to point out——

Mr. REDDAN. Excuse me. Did you testify, sir—I am trying to get the record straight. Did you say that?

Mr. MECHLER. Yes.

Mr. REDDAN. Is that a correct statement?

Mr. MECHLER. Yes.

Mr. REDDAN. When was the test made——

Mr. MECHLER. The petrographic test was made in June. All of the material on this particular sheet, sir, was not recorded in May 1958.

Mr. REDDAN. How do you know that?

Mr. MECHLER. Because the petrographic tests came from the summary at the bottom of the sheet dated June 13, 1958.

Mr. HARDY. How in the world did you get this sheet dated May 1958? What did you do, doctor it up or something?

Mr. MECHLER. No, sir.

Mr. HARDY. It ought to be explained. I don't think it is funny at all.

Mr. MECHLER. We did not receive any of these sheets of test results until July 1958. But preliminary tests were made in May 1958 which are recorded at the top of this particular sheet.

Mr. HARDY. You gave us to understand in the beginning, and let's get the record straight, that this was a report of an actual test which you used in May 1958 to include this as an eligible pit. At least that is what I understood you to say. Did I misunderstand you?

Mr. MECHLER. The test results that were reported to us——

Mr. HARDY. I didn't ask you about the test results reported to you. You are trying to tell me this was reported by telephone, is that correct?

Mr. MECHLER. That is correct.

Mr. HARDY. You better examine your earlier testimony. I think you may want to correct it.

Mr. REDDAN. When did the invitation for bids go out, Mr. Mechler?

Mr. MECHLER. I believe it was the 23d of June 1958.

Mr. REDDAN. When was the petrographic test conducted which showed the excess chert?

Mr. MECHLER. The test report is dated June 13, 1958.

Mr. REDDAN. Ten days before your specifications went out?

Mr. MECHLER. That is correct. But the test results, these results, were not submitted to us until July 1, 1958.

Mr. REDDAN. Did they telephone you and tell you about the petrographic tests?

Mr. MECHLER. No, sir.

Mr. REDDAN. Why would they call and tell about the good part and not the bad part?

Mr. MECHLER. That is something I can't answer.

Mr. REDDAN. Who made the telephone calls from the Ohio laboratories?

Mr. MECHLER. This was normally done——

Mr. HARDY. Don't say who "normally" did it.

Mr. MECHLER. Mr. Otto from our district, Chief of the Materials Branch in the Engineering Division, talked to people in the Ohio River Division Lab, I can't say who they were.

Mr. HARDY. How do you know Mr. Otto talked to them?

Mr. MECHLER. He had some notes on telephone conversations at that time.

Mr. HARDY. Well, I am glad to have that. That is helpful. Do we have those notes?

Mr. REDDAN. No, sir.

Mr. HARDY. Who gathered the material to respond to the information we asked for? General Clarke, do you know?

TESTIMONY OF BRIG. GEN. FREDERICK JAMES CLARKE, DIRECTOR OF MILITARY CONSTRUCTION, OFFICE OF THE CHIEF OF ENGINEERS

(A biography of General Clarke appears as app. I, p. 195.)

General CLARKE. I think the material you have, sir, is a result of some we submitted and some your people acquired in the field.

Mr. HARDY. General, we are trying right now to get this whole picture. Obviously a telephone conversation is not a very valid basis for making a firm determination, especially if you don't have some record of it.

Now, we have testimony that there is a record of telephone conversations. Fine. I am delighted to know that. But don't you think in submitting this information to us that our request covered that?

General CLARKE. I am sure it did, Mr. Chairman. I did not understand that the records were still available of this telephone conversation.

Mr. HARDY. That is what I was afraid of. So we are getting testimony here now about materials which we have requested and which were not supplied. Thank you, General.

I want to get back to this report we have been discussing here. The only date I have been able to find on this report is May 1958. Who made this report, Mr. Mechler?

Mr. MECHLER. The Ohio River Division Laboratories made it.

Mr. HARDY. And you tell me the report dated May 1958 actually covers tests made in June and July?

Mr. MECHLER. That is correct, sir.

Mr. HARDY. Is that a normal procedure in your laboratories?

General Clarke?

General CLARKE. I don't know. I doubt it, but I don't know.

Mr. HARDY. Is that a normal procedure in the Corps of Engineers, to put a date earlier than something actually occurred on a document?

General CLARKE. Certainly not, sir. If I understand this report, it was a continuing study over a period of time.

Mr. HARDY. The report I have before me, if it shows it I can't find it. It says "Tested by ORD Laboratories," dated May 1958. Now, that is a pretty broad date, 31 days, May 1958. The testimony says that the information on here was determined at a later date.

General CLARKE. That is correct.

Mr. HARDY. There is a second sheet here dated June 15, 1958. Can you tell the committee whether that contains the information or the data shown at the bottom of the test sheet which is dated May 1958?

Mr. MECHLER. Yes, sir, that is correct.

Mr. HARDY. Well, we never would have been able to guess it from the dates on these documents.

Now, a specific request for documents included this: Copies of correspondence, memorandums, logs, diaries, or other documents other than those previously specified which relate to American Aggregates Corp.'s removal from and return to the list of approved sources.

That is what we asked you for, General.

General CLARKE. Yes, sir. We have given you everything that we have that we are aware of.

Mr. HARDY. And some of your subordinates in the field have not supplied you with the information to enable you to respond accurately to our request, then?

General CLARKE. Mr. Chairman, I believe our subordinates in the field have furnished everything that is still available in the way of records.

Mr. HARDY. Then do I understand that the testimony a moment ago with respect to memorandums concerning telephone conversations is false?

General CLARKE. No, sir. I understood Mr. Mechler to say that these telephone notes existed at that time.

Mr. HARDY. Well, I understood him to say the telephone notes still exist. Now, will you correct me?

Mr. MECHLER. There are not now any notes on the telephone calls on American Aggregates' materials or tests.

Mr. HARDY. How do you know they ever existed?

Mr. MECHLER. I don't know that they did exist. I said there are telephone calls on other aggregate sources that were reported by ORD.

Mr. REDDAN. I understood you to say that after you received this report from the Ohio laboratory, which is dated May 1958, the American Aggregates Oxford pit was removed from the list of approved sources. And I understood your testimony to be that this action was taken by the Detroit district.

Mr. MECHLER. The action was taken by the Division office, which requested removal of this material, in a letter dated July 14, 1958.

Mr. REDDAN. A letter that came in from Chicago?

Mr. MECHLER. That is correct.

Mr. REDDAN. Did you have this test from the Ohio laboratory prior to the receipt of the letter from Chicago?

Mr. MECHLER. Yes, sir.

Mr. REDDAN. Had you initiated or taken any action to have them removed when you received that report?

Mr. MECHLER. We had taken them off the approved list of the Wurtsmith Air Force Base, which was being advertised at the same time, and we had done this——

Mr. REDDAN. Had you done anything on this one?

Mr. MECHLER. Not as yet, no.

Mr. REDDAN. How long had you had this test from the laboratory before you got the letter from the Chicago office?

Mr. MECHLER. Approximately 10 days.

Mr. REDDAN. Can you explain to the committee why you hadn't taken any action during that 10-day period, why it required a letter from Chicago to get you to take action in this instance?

Mr. MECHLER. No, sir; I can not.

Mr. REDDAN. Did anyone else have anything to do with this—with the keeping of the Oxford pit on the approved list?

Mr. MECHLER. No, sir.

Mr. REDDAN. Did Mr. Hampton inject himself into this picture at any point?

Mr. MECHLER. No, sir.

Mr. REDDAN. Did you have any conversations with him concerning it?

Mr. MECHLER. No, sir.

Mr. REDDAN. What was Mr. Hampton's position at that time?

Mr. MECHLER. He was Chief of the Soils and Materials Branch of the Construction Division.

Mr. REDDAN. As such, did he have any responsibility for the quality of materials that went into the construction of this particular job?

Mr. MECHLER. Not in the specifications; no.

Mr. REDDAN. No, I say did he have any responsibility for the quality of materials that went into the construction?

Mr. MECHLER. Yes, sir.

Mr. REDDAN. And the quality of material that went into the construction probably wouldn't be any better than the specifications?

Mr. MECHLER. That is correct.

Mr. REDDAN. Do you know whether he was aware of the fact that the Ohio River laboratory test in May 1958 showed that this gravel, this aggregate, did not meet your specifications?

Mr. MECHLER. I couldn't say that he was aware of it. No.

Mr. REDDAN. Was it anybody's duty to bring that to his attention?

Mr. MECHLER. He was aware at the time of the addendum where we removed this material——

Mr. REDDAN. That is after the Chicago district got you going. Now, I am trying to find out if anybody had a responsibility when he found out this didn't meet specifications, did anybody have the responsibility to tell the man responsible for the construction that: "We have approved something here that won't stand up"? Who had this responsibility?

Mr. HARDY. General, if you want to get in here and help out, feel free to do so.

General HYZER. Mr. Mechler was working in the Engineering Division and Mr. Hampton was working in the Construction Division, which was charged with job supervision and inspection. It is my recollection that everyone in the district office was aware—we were working on many projects at this time, several projects much larger and more important than this Selfridge job. It is my impression that all the people who were involved were aware of the problem.

I think even before the bidding, probably your office was aware of the problem that we had at American Aggregates.

Mr. REDDAN. Did anyone do anything about it, General?

General HYZER. We deleted them from our specs as an authorized source.

Mr. REDDAN. At the direction of Chicago, not on your own initiative?

General HYZER. This I do not recall.

Mr. REDDAN. The letter from Chicago was dated July 14, 1958, which directed that you delete American Aggregates Corp.'s Oxford pit at Green Oaks, Mich., from the approved source of coarse aggregate.

Is there anything that would establish that the Detroit district took any action at all prior to receipt of this letter from Chicago?

General HYZER. We were in constant—I know that you question our using telephone conversations as a basis for specifications.

Mr. HARDY. If you have something to back it up, that is all right.

General HYZER. But this was a very urgent program. And in order to get the contracts awarded on schedule, to get the original pavements down, in order to fit the Air Force schedule of moving, and so forth, it was necessary all these specs be coordinated almost entirely by telephone.

Mr. REDDAN. General, this was a fixed-price contract?

General HYZER. Yes, sir.

Mr. REDDAN. And the persons to whom invitations were issued could rely on the sources which you had set forth in your invitation in order to make up their bids; is that not right, sir?

General HYZER. Yes, and listing authorized sources was a help to the contractors. It gave them notice that they could expect to meet our specs from these sources. They were still required, however, to meet the technical specifications, regardless of source.

Mr. REDDON. But your specifications showed you had approved American Aggregates Oxford pit as a source of coarse aggregate and the presumption would be that the bidding parties could rely on that approval in computing their bids?

General HYZER. Yes, sir.

Mr. REDDAN. Don't you think it would be a matter of great interest to them whether or not that was an acceptable source, since it would have cost so much more to bring in aggregate from somewhere else?

General HYZER. Yes, sir.

Mr. REDDAN. Was any indication given to these prospective bidders that this pit did not meet your specifications? I am talking of prior to the addendum to the specs.

Mr. MECHLER. Not prior to July 16, when we issued the addendum.

Mr. REDDAN. When were the bids due?

Mr. MECHLER. July 23.

Mr. REDDAN. What date was the addendum issued?

Mr. MECHLER. July 16.

Mr. REDDAN. And the contract was signed as of July 28, 1958?

Mr. MECHLER. Yes, sir.

Mr. REDDAN. At the time the contract was signed, American Aggregates, their Oxford pit, was still on the unapproved list of the Corps of Engineers?

Mr. MECHLER. Yes, sir.

Mr. REDDAN. Prior to the time of the signing of the contract, was any conversation had by you, or anyone else to your knowledge, with Western Contracting Corp. indicating that it might be possible to modify the production out of the Oxford pit to meet the Corps of Engineers specifications?

Mr. MECHLER. Not to my knowledge.

Mr. REDDAN. At the time the Western Contracting Corp. submitted their bid, do you know what the source of gravel was that they were figuring on in computing their bid?

Mr. MECHLER. No, sir.

Mr. REDDAN. Do you know what any of the other contractors were considering as a source?

Mr. MECHLER. No, sir.

Mr. REDDAN. Do you know whether any of them were considering the Oxford pit?

Mr. MECHLER. No, sir; I don't.

Mr. REDDAN. After the contract was let, what happened next with respect to the American Aggeragtes' Oxford pit?

Mr. SORENSEN. I can best answer that.

After award of the contract, which you indicate was dated the 28th of July, the contractor, Western Contracting, through American Aggregates, submitted——

Mr. REDDAN. Would you be specific on this, Mr. Sorensen? We have been trying very hard to tie this down.

Mr. SORENSEN. I will try to.

Mr. REDDAN. You say the Western Contracting Corp., through American Aggregates——

Mr. SORENSEN. Yes, there was a Dr. Mozola, a petrographer, who submitted a report under date of July 30, submitted an analysis of material from American Aggregates' pit.

Mr. REDDAN. Is he an independent?

Mr. SORENSEN. Yes, a consulting geologist in the Detroit area. He submitted this report and asked for reconsideration of the American Aggregates Oxford pit.

Mr. REDDAN. What authority did he have to ask for that, sir?

Mr. SORENSEN. Under addendum 2, which removed American Aggregates as a source of supply. That addendum also indicated that the contractor could submit any other source for approval, as long as it met the technical specifications, and under this premise, it is my understanding, the submittal by Western was made.

Mr. REDDAN. I will read you the specific language, and this appears in the addendum at page 3:

> If the contractor proposes to furnish aggregate from a source or from sources not already approved, he may designate only one source for both coarse and fine aggregate or one source for each.

And then it goes on to say that it is up to the contracting officer to approve that source.

Now, you refer to this report of Andrew J. Mozola as being the evidence that the Western Contracting Corp. had asked for consideration of the Oxford pit?

Mr. SORENSEN. Yes, sir.

Mr. REDDAN. Do you have a copy of that report?

Mr. SORENSEN. Yes.

Mr. REDDAN. Is there anything in that report that supports your statement that this was done at the request of the Western Contracting Corp.?

Mr. SORENSEN. No, sir; as such, the letter dated July 30, 1958, from the petrographer states that it is a petrographic analysis of the American Aggregates Corp. pit and indicates how the sampling was done, and indicates the various constituents of the materials.

Mr. REDDAN. Doesn't it say who told them to do it?

Mr. SORENSEN. No, sir.

Mr. REDDAN. What is the basis of your statement that this was done at the request of the contractor?

Mr. SORENSEN. Recollection. As I recall, after the award of the contract the contractor submitted this.

Mr. RADDAN. The contractor submitted it?

Mr. SORENSEN. Yes, sir.

Mr. REDDAN. How soon?

Mr. SORENSEN. I am not positive whether or not it was a formal letter.

Mr. REDDAN. If it was a letter it should be in your files.

Mr. SORENSEN. Not in our formal files, there is not such a letter. But this was 6 years ago, and many of the files have since been destroyed.

Mr. REDDAN. It should be also in the contractor's files; if it was submitted by formal letter, he should have a copy.

Mr. SORENSEN. Presumably so.

Mr. REDDAN. When did Mozola's test first come to your attention, and how, if you recall?

Mr. SORENSEN. It would have had to be the early part of August, no later. Mr. Hampton was at that time the Chief of my Soils and Paving Branch—and the word has been used "Materials," instead of "Paving" but it is the same, Soils and Paving Branch. He was my specialist in this work, and devoted a great deal of time not only on this contract but on others, to assure getting the submittals in on time and getting the work then under contract started. Naturally, I delegated much of this work to Mr. Hampton. This had to have come up the early part of August.

Mr. REDDAN. Do you recall how it came to your attention?

Mr. SORENSEN. No, sir. Other than, incidentally, possible discussion with Mr. Hampton.

Mr. REDDAN. You think Mr. Hampton may have given it to you?

Mr. SORENSEN. I couldn't say, sir.

Mr. REDDAN. What happened after you got that, Mr. Sorensen?

Mr. SORENSEN. We submitted material to Ohio River Division Laboratory, I believe about the 11th of August, for a check analysis.

Mr. REDDAN. What was the date you submitted that, sir?

Mr. SORENSEN. I believe it was dated—it is a report dated the 13th of August, I believe, from the Ohio River Division Laboratory. There is a copy of the Ohio River Division Laboratory report, August 13.

Mr. REDDAN. What did that report show?

Mr. SORENSEN. That indicated the samples were in excess of our requirements for chert content.

Mr. REDDAN. As of this time, then, it still had not passed?

Mr. SORENSEN. Yes, sir.

Mr. REDDAN. What did you do after that?

Mr. SORENSEN. As a result of this, there was a further check run. The records will show, I believe you have a copy of them.

Mr. REDDAN. Going back to your letter, was there anything after the test of the 13th, and your letter of August 15, to the Ohio River Laboratories?

(See app. IV, p. 205, letter August 15, 1958, to Director, Ohio River Division Laboratory, Corps of Engineers, Cincinnati, Ohio, from Elmer A. N. Sorensen, Chief, Construction Division, Detroit District.)

Mr. SORENSEN. There were telephone discussions, Mr. Counsel.

Mr. REDDAN. Between whom, sir?

Mr. SORENSEN. As a matter of record, our letter dated August 15 indicates a telephone conversation that took place on the 14th of August between Mr. Roberts of Ohio River Division Laboratories and our Mr. Hampton.

Mr. REDDAN. Were you present when the telephone call was made?

Mr. SORENSEN. No, sir.

Mr. REDDAN. Did Mr. Hampton report to you what was said?

Mr. SORENSEN. As I recall he did. As I recall he said there was a blending required to lower the chert content of the material.

Mr. REDDAN. Whose decision was that?

Mr. SORENSEN. Well, how some of these decisions are made is a rather peculiar thing to state. I mean, who originated them I have no knowledge.

Mr. REDDAN. Well, do you know why Mr. Hampton called about that?

Mr. SORENSEN. I am sure it was in regard to the analysis of the material.

Mr. REDDAN. Two days before it had been turned down again, the test had shown it didn't meet your specifications?

Mr. SORENSEN. That is correct.

Mr. REDDAN. Now Mr. Hampton was going back to them again?

Mr. SORENSEN. Yes.

Mr. REDDAN. At whose request?

Mr. SORENSEN. I have no knowledge.

Mr. REDDAN. Was it at your direction?

Mr. SORENSEN. No, sir. I don't believe so.

Mr. REDDAN. Did he do it on his own initiative?

Mr. SORENSEN. If he didn't he wouldn't have been the professional man I thought he was and is.

Mr. REDDAN. Who wrote the letter of August 15?

It says:

Field checks conducted on this material on August 13, 1958, indicate that the objectionable particle percentages have been reduced sufficiently to comply with specification requirements.

What tests were you talking about?

Mr. SORENSEN. The normal field tests conducted on material before it would be sent to a laboratory, that is those that our laboratory would be capable of performing.

Mr. REDDAN. Who conducted these tests and what are the results of the tests?

Mr. SORENSEN. To my knowledge there are no formal records at this time as to the results of those tests.

Mr. REDDAN. Do you know whether or not there ever were?

Mr. SORENSEN. To state positively that I saw the tests run, no. But again, Mr. Hampton was the chief of my soils branch and as such he would have certainly had evidence to show the tests had been run.

Mr. REDDAN. He should have had?

Mr. SORENSEN. That is right.

Mr. REDDAN. But you didn't see them, and you are relying on Mr. Hampton's statements that there were such tests and that the tests showed what he said they showed?

Mr. SORENSEN. That is correct.

Mr. REDDAN. Do you feel that that sort of thing is helpful to the laboratory? Do they care what your field tests show? Aren't they supposed to make independent judgments?

Mr. SORENSEN. Yes. But it would be foolhardy to send material for tests that we know wouldn't pass test. There are great quantities of material involved in preparing design mixes. It would be presumptuous of us to send all this material and not have it comply with our specifications.

Mr. REDDAN. Who sent back this material?

Mr. SORENSEN. This was delivered by one of the American Aggregates Co. people.

Mr. REDDAN. Do you know whether Western Contracting had anything to do with this at all?

Mr. SORENSEN. I would have no knowledge.

Mr. REDDAN. How was the sample selected that was sent down?

Mr. SORENSEN. Since I wasn't there when the sample was selected I would rather not even mention it. I would think one of our other field people could speak to that. Mr. Hampton, probably.

Mr. REDDAN. Does the Corps of Engineers have certain requirements on how a sample is to be obtained in cases of this sort?

Mr. SORENSEN. Yes, sir. I would think so.

Mr. HARDY. Don't you know? You ought to know what the requirements are.

Mr. SORENSEN. Yes, sir. Yes, sir.

Mr. HARDY. But you don't know whether the requirements were followed?

Mr. SORENSEN. Knowing my man, yes, sir, they were followed.

Mr. HARDY. But to your own kowledge, do you know whether your man actually supervised taking of the samples?

Mr. SORENSEN. Well, no, because I wasn't present.

Mr. HARDY. Did you say the samples were delivered by a representative of American Aggregates?

Mr. SORENSEN. Yes.

Mr. HARDY. What is there to indicate that anyone from your office participated in selecting the sample?

Mr. SORENSEN. Only that the letter shows it was done, sir.

Mr. HARDY. The letter shows that someone from your office participated in the selection of the sample?

Mr. SORENSEN. Yes, sir. The case is that we ran check tests on this same material, sir.

Mr. HARDY. Check tests, where?

Mr. SORENSEN. Field checks. The letter indicates this.

Mr. HARDY. On the sample that was delivered to you?

Mr. SORENSEN. "Field checks conducted on this material."

Mr. REDDAN. On this identical material?

Mr. SORENSEN. It would be, I presume, from a stockpile.

Mr. REDDAN. Yes, but are you saying this is the same material these alleged field tests were made on?

Mr. SORENSEN. Not, possibly, the identical stone or identical number of pounds, no, but from the same general sample.

Mr. HARDY. What date test are we talking about now? August 15, or 13?

Mr. SORENSEN. August 15, sir.

Mr. PIKE. May I ask a couple of questions?

Mr. HARDY. Yes, sir.

Mr. PIKE. What was the nature of the contract which had been executed with the contractor at this time? Was it a fixed fee contract, or a cost plus contract?

Mr. SORENSEN. An advertised fixed fee—pardon me. I mean it was an advertised lump sum contract.

Mr. PIKE. A fixed price contract?

Mr. SORENSEN. Yes, sir.

Mr. PIKE. So in the event any savings were realized by the use of aggregate from the Oxford pit the Government didn't stand to gain anything by it anyway, is that correct?

Mr. SORENSEN. Not at this stage, no, sir, that is right.

Mr. PIKE. Well, at what stage woud the Government stand to gain from it?

Mr. SORENSEN. Our specifications, sir, as you know, are not restricted to the point that—we do not list subcontractors or subcontractor materials. So——

Mr. PIKE. I am trying to find the motivation for the Government in going back and going back and going back to the laboratory, trying to get them to accept a particular pit as a source of aggregate, when the Government doesn't stand to gain anything by it.

Mr. SORENSEN. There was preliminary testing of a large pit—I don't know how many acres this material covers, and the material is not so uniform that you could say this piece and all like it are the same. In other words, any natural materials from a pit are not all the same, sir.

Mr. PIKE. You don't answer my question.

Mr. SORENSEN. I am sorry, sir.

Mr. PIKE. What benefit was there to the Government in getting the Oxford pit accepted as a source, if any savings to be realized from using this easier and perhaps more dubious source are not passed on to the Government?

Mr. SORENSEN. This becomes a contractual matter.

General HYZER. May I interject, Mr. Pike?

The important thing here, as far as the Government was concerned, we would get a usable airfield on a certain date, which would certainly be questionable if at this stage the contractor had to change his aggregate sources.

Mr. PIKE. When you say the contractor had to change his aggregate sources, you had already put out an invitation for bid requiring him to change his aggregate sources, hadn't you? They were aware of that at the time they submitted the bids, weren't they?

General HYZER. Our pressures on Mr. Hampton were to assist the contractor in any way to complete this job.

Mr. PIKE. Did not the contract have a time of completion in it, which included a use of aggregate from sources other than the Oxford pit, isn't that right? And it included aggregate, use of aggregate from other sources than Oxford?

General HYZER. I would say the time specified in the contract was before we scratched the Oxford pit.

Mr. PIKE. It wasn't established prior to the time the contracting bidders submitted their bids, was it? In other words, when the bids were submitted the time of completion was known, and the fact that they could not use the Oxford pit was also known, was it not?

General HYZER. Yes, sir.

Mr. PIKE. Your addendum went out 10 days prior to the contract opening, is that not correct?

General HYZER. Yes, sir. Yes, sir.

Mr. PIKE. So there was nothing in the contract specifications which was any surprise to the people who submitted their bids 10 days later. All we have is a situation under which the person who got the contract award would find it easier and faster and a great deal cheaper to get his supplies from some other source, but there was no benefit to the Government.

General HYZER. No monetary benefit; no, sir.

Mr. SORENSEN. Mr. Pike, may I have the liberty of explaining one other statement in this connection?

Mr. PIKE. Certainly.

Mr. SORENSON. At this time it had not been established that the material in fact from the Oxford pit would not comply with the specifications. This becomes a contractual right from the contractor's viewpoint as well as ours, that if he submits material that he feels the source would be approved for, then he has a right, also, to determine whether it would meet our contract specifications.

Mr. PIKE. Well, granted that it had not been proved that it could not meet the specifications, because it was a big area, and they could go over here, and go over there, but you had been pretty much alerted by the directive from Chicago, "Don't use this pit," hadn't you?

Mr. SORENSEN. That is true, sir, except that material from any pit varies, and if we had at this stage, based on one other report, turned this down, and directed the contractor to go to another source, I think it would be premature.

Mr. PIKE. You had already directed him to go to another source, when you put out your——

Mr. SORENSEN. No, sir. No, sir. We only told the contractor that these are the approved sources, but he can select others.

Mr. PIKE. Then what is the purpose of putting out the supplemental directive?

Mr. SORENSEN. It says he can use it provided he uses material from that source which meets the specifications. There is a lot of difference.

Mr. PIKE. He has to supply material from any source that meets the specifications.

Mr. SORENSEN. That is right. This was an alert to the contractor that these sources had been checked in the past and were on an approved list, so he could go to any one of them and say: "What is the quote on your material? It is on the approved list, and we don't have to have tests run."

But the purpose of the addendum was, the statement was that they were taken off because of their high chert, and if they could in fact furnish material from this source that could meet the specification, they would be approved. The addendum says he could furnish material from any other source.

Mr. PIKE. Well, I am simply trying to find some motivation which made the Government keep going back and back to the lab to get them to approve material when the approval of this material has a great financial benefit to a contractor, but no financial benefit to the Government.

Mr. SORENSEN. Sir, there is a difference—you say we went "back and back." We went back once. On the 11th of August there was a sample submitted. On the 13th a sample that was reprocessed and blended was submitted, and that is the basis on which the mix design was eventually made. These others were preliminary to contract award.

Mr. PIKE. You only went back once, but subsequently—and, Mr. Reddan, I do not want to preempt your questions. But subsequently, without going back, someone made the determination, "We don't have to go back because we are only going to consider 50 percent of the cherty limestone as chert."

Mr. SORENSEN. That is another discussion, sir.

Mr. PIKE. It sure is.

Mr. SORENSEN. But on this material, we only went back after it was reprocessed.

Mr. REDDAN. Mr. Sorensen, having submitted samples of aggregate from the Oxford pit for testing, asking acceptance of a nonapproved source, if this had been turned down, would the contractor have had the opportunity to submit samples from any other pits, or would he then have had to go to an approved pit?

Mr. SORENSEN. The wording of this could be debatable. But I think the wording of the specifications is such that we were talking about one other source of submittal of approved material.

Mr. REDDAN. In other words, since the contractor made his decision to ride on the Oxford pit, it was of tremendous importance to him that he get that approval, otherwise he would have had to go to one of these other pits, wouldn't he?

Mr. SORENSEN. Yes, the addendum states this.

Mr. HARDY. I would like to return to this question of sampling.

Mr. SORENSEN. Yes, sir.

Mr. HARDY. I am not sure that we have a very clear understanding of how the sample was selected. I do not read anything in this letter to indicate that the sample was selected with anybody representing the Corps of Engineers present. I don't read anything to indicate that its selection complied with your standards for selecting a sample. If you can straighten me out, I would appreciate it.

Mr. SORENSEN. Sir, since I wasn't there when the sample was taken, I would suggest that this question be directed to Mr. Hampton, who was actually my chief——

Mr. HARDY. You have testified about it, and after all, you said you had reason to believe it was complied with. And you referred specifically to a letter to indicate that. But I find nothing in the letter that says a thing in the world except that something was delivered from American Aggregates.

Mr. SORENSEN. This is my feeling based on the statement that the letter stated that the chert material has been reduced sufficiently to comply with specification requirements.

Mr. HARDY. I read the part you are referring to. Field checks by whom? Where did they get the material? Who selected it?

Mr. SORENSEN. One of our laboratory people, sir. I think it answers that specifically, sir.

Mr. HARDY. And the field checks of August 13, where were they made? Were they actually made as the stuff came out of the blending operation?

Mr. SORENSEN. I think Mr. Hampton can answer that, too, sir.

Mr. HARDY. On the spread sheet, in the abstract of the bids—I was just trying to see whether or not there was anything to indicate the source of the aggregate on which Western Contracting Co. proposed to depend. It has much the lowest figure for aggregate. As a matter of fact, it is less than half the amount which some of the bidders proposed to spend for aggregate. And on the basis of the rate which Western Contracting had assigned to their aggregate, how far could they have brought that aggregate for the unit price which they had?

Mr. SORENSEN. Sir, not being a contractor, I couldn't answer.

Mr. HARDY. Well, now, you have been in that job long enough to give a better answer than that. Just a "horseback operator" like me could come up with a pretty good idea on the basis of the unit price. You can't carry it very far for that price, can you?

Mr. SORENSEN. Yes, sir, I understand. However, on a contract of $9 million, to say what any one item in it would involve, only the contractor could tell you.

Mr. HARDY. Oh, I understand that. And of course if he loses on one item he might make it up on another. I understand that. But this notice tells him he is expected to be able to supply aggregate from nearby, otherwise he couldn't possibly be expected to supply it at that price.

Mr. SORENSEN. I couldn't draw that conclusion. Because a contractor on a $9 million contract would not put all his eggs in one basket, so to speak.

Mr. HARDY. Well, the cost of his aggregate is about one-third of the total contract. It is $2,875,000.

Mr. SORENSEN. That is including labor at the site, and everything else. This is not aggregate, sir, this is total concrete in place.

Mr. NORBLAD. This is surface aggregate that we are talking about?

Mr. SORENSEN. You are talking about another item, possibly, sir.

Mr. HARDY. Maybe I don't know how to read your books.

General HYZER. Which item number, sir?

Mr. HARDY. Well, it is item 14(b).

Mr. NORBLAD. Sheet 2. If that helps.

Mr. SORENSEN. Sir, that is not the item we are talking about.

Mr. HARDY. It is not?

Mr. SORENSEN. We are talking about the items contained in item 8—Portland cement concrete pavement.

Mr. HARDY. On what page?

Mr. SORENSEN. The first page, sir.

General HYZER. Item 8.

Mr. SORENSEN. Item 8.

Mr. HARDY. Oh, item 8.

Mr. SORENSEN. Yes, sir. The others are for bituminous surface treatment, sir, and——

Mr. HARDY. That was an alternate——

Mr. SORENSEN. Sir, it was on other items of paving in that work, but not the concrete.

Mr. HARDY. Then item 8 is the one we are talking about?

Mr. SORENSEN. Yes, sir.

Mr. HARDY. I think this is probably as good a stopping place as we are going to find, so let the committee stand adjourned, to reconvene at 2:30.

(Whereupon, at 12 noon, the subcommittee was adjourned, to reconvene at 2:30 p.m.)

AFTERNOON SESSION

Mr. HARDY. Let the committee come to order.

Let the record show that the presence of Mr. Norblad and myself, constituting a quorum under the committee rules.

Go ahead, Mr. Reddan. Let's pick up where we left off when we recessed for lunch.

Mr. REDDAN. I would like to go back to the invitations for bids, and ask you where you got the specifications that you included in that document, Mr. Mechler.

Mr. MECHLER. These are the CF–806 standard guide specifications, dated April 1956.

Mr. REDDAN. Do you have them there, sir?

Mr. MECHLER. Yes, sir; I have a copy of them.

Mr. REDDAN. Do you have also a copy of the invitation to bid?

Mr. MECHLER. Partially.

Mr. REDDAN. Do you have the part that sets forth the specifications for the coarse aggregate?

General HYZER. Do you have the paragraph number, Mr. Counsel?

Mr. REDDAN. No, I was looking for it. I do not have the paragraph number on that. It is probably paragraph 3–05.

Mr. HARDY. Is that what we are talking about?

Mr. REDDAN. Yes, Mr. Chairman. The invitation to bid contains the specifications, appearing at 3–06. Do you have those, sir?

Mr. MECHLER. Yes, sir.

Mr. REDDAN. Are they the same as the specifications contained in the "Standard Practices for Concrete Pavements" in the engineering manual of April 1956?

Mr. MECHLER. With the addition of two items.

Mr. REDDAN. How do the specifications differ from the specifications contained in the engineering manual? That is page 22 of your engineering manual.

Mr. MECHLER. The specifications of the contract have the addition of "chert which will readily disintegrate in five cycles of the soundness test 1 percent," and "iron and maganese oxide particles (clay-ironstone concretions) 3 percent."

Mr. REDDAN. So you have an additional 4 percent?

Mr. MECHLER. Yes, sir.

Mr. REDDAN. What was the authority for that addition to the deleterious particles?

Mr. MECHLER. There was no total limit on the specifications at any time. The chert was added, that was in the previous guide specifications, from May 1953.

Mr. REDDAN. Are they in effect any longer?

Mr. MECHLER. No longer in effect. However, there is a note in the guide specifications that other local deleterious substances should be listed and limits specified.

Mr. REDDAN. Does that mean that to the 3.75 percent of deleterious materials, which is listed in the engineering manual of April 1956, you can add as much deleterious material as you want?

Mr. MECHLER. According to the way the guide specifications are set up, yes. There was no limit on total deleterious.

Mr. REDDAN. You could have 100 percent total deleterious materials, then? Now, you know that is not right.

Mr. HARDY. Is there anything in the guide anywhere else on the amount of deleterious materials in toto which is permissible?

Mr. MECHLER. Not that I know of, there wasn't at that time.

Mr. HARDY. Is there now?

Mr. MECHLER. Yes, sir.

Mr. NORBLAD. Since this incident?

Mr. MECHLER. By addendum we added a total of 5 percent total deleterious.

Mr. NORBLAD. Since this case?

Mr. MECHLER. No; added to this contract.

Mr. NORBLAD. I see.

Mr. HARDY. Where did you get your engineering recommendation with respect to that 5 percent? Anywhere? Or is that your own decision?

Mr. MECHLER. Probably Mr. Davis could answer that.

Mr. DAVIS. Sir, we made that request of them at the same time that we requested that they—that the American Aggregates source be deleted.

Mr. HARDY. Made the request of whom, Mr. Davis?

Mr. DAVIS. Of the district. We asked the district to add to the list of deleterious materials a 3-percent total for chert and a 5-percent total for all deleterious materials.

Mr. HARDY. Did you have authority to do that on your own, without approval from the district?

Mr. DAVIS. We didn't need it—in the chain of command the district is below the division, sir.

Mr. HARDY. Well, I am trying to see who had the authority and the responsibility for increasing this. Obviously it wasn't intended that one single subordinate individual would be able to add unlimited quantities of deleterious materials to the specifications.

Mr. DAVIS. The background for this, the 3 percent on the total chert, was this conference that was held in Vicksburg on March 10–14, 1958.

(See app. V, p. 205, for excerpt from minutes of Rigid Pavement Laboratory Portion of All-Division Airfield Pavement Design Conference, Corps of Engineers, held at the Waterways Experiment Station, Vicksburg, Miss., March 10–14, 1958.)

Mr. HARDY. The results of that conference had not been written into the specifications, though.

Mr. DAVIS. No, sir. On March 31, 1958, I called Mr. Pringle in the chief's office and discussed concrete aggregates for Bong Air Force Base, which is a different site, and I said we wanted to set a specification limit for 3-percent chert, and he approved that. So we used that same authority to put the 3-percent chert in this specification.

Mr. REDDAN. What was the basis for the judgment that 3 percent was proper?

Mr. DAVIS. That was resolved at the conference, and it came, I think, primarily, from Mr. Narrow of the Ohio River Division Laboratories. I don't know the background that he may have had for the selection of the 3 percent. That was one of our questions at the time we were seeking advice and asking for a recommendation.

Mr. HARDY. In the discussion at Vicksburg, as I read this memorandum, it says—

a limit on chert would be desirable in this instance, and a maximum of 3-percent chert was suggested as the limit.

Mr. DAVIS. We took it that way in our Division; yes, sir. That is, that plus the fact that I had discussed it with Mr. Pringle. And if I may, I would like to make a point of the fact that in adding the 3-percent chert we haven't increased the permissible deleterious materials, because there was no restriction on chert prior to that.

Mr. HARDY. If you didn't limit it you could have a much larger quantity?

Mr. DAVIS. That is right.

Mr. HARDY. Of course, that is the reason this little item is stuck in here, "other local deleterious substances should be listed," and then it is specified. That is the reason it is in there, othewise you might have a local supply that would be very high in some very undesirable substance.

Mr. DAVIS. Yes, sir.

Mr. HARDY. Then the 3 percent at this point in time was recognized as being tolerable?

Mr. DAVIS. That is correct.

Mr. REDDAN. Mr. Davis, could you please tell us just what use these guide specifications are, and the engineering manual, in controlling the types of materials that go into, in this particular case, aggregate, if the districts can exercise independent judgment and make substitutions at will?

Mr. DAVIS. They are a guide. You can't change it 100 percent. There are the places in there where you are permitted to make changes, as indicated by the statement that local deleterious materials would be added.

Mr. HARDY. Actually, you are not increasing the deleterious materials which are permitted by this provision here?

Mr. DAVIS. No.

Mr. HARDY. This is a provision to limit the permissible amount.

Mr. DAVIS. Yes, sir.

Mr. HARDY. I haven't been through this whole business, but it would seem to me there would have to be some engineering justification for the upper limits which might have been prescribed under this, when you had a local supply that contained deleterious materials, whatever they may be. In this case you would go back to the Vicksburg conference as your guide.

Mr. DAVIS. Yes.

Mr. HARDY. Wouldn't there be in other undesirable substances some guideline somewhere that would apply?

Mr. DAVIS. Well, you would have to use your local experience as far as local substances are concerned. You would have to use that, or any other information that you might be able to find from the literature, or anything like that.

Mr. HARDY. We had earlier today some references to the same problem on chert in the Alpena Airport, Sioux City, and Minot. Were there limited tolerances on chert in those cases, or do you know?

Mr. DAVIS. I only know with respect to the Alpena, that there was no limit on that. And the aggregates used had a much higher chert content than 3 percent.

Mr. REDDAN. Do you consider chert to be a deleterious material?

Mr. DAVIS. Yes, sir.

Mr. REDDAN. Do you interpret the guidelines to permit an unlimited amount of deleterious material?

Mr. DAVIS. No; it is surely intended that there will be a limit.

Mr. REDDAN. What would be the limit, sir?

Mr. DAVIS. At that time, as far as EM 110–345–307 was concerned, there were no limits set. We did set the 5-percent total.

Mr. REDDAN. Why would there be no limits set? As an engineer you know that you can't make concrete out of 100-percent deleterious materials. Now, what sort of guides did you have for uniformity? Did you have any guides for uniformity, or was each district permitted to follow their own pattern?

Mr. DAVIS. To the best of my knowledge, sir, each division used their judgment on that. But, as you say, there surely had to be a limit.

Now, one way you would arrive at that limit, of course, would be to add up the total of the amounts you had listed. But once you start listing too many, then, as you say, you are getting into acceptance of too high a total percentage.

Mr. REDDAN. What is "too high"? That is my problem.

Mr. DAVIS. At the time, we thought anything over 5 percent was too high.

Mr. HARDY. That is in toto?

Mr. DAVIS. Yes, sir.

Mr. REDDAN. The original specifications have 7.75 deleterious material.

Mr. DAVIS. Yes, sir. We asked that that be changed.

Mr. REDDAN. They thought that more deleterious material was proper, more than you did, then?

Mr. DAVIS. Yes, sir.

Mr. HARDY. "Permissible" would be a better word.

Mr. REDDAN. Was permissible.

Mr. DAVIS. Yes, sir.

Mr. REDDAN. And I understand from your testimony, then, that the recommendation of a limit of 3-percent total chert was based upon this Vicksburg meeting?

Mr. DAVIS. That is correct.

Mr. REDDAN. When you said "total chert," what did you mean by that, sir?

Mr. DAVIS. I was defining chert as differentiated from the original definition, which was: chert which will readily disintegrate in five cycles of the soundness test.

Mr. REDDAN. What did you mean by chert? Did you tell them what you meant by chert?

Mr. DAVIS. No, sir. We meant the material, stone aggregate, classified as chert.

Mr. REDDAN. How about cherty limestone?

Mr. DAVIS. We made no mention of that.

Mr. REDDAN. In engineering circles is cherty limestone considered to be the same as chert from the standpoint of explosive popouts which it can produce?

Mr. DAVIS. I think there is probably a difference of opinion on that.

Mr. REDDAN. Between you and Detroit, or——

Mr. DAVIS. Well, I think between the profession as a whole.

Mr. REDDAN. Which is the better judgment, if you can tell us?

Mr. DAVIS. I don't believe I know, sir.

Mr. REDDAN. Is the Ohio River laboratory the testing laboratory for the Corps of Engineers? Do they set the standards of testing for the Engineers in matters of this nature?

Mr. DAVIS. In connection with rigid pavements, yes, sir.

Mr. REDDAN. Do you know how the Ohio River laboratory classified cherty limestone?

Mr. DAVIS. Yes. That was discussed this morning.

Mr. REDDAN. That is classified as chert?

Mr. DAVIS. Well, they say it has physical properties——

Mr. HARDY. I believe they said for considerations of the limit it should have the same weight as chert, didn't they? One hundred percent should be classified as chert? General Hyzer, do you know what the term "massive chert" means?

General HYZER. No, sir.

Mr. DAVIS. I think you had reference to the definition as given in the 18th of August test?

Mr. REDDAN. That is right; yes.

Mr. DAVIS. Do you have that there?

Mr. REDDAN. Yes.

Mr. HARDY. Would you read that part on cherty limestone for us?

Mr. DAVIS (reading):

Included are aggregate particles containing an appreciable and variable amout of chalcedonic chert as replacement of fossiline material and/or matrix. The greatest portion of the aggregate particle is, however, composed of carbonate. It is common belief at this laboratory that cherty stone should be considered as having the same physical and chemical properties as massive chert.

(See app. VI, p. 206, for Ohio River Division Laboratories petrographic reports of tests of American Aggregates Corp. coarse aggregates of August 18, August 13, and June 13, 1958.)

Mr. HARDY. Now, Mr. Davis, could you tell us what engineering advice was available to your office that was better than this?

Mr. DAVIS. I don't know that we have any advice that was better than that.

Mr. HARDY. I would like to know how it was determined to place a weight of 50 percent on cherty limestone, in view of this information from the laboratory. I want to know what was available that justified a reduction in that weight to 50 percent.

Mr. DAVIS. We hadn't listed cherty limestone as a deleterious material. In the discussion at Vicksburg I don't recall any——

Mr. HARDY. I am not talking about what happened at Vicksburg now. You had a statement from the laboratory that cherty limestone should be regarded, in its opinion, as the same as chert.

Mr. DAVIS. For it to be considered that way we would have had to revise the specifications and to list cherty limestone in there, I feel, as separate from total chert.

Mr. HARDY. Did you revise the specifications to put 50 percent weight on it?

Mr. DAVIS. No, sir.

Mr. HARDY. Then how does that differ, insofar as your specifications are concerned, from classifying the whole thing as chert? Do you follow what I am talking about?

Mr. DAVIS. No, sir.

Mr. HARDY. You said you would have had to change the specifications if you had given cherty limestone a 100 percent weight. Well, you did give it 50 percent weight.

Mr. DAVIS. The district did.

Mr. HARDY. I am talking about the conduct of this contract. What authority or what sound engineering advice enabled the district to

give cherty limestone 50 percent weight instead of 100 percent weight, in the face of the laboratory's recommendation?

Mr. DAVIS. I think it was based on the portion of the statement that says the greater portion of it was carbonate.

Mr. HARDY. So they disregarded the last part of the recommendation from the laboratory. Now, for whom are you speaking? For the district, for the laboratory, or for the division?

Mr. DAVIS. Sir, since the division did not take an active part in this decision, I guess I am out of place, I probably have been talking for the district.

Mr. HARDY. I think you have been talking for the district, too, unless you want to take the position that the district was remiss in letting this slide without paying attention to it.

You are not helping me to understand the picture by saying you would have had to change the specifications, when you didn't change the specifications, the district didn't change the specifications, I don't think, to put a 50-percent weight on the cherty limestone. And if that is the case they could just as well have put 100-percent weight on it. And maybe I should ask the general where the district got its engineering authority.

The recommendation of the laboratory was ignored when a 50-percent weight limitation was put on cherty limestone.

General HYZER. I relied on the judgment of Mr. Hampton, and it was my understanding at the time that he had numerous conversations with Mr. Davis of the division, and——

Mr. HARDY. Maybe Mr. Davis authorized him to override the laboratory.

Mr. DAVIS. No; I did not.

General HYZER. I don't think Mr. Davis had the authority to do that. That was a matter of interpretation in the district.

Mr. HARDY. Where did Mr. Hampon get his authority? From you?

General HYZER. Yes, sir.

Mr. HARDY. Did you tell him to do it?

General HYZER. I don't recall doing so.

Mr. HARDY. Do you mean Mr. Hampton made decisions without telling you about them?

General HYZER. He kept me well informed.

Mr. HARDY. At least you thought so?

General HYZER. Yes, sir.

Mr. SORENSEN. May I interject?

Mr. HARDY. Yes, sir. If you have something that will help us, for heaven's sake do so.

Mr. SORENSEN. Well, the specifications made no mention of cherty limestone. Based on this statement that cherty limestone was—to use their expression, "the greater portion of the aggregate particle is, however, composed of carbonate," the very definition "cherty limestone"——

Mr. HARDY. So, you take whatever part of the statement you want to take and ignore the second next sentence.

Mr. SORENSEN. No, sir; this is a matter of engineering judgment.

Mr. HARDY. A matter of engineering judgment. Now, where does the engineering authority come from? I don't know. Maybe you

have some high-powered engineering authority you can cite. The General hasn't given me any. I don't know whether this book we have here is any good or not. It is a publication of the American Society for Testing Materials entitled "Significance of Tests and Properties of Concrete and Concrete Aggregates." Are you familiar with this book, Mr. Davis?

Mr. DAVIS. I have seen it.

Mr. HARDY. Well, it supports the laboratory. It has essentially the same thing to say that the laboratory said. I will read just a little paragraph, then we will quit. First it discusses one class of materials, then it says:

> A second and more dangerous class of unsound particles consists of those which expand disruptively in the concrete. Examples of this type are certain laminar rocks—principally limestone containing expansive clays—and porous chert. Such materials, when frozen in a saturated condition or, in some cases, when merely exposed to water, increase in volume with the development of sufficient pressure to cause deep-seated disintegration of the concrete.

I don't know whether we are talking about the same thing or not. But "cherty limestone" sounds like what is described here, "limestone containing expansive clays and porous chert."

Now, is that what is meant by "cherty limestone?"

Mr. DAVIS. The way you read it, I presume it is. I wonder if the "and" goes with the last——

Mr. HARDY. Well, you read it.

Obviously no one in the Corps of Engineers checked this one. So maybe they have some better authority. I don't know. But, General, I will be right interested in knowing where they got the authority from. I want to know where the 50 percent came from. Mr. Hampton may have made the decision, but he shouldn't have made it without getting approval from you. Maybe he did.

General HYZER. I suppose I was aware of it.

Mr. NORBLAD. Someone made a $2 million mistake, in any event. I would be very interested in knowing about that, too.

Mr. HARDY. In view of the fact we have a quorum call, let the committee stand adjourned, to reconvene at 10 o'clock tomorrow morning.

(Whereupon, at 3:25 p.m., the subcommittee adjourned, to reconvene at 10 a.m., Thursday, March 19, 1964.)

DETERIORATION OF RUNWAY FACILITIES AT SELFRIDGE AIR FORCE BASE

THURSDAY, MARCH 19, 1964

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE FOR SPECIAL INVESTIGATIONS
OF THE COMMITTEE ON ARMED SERVICES,
Washington, D.C.

The subcommittee met at 10 a.m., Hon. Porter Hardy, Jr., chairman of the subcommittee, presiding.

Members present: Congressmen Hardy, Otis G. Pike, Walter Norblad, and Charles S. Gubser.

Staff present: John T. M. Reddan, special counsel; Walton Woods, staff investigator, and Phyllis M. Seymour, secretary.

Mr. HARDY. Let the committee come to order.

Let the record show the presence of Mr. Pike, Mr. Norblad, and myself, constituting a quorum under the committee rules. Mr. Gubser said he would be here in a few minutes.

I think we can pick up right where we left off yesterday. Yesterday we had a discussion about the significance of the engineering manuals as they relate to the deleterious material in aggregate. I understand Mr. Zackrison is here this morning, and I believe he had something to do with the preparation of this manual. Maybe it would be a good idea, Mr. Zackrison, if you would have a seat, and if you can help us clear this up it might expedite the hearing a little.

TESTIMONY OF HARRY B. ZACKRISON, SR., CHIEF, ENGINEERING DIVISION, MILITARY CONSTRUCTION, OFFICE OF THE CHIEF OF ENGINEERS, U.S. ARMY, WASHINGTON, D.C.; ACCOMPANIED BY ISRAEL NARROW, CHIEF, CONCRETE LABORATORY, OHIO RIVER DIVISION LABORATORIES, CINCINNATI, OHIO

(Biographies of Messrs. Zackrison and Narrow will be found in app. I, p. 195.)

Mr. ZACKRISON. Yes, sir. I am Mr. Zackrison, from the Office of the Chief of Engineers. I would like to have Mr. Narrow, from the Ohio River District Laboratories, with me.

Mr. HARDY. Of course.

Mr. REDDAN. Could you tell the committee your responsibility for the engineering manual, particularly the one in effect as of April 1956, which should have been used as a basis of the specifications in the construction under consideration?

Mr. ZACKRISON. Under date of July 17, 1956, I wrote a letter to all district and division offices, sending out a Military Construction

Engineer Bulletin No. 56–182, entitled Draft of Guide Specification for Military Construction, CE–806, "Pavement Concrete for Roads, Runways, Aprons, and Taxiways," and draft of part XII, chapter 7, of Engineering Manual for Military Construction, "Standard Practice for Concrete Pavement," each dated April 1956.

This letter authenticated the use of these drafts of both the guide specification and of the manual for use on all present and future pavement programs of the Corps of Engineers, so in effect these drafts then became final specifications. At the same time that we sent that out we asked for the comments and suggestions and recommendations of the district and division engineers with respect to suggested revisions.

Mr. HARDY. Did you get any?

Mr. ZACKRISON. We received some.

Mr. HARDY. Anything having to do with the aggregate business we have been talking about?

Mr. ZACKRISON. No, sir.

Mr. HARDY. That is the thing we are concerned with.

When did this manual become controlling insofar as specifications for aggregate are concerned?

Mr. ZACKRISON. Upon receipt of this bulletin dated July 17, 1956.

Mr. HARDY. So then these were binding on the District and Division and District offices?

Mr. ZACKRISON. They were, sir.

Mr. HARDY. How much discretion was left to the Division offices with respect to the other deleterious materials referred to on page 22 of your engineering manual?

Mr. ZACKRISON. This manual is for the purpose of advising the District and Division engineers——

Mr. HARDY. I am talking about part XII, chapter 7, which relates specifically to the aggregate which we were discussing yesterday. If you will refer to page 22 you will see the specific question I am raising, which was discussed yesterday at the hearing.

Mr. ZACKRISON. Yes, sir.

Mr. REDDAN. What is the total amount of deleterious material permitted under those specifications?

Mr. ZACKRISON. 3.75, listed here.

Mr. REDDAN. You have a parenthetical sentence following the line items of deleterious material. Would you read that and tell the committee what it means?

Mr. ZACKRISON. The sentence is: "Other local deleterious substances should be listed and limits specified." That means if we had other deleterious materials, a limit should be established for them to insure that the product, the pavement resulting, would be a satisfactory pavement. The deleterious materials should be close to 3.75 percent. This was my interpretation.

I would like to ask Mr. Narrow, however, who prepared the specifications, to give his version as to the intent of the specifications at the time this was written.

Mr. REDDAN. Who has the final responsibility?

Mr. ZACKRISON. I do.

Mr. REDDAN. Then we would like to have your interpretation first.

Mr. ZACKRISON. I would interpret it to mean substantially 3.75 percent.

Mr. HARDY. Well, you heard the discussion yesterday, or didn't you?

Mr. ZACKRISON. Yes, sir.

Mr. HARDY. You were here yesterday?

Mr. ZACKRISON. Yes.

Mr. HARDY. You know the interpretation yesterday was the total amount of deleterious material could go above 3.75 percent. Do I understand your interpretation to mean that where there were other local substances that were deleterious they would be substituted for the items making up the 3.75? Is that what you mean by your testimony?

Mr. ZACKRISON. Substantially. I don't think I realized the import of the question. I don't think from an engineering standpoint you could justify adding deleterious materials indefinitely by just establishing——

Mr. HARDY. I don't think so either. You could go up to 100 percent and have something that wouldn't be any good at all.

Mr. ZACKRISON. I would like to make the point that all the listed materials, chert for instance, are not necessarily deleterious everywhere. It is a suspect material. However, there are cherts which are very good aggregates. So if he were to list a chert, even though it exceeded 3 percent, it wouldn't necessarily mean that was a poor pavement. This is the reason why we have to have approved sources, where we know the aggregate, even though it contains in excess of 3-percent chert, is satisfactory.

Mr. HARDY. Then you are concerned really with a particular kind of chert?

Mr. ZACKRISON. The kind and the particular area in which it is used.

Mr. REDDAN. Were you concerned about chert in the Michigan area?

Mr. ZACKRISON. Yes. This is an area in which the material is suspect.

Mr. HARDY. Didn't you consider it necessary to put a top total limit on the amount of deleterious material that would be permitted?

Mr. ZACKRISON. At the time this specification was issued it was the general practice in the engineering profession not to specify total limits. The ASTM specifications did not have a total limit. It had a total of aggregate particles listed that exceeded those shown here.

Mr. HARDY. But it was your intent that 3.75 percent would be the limit?

Mr. ZACKRISON. A practical limit. We didn't specify.

Mr. HARDY. But you left it wide open. Unless you had instructions, how would you know how the people in the field would interpret it?

Mr. ZACKRISON. There was an oversight on our part. There should have been a specific limiting sentence, and there is now a total limit specified. In 1961 we went to a—let me see here. First, the current specifications limit the total of all deleterious substances, not to exceed 1 percent of the weight of the aggregate. That is the current limit. This is more severe than the one of 1961 or 1956, which was changed previously.

Mr. HARDY. In 1961 you reduced the limit to 1 percent?

Mr. ZACKRISON. No; in 1963. In 1961 we reduced the total of deleterious materials listed above to not more than 3 percent of the weight of the aggregate.

Mr. HARDY. Then the 3.75 percent was generous in 1956, and when you added to it you really did have some excessive amounts of deleterious material?

Mr. ZACKRISON. This is the result of our experience. We kept increasing the restrictions in view of our experience. In 1956, when this specification originally issued, our evaluation of these popouts was that they weren't a serious problem.

Mr. HARDY. Well, you have been building runways a long time and you hadn't discovered this?

Mr. ZACKRISON. We had discovered popouts, but the results had not been unsatisfactory to the degree of offering problems.

Mr. REDDAN. Are you familiar with the specifications contained in the invitation for bids on this matter?

Mr. ZACKRISON. I am now, sir.

Mr. REDDAN. What was the total deleterious material permitted under the original specs?

Mr. ZACKRISON. Total deleterious materials contained in the original specification were apparently 7.75. It does add up to 7.75 percent.

Mr. HARDY. The specifications allowed 7.75 percent?

Mr. ZACKRISON. As originally advertised.

Mr. HARDY. Did that clear through your office? How do you check these things?

Mr. ZACKRISON. These are not submitted to the Chief of Engineers Office for review. They are reviewed by the Division offices who have been delegated responsibility for review of these specifications.

Mr. HARDY. This is more than twice the amount in the engineering manual.

Mr. ZACKRISON. This was later modified to a total of 5 percent.

Mr. REDDAN. The chairman wants to know how you account for the specs that permitted more than twice the amount of deleterious material than was recommended in your manual that was in effect at that time.

Mr. ZACKRISON. It would have to be based on a loose interpretation of the specification in effect at the time that the deleterious materials listed could be added.

Mr. HARDY. You have said this manual was controlling at that time. So this is an interpretation placed on it somewhere in the field?

Mr. ZACKRISON. Yes, sir.

Mr. HARDY. It looks to me like a mighty wide deviation. Is this the kind of thing that can usually happen?

Mr. ZACKRISON. No. In this case the Division did review it and reduced it to 5 percent.

Mr. HARDY. Still 1¼ percent above your figure?

Mr. ZACKRISON. That is correct, sir. I believe, also, that a representative of the Division office called a representative of my office and asked for approval of this 5 percent.

Mr. HARDY. That was reduced after the contract was awarded?

Mr. ZACKRISON. No; before the contract was awarded, reduced prior to opening of the bids.

Mr. HARDY. Were the bidders advised they would have to comply with the reduced specifications?

Mr. ZACKRISON. Yes, sir. This is normal, that they are required to sign that they have received these addenda.

Mr. HARDY. But they were permitted 3-percent chert and a total of 5 percent?

Mr. ZACKRISON. That is right.

Mr. HARDY. If they have 3-percent chert then they could not have more than 2 percent other deleterious materials?

Mr. ZACKRISON. The specification as written states "5 percent of the deleterious materials listed above."

Mr. HARDY. That being the case, you can have any amount of others?

Mr. ZACKRISON. Strictly and technically speaking, yes, though, in effect, that is not the case. That could be an interpretation.

Mr. HARDY. You have indicated that it was your intent in your engineering manual that the total would be a maximum of 3.75 percent. Now, you say that under a technical interpretation of the specifications which were approved, there could have been an unlimited amount of total deleterious materials.

Mr. ZACKRISON. This is a matter of engineering judgment. I hope our professional people in the field wouldn't take advantage of that.

Mr. HARDY. It looks like the engineering judgment on this contract wasn't very good.

Mr. ZACKRISON. I think it was checked.

Mr. HARDY. Then you are casting aspersions on the Division engineering. If I interpret this as indicating the engineering was rather poor in approving what went into this runway, someone did something that was rather expensive, at least.

Mr. ZACKRISON. If I had been asked at the time, I would have gone along with the 5 percent under the conditions that they had expressed.

Mr. REDDAN. Didn't you go along with the 5 percent?

Mr. ZACKRISON. I was not consulted. It happens one of my subordinates was, and he did.

Mr. REDDAN. Then you are saying, as I understand, that the manual, the Corps of Engineers manual, was amended specifically for this contract?

Mr. ZACKRISON. This, and I believe several other contracts in the same general area.

Mr. NORBLAD. By a telephone conversation?

Mr. ZACKRISON. I have no personal knowledge. I would have to refer to other witnesses.

Mr. REDDAN. Did your subordinate tell you about it?

Mr. ZACKRISON. I have no recollection.

Mr. NORBLAD. Haven't you gone over your files?

Mr. ZACKRISON. I can't find anything.

Mr. HARDY. Nothing in your file to indicate why you granted an exception?

Mr. ZACKRISON. I have no record.

Mr. HARDY. It surprises me. I thought engineers and doctors did a pretty good job of knowing what in the Sam Hill happened to a patient.

Mr. ZACKRISON. These projects were of extreme urgency.

Mr. HARDY. That doesn't help me a bit.

Mr. GUBSER. Mr. Chairman, I would like to ask the witness—do you run your shop in a manner that you tolerate a subordinate making a deviation of this type without even writing up a memorandum for the files?

Mr. ZACKRISON. This is no longer true, sir.

Mr. GUBSER. You did at that time?

Mr. ZACKRISON. I did not know about it. It is not normal practice.

Mr. HARDY. Mr. Pike.

Mr. PIKE. Mr. Zackrison, there is no question in your mind at the present time, is there, that there was too much deleterious material in this aggregate?

Mr. ZACKRISON. At what time, sir? At this time or then?

Mr. PIKE. At the time it was poured in the runway. I am asking for your present opinion, now, as to whether there was or was not too much deleterious material in the aggregate.

Mr. ZACHRISON. It is obvious we would feel now this was too much, because we have revised the specification not to permit it—isn't it?

Mr. PIKE. I don't know.

Mr. ZACKRISON. We recognize this is too much material, because the problem has become more evident.

Mr. PIKE. I flew off runways in World War II. You mean to tell me it took you until 1961 to determine deleterious materials above, say, 1 or 3 percent were harmful to runways?

Mr. ZACKRISON. You must recall, Mr. Pike, we built hundreds of airfields with much more than 3 percent chert that have been proven quite satisfactory. This is a rather local condition to the North Central Division.

Mr. PIKE. Doesn't it have to do, as you said earlier, with the area and the temperature, and where you get your chert?

Mr. ZACKRISON. Yes.

Mr. PIKE. You had built runways in the Michigan area for some time?

Mr. ZACKRISON. Yes.

Mr. PIKE. With greater quantities of chert than this?

Mr. ZACKRISON. I don't have the record. We have suffered deterioration of pavements in past years prior to this. There is a development, I might mention, that previously to this time pavements suffered deterioration by reason of freezing and thawing, other than popouts. We had spalling, and as a result of research and development we developed concrete much more resistant to weather. The problem of spalling made it more acute, more evident. We were having other problems other than the popouts, before that.

Mr. HARDY. I wonder if we don't have two problems here. One is the specifications. We are trying to analyze now what happened on those. No. 2, we are going to be concerned with what actually went into the concrete, regardless of the specifications. We will get to that later.

I believe we had testimony indicating you people took samples and found that the total deleterious material was considerably in excess of what the specifications provided. Are you familiar with that aspect of the matter?

Mr. ZACKRISON. I cannot testify about it because I haven't seen the samples. We have witnesses here who can.

Mr. HARDY. All right.

Mr. REDDAN. Do you have anything further you wish to add to what you have already said?

Mr. ZACKRISON. No, except that we have modified our specifications and manuals to decrease the amount of deleterious materials, and have so advised the Air Force. And we must get the approval of the Air Force, so that we don't provide a product more expensive than they want, and which provides a standard higher in quality than they want.

Mr. HARDY. To button up here what happened on this contract and its specifications, it is your testimony that the specifications were approved to permit a total of 5 percent deleterious materials?

Mr. ZACKRISON. Yes.

Mr. HARDY. That is of specified deleterious materials, including 3 percent chert?

Mr. ZACKRISON. That is correct.

Mr. HARDY. It is your further testimony that the Chief's Office approved the specifications as contained in this contract which would include the 5 percent; is that right?

Mr. ZACKRISON. On the telephone, yes, sir.

Mr. HARDY. By telephone. Are you testifying of your own knowledge?

Mr. ZACKRISON. Well, no; this is hearsay. I was told this was so. I had no knowledge.

Mr. HARDY. What makes you satisfied in your own mind that actually the Chief's Office did approve it?

Mr. ZACKRISON. Well, I have confidence in my subordinate, Mr. Pringle.

Mr. HARDY. Did Mr. Pringle tell you he approved it?

Mr. ZACKRISON. He has told me since that he approved it.

Mr. HARDY. Is Mr. Pringle present?

Mr. ZACKRISON. No, sir.

Mr. HARDY. Mr. Pringle told you he personally approved this. Did he tell you why he didn't advise you of it?

Mr. ZACKRISON. No, sir.

Mr. HARDY. Was he authorized to approve it without your consent?

Mr. ZACKRISON. Normally——

Mr. HARDY. I am not talking about "normally." At the time he did, did he have the authority to do it?

Mr. ZACKRISON. I would have expected him to have asked me.

Mr. HARDY. Had you delegated to him the authority to do that?

Mr. ZACKRISON. No.

Mr. HARDY. Then he acted without authority?

Mr. ZACKRISON. He was the technical representative in this particular field.

Mr. HARDY. I don't care what he was technical representative of, I am trying to understand whether he had authority to do so or not. He either had the authority or he did not.

Mr. ZACKRISON. I can't state that I authorized him to act in this particular field.

Mr. GUBSER. Would he be automatically authorized to act in your absence?

Mr. ZACKRISON. I have an assistant who is authorized to act in my absence.

Mr. HARDY. That is not Mr. Pringle.

Mr. ZACKRISON. No, sir.

Mr. HARDY. That is a rather loose way to run an engineering shop, Mr. Zackrison. I am very much surprised.

Mr. ZACKRISON. I can assure you it has been tightened up.

Mr. HARDY. After the horse is stolen. Maybe it will save some other horses.

Mr. REDDAN. Mr. Narrow, do you have anything to add to what Mr. Zackrison has said?

Mr. NARROW. No, sir.

Mr. HARDY. What part did you play in this 5-percent deal ?

Mr. NARROW. Not a thing.

Mr. HARDY. You didn't have anything to do with it?

Mr. NARROW. No, sir.

Mr. HARDY. Did you make a recommendation that this 5 percent be determined as acceptable, Mr. Narrow?

Mr. NARROW. Sir, would you have a specific point here?

Mr. HARDY. I am talking about this particular contract. We first discussed the engineering manual, where there is a top limit of 3.75 percent of deleterious material specified, with a rather ambiguous parenthetical statement following it. Did you prepare that?

Mr. NARROW. No, sir. The reason I asked my question of you, sir, was that I did discuss this, as indicated in the notes on a meeting at Waterways Experimental Station. Whatever is stated there would have been the only comment or recommendation I made, if you consider this a recommendation.

Mr. HARDY. I am not sure I know what you are referring to. Let's pass over those questions and see if we can't be more specific. As to the engineering manual, did you have a part in preparing the engineering requirements which Mr. Zackrison has testified to?

Mr. NARROW. Yes, sir. We prepared the draft of the engineering manuals that were submitted to the Office, Chief of Engineers.

Mr. HARDY. This 3.75 percent of total deleterious material was, then, in part at least, a recommendation from your laboratory?

Mr. NARROW. I don't see any 3.75 there.

Mr. REDDAN. I will hand you part XII, chapter 7, April 1956, Engineering Manual, and refer you to page 22, sir. The part Mr. Woods is now indicating is the part to which the chairman directs his question.

Mr. NARROW. Yes, sir, I see a 3.75 written in pencil here.

Mr. HARDY. It doesn't matter whether it was written in with pencil or what, if you can add those figures up, that is what you get; is that correct?

Mr. NARROW. Yes, sir. These are the sum total of the deleterious materials listed.

Mr. HARDY. That is what I was trying to establish from your testimony.

Mr. NARROW. In addition, it says that other local materials should be listed.

Mr. HARDY. That I understand. I was going to ask you about that next. We have already had Mr. Zackrison's testimony as to what he understood that to mean, and he said he considered 3.75 to be the top limit for deleterious material. I get the impression that you do not so consider it.

Mr. NARROW. I don't say I don't so consider it. I am going back to the preparation of the manual. When this was prepared the ASTM specification was used as a guide to list limits. We had no intention of

listing or not listing a total. Because this followed the procedure followed by ASTM, and this is what was submitted to the Office of the the Chief of Engineers, but without any statement of all-inclusive total limit. If Mr. Zackrison interpreted this as indicating a total——

Mr. HARDY. What is your interpretation?

Mr. NARROW. That there are limits listed, that there are other local materials that could be listed. I don't have any interpretation.

Mr. HARDY. In your mind it is wide open. There could be a deposit that was 50 percent deleterious material and as long as one lists them it would be acceptable?

Mr. NARROW. If they could find enough materials and substantiate the limits, that this would not be deleterious in the concrete, yes.

Mr. HARDY. Who would make the determination?

Mr. NARROW. The people who are setting up the specifications.

Mr. HARDY. In the laboratory, do you have any responsibility for that at all?

Mr. NARROW. For setting up the specification? No, sir.

Mr. HARDY. So you interpret this that the engineers writing the specifications may do anything they see fit; they can include 15 percent chert if they so desire and they can make their own independent judgment?

Mr. NARROW. Yes, sir.

Mr. HARDY. And it would be permissible, I take it, for use at Selfridge Airbase, under your interpretation. It would be permissible in this particular contract to have had as much as 10 or 15 percent chert, under your interpretation?

Mr. NARROW. The way this is written, yes, if the district felt this wouldn't be a problem to them.

Mr. HARDY. So the responsibility rests on the district entirely to make sound judgment with respect to the other deleterious materials that will be permited?

Mr. NARROW. I have no jurisdiction over district responsibility. This is my opinion.

Mr. HARDY. Apparently Mr. Zackrison didn't either, or he didn't exercise it if he had.

Mr. ZACKRISON. Mr. Chairman, I would like to say again it is the district and division responsibility to insure that whatever aggregate is used will be sound and produce a sound product.

Mr. HARDY. It didn't do it in this case, sir, and maybe we had better have you around for further testimony when we get to that one.

Mr. ZACKRISON. Many of these so-called deleterious materials are not necessarily deleterious. There are chert aggregates which are quite sound.

Mr. HARDY. As I understand it, they might be sound in one area and not in another.

Mr. ZACKRISON. Correct.

Mr. HARDY. I am talking now of Selfridge Air Force Base and the conditions under which the runways would be installed.

Mr. ZACKRISON. We have to give some authority to the district to recognize what conditions are in their areas.

Mr. HARDY. So long as we know what authority you give the district, all right. Then——

Mr. ZACKRISON. The district and the division have the responsibility to determine the soundness of the products they get.

Mr. HARDY. And if they do a lousy job it is up to the taxpayers to pay for the stupidity and ignorance of the district engineers; is that what you are telling us?

Mr. ZACKRISON. We try to have some surveillance of these projects, and when we find anything wrong we remedy the specifications or the guidance. At the time this specification was prepared we had not been informed that these pavements with this kind of material were performing unsatisfactorily.

Mr. GUBSER. Mr. Narrow, if there was the latitude in the specifications that your interpretation would seem to allow, why, then, was the specification in the contract so specific and why was it then necessary for the contractor to come back and ask for a change in these specifications?

Mr. NARROW. I can't answer about the contract. I can only give you an opinion, if you want it.

Mr. GUBSER. I would like to have it.

Mr. NARROW. The specification, itself, had set a limit in this case, and therefore there was a reason to determine whether the materials did meet that limit.

Mr. GUBSER. But as I understand it—and I am handicapped because I wasn't here yesterday, I know—but in effect, I believe you are saying this morning that the specifications allowed considerable latitude insofar as other legal deleterious materials are concerned; isn't that right? You are saying you could go above the 3.75.

Mr. NARROW. Sir, this is not a specification.

Mr. GUBSER. What is it?

Mr. NARROW. This is a guidance manual used in the preparation of the specification. These cover certain instructions.

Mr. HARDY. It is an engineering manual.

Mr. NARROW. If the specification includes this or does not include this, there would be no——

Mr. GUBSER. Does this guide have anything to do with this contract at all?

Mr. NARROW. This, sir, I don't know.

Mr. GUBSER. Then why are we talking about it? Why are you explaining it?

Mr. NARROW. It is not my responsibility to determine whether they have used this guide or not. What I am trying to say here is that I initially prepared the draft of this manual. These limits that are included here are based on a practice that has been followed by ASTM, by other agencies, in which they list certain materials and recommend that the people responsible for local construction include other materials. So this, then, was submitted to the Chief of Engineers, and this is the end of my responsibility.

Mr. GUBSER. Why did the contract say that certain aggregates couldn't be used?

Mr. HARDY. Let me clear this up, if I can.

In the July 17, 1956, Military Construction Engineer Bulletin 56–182 there is this statement: "The subject drafts"—which are these two bulletins we have been talking about, CE–806 and part XII, chapter 7, of the Engineering Manual—"The subject drafts of guide

specification"—that is what you have in front of you, Mr. Narrow—"and chapter of the Engineering Manual will be used as a basis for the preparation of project specifications in current and future construction programs for concrete pavement."

That is what it is. It says "they will be used."

Mr. ZACKRISON. That is my responsibility, sir.

Mr. NARROW. We prepared a draft and submitted it to the Chief of Engineers and they took all action as far as getting the use of this, sir.

Mr. ZACKRISON. I must assume that responsibility.

Mr. HARDY. Yes. You have already assumed your responsibility for that.

Mr. GUBSER. The point I am trying to establish here is that the invitation for bid was very specific, and referred to certain manuals and certain specifications and certain requirements; isn't that so?

Mr. NARROW. I have no knowledge of this. What I am saying is that we don't, as a laboratory, get into contract preparation, contract guides, and what they have actually used for construction.

Mr. GUBSER. But you must have known that the reason you were requested to analyze some of this material was that it was a deviation from the specifications set down in the invitation; isn't that so?

Mr. NARROW. No, sir. It doesn't follow that I would know. It is not necessary for me to know, because we are a testing laboratory that may test at the request of the district office.

Mr. ZACKRISON. Mr. Chairman, may I elaborate a little? The Ohio River division had two hats. Within its organization it has the Ohio River division laboratory with two functions, one of which is to perform tests for the division on its construction projects, and the other is to perform investigations and develop criteria under our direction, that is, the Office, Chief of Engineers.

North Central is one of two divisions that doesn't have its own laboratory, and it may use the facilities of any of the laboratories of the divisions. The Ohio River Division Laboratory is quite handy and they normally send their testing requirements to that laboratory, using them as they could use any commercial laboratory, except they feel they are more reliable or less expensive and they get better results.

The North Central and Ohio River Divisions used the Ohio River Division Laboratories as testing laboratories.

Mr. HARDY. Did that clear up that phase for you?

Mr. GUBSER. Yes.

Mr. HARDY. Your participation, Mr. Narrow, in this manual that we have been talking about was advisory, is that right?

Mr. NARROW. Yes, sir. We prepared this.

Mr. HARDY. You prepared the draft and submitted it for approval by Mr. Zackrison's office?

Mr. NARROW. Yes, sir.

Mr. ZACKRISON. That is right.

Mr. HARDY. As I add up the figures you have for permissible deleterious materials, it adds up to 3.75. That was in 1956. There was a revision in the permissible deleterious materials which was issued in November 1963, to which Mr. Zackrison has already referred. It says: "The total of all deleterious substances listed shall not exceed 1 percent of the weight of the aggregate."

Did you have anything to do with the preparation of that recommendation?

Mr. NARROW. Yes, sir.

Mr. HARDY. Then you have had a change of heart since you wrote the draft back in 1956; is that right?

Mr. NARROW. Yes, sir.

Mr. GUBSER. Mr. Chairman.

Mr. HARDY. Mr. Gubser.

Mr. GUBSER. I would like to ask this: If the 3.75 limit had been adhered to in this runway, is it your engineering opinion the runway would have deteriorated as it did?

Mr. ZACKRISON. Not to the same extent, sir. It would have deteriorated, because we have found even 3.75 is excessive.

Mr. GUBSER. Would it have deteriorated to an unacceptable extent, at 3.75?

Mr. ZACKRISON. In light of the circumstances, I believe so; yes, sir. If I may amplify, much if perhaps not most of the popouts have been caused not by the chert but by other materials, other deleterious materials.

Mr. GUBSER. What caused it at Selfridge?

Mr. ZACKRISON. I understand a majority of the popouts have been from other than chert, perhaps about 50 percent of them. I have not counted them personally. I am told perhaps a majority of the popouts are from other than chert.

Mr. GUBSER. Have we established that it was aggregate defects that caused this problem? Have we established that it was purely a defect or inadequacy of the aggregate that caused this problem there?

Mr. ZACKRISON. I believe so.

Mr. HARDY. I think that has been reasonably well established.

I would like to go back to cherty limestone, which was discussed yesterday.

Mr. Narrow, were you consulted with respect to the amount of cherty limestone that might be permitted to be included with the chert on this particular contract?

Mr. NARROW. No, sir.

Mr. HARDY. The laboratory issued a report on the test of August 18, 1958, in which reference was made to the content of cherty limestone. Do I understand that you were not consulted on that, Mr. Narrow?

Mr. NARROW. Your question that you asked me was with respect to whether this was discussed with me, with regard to construction? Did I understand you right?

Mr. HARDY. Let me read this to you and maybe you will understand what I am trying to ask you. There is a statement in this "Petrographic Report, August 18, 1958." I can't make out the number from my copy. Maybe you can identify it for me.

Mr. NARROW. I have it here, sir.

Mr. HARDY. On the second page there is a paragraph that deals with cherty limestone.

Mr. NARROW. Yes, sir.

Mr. HARDY. The last sentence in that paragraph reads:

It is common belief at this laboratory that cherty stone should be considered as having the same physical and chemical properties as massive chert.

Mr. NARROW. That is right.

Mr. HARDY. Did you have anything to do with this statement?

Mr. NARROW. No, sir. I did not prepare that statement. But I am in agreement with that statement.

Mr. HARDY. You are in agreement with it?

Mr. NARROW. Yes, sir.

Mr. HARDY. You made reference to the ASTM specifications, or whatever you may call them, with respect to deleterious materials. Are you familiar with their treatment of cherty limestone as it relates to chert itself?

Mr. NARROW. I have no list here with regard to cherty limestone, sir.

Mr. ZACKRISON. It is not listed, sir.

Mr. HARDY. It is not listed as such?

Mr. ZACKRISON. No, sir.

Mr. HARDY. I read a paragraph in one of those books yesterday which referred to it. It may not be listed in your tabulation.

Mr. ZACKRISON. This is the 1956 ASTM standards.

Mr. HARDY. Maybe you and I have different copies of it. I got this from the Library of Congress. It has the same date on it, I believe. In any event, I don't think it is too important. I read a little paragraph from it yesterday, on page 346.

Mr. ZACKRISON. This is not a standard, sir. That is a paper prepared by Mr. Bloom. These are the standards followed by the profession in the execution of contracts. This other article is an informative article.

Mr. HARDY. I was assuming that it is authentic, that is all.

Mr. ZACKRISON. The article is authentic, and I think substantiates our viewpoint.

Mr. HARDY. I think so too. It is apparently in agreement with the interpretation Mr. Narrow put on the subject, also.

Mr. NARROW. May I make a comment about the interpretation of this sentence I said I was in agreement with?

Mr. HARDY. If you can give me an interpretation that the people in the field could use and are supposed to understand, I would like to have it.

Mr. NARROW. I have listened to comments here from a number of people. Certainly I have ideas on this, which I would like to submit.

Mr. HARDY. Go right ahead, please.

Mr. NARROWS. We have listed here chert and cherty limestone. For chert, there is a definite limit in the specifications, so I am told, with respect to chert, and I think this is 3 percent. We have also listed cherty limestone, which we have said would act in the same manner. But this is not chert. This is cherty limestone. We have a definition for chert, and it is essentially a siliceous material.

Mr. HARDY. If you had an aggregate that contained both chert and cherty limestone, as an engineer, if you were confronted with this sentence to which we have both been referring, and you want to be sure you are coming up with a proper aggregate, would you interpret this sentence to mean the percentage of chert and cherty limestone would be treated as one and the same?

Mr. NARROW. I would interpret this to mean that the cherty limestone should be considered a deleterious material. It is not additive, necessarily, to chert.

Mr. HARDY. If cherty limestone is going to act exactly as chert does, and that is what your statement says, and you have a limit of 3 percent chert and you add to it any percentage of cherty limestone in addition to the 3 percent chert, then you have exceeded the limit for chert. If you want to get technical and say we are going to let you add cherty limestone because we have not specifically prohibited it, you will get exactly the same effect as if you had 4 percent chert, if you have 3 percent chert and 1 percent cherty limestone. And you are not going to get a proper end product.

Mr. NARROW. If the end product is in excess—well, let me say, we could put in the classification a soft argillaceous limestone, and this could be classified in effect as a chert, but——

Mr. HARDY. Mr. Narrow, we are now talking about a particular pit, a particular aggregate, we are talking about particular samples from this pit, which you examined.

If you are going to sit there and tell us you meant by this statement, that the laboratory meant by this statement, "Go ahead, boys, and put a top limit of 3 percent chert and a total top limit of 5 percent on the other things that are specified, and you can still add on cherty limestone and come up with a satisfactory end product," then you are giving me a lot of concern about the desirability or the necessity for even having laboratories like yours.

Mr. NARROW. Sir, I think you misunderstood what I had to say. I did not consider that this was not deleterious. I am only differentiating between chert and cherty limestone. I say this statement in effect says that—

it is common belief at this laboratory that cherty stone should be considered as having the same physical and chemical properties as massive chert.

It doesn't say that this should be added or included as chert, it says:

This should be considered as deleterious in the same manner as chert is considered deleterious.

Mr. HARDY. "We are going to permit you to use the aggregate from this pit, which has cherty limestone, and you can go ahead, we have no specified limits on cherty limestone"—that is what you are telling them, isn't it?

Mr. NARROW. Sir, I am giving my opinion, trying to clarify.

Mr. HARDY. I am trying to get from you a scientific interpretation of this which should be a guide to the contracting office. And you are running all around Robin Hood's barn, leaving the thing wide open, as you see it. If you sat through the hearings yesterday, you know that someone made an interpretation that they would count cherty limestone as 50 percent chert.

So you could have, if you had 2 percent chert, you could have 2 more percent cherty limestone.

Mr. NARROW. This was an interpretation by the people that prepared this specification, that were accepting materials.

Mr. HARDY. Was that a proper interpretation?

Mr. NARROW. I couldn't say it was improper on their part. I think it is reasonable that when you have material that ranges from a very small percentage of cherty particles to predominantly limestone, that it is reasonable to say that these materials, these limestones that have very little chert would not react, and those that have——

Mr. HARDY. We are not talking about 3 percent chert, and that was your limit of chert. By your own testimony, on the basis of this 50 percent weighing of cherty limestone; if you actually had 2 percent chert, you would be permitted to have 2 percent cherty limestone.

Mr. NARROW. This statement here says that the greatest portion of the aggregate particle is, however, composed of carbonate. And if we take any individual particle we may have a particle that—this report says "predominantly limestone." Now, the chert content may range from nearly zero to 50-percent chert.

Mr. HARDY. What does "appreciable" mean?

Mr. NARROW. It is not very definite.

Mr. HARDY. What does "appreciable" mean? I didn't prepare this report. This came from your laboratory.

Mr. NARROW. I did not prepare the report.

Mr. HARDY. It came from your laboratory. You speak of from zero to 50 percent. That is in the very paragraph we have been quoting from, and it says "Included are aggregate particles containing an appreciable and variable amount." Now, does "appreciable" mean "variable"?

Mr. NARROW. Appreciable and variable——

Mr. HARDY. You are straining at gnats and swallowing—something, I don't know what. This is not doing us any good, and I am ready to drop it.

Mr. PIKE. Assume there were no chert and there were no other deleterious materials than cherty limestone. Under the 50-percent interpretation they could put 10-percent cherty limestone in the aggregate. Would that be a satisfactory aggregate?

Mr. NARROW. It may be, under the comparison with the 5-percent limit; yes. I can't say it would be comparable to a one-tenth-percent limit.

Mr. PIKE. Then aren't you sort of talking against your own report, where you say that you consider cherty limestone to be the same as chert?

Mr. NARROW. I don't say it is the same. It has the same properties. It has a similar effect.

Mr. PIKE. All right. Let's say it has "a similar effect." It is not the same, it "has a similar effect." You would allow, then, 10 percent of a product having a "similar effect" as chert?

Mr. NARROW. If the specification permitted a maximum of 5 percent, then the effect of the 10-percent cherty limestone, if it was described this way, can be considered to have the same effect as 5 percent of chert.

Mr. PIKE. Although your specifications limit you to 3-percent chert, and though cherty limestone would have, in your own words, the "same effect" as chert, you would allow them under this 50-percent interpretation to put 10-percent cherty limestone in the aggregate?

Mr. NARROW. I don't quite understand.

Mr. PIKE. I don't understand, believe me. But this is what you said to us.

Mr. NARROW. What I am saying is that cherty limestone can be expected to pop out, chert can be expected to pop out, other materials can be expected to pop out.

Mr. PIKE. They have the same effect.

Mr. NARROW. But we don't say each material will pop out in exactly the same order or same percentage. We know some of these materials do not pop out.

Mr. PIKE. You are saying to me it does not have the "same effect."

Mr. NARROW. It has the same type of effect.

Mr. PIKE. I, too, give up, Mr. Chairman.

Mr. HARDY. It is hopeless, I think.

Mr. GUBSER. Mr. Chairman, I would like to ask the gentleman again:

When you analyzed these samples, were you operating in a complete scientific vacuum or from an ivory tower, or did you know you were evaluating materials that were going to go into a runway?

Mr. NARROW. Certainly we knew——

Mr. GUBSER. You knew they were going into a runway and that human lives would be at stake when they landed on it, didn't you?

Mr. NARROW. We knew they were considered for use in a runway. We didn't know whether they were going into it.

Mr. GUBSER. You knew the fact that whether a runway holds up or doesn't hold up; weighs human lives in the balance; you are a human being, you certainly know that.

Now, what would you think of a nurse who was taking care of a patient—and the patient is, of course, the primary responsibility of the doctor—and the nurse knew that the doctor prescribed adrenalin, a poison, but in less than a lethal dose, and that nurse purposely added hydrochloric acid, which, taken in combination with the adrenalin, constituted a lethal dose of poison, knowing it was going to kill the patient? What would you think of a person who did that?

Mr. NARROW. That is exactly what I have stated.

Mr. GUBSER. That is exactly what you did. If you knew this was going into a runway and that human lives were at stake, that is exactly what you did, as you said in answer to Mr. Pike's question.

Mr. NARROW. Sir, I have said that chert is a deleterious material that may cause popouts. This is your example of the one chemical—I don't recall——

Mr. GUBSER. Well, it doesn't matter.

Mr. NARROW. I said cherty limestone can cause popouts in the same manner and should be considered deleterious. The two of these are additive, as far as deleterious material. This is exactly what I have said.

Mr. GUBSER. Isn't it your responsibility, knowing what the purpose of this test is, to—gratuitously, perhaps—come down out of your pure scientific ivory tower and say the combination of these things is gong to give you an unsafe aggregate? It seems to me that is a responsibility of commonsense.

Mr. ZACKRISON. May I respond to Mr. Pike's question? It would be the OC position that if you had a cherty limestone and 50 percent of that cherty limestone was chert—if you had a limit of 5 percent, of deleterious material we would consider the total 10 percent deleterious. Cherty limestone is deleterious in the total and would be considered in the total deleterious material. It would not be considered as chert.

Mr. PIKE. Then, when someone in the face of this opinion or this policy says "We only consider 50 percent of it as chert, or deleterious," they are flying in the face of your policy, are they not?

Mr. ZACKRISON. I can respond somewhat to that. I don't know what they were doing when they made this arithmetical evaluation. In checking the report myself I find if you take the chert content and the cherty limestone and all the other deleterious materials, they come within the prescribed 5-percent limit.

Mr. PIKE. My trouble with all the technical explanation we have been getting from your office and from the office of the Ohio River Division Laboratories is that I can only come to the conclusion that they built a good runway. And this is a very hard conclusion to come to when you face the fact it is costing us $2,700,000 to fix it.

Mr. ZACKRISON. It was our experience—up to the time of building this runway our experience had been such that we had not anticipated these difficulties. Our experience since then has revised these requirements. We have acknowledged them and changed the specifications.

Mr. HARDY. Are you through with that?

Mr. PIKE. Yes, sir.

Mr. HARDY. I want to get back to the laboratory. I am not going to try to understand this. It is incomprehensible to me. It doesn't make any sense at all, the position Mr. Narrow is taking. But there is another aspect I am concerned about.

Mr. Narrow, can you tell me when the laboratory started separating in its analyses cherty limestone and chert?

Mr. NARROW. I cannot tell you. I don't know.

Mr. HARDY. It seems to me strange that in other earlier petrographic reports and samples you have them combined, cherty limestone and chert, as one figure.

Mr. NARROW. It could be.

Mr. HARDY. How does it happen that during this strenuous effort to get this particular pit approved, you suddenly separate them? You put a statement in your report that the effect of them is the same. Why were they separated in that report and not in previous reports?

Mr. NARROW. I don't know whether they were separated in previous reports.

Mr. HARDY. Take a look at it.

Mr. REDDAN. Would you please read the date of that report, Mr. Narrow?

Mr. NARROW. This report is an aggregate data sheet, dated May 1958.

Mr. REDDAN. Is that a report of the Ohio laboratory?

Mr. NARROW. That is right, sir.

Mr. REDDAN. It is a test of the aggregate of what company, sir?

Mr. NARROW. This is a test of the American Aggregates Corp. of Oxford, Mich.

Mr. REDDAN. Was a petrographic examination made during that test?

Mr. NARROW. Yes, sir.

Mr. REDDAN. Did they list there their findings with respect to chert and cherty limestone?

Mr. NARROW. They list a summary of the petrographic report.

Mr. REDDAN. How do they list it, sir?

Mr. NARROW. The summary lists cherty limestone and chert.

Mr. REDDAN. Together?

Mr. NARROW. Yes, sir.

Mr. REDDAN. And gives a 1 percentage figure?

Mr. NARROW. Yes, sir. The petrographic report itself lists them separately, sir.

Mr. HARDY. Now, the other one we were referring to—and it listed them separately; did it not?

Mr. NARROW. No. The petrographic report that was included here lists cherty limestone and chert. The aggregate test report—not the petrographic report—contained a summary of constituents in the petrographic examination. It does not interpret this, it does not make any effort to qualify the aggregate on this basis. It is merely a grouping of the constituents of the——

Mr. HARDY. Then it is your testimony that the laboratory has always separated the cherty limestone and chert in petrographic reports?

Mr. NARROW. No, sir. I cannot say that this has always been done, or that it is done every time.

Mr. REDDAN. Doesn't the fact that they combined cherty limestone and chert to come up with a final percentage in the summary report constitute an interpretation of the petrographic report?

Mr. NARROW. I don't think so.

Mr. REDDAN. They could have separate line items showing the percentage of each; couldn't they?

Mr. NARROW. We have a detailed report here, and you have included this—specifically indicating the detailed report covers the petrographic examination, and if the detailed report separates them, this shows the detail in which this was examined.

Mr. REDDAN. That is right, and interpretation of the detail by the laboratory combines the chert and the cherty limestone for a final percentage figure?

Mr. NARROW. This is a summary of what is presented in the report, yes, sir. The basic report has separation, the summary on the aggregate data sheet, now—I mention that this is an aggregate data sheet, physical test data sheet, in which we have summarized the constituents of this particular aggregate.

Mr. HARDY. I thought I understood you to say, in reading this so-called summary of May 1958, that cherty limestone and chert was 1 percent. This shows the combination—perhaps I misunderstood you.

Mr. NARROW. If I said that, I read it wrong. The summary shows——

Mr. HARDY. Shows 5 and 4 percent?

Mr. NARROW. That is right.

Mr. HARDY. Maybe it doesn't have any significance, I don't know. But the petrographic report of August 18, 1958, also lists these items pretty much in the same way, except that it separates cherty limestone and chert. And you don't place any significance on that? The fact that one of them separates them and the other doesn't, you don't place any significance on that?

Mr. NARROW. We are talking about the same test results here. In one place, in the general report they appear itemized.

Mr. HARDY. I am talking about two different reports, one in August and one in May. One has the summary to which you referred, and you pointed out that there is a detailed breakdown further on. But the summary combines the two.

Mr. NARROW. That is right.

Mr. HARDY. In the one for August 18, 1958, which contains a statement with respect to cherty limestone having the same characteristics as chert, it separates them.

Mr. NARROW. That is right.

Mr. HARDY. And you place no significance on the fact that in one case they are separated and in the other case they are combined?

Mr. NARROW. Perhaps I did not understand you, sir. We have indicated here that for the same samples we have listed a petrographic report that separates them, and a summary that combines them.

Mr. REDDAN. So the last summary separates them?

Mr. NARROW. That is right.

Mr. HARDY. That is what I am talking about.

Mr. NARROW. In each case the petrographic report separates them—is this correct?

Mr. HARDY. Well, I was trying to compare the summaries. Perhaps I did not do it very effectively. I don't think we are accomplishing anything, in any event, so let's move on.

Thank you very much.

Mr. Hampton, will you please come up? Will you please give the reporter your name and address?

TESTIMONY OF JAMES E. HAMPTON, CIVIL ENGINEER, AMERICAN AGGREGATES CORP., DETROIT, MICH.

Mr. HAMPTON. I am James E. Hampton, 32176 Red Clover Road, Farmington, Mich.

Mr. HARDY. What is your present occupation, sir?

Mr. HAMPTON. Civil engineer, employed by the American Aggregates Corp. at the present time.

Mr. HARDY. At the time of the contract we have been discussing were you employed by the district engineer's office?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. Where was that located?

Mr. HAMPTON. In Detroit.

Mr. HARDY. Could you please briefly give the committee a little biographical background?

Mr. HAMPTON. How far back, sir?

Mr. HARDY. Not too far.

Mr. HAMPTON. I am a graduate engineer, registered in Michigan, Ohio, and Indiana as a professional engineer. From the University of Detroit I received a bachelor of science degree in engineering, and then joined the U.S. Lake Survey, Corps of Engineers, and stayed with them until, I believe, 1959, when I resigned to go with American Aggregates.

Mr. HARDY. 1959?

Mr. HAMPTON. I think that is the right date.

Mr. HARDY. Did you return to the Corps of Engineers, or was there only one separation?

Mr. HAMPTON. There was a separation sometime in—I don't have any dates or data here.

Mr. HARDY. That is all right. If it becomes important we will ask you to supply them. You can give us an approximation now.

Mr. HAMPTON. About a month before the Detroit district was assigned these jobs I had left the corps and gone with the Michigan State Highway Department. I was there about 3 months. This is the gap in my continuous service.

Mr. HARDY. You were with the Michigan State Highway Department for a period of approximately 3 months immediately prior to the contract for the work on Selfridge Air Force Base?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. When did you come back? At what point in the contracting procedures did you return to the Corps of Engineers?

Mr. HAMPTON. I am a little foggy on this. But at the time I believe that at least one of the contracts had been awarded—I am talking about the four SAC paving jobs. At least one had been awarded, possibly two. I believe the other two were being advertised, but I am not sure of that at this time.

Mr. HARDY. Thank you.

Go ahead, Mr. Reddan.

Mr. REDDAN. What was your job title and what were your responsibilities as of the spring of 1958?

Mr. HAMPTON. My title was Chief of the Soils and Materials Branch, in the Construction Division. My responsibilities were to serve as adviser, staff member dealing with paving and materials, to Mr. Sorensen.

Mr. REDDAN. Did you have anything to do with the testing or arranging for the testing of materials to be used in the four contracts?

Mr. HAMPTON. In a routine manner. I had no specific thing to do with it. I did not actually run the tests or get into that detail on it.

Mr. REDDAN. What was your responsibility with respect to seeing that proper materials were used in the contracts?

Mr. HAMPTON. I had the responsibility for what we called at that time a central testing laboratory. That was directly under me. In connection with the testing, my directions might be to have the laboratory go out and sample these materials and test them.

Mr. REDDAN. Is that during construction or prior to construction, or both?

Mr. HAMPTON. Both, sir.

Mr. REDDAN. Did you also have responsibility for establishing field laboratories on the construction sites?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. Did you have anything to do with the selection and training of the testing personnel?

Mr. HAMPTON. I had something to do with the training. I can't say I had too much to do with the selection. I think the Personnel Branch hired the people who worked for us. I may have interviewed some of those people before they came to work for us.

Mr. REDDAN. When did you first have any responsibility for the particular contract which is under consideration here?

Mr. HAMPTON. My first responsibility would have begun after the contract had been awarded.

Mr. REDDAN. Did you participate, even if you had no responsibility, in any of the precontract negotiations?

Mr. HAMPTON. Not as I recall; no, sir.

Mr. REDDAN. Had you ever had any dealings with the American Aggregates Corp. prior to this contract?

Mr. HAMPTON. Dealings?

Mr. REDDAN. In an official capacity. Had you ever used their aggregate on any other jobs for which you had responsibility?

Mr. HAMPTON. Yes, I think the laboratory and the work in the area used American Aggregates materials.

Mr. REDDAN. Out of the Oxford pit?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. Had you used it on any work at Selfridge Air Force Base prior to this point?

Mr. HAMPTON. I would say so.

Mr. REDDAN. Do you know, sir?

Mr. HAMPTON. Well, I am sure we did. I can't tell you what work it was.

Mr. REDDAN. After the contract was let, was this particular contract assigned to you for you to oversee the construction?

Mr. HAMPTON. No, sir; not exactly.

Mr. REDDAN. Well, you tell us exactly what the situation was.

Mr. HAMPTON. I was an adviser; you might want to call me a "policeman," because I helped the resident engineers on the job, and their paving people. I also made frequent inspections to see that the specifications were being met.

Mr. REDDAN. How did you help them?

Mr. HAMPTON. Presumably I knew a little more about paving and materials than they did, and when they got in trouble in this field they called on me.

Mr. REDDAN. What sort of trouble would they have?

Mr. HAMPTON. Oh, there are any number of things on a paving job that might require consultation: contractor's methods of work, the type of equipment he is going to use, his work schedule—things of that nature.

Mr. REDDAN. How about the quality of the aggregate; did you have any particular responsibility there?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. What would be your responsibility specifically with respect to aggregate? I am talking about concrete aggregate.

Mr. HAMPTON. Well, if I determined from the test reports that were furnished to me by the field people that it did not meet the specifications, then it would be up to me to see that this aggregate was rejected. I had no contractual authority. But I would refer this, quite naturally, to my superior, Mr. Sorensen.

Mr. REDDAN. By the "field people" you mean your people?

Mr. HAMPTON. No, sir. The field laboratories at the bases were under the direction of the resident engineer.

Mr. REDDAN. Did you have any responsibility for the operation of those field laboratories?

Mr. HAMPTON. Not directly, just as an adviser and "policeman."

Mr. REDDAN. Did you have anything to do with the training of the people who were to operate the laboratory?

Mr. HAMPTON. Yes.

Mr. REDDAN. I direct your attention to a letter of August 15, that was discussed here yesterday, from Mr. Sorensen to the Director of the Ohio River Division laboratory.

Mr. HAMPTON. Sir, I have no papers.

Mr. REDDAN. I will show you a photostatic copy of that letter, which has already been identified. Mr. Sorensen says that you prepared it for his signature. I will ask you to look at it and give us your recollection about it.

Mr. HAMPTON. Yes, sir. I prepared this.

Mr. REDDAN. Why did you prepare that letter, sir?

Mr. HAMPTON. If I may have a moment to look at it——

Mr. REDDAN. Surely.

Mr. HAMPTON. This was to furnish authority to the Ohio River Division to proceed with testing on this particular material.

Mr. REDDAN. How did you happen to write that letter, sir?

Mr. HAMPTON. We had conducted tests locally which indicated that the material the American Aggregates Corp. was producing after they had made modifications to their production procedures did meet the specifications.

Mr. REDDAN. Who made those tests?

Mr. HAMPTON. Our local Corps of Engineers personnel.

Mr. REDDAN. Are those the tests referred to as having been made on August 13?

Mr. HAMPTON. I would say so.

Mr. HARDY. You prepared the letter.

Mr. HAMPTON. The reason—I am not hedging on the question, sir. But these dates I just cannot recall.

Mr. REDDAN. Well, would you refer to anything else?

Read that part.

Mr. HAMPTON (reading):

> Field checks conducted on this material on August 13, 1958, indicate that the objectionable particle percentages have been reduced sufficiently to comply with the specification requirements.

Mr. REDDAN. On what did you base that statement, sir?

Mr. HAMPTON. On test results that had been furnished to me by Corps of Engineers testing personnel.

Mr. REDDAN. Written test results?

Mr. HAMPTON. Yes, I would say so. I have no record of those test results. But this was normal procedure.

Mr. REDDAN. It wouldn't have been normal procedure to furnish it to you verbally?

Mr. HAMPTON. It may have been. But it would have been followed up with the actual test result.

Mr. REDDAN. So that there should be test results somewhere?

Mr. HAMPTON. I don't know whether there should be now, but there were at that time.

Mr. REDDAN. And you saw them?

Mr. HAMPTON. Well, I would presume I saw them. I cannot definitely say I saw anything 6 years ago.

Mr. REDDAN. Who would have prepared the test results? Where would that work have been done?

Mr. HAMPTON. I think in this particular case it probably would have been done in our central laboratory. This was under my direction, incidentally, as differentiated from the field laboratory under the resident engineer.

Mr. REDDAN. Where was that laboratory located?

Mr. HAMPTON. In the back of the resident engineer's office at Selfridge.

Mr. REDDAN. Where did the sample come from that was tested?

Mr. HAMPTON. From Oxford.

Mr. REDDAN. How was it selected?

Mr. HAMPTON. Well, I did not see it selected. I presume it was selected by our testing people who went up to Oxford and sampled it.

Mr. REDDAN. Why do you say that?

Mr. HAMPTON. That is normal procedure.

Mr. REDDAN. Do you have any reason to know that in this particular case that was done? You weren't there?

Mr. HAMPTON. No, sir. I have more reason to know it was done than to know it was not done.

Mr. REDDAN. Tell us how you arrive at that conclusion.

Mr. HAMPTON. Normally when I gave instructions to a subordinate I could assume he would carry them out.

Mr. REDDAN. You gave instructions to your subordinate to go up and make a sample, is that it?

Mr. HAMPTON. I think that is probably what happened.

Mr. REDDAN. All I am after is your best recollection.

Mr. HAMPTON. To my best recollection, yes.

Mr. REDDAN. You did?

Mr. HAMPTON. Yes.

Mr. REDDAN. Why did you give your subordinate that instruction to sample the aggregate?

Mr. HAMPTON. Because we were attempting to find an aggregate for this job, and the contractor had told us that he wanted to use American Aggregates if it would meet the specifications. This is what we wanted to determine.

Mr. REDDAN. Did the contractor make those representations to you? Did the contractor request that this test be made?

Mr. HAMPTON. I am sure he did, sir. But I don't know how it came about. It may have come through the resident engineer, or directly to me, or through my laboratory chief at Selfridge. I don't recall.

Mr. REDDAN. You are sure it did come?

Mr. HAMPTON. Yes.

Mr. REDDAN. In writing?

Mr. HAMPTON. I am not sure.

Mr. REDDAN. Did the contract provisions require that such a request be in writing?

Mr. HAMPTON. I cannot remember.

Mr. REDDAN. If it did, you are assuming normal channels were followed, is that right?

Mr. HAMPTON. Yes. We were quite careful about that. We always pointed out to the contractor that we were not a testing agency and the only time we would perform a test was when it was submitted to us for use on a particular job, and we had to have a particular contract number for which this might be used.

Mr. REDDAN. This particular pit had already been removed from the approved list?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. How soon after it was taken off the approved list did you get a request to run a test on that material again?

Mr. HAMPTON. I do not know, sir.

Mr. REDDAN. The contract carried other approved sources to which you could have gone for the materials, did it not?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. Do you have any recollection whether or not the request came to you from the American Aggregates Corp. or the Western Contracting Corp.?

Mr. HAMPTON. Well, I know that the initial request would have come from the contractor, but——

Mr. REDDAN. You know it "would," or that it did?

Mr. HAMPTON. All right, it did—or we wouldn't have done anything about it.

Mr. REDDAN. Is this supposition? Do you know of your own knowledge that Western Contracting Corp. ever asked for a test of this material, a test of a run on the Oxford pit of American Aggregates?

Mr. HAMPTON. Yes, they asked to have American Aggregates' Oxford material checked, at some time. I don't know about this particular date.

Mr. REDDAN. For this particular contract?

Mr. HAMPTON. Yes.

Mr. REDDAN. As of June 28, on this contract, the Oxford pit of American Aggregates was not an approved source?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. For use on this contract.

Now, did the contractor ever come to you or come to the district, to your knowledge, after that time, to request that approval be obtained for the Oxford pit?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. Do you know that of your own knowledge?

Mr. HAMPTON. I know that this way, that I wouldn't have done anything about it had he not come to me.

Mr. HARDY. That is not a very good basis on which to testify. That might be your normal procedure, but can you testify that he actually did ask you to run these tests? If so, how?

Mr. HAMPTON. Mr. Chairman, this is 6 years ago. I cannot——

Mr. HARDY. I understand it is 6 years ago, and I appreciate the difficulty that is involved. Nevertheless, I do not think that testimony that you "would do it under normal procedures" is very valuable. Either you know or you do not know. A lot of people have been known to violate normal procedures under particular circumstances.

Mr. HAMPTON. Then I will have to say that I do not recollect, I would not swear on a Bible that he came to me directly on this particular day and asked me to run this test.

Mr. HARDY. For that matter, you can't even testify that he came to you at any time and asked you to run a test, can you? Is that right, or is it not right?

Mr. HAMPTON. I can testify that he came to me at some time and asked me to run a test; yes, sir.

Mr. HARDY. On what do you base that?

Mr. HAMPTON. Because I can remember. I don't know what date. I can remember.

Mr. HARDY. Who did it?

Mr. HAMPTON. Mr. Malcolm Schaller, the project manager for Western Contracting Corp.

Mr. HARDY. He came to you and asked you to run a test on this material?

Mr. HAMPTON. Yes.

Mr. REDDAN. For this contract?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. The contract provides that—

Concrete aggregates may be furnished from any of the above-listed sources—

And it lists the approved sources—

or from any other sources proposed by the contractor and approved by the contracting officer. The contractor will designate in writing the source or sources from which he will furnish the aggregate.

Do you know whether or not that was ever done?

Mr. HAMPTON. I do not recollect.

Mr. HARDY. You do recall a verbal request?

Mr. HAMPTON. Yes, sir. We had many discussions.

Mr. REDDAN. Did you call Mr. Roberts at the Ohio laboratory on August 14 in connection with this matter?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. What was the purpose of calling Mr. Roberts at that time?

Mr. HAMPTON. It was to get his interpretation on how we could apply the term "cherty limestone" to our contract specifications.

Mr. REDDAN. Who had raised that question?

Mr. HAMPTON. I don't know who raised it initially. It was a matter of discussion in the district office.

Mr. REDDAN. Who discussed it? Did you have a conference on this?

Mr. HAMPTON. I am sure I had several conferences with Mr. Sorensen.

Mr. REDDAN. Did American Aggregates raise that question?

Mr. HAMPTON. Not to my knowledge.

Mr. REDDAN. Did Western Contracting raise that question?

Mr. HAMPTON. I think not. I cannot say.

Mr. REDDAN. Had the Ohio River laboratory ever raised that question?

Mr. HAMPTON. No, sir.

Mr. REDDAN. This is something that was generated within the district, then?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. Do you know why?

Mr. HAMPTON. Yes, sir. We had a test report before us that listed chert and cherty limestone, and we had to look into the specifications to see if this complied. When we came to the matter of cherty limestone, there is no item for that in the specifications.

Mr. REDDAN. Was there an item for chert?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. In the approved manual?

Mr. HAMPTON. I am talking about the contract specifications. I didn't get into the manual part of it.

Mr. REDDAN. All right.

The specifications were written in the Chicago district office, were they not?

Mr. HAMPTON. I can't say that I know where they were written, sir. I presume they were written in the Detroit office.

Mr. REDDAN. The district office, in writing them, wrote in a line item for chert, is that right?

Mr. HAMPTON. No, sir; I had nothing to do with the preparation——

Mr. REDDAN. The district office, in writing them, wrote in a line item for chert?

Mr. HAMPTON. That is right.

Mr. REDDAN. They didn't write in a line item for cherty limestone.

Mr. HAMPTON. That is right.

Mr. REDDAN. Which then let them raise the question for themselves, what we have here is cherty limestone, since we didn't put it in, how shall we consider it?

Mr. HAMPTON. Right, sir.

Mr. REDDAN. Having raised that question, how did they resolve it?

Mr. HAMPTON. We knew cherty limestone must contain some chert, or it wouldn't have been called cherty limestone. We also knew that in this cherty limestone there are very small quantities of chert, or there—there cannot be at least over 50 percent, or it would be called something else, "limestoney chert," if there is such a thing, or "chert." So we knew it had to have less than 50 percent chert in it. So on the basis of this, we figured since we have here cherty limestone, we knew if we took 50 percent we would be on the safe side.

Mr. REDDAN. Why did you give it the name——

Mr. HAMPTON. If we took 50 percent of the cherty limestone and called it chert, then we were justified in adding this item to the contract item for chert, and then we had a basis on which to proceed.

Mr. REDDAN. Did you have another item for limestoney chert, for stuff that was 51 percent chert?

Mr. HAMPTON. No, sir. I think it is standard practice in classifying materials—to give you an example, sandy clay. If the sandy clay has more sand in it than clay, then it becomes clayey sand. I think this is standard procedure.

Mr. REDDAN. If it had 51 percent in the limestone, then, you would have considered it 100 percent chert; is that right?

Mr. HAMPTON. In this analysis we would have so considered it.

Mr. REDDAN. Arbitrarily that is what you would have arrived at?

Mr. HAMPTON. Yes.

Mr. REDDAN. Who was to make the determination of whether there was 50 or 51 percent chert in the limestone?

Mr. HAMPTON. Our laboratory people.

Mr. REDDAN. Your field laboratory people?

Mr. HAMPTON. Yes.

Mr. REDDAN. How were they going to make this test?

Mr. HAMPTON. They used visual field methods.

Mr. REDDAN. What are they, sir?

Mr. HAMPTON. To start with, chert is a fine-grained material, and chalky cherts particularly are quite readily identifiable and there doesn't seem to be much question on classifying chert.

Then, there are some other items that are a little bit questionable, and sometimes a hammer is used, the material is broken; actually, there

is one test where it is placed on your tongue, if there is a little suction you know you have this——

Mr. REDDAN. How much more suction do you get on 51 percent than you do on 50 percent? You see what I am trying to find out——

Mr. HAMPTON. I am sorry, I wasn't answering the question properly. I misunderstood.

Mr. REDDAN. You say anything over 50 percent chert should be considered all chert. I am wondering what happens at the critical point of 1 percent that changes this from limestone to chert and permits you to separate them.

Mr. HAMPTON. I don't think we actually get into this problem where we are dealing with 51 percent or 50 percent. I am sure it would be impossible to take an irregularly shaped stone and say, well, this is 51, and this is 49. This cherty limestone we are talking about has much smaller quantities of chert in it than 50 percent. We are talking about something maybe 1 to 25 percent.

Mr. REDDAN. All right. Let's go back to your specification, then. You had a total of 3 percent chert and your inspectors out in the field with their hammer and tongs had to decide whether or not this material came within the specifications.

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. Now, you knew you had some regular chert in there?

Mr. HAMPTON. Yes.

Mr. REDDAN. As a matter of fact, the laboratory found chert which was just pure chert, which in itself in some cases exceeded the specifications in the earlier test; isn't that right?

Mr. HAMPTON. Yes.

Mr. REDDAN. So you come to the point where you are actually in most cases, assuming there is no more than 2 percent chert at the best in your aggregate, to where you are now dealing with cherty limestone and you have to determine whether or not it contains this little 1 percent we are talking about.

Now, you have the fellows down in the laboratory with their microscopes and all their tests, and they tell you cherty limestone has the same reaction as chert. On the basis of that, I am wondering how you can make your decision out in the field, as I say, again, with your little hammers, how you can come up with a closer percentage of tolerance than the laboratories can.

Do you see my problem?

Mr. HAMPTON. No, sir; I do not understand. You lost me.

Mr. REDDAN. If you have more than 1-percent chert in most of your limestone, as a practical matter, out of this particular pit, you have problems. Your men are in the field looking at a piece of rock and trying to determine whether it has this minuscule amount of 1 percent chert in it. I am wondering how effective this examination is, and whether or not this is the sort of examination to rely on when you are buying hundreds of thousands of dollars worth of aggregate in this field construction.

Mr. HAMPTON. This is standard practice in testing aggregate, to make visual inspections, to run the identical tests we ran; and we had no reason to doubt the authenticity of approaching it in this manner.

Mr. REDDAN. During the course of construction did the Chicago office raise a question as to the authenticity or the ability of your field office to make proper examination of the aggregate?

Mr. HAMPTON. I don't think they raised a question about——

Mr. REDDAN. Did they ask that the Ohio River laboratory check your findings?

Mr. HAMPTON. Yes, sir; I think I can give you a little background on this.

Mr. REDDAN. All right, if you could, please do so. Tell us what happened, how the test was made, and give us a comparison of the results between your field office and your laboratory, with respect to chert.

Mr. HAMPTON. As I recall, and Mr. Davis is in the room here and might be able to remember this too, we were on an inspection trip with some people from the Chief's office—I can't recall their names right now—and we looked at the aggregate pile at Selfridge, and we noticed on the surface of the pile that there seemed to be a considerable amount of deleterious materials. On the basis of this, Mr. Davis asked that we check, our people check.

I want to say one thing about this deleterious material on the surface of the pile. Invariably when you build a stockpile in the manner we were building these, coarse stones run down the side of the pile and accumulate at the bottom. This is the area in which we were walking, so we would have a predominant size of one particular material, or we could have more deleterious material at this point than we would have in the actual mixture of the aggregates.

I guess I haven't answered your question yet. Would you repeat it, please?

Mr. REDDAN. Yes. As a result of this inspection was a decision made to have a check by the Ohio laboratory of half of a sample? In other words, was a sample made up, half of it tested by the field laboratory, and the other half by——

Mr. HAMPTON. Oh, yes, sir. Yes, sir.

Mr. REDDAN. Can you tell us about that, how the sample was prepared, why it was done, and what the results were?

Mr. HAMPTON. I know we split a sample. I don't recall just exactly how it was done. We sent half to the Ohio River division, kept half in Detroit, and had our people pick this material for deleterious material.

Mr. REDDAN. Do you recall the results?

Mr. HAMPTON. Mr. Woods has shown me those. I don't remember them.

Mr. REDDAN. Did the Ohio laboratory agree with the findings of your field laboratory?

Mr. HAMPTON. No, they did not.

Mr. REDDAN. How was the sample obtained that was sent to the laboratory for testing, pursuant to the letter you wrote to Mr. Sorensen on August 15, 1958?

Mr. HAMPTON. The supplier had produced a pile of this material, and I don't know how many tons, but at least 50, and had set it aside. I did not see the sample prepared, but the laboratory was instructed to go to Oxford and see that we got a sample to send down to the Ohio River Division Laboratories. I did not personally see this done.

Mr. REDDAN. Did you personally instruct anyone to do so?

Mr. HAMPTON. Yes.

Mr. REDDAN. Whom did you instruct?

Mr. HAMPTON. I don't recall definitely. I would say it was Mr. Dzwonkiewicz. He might be able to bear me out on that, I don't know.

Mr. REDDAN. How was the sample transmitted to the Ohio laboratories?

Mr. HAMPTON. I am not sure about this, but I know the American Aggregates Corp. hauled it down there in a truck, because we were running a little short of time, and we were quite anxious to get this mix design started. He did this at our request.

Mr. REDDAN. You asked American Aggregates to take their sample down to——

Mr. HAMPTON. Well, we suggested, we suggested that if he would take it down there we would save a lot of time.

Mr. REDDAN. And all this was based, you say, on a request originally made by the prime contractor to the American——

Mr. HAMPTON. Sir, you have something wrong there.

Mr. HARDY. This was based on the suggestion of people from the Chief's office that were visiting the stockpile——

Mr. HAMPTON. Mr. Chairman, I think we are speaking of different samples.

Mr. REDDAN. We are now discussing the sample that was tested by the Ohio River Laboratory, which resulted in the August 18, 1958 report. I am just trying to determine whether or not it is this witness' testimony that this sample was sent down at the original request of the prime contractor.

Mr. HAMPTON. The original request from the prime contractor was to have us check the material from American Aggregates Corp. because he wanted to use them.

Mr. REDDAN. It is your testimony that they initiated this thing, which resulted——

Mr. HAMPTON. Yes. Well, they did not intiate each little transaction that took place.

Mr. REDDAN. Now, when did you terminate your employment with the corps, Mr. Hampton?

Mr. HAMPTON. At the conclusion of the paving program.

Mr. REDDAN. That was approximately when, sir?

Mr. HAMPTON. It was in December, probably about 1959, unless I have missed a year here. I think that is when it was. I have these dates someplace, but not with me.

Mr. HARDY. Did you immediately go to work for American Aggregates when you left the Corps of Engineers?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. When did you first start discussing with American Aggregates the possibility of your employment?

Mr. HAMPTON. I can't recall the exact dates on this. There was a sequence in there that I can remember, but I don't know the dates. Some time after the paving projects were completed I went back to the highway department to discuss my possible employment there.

Mr. REDDAN. With whom did you discuss that?

Mr. HAMPTON. Mr. Howard Hill.

Mr. REDDAN. This was after you left the corps?

Mr. HAMPTON. Before I left the corps.

Mr. REDDAN. After the paving contracts were completed?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. What was your purpose in going to see him?

Mr. HAMPTON. I was looking for possible employment with the highway department.

Mr. REDDAN. Why?

Mr. HAMPTON. Why?

Mr. REDDAN. Yes, sir.

Mr. HAMPTON. That is a good question. I had decided that the challenge of the job which I had come over to the Corps of Engineers for the second time was done, and I was more interested in highway department work.

Mr. REDDAN. What job were you seeking at the highway department?

Mr. HAMPTON. No particular job. We discussed several possibilities.

Mr. REDDAN. Was any mention of salary made at that time?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. What would the job have paid you?

Mr. HAMPTON. I can't recall exactly. But I can say it was more than I got when I went to American Aggregates.

Mr. HARDY. Were you actually offered a job in the highway department?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. You say Mr. Hill told you the job would pay more than you got from American Aggregates?

Mr. HAMPTON. We didn't discuss money. But it is common knowledge when you are in a certain bracket in the highway department you can look at the civil service scale and pick out the grade you would have. And I knew what grade I would be considered for.

Mr. REDDAN. We have talked with Mr. Hill and perhaps we ought to bring him in here, because perhaps his "common knowledge" on that point is not the same as yours.

Mr. HAMPTON. He doesn't remember talking to me?

Mr. REDDAN. Oh, yes, he does.

What was your salary at the corps?

Mr. HAMPTON. I don't recall, sir.

Mr. REDDAN. At what salary did you go to American Aggregates? Let me rephrase that. You had a basic weekly salary there?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. Plus commissions and bonus?

Mr. HAMPTON. Yes.

Mr. REDDAN. How did your annual pay, the money you received from American Aggregates, compare with your salary from the Corps of Engineers?

Mr. HAMPTON. I don't recall. It may have been a little more, it may have been the same, or it is possible that it could be less. I doubt if it were less. But it was very close.

Mr. REDDAN. What had been your salary with the highway department?

Mr. HAMPTON. That I do not recall, sir.

Mr. REDDAN. Was it more or less than you are getting from American Aggregates?

Mr. HAMPTON. It was less. At the time I was there it was less than I was getting from American Aggregates.

Mr. HARDY. You don't recall what your pay was when you went with American Aggregates?

Mr. HAMPTON. I know I had a guaranteed annual minimum of $12,000.

Mr. HARDY. You had a guaranteed annual minimum of $12,000?

Mr. HAMPTON. Yes.

Mr. HARDY. What were you making in the Corps of Engineers at that time?

Mr. HAMPTON. I don't know, sir, but——

Mr. HARDY. Well, it would be no problem to find out.

Mr. HAMPTON. No, sir. I was at the top of the GS–13.

Colonel BOUCHER. When he left the Engineers he was getting $11,090.

Mr. HARDY. Thank you.

Mr. GUBSER. Did he go from the Engineers to the highway department to the——

Mr. HARDY. From the Engineers to the highway department, back to the Engineers about the time the contract started, if I am correct.

Mr. HAMPTON. That is correct.

Mr. HARDY. Following the conclusion of these contracts he went to work for American Aggregates, directly from the Corps of Engineers. Is that right, sir?

Mr. HAMPTON. Yes, sir; that is correct.

Sir, may I go back to this remark you say Mr. Hill doesn't agree with me on? What specifically—where do we differ?

Mr. HARDY. Well, we don't have Mr. Hill's testimony yet.

Mr. REDDAN. I would prefer that we get Mr. Hill in here and let him testify. That would be the proper way to do it.

Mr. HAMPTON. What I have said—I hope I have said this—the jobs Mr. Hill and I discussed were jobs that carried certain grades. By going to the civil service records I could figure out the salary. I doubt if we discussed dollars.

Mr. HARDY. Did you talk about what job you would go into if you went back to work for the highway department?

Mr. HAMPTON. We discussed the possibility of several jobs. I don't recall exactly what they were; or several branches to go into were discussed; that is, maintenance, testing and research, or fieldwork.

Mr. HARDY. Did he actually suggest to you any specific job, any specific job that might be available to you?

Mr. HAMPTON. A specific job?

Mr. HARDY. Yes.

Mr. HAMPTON. No, sir. We were discussing jobs in general. He said "Yes, we can use you and we have some places we can use you." We talked about these, and this was—I don't know the date. Perhaps Mr. Hill would remember. We were not to the point of where we were getting specific about jobs. We weren't that far along in our negotiations.

Mr. HARDY. Then all of a sudden you decided to ignore the highway department's proposition and go with American Aggregates?

Mr. HAMPTON. Yes, sir. It wasn't all of a sudden, but I did decide to ignore it, after consideration.

Mr. HARDY. You never went back to explore further with Mr. Hill the specific job or jobs which he had in mind?

Mr. HAMPTON. No, sir. I could see no point in it if I had made up my mind to go elsewhere.

Mr. GUBSER. How much time elapsed between the award of this contract and the hiring of this gentleman by American Aggregates?

Mr. HARDY. Well, I don't think we have established the timelag.

Mr. HAMPTON. Over 2 years.

Mr. HARDY. Between the beginning of the contract——

Mr. HAMPTON. Yes, sir.

Mr. HARDY. The question of timelag would arise from the date of completion of the contract and your date of employment with American Aggregates. Would that have been pretty close together?

Mr. HAMPTON. I don't know the date of completion, sir. I know my particular job had pretty well finished in the fall of that year.

Mr. HARDY. Actually, up to the time that you actually left the corps and went with American Aggregates you were still performing some work in connection with the contract?

Mr. HAMPTON. Yes, sir. No one ever told me at the corps that I would lose my job, or didn't tell me I was going to be given a new job, or anything else. But I could see that the work was going to drop off, necessarily, after this tremendous program was completed. And I was——

Mr. HARDY. When you left the corps and went with the highway department, was that as a result of reduction in force, or was that a voluntary act?

Mr. HAMPTON. That was voluntary, sir.

Mr. GUBSER. What specifically were your duties with the Michigan Highway Department?

Mr. HAMPTON. I was working in the concrete section of the testing and research division.

Mr. GUBSER. Did you, during any of that period of time, have occasion to negotiate or deal with the American Aggregates Co., and did you have any contact at all with them, and was their material used in any of the jobs you were overseeing?

Mr. HAMPTON. No, sir; I was not overseeing jobs.

Mr. GUBSER. Did you have any contact at all with American Aggregates while you were with the Michigan Highway Department?

Mr. HAMPTON. No, sir.

Mr. GUBSER. Were American Aggregates materials being used at all by the Michigan Highway Department?

Mr. HAMPTON. No, sir. I had no contact with any contractors, or anyone outside the highway department, because I was in the testing section.

Mr. GUBSER. Did you ever test any of the American Aggregates materials?

Mr. HAMPTON. I am sure we did, but all we knew about it was that there was a tag on it, and we didn't know any more about it. I personally did not.

Mr. GUBSER. Why did you leave the highway department of the State of Michigan?

Mr. HAMPTON. To come back to the corps.

Mr. GUBSER. What was the incentive that made the corps employment more attractive than what you had at the highway department?

Mr. HAMPTON. I would say, sir, that it was the challenge of the job. Actually, the first time Mr. Sorensen approached me on this matter I told him "No." I didn't want to make a change. I did not definitely close the door, but I told him "No," and I don't know how many conversations we had; we had several conversations in the evening at my home, he called me at home, and he asked me to come back to the corps to work with him.

Mr. GUBSER. By the "challenge of the job," was it this specific project that constituted the challenge, or was it the overall challenge of the job?

Mr. HAMPTON. The overall challenge. We had three other projects that were much larger than this, and I felt that this was quite a responsibility, and there was a real challenge to the job.

Mr. GUBSER. Did you know you would be assigned to the Selfridge Air Force Base job?

Mr. HAMPTON. Sir, I was not assigned to the job, I was assigned to the district office in Detroit, and as such I had responsibility for jobs at Selfridge, Wurtsmith, Kinross——

Mr. GUBSER. You were connected with it, rather than assigned to it?

Mr. HAMPTON. Yes.

Mr. GUBSER. At the time you changed employment from the department of highways to the corps, did you think this job was underway? Did you know at that time about the job at Selfridge?

Mr. HAMPTON. Could you repeat that, please, sir?

Mr. GUBSER. Did you know of the existence of this job and this contract at Selfridge Air Force Base when you transferred from the Michigan Highway Department to the corps?

Mr. HAMPTON. There was no job at that time. I knew the job was coming, but——

Mr. GUBSER. That is what I want.

Mr. HAMPTON. Yes, sir; I knew that.

Mr. HARDY. I think this is a good time to adjourn for lunch. Let us return at 2:30.

(Whereupon, at 12:10 p.m., the subcommittee adjourned, to reconvene at 2:30 p.m., the same day.)

AFTERNOON SESSION

Mr. HARDY. Let the committee come to order. Let the record show the presence of Mr. Pike, Mr. Gubser and myself, constituting a quorum under the committee rules.

Mr. Hampton, will you please come back up to the table, sir?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. Do you have any questions, Mr. Pike?

Mr. PIKE. Yes, I would like to ask a few questions, if I may, Mr. Chairman.

Mr. HARDY. Certainly.

Mr. PIKE. Mr. Hampton, how long have you worked with the Army Engineers all together? When did you start working with the Army Engineers?

Mr. HAMPTON. I believe, Mr. Pike, it was in about 1939.

Mr. PIKE. Were you in the Detroit area in 1955?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. Do you recall the difficulty that they had in the Air National Guard Base at the Alpena County Airport in Michigan in 1955?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. The report of the Comptroller General which came to us indicated that the Army Engineers attributed that difficulty to the presence of deleterious material in the coarse aggregate used in the concrete mix. Were you aware of that determination by the Engineers?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. Do you have any knowledge of what the particular deleterious material in the Alpena Airport was?

Mr. HAMPTON. To the best of my recollection it was chert.

Mr. PIKE. That had been in 1955?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. After this difficulty with chert in 1955, did anyone establish any new regulations that were made known to you regarding the quantity of chert which the engineers would allow in the coarse aggregate?

Mr. HAMPTON. Not that I know of, sir.

Mr. PIKE. No one told you to be on the alert for this particular substance in any greater degree than you had been in the past; is that correct?

Mr. HAMPTON. I cannot recall anything of this nature.

Mr. PIKE. Did you have any part in the construction job at the Alpena Airport?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. What was your part in that particular job?

Mr. HAMPTON. I don't know my title. But it was pretty much the same job that I had subsequently when I came back from the highway department.

Mr. PIKE. Did your job include the testing of the aggregate which went into the runways at the Alpena Airport?

Mr. HAMPTON. No, sir. I did not actually test it.

Mr. PIKE. Did your job include the supervision of those who did actually test the aggregate?

Mr. HAMPTON. No, sir, not direct supervision.

Mr. PIKE. What was your title at that time?

Mr. HAMPTON. I am not sure, but I had several different titles with essentially the same responsibilities. I really can't say what my title was at that time.

Mr. PIKE. Can you recall what the analysis showed as to the amount of chert in these runways that went bad at the Alpena County Airport?

Mr. HAMPTON. No, sir, I cannot.

Mr. PIKE. And you cannot recall that anybody said anything about reducing the amount of chert that went into this aggregate, at that time?

Mr. HAMPTON. No, sir, I can't say that I can remember that.

Mr. PIKE. But you can remember that the runways went bad because of the presence of the chert in the aggregate?

Mr. HAMPTON. To my recollection, the runway was all right. I believe it was a taxiway, as I recall it.

Mr. PIKE. All right. According to your recollection, the taxiway went bad because of the presence of chert in the aggregate?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. And it wouldn't really make any difference whether it were a runway or a taxiway, the chert would have the same effect?

Mr. HAMPTON. Yes, sir, that is correct.

Mr. PIKE. Was the Minot Air Force Base within your area of jurisdiction?

Mr. HAMPTON. No, sir.

Mr. PIKE. Or the Sioux City Air Force Base?

Mr. HAMPTON. No, sir.

Mr. PIKE. You told us this morning that there were three other projects that you were involved in when you were with the engineers at Selfridge. What were those three projects?

Mr. HAMPTON. Wurtsmith Air Force Base and Kincheloe, or Kinross, and Sawyer Air Force Base.

Mr. PIKE. Did any of them have to do with building runways?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. All of them?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. And all of them had to do with purchasing aggregate for the runways?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. Was aggregate purchased from the American Aggregates Corp. for any of those other projects?

Mr. HAMPTON. No, sir.

Mr. PIKE. In setting up the specifications for the other projects as to the amount of chert involved, were the limitations the same for each of those projects or were they different from the Selfridge project?

Mr. HAMPTON. I don't believe I can answer that, sir. But I believe they were the same at Wurtsmith. I do not recollect the other two bases.

Mr. PIKE. Do you know whether the breakdown in the analysis as between chert and cherty limestone was allowed in the specifications at any of those other projects which were proceeding at the same time?

Mr. HAMPTON. I can't say that I know. But I suspect that they were at Wurtsmith.

Mr. PIKE. Can you tell us why they would be allowed at this one particular one?

Mr. HAMPTON. No, sir; I can't tell you why, because I am not sure that they were.

Mr. HARDY. They were with respect to Selfridge?

Mr. HAMPTON. Oh, yes; with respect to Selfridge I am sure, yes.

Mr. PIKE. With respect to Selfridge?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. We discussed this morning the question of the gathering of the sample which went to the Ohio River laboratories, and we also discussed the fact that you had a telephone conversation, I think you said you had a telephone conversation with somebody in those laboratories regarding how much of the cherty limestone should be included as deleterious materials. Can you tell us whether the sample-gathering was done prior to that conversation or not?

Mr. HAMPTON. I lost the question, Congressman.

Mr. PIKE. There was a time when you had a telephone conversation with the Ohio River Division laboratory regarding how much cherty limestone should be considered as deleterious material; is that correct?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. There was also another time at which new samples were submitted by the contractor to the Ohio River division laboratories. Which of those events took place first?

Mr. HAMPTON. I don't think I can say. I don't remember.

Mr. PIKE. Was it not a fact that the telephone conversation with the Ohio River Division Laboratories came as a result of the tests which they made on those samples which were submitted to them?

Mr. HAMPTON. Somehow I am lost here. I want to give you the right answer.

Mr. PIKE. All right. These samples were gathered in the field or from the pit? I guess they were taken from the Oxford pit.

Mr. HAMPTON. They were taken from a pile which had been produced with some modifications to the production system; they had a separate stockpile.

Mr. PIKE. Right. This was a blended pile.

Mr. HAMPTON. Yes, sir.

Mr. PIKE. And they were submitted to the Ohio River Division Laboratories and the Ohio River Division Laboratories came back with a test which showed that they continued 1.6 percent chert and 2.45 percent cherty limestone, a combined total of 4.05 percent.

Now, was it not a fact that your telephone conversation with the Ohio laboratories came after that report had come back to you?

Mr. HAMPTON. Yes, sir. This is a fact.

Mr. PIKE. Right. Now, they said in their report that the cherty limestone in its opinion should be considered as having the same physical and chemical properties as chert.

In your telephone conversation to them—first of all, did they instigate that telephone conversation, or did you instigate that telephone conversation?

Mr. HAMPTON. I must have. I can't say that I did, but it would seem that I would have.

Mr. PIKE. And the purpose of that conversation, I believe you told us this morning, was to discuss with them how much of the cherty limestone should in fact be considered as chert, wasn't that it?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. Hadn't they already indicated in their report that it should be considered as chert?

Mr. HAMPTON. Well, that—I think they said that we should consider it as having the same properties as chert. They did not say that it should be included in the chert category. And my feeling on that is that if they had wanted us to consider it as chert, then it should have been in the chert category rather than in some other category called cherty limestone. So in view of that we concluded that this must be something else.

Mr. PIKE. What did you consider they meant by saying to you that it should be considered as having the same physical and chemical properties as chert?

Mr. HAMPTON. I would consider that they would classify this as a deleterious material.

Mr. PIKE. Having the same physical and chemical properties as chert?

Mr. HAMPTON. Yes, sir.

Mr. PIKE. Then, having had the experience of that other, the Alpena Airport in 1955, you went back to them and said, "Will it be all right if we only consider 50 percent of it as deleterious material?" Is that not correct?

Mr. HAMPTON. In essence, actually, I think the phone call involved more than this question. It was a general discussion of "What do you mean by cherty limestone? How is it detrimental?" And so forth.

Mr. PIKE. Had they not already made this determination when they submitted the report and said to you that you should consider cherty limestone as having the same physical and chemical properties as chert?

Mr. HAMPTON. Well——

Mr. PIKE. Weren't you, in effect, saying: "My judgment does not agree with yours on this?"

Mr. HAMPTON. No, sir. As a matter of fact, to this day I do not understand what is meant by "massive chert," and I think that is one of the terms in there.

Mr. PIKE. There came a point at which someone determined that, despite their language in their report, the cherty limestone should be considered as having the same physical and chemical properties as chert, that someone decided that only 50 percent of it should be considered in determining the total amount of deleterious substances. Where was that determination made?

Mr. HAMPTON. I think this was a joint decision. I think I explained previously why we came up with the 50. We were trying——

Mr. PIKE. Excuse me. Who were the joiners in that "joint decision?"

Mr. HAMPTON. Mr. Sorensen had some discussions on this with me. Mr. Roberts, in Ohio. And I talked to someone in our division office, and I am not sure who it was.

Mr. PIKE. Did you recommend to Mr. Sorensen and Mr. Roberts that only 50 percent of the cherty limestone should be counted as deleterious material?

Mr. HAMPTON. No, sir, maybe——

Mr. PIKE. Did Mr. Sorensen recommend it to you?

Mr. HAMPTON. No; Maybe I did not understand your question. I thought you said as "deleterious." We weren't questioning that. The thing we were questioning was, where do we apply "cherty limestone" to our contract specifications?

Mr. PIKE. In other words, you were willing to concede that it was deleterious, and you knew that the run from this pit would fit within the specifications if it were considered as deleterious, but not chert?

Mr. HAMPTON. Well, we did not consider it that way. We were looking for some way to protect the Government on this classification of "cherty limestone." If we had rejected this material on the basis of "cherty limestone," we had no contractual authority to do this at all, and we didn't know where to go frankly. So, we were trying to determine how much chert is in the cherty limestone. We know there is some chert. Now, we can take this chert and apply it to our chert percentage in the contract. We know this is all right.

Mr. PIKE. I am very interested in your statement that you felt obliged to protect the Government as far as you could. Would not the best way that you could have protected the Government have been to have gotten an aggregate with a lesser amount of chert? And didn't you know this, based on your experience at the Alpena Airport?

Mr. HAMPTON. I think we would have liked to have seen a better aggregate, yes, sir. But I do not see that we had any way of insisting or forcing the contractor to give us a better chert.

Mr. PIKE. The Ohio River Division Laboratories report stated that the cherty limestone should be considered as having the same physical and chemical properties as chert, but you called them and said "Don't make us do this." Now how are you protecting the Government that way?

Mr. HAMPTON. Congressman, I don't think we called them and said "Don't make us do this." We were calling them for advice.

Mr. PIKE. Whose recommendation was it that only 50 percent of the cherty limestone be considered as chert?

Mr. HAMPTON. I think this was a joint recommendation.

Mr. PIKE. Made by you and Mr. Sorenson and Mr. Rogers?

Mr. HAMPTON. I wouldn't say—you mean Mr. Roberts?

Mr. PIKE. Mr. Roberts.

Mr. HAMPTON. I wouldn't say that he made this recommendation. I am not sure.

Mr. PIKE. Made by you and Mr. Sorensen?

Mr. HAMPTON. I would say so; yes, sir.

Mr. PIKE. All right. When you and Mr. Sorensen made this recommendation did you send it back up to the Ohio River laboratory for their approval?

Mr. HAMPTON. I don't think——

Mr. PIKE. Did anyone above you and Mr. Sorensen approve of this particular decision?

Mr. HAMPTON. I discussed it with the people in Chicago and they concurred that this seemed like a logical approach.

Mr. PIKE. With whom in Chicago did you discuss it?

Mr. HAMPTON. I don't recall.

Mr. PIKE. What was the title of the person in Chicago with whom you discussed it?

Mr. HAMPTON. It was someone in the Soils and Materials Branch.

Mr. PIKE. Was there ever anything in writing on this?

Mr. HAMPTON. Not as far as I know, sir. There could have been. I can't say there was.

Mr. PIKE. You said you wanted to protect the Government as far as the definition of chert or cherty limestone is concerned. Is it not true that it was the Detroit office of the Engineers that wrote up the specifications for this contract?

Mr. HAMPTON. As far as I know, yes.

Mr. PIKE. They could have protected the Government by wording those specifications anyway they wanted to as far as chert and cherty limestone were concerned?

Mr. HAMPTON. Yes.

Mr. PIKE. Isn't it also true if the Government was not protected as to the chert it was because the Government office in writing up the specifications did not define it in such a way as to protect the Government?

Mr. HAMPTON. I don't understand what you are asking me here, Congressman.

Mr. PIKE. If the Detroit office prepared the specifications and the specifications were going to determine how chert was to be considered and how cherty limestone was to be considered, then those who prepared the specifications in the Detroit office were responsible if the specifications did not adequately protect the Government as far as chert is concerned.

Mr. HAMPTON. If the final decision on the chert came from Detroit, your statement is true. I don't know where this came from; this is out of my jurisdiction.

Mr. PIKE. You said this morning, and you said very emphatically, that the offer of a job which you received from the highway department was greater than the offer that you received from American Aggregates Corp., is that correct? The pay, that is?

Mr. HAMPTON. This was my interpretation of my discussion with Mr. Hill; yes, sir.

Mr. PIKE. And you based that on a civil service level and a job classification; is that correct?

Mr. HAMPTON. Yes, sir; I don't think we actually discussed money or specific jobs.

Mr. PIKE. Now, this morning you said that when you went with American Aggregates you had a guarantee of $12,000 per year.

Mr. HAMPTON. Yes, sir.

Mr. PIKE. When did you go with American Aggregates?

Mr. HAMPTON. It was in January—it would be 1960, I believe.

Mr. PIKE. For the year 1960 did your actual remuneration from American Aggregates exceed $12,000?

Mr. HAMPTON. No, sir. It was less.

Mr. PIKE. They did not live up to their guarantee?

Mr. HAMPTON. Yes, sir, they did live up to their guarantee, but I had a bonus connection in there that was tied in with a fiscal year, and their fiscal year is March 31, so as a result of that, the first calendar year I think I was paid something less than that, and I don't know what it is.

Mr. PIKE. Going into the first fiscal year, how did the bonus arrangement you had with American Aggregates affect your salary?

Mr. HAMPTON. The first fiscal year I received exactly what they told me I would receive.

Mr. PIKE. $12,000?

Mr. HAMPTON. As far as I know. It might be a little more or less, depending on when the pay period ended.

Mr. PIKE. I think that is all I have at this time.

Mr. HARDY. Do we understand then your bonus did not come up to what you expected?

Mr. HAMPTON. It came up——

Mr. HARDY. They guaranteed you $12,000 a year, that was a minimum?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. Certainly, your bonus would have been expected to exceed that, wouldn't it?

Mr. HAMPTON. I don't know how they figure these things, Mr. Chairman, but I am sure the bonus is tied into profits, and apparently I picked a bad year to start with them, because I got my minimum.

Mr. PIKE. Mr. Chairman, I did have one other thing.

When you applied for a job at American Aggregates Corp., did you do this on the basis of an advertisement in the newspaper, a trade journal, or how?

Mr. HAMPTON. I did not apply for a job there, sir.

Mr. PIKE. How did you go about obtaining a job with American Aggregates?

Mr. HAMPTON. Mr. Evans heard that I had been talking to the highway department people, and I am not sure of the sequence of these events, maybe I told him, I am not even sure. In any event, he heard about it, and he approached me.

Mr. PIKE. When?

Mr. HAMPTON. I can't say definitely.

Mr. PIKE. Do you remember where this conversation took place?

Mr. HAMPTON. It was in his office, or we may have had lunch together, I am not sure. We had several discussions, I don't know which was first. But we had a lunch, later on we met in his office, I think two or three times.

Mr. PIKE. Were these conversations all subsequent to your applying for the job or discussing the job with the highway department, returning to the highway department?

Mr. HAMPTON. I think so, Congressman. I cannot be sure of that.

Mr. PIKE. That is all I have, Mr. Chairman.

Mr. HARDY. Thank you.

I would like to return to the question of specifications for a moment, Mr. Hampton, please, sir. Can you tell the committee what the specifications were on the original IFB with respect to the total deleterious material, and what they were with respect to permissible amounts of chert?

Mr. HAMPTON. "IFB," sir?

Mr. HARDY. Invitation for bid. Don't you call them that out there?

Mr. HAMPTON. I guess we don't around Detroit.

Sir, could I ask you to please repeat the question?

Mr. HARDY. When the proposals for this work first went out for bids, can you tell us what the specifications were with respect to permissible amounts of chert and the total permissible percentages of deleterious materials?

Mr. HAMPTON. No, sir; I cannot.

Mr. HARDY. Were you consulted when the specifications were prepared?

Mr. HAMPTON. No, sir.

Mr. HARDY. It is your testimony you had nothing to do with the original specifications insofar as the permissible amounts of deleterious material in the aggregate were concerned?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. There was a revision in the permissible amount of deleterious material prior to the award of the contract. Did you have anything to do with that?

Mr. HAMPTON. No, sir.

Mr. HARDY. You were not consulted in connection with it?

Mr. HAMPTON. No, sir.

Mr. HARDY. This morning we had some discussions about a sample which was divided. Mr. Pike inquired about that, also. I believe it was your testimony that this was taken from a stockpile.

Mr. HAMPTON. That is my recollection, Mr. Chairman.

Mr. HARDY. You are not sure whether it was taken from a stockpile?

Mr. HAMPTON. No, sir; I am not sure.

Mr. HARDY. Was it your testimony or someone else's this morning that this grew out of a visual inspection by somebody?

Mr. HAMPTON. That was my testimony.

Mr. HARDY. You are uncertain whether this was correct?

Mr. HAMPTON. Yes, sir. I did not take the sample, nor observe it.

Mr. HARDY. This morning you were rather specific about that. You told us that in the stockpile there had been some separations of material that was stockpiled, which led to some suspicion that it might not be proper material.

Mr. HAMPTON. Yes, sir.

Mr. HARDY. Didn't I understand your testimony this morning to be that this was the reason a sample was taken and tested?

Mr. HAMPTON. I think probably I said that. I really don't know everything that prompted this. This is one of the things, I am sure; yes, sir.

Mr. HARDY. Were you with the people from the Chief's office when this matter was discussed?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. Did you have anything to do with ordering a sample to be taken?

Mr. HAMPTON. Yes, sir. I am sure I did.

Mr. HARDY. Well, did you order it to be taken from the stockpile or from the pit? Or from where?

Mr. HAMPTON. That I cannot recall. I don't know where I ordered it taken from. I know that we asked the laboratory people to prepare a sample and take half of it and send half down to Ohio.

Mr. HARDY. Now, you say that American Aggregates transported it in their trucks, is that right?

Mr. HAMPTON. Not this particular sample, not this one.

Mr. HARDY. How was this one handled?

Mr. HAMPTON. I cannot definitely recall. But our normal procedure would be to send it down.

Mr. HARDY. Let's stick to what you can remember.

Mr. HAMPTON. Well, I don't know, sir. I don't know.

Mr. HARDY. Do I understand you were not present when the sample was taken?

Mr. HAMPTON. As far as I recall I was not.

Mr. HARDY. And this sample was divided, was it?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. Who made that separation? Who divided it?

Mr. HAMPTON. I don't know that, sir.

Mr. HARDY. I am going to want someone that can answer those questions. Do we have anybody here that can do it?

Mr. HAMPTON. I think Mr. Dzwonkiewiecz or Mr. Giacomini can do it.

Mr. HARDY. All right, sir.

Now, one half of this sample went to the Ohio River Division Laboratories, is that right?

Mr. HAMPTON. Yes.

Mr. HARDY. And the other part was run through the laboratory over which you had supervision, is that right?

Mr. HAMPTON. I believe it was the laboratory for which the resident engineer was responsible. But these people worked together.

Mr. HARDY. What people worked together?

Mr. HAMPTON. The lab people. There are two labs at the same base, one was the central testing laboratory and the other was the field laboratory at the job site.

Mr. HARDY. Which was yours?

Mr. HAMPTON. The central laboratory, in the back of the engineer's office. I don't know which laboratory prepared this sample or which laboratory tested it.

Mr. HARDY. What is meant by "Selfridge Project Laboratory?"

Mr. HAMPTON. That is the one on the job site.

Mr. HARDY. That is not yours?

Mr. HAMPTON. No, sir.

Mr. HARDY. Do you have any responsibility with respect to that one?

Mr. HAMPTON. Nothing more than this general supervision that I had over all the paving and paving inspectors as adviser and consultant.

Mr. HARDY. Did you have anything to do with the selection of personnel for it?

Mr. HAMPTON. I may have.

Mr. HARDY. What do you mean, you may have? You testified your personnel people selected the personnel. I know how that is done in Government, just as you do. Actually, you said you probably interviewed them. You know very well you interviewed them, didn't you?

Mr. HAMPTON. I don't think I interviewed all of them, sir.

Mr. HARDY. If you had a responsibility for them, it surprises me if you did not.

Mr. HAMPTON. We had many people hired that I never talked to at all.

Mr. HARDY. Well, I can understand how that might be with some people. But if you are going to have people running tests in a laboratory for which you have the responsibility, are you going to just let the personnel manager hire the people for you? Isn't it more usual in practice that you would interview an individual and if he was qualified and could meet whatever the requirements might be with respect to civil service, you would recommend him to the personnel people, wouldn't you?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. Isn't that the way you generally get people of that kind?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. Well, all right, now we are getting somewhere.

Mr. HAMPTON. There is one point I would like to make, though, Mr. Chairman. At this time the district was expanding tremendously, and there were a great number of people hired in a short time, and I did not interview all the people who worked in the laboratories or on the paving jobs.

Mr. HARDY. Well, that is understandable, I suppose. I don't know how many you had. But the laboratory had a responsibility with respect to conducting tests of this material, did it, or did it not?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. And so you had a direct responsibility for seeing, through your subordinates, that the material that went in there was proper?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. Now, did you make a comparison of the report on the sample that was analyzed by the Selfridge Project Laboratory and the sample analyzed by the Ohio River Division Laboratories?

Mr. HAMPTON. I am sure I did.

Mr. HARDY. Then you are aware of the discrepancies or the differences, perhaps I should say, between the findings of the two?

Mr. HAMPTON. I don't know what they are, right now.

Mr. HARDY. I will read them to you from a memorandum of July 14, from the Acting Chief, Construction Division, W. R. Kalbfleisch, to the Chief of the Soils Lab, U.S. Army Engineer Division, North Central. An interesting part of this is a tabulation of the results of the Selfridge Lab on its half of the sample. Nominal size, 1 inch: Chert, 1.6 percent. Soft particles, 2.2 percent. Nominal size, 2 inch: Chert, 0.7 percent. Soft particles, 1.9 percent.

Now, this analysis does not contain any computation or determination with respect to cherty limestone. It shows chert, an average in the two sizes, of 1.2 percent. The other half of this sample analyzed by Ohio River Division Laboratories in the 1-inch size shows chert, 2.2 percent; in the 2-inch size, 1.7 percent, cherty limestone in the 1-inch size, 1.4 percent, and in the 2-inch size, 3.5 percent.

If you averaged the chert and the cherty limestone in the Ohio River Laboratory test results, and if you weight the cherty limestone at 50–50, it still doesn't come within the total 5 percent tolerance, whereas the average of 1- and 2-inch sizes in the laboratory for which you had a responsibility gives you a total of 3.2 percent. If that didn't impress you I don't understand why.

Mr. HAMPTON. It did impress me.

Mr. HARDY. If the Ohio division laboratories was doing a proper job then your laboratory was doing a poor job. I can't come up with any other conclusion.

Mr. HAMPTON. There is one thing, Mr. Chairman, any tests that are conducted on aggregates, probably the greatest problem of all is selecting a representative sample. How do you know that this bag of material that you have which weighs 10 pounds represents a stockpile which may have 5,000 tons? And it is possible for a man to go around this pile and get two or three different samples, and they don't even resemble each other.

Mr. HARDY. That is an awfully weak reed for you to rest on. As an engineer you know that a single sample is supposed to be as representative as you can get it. Isn't it supposed to be so mixed that any part of it will come up with essentially the same test?

Mr. HAMPTON. No; this is not true.

Mr. HARDY. Here you take a single sample and the purpose was to get a comparison between the two laboratories' results.

Mr. HAMPTON. Yes.

Mr. HARDY. And you take a single sample and divide it, and come up with almost 100-percent difference.

Mr. GUBSER. Was it a single sample divided?

Mr. HARDY. Yes; it was a single sample divided.

Mr. GUBSER. Was it agitated or mixed in any way before it was divided?

Mr. HARDY. Was it?

Mr. HAMPTON. Was it mixed?

Mr. GUBSER. Yes.

Mr. HARDY. If an engineer didn't mix it, I declare you ought to go back to school. If a laboratory would take such a sample, if the Chief's office would permit this kind of thing to go on without trying to see that it was uniform, then someone in the Chief's office ought to be fired.

Mr. HAMPTON. Sir, this is one of the peculiarities of working with any aggregate. In spite of anything or everything you do, and there have been many papers written on this—the American Society of Testing Materials, in trying to establish a minimum size for a representative sample, has spent many years on it. They are people who are not in agreement on what size sample they should have, and they are still working on it, so far as I know.

Mr. HARDY. Well, you don't have to draw me a picture of that, Mr. Hampton. We all know there are bound to be variations. But how any engineer can sit there and try to argue this is a reasonable result is beyond me.

Mr. HAMPTON. I think the only way we could have said that we could draw this conclusion is if both parties had picked the same stones. This is one of the problems. It is quite easy to get segregation within a small pile of material.

Mr. HARDY. If you can come up with this much difference in a single sample that was split for the purpose of making a comparison, and get this difference in percentages between the two samples—I just have trouble with that.

Mr. GUBSER. Mr. Chairman.

Mr. HARDY. Yes.

Mr. GUBSER. Why did you decide that the sample from your laboratory met the standards? Why did you decide to accept that evidence, I mean.

Mr. HAMPTON. I did not decide that, sir. This shook us up, we had a conversation and I said: "What is the matter with these guys, let's get on the ball and see why these don't check." It wasn't a question of ignoring it. This shook up everybody, and we went back and did additional checking. We did not ignore this.

Mr. PIKE. If the gentleman would yield——

Mr. GUBSER. Yes.

Mr. PIKE. Did you take new samples?

Mr. HAMPTON. We took new samples to check in our own area.

Mr. PIKE. Did you run a comparative test with the Ohio River division laboratory?

Mr. HAMPTON. I don't remember, but I doubt it.

Mr. PIKE. Wouldn't that have been the reasonable thing to do, if you find your laboratory and their laboratory completely disagree,

and you say it shook you up, and you made new tests? What were the results of the new tests?

Mr. HAMPTON. I couldn't say.

Mr. HARDY. And you don't have any records to show you even made any, do you?

Mr. HAMPTON. I do not have personally.

Mr. HARDY. As far as you know there aren't any in existence?

Mr. HAMPTON. No, sir.

Mr. HARDY. Or whether there ever were any?

Mr. HAMPTON. No, sir.

Mr. PIKE. The only overt result of this shaking up was that someone, you and Mr. Sorensen, went back to the Ohio River laboratory and said: "Don't make us count all of this cherty limestone as chert. Allow us to only count 50 percent of it." Wasn't that the only tangible result of their test?

Mr. HAMPTON. I think probably that had been done before this check test. I may be mistaken there.

Mr. HARDY. Let me just get to this for a moment.

Mr. Zackrison, just sit where you are, and tell me this: Were you aware of this comparative test?

Mr. ZACKRISON. Not at that time.

Mr. HARDY. It was made as a result of someone from the north central division going out there, and you didn't know about it?

Mr. ZACKRISON. It wasn't from my division, sir, and I don't think it was reported to me, sir. I had no knowledge of this at that time, nor until the recent investigation.

Mr. HARDY. This was made—the tests were run in the Ohio River Division Laboratories on June 29, or this is dated June 29. It would indicate that someone from the Chicago office had been out there on that date or shortly before. Can we find out who was there and whether or not they followed up?

General Clarke, do you have any information on that?

General CLARKE. I can't add any information now. We will find out.

Mr. HARDY. Did anyone in your office know about this, General Clarke, that you know of?

General CLARKE. Not to my knowledge, until this matter came up.

Mr. HARDY. Is there anyone here from the Chief's office who has any knowledge of this?

General CLARKE. No, sir.

Mr. ZACKRISON. At that time, no, sir.

General CLARKE. No, sir.

Mr. HARDY. Mr. Narrow, did you know about the difference between these two test results?

Mr. NARROW. Yes, sir.

Mr. HARDY. What if anything did you do about it?

Mr. NARROW. Reported the results to the district.

Mr. HARDY. To whom in the district did you report it?

Mr. NARROW. I would like to ask Mr. Roberts.

Mr. ROBERTS. I have no idea to whom it actually got.

Mr. HARDY. Let's get back to the district engineer.

Did you know anything about it?

FURTHER TESTIMONY OF BRIG. GEN. PETER C. HYZER, DISTRICT ENGINEER, NEW ENGLAND DISTRICT

General HYZER. I don't recall this incident.

Mr. HARDY. This doesn't ring a bell with you? Someone from the Chicago division office orders a comparison to be made. The laboratory just testified they reported it to the district. You are the top man in the district, and you don't know anything about it?

General HYZER. I don't recall this particular incident. I know we had problems from time to time with chert. Previous to this——

Mr. HARDY. Do you know of any time there was a comparison made between the test of the laboratory in the field and the test run by the Ohio River Division Laboratories, General?

General HYZER. No, sir. I left the district soon after this happened. I do not remember.

Mr. HARDY. When?

General HYZER. Early August, between the 1st and the 10th, I would say.

Mr. HARDY. Well, that was a month after this happened.

General HYZER. No, sir. We rejected 40 carloads of material just prior to this, as I recall it.

Mr. HARDY. General, this brings into question this whole memorandum you sent me. You answered this question in this memorandum. I told you we were going to want someone that could respond.

General CLARKE. I think perhaps Mr. Davis is the best witness we have as to who was——

Mr. HARDY. If Mr. Davis can't come up with the answers to this, then whoever gathered this information for you ought to go back to school, because your answer in here is:

> As a result of these split samples NCD directed the district to watch field testing closely to insure strict enforcement of specifications.

Now, where is the end of that? To whom was it sent? Mr. Hampton apparently didn't know anything about it. And what was the followup? Do you have anyone that can answer that?

General CLARKE. Mr. Davis, sir, from the North Central Division.

Mr. HARDY. Come right up here and sit down, sir.

You have heard the question, Mr. Davis, and you know what the problem is.

FURTHER TESTIMONY OF WILSON L. DAVIS, CHIEF, SOILS AND MATERIALS BRANCH, CHICAGO DISTRICT, CORPS OF ENGINEERS

Mr. DAVIS. Yes, sir.

During the period from the 17th of June 1959 through the 19th of June 1959 Major Schraeder and Colonel Antonelli from the Chief's Office, field inspection group, made the rounds from Kinross to Wurtsmith and to Selfridge looking at the projects, and I accompanied them. It was on the 19th of June that we asked to have these samples selected and tested.

Mr. HARDY. When did you learn of the difference between the outcome of these tests?

Mr. DAVIS. I would like to refer to my notes.

Mr. REDDAN. Mr. Davis, you were just referring to a black book. What was that, sir?

Mr. DAVIS. That is a memorandum book, I carry them until they are filled up, and stick them in my desk.

Mr. REDDAN. Sort of a daily diary?

Mr. DAVIS. Yes, sir.

Mr. HARDY. That might be right helpful.

Mr. DAVIS. The first I knew of these results was when I read that letter that was just read a few moments ago to Mr. Hampton.

Mr. HARDY. What did you do? Was it your responsibility to do anything?

Mr. DAVIS. I did nothing.

On the 21st of July—the letter from the district reporting the results is dated the 14th of July 1959. On the 21st of July 1959 I called the district to determine what action was being taken.

Mr. HARDY. You talked to whom?

Mr. DAVIS. To a Mr. Benicki, who worked for Mr. Hampton. Mr. Hampton was out. Mr. Benicki said he was not familiar with the situation but he would call me back.

Mr. HARDY. Did he call you back?

Mr. DAVIS. Mr. Hampton called me back later in the day and said Mr. Roberts of the Ohio River Division Laboratories had agreed only 50 percent of the cherty limestone should be considered chert.

Mr. HARDY. This was the time at which that decision was made?

Mr. DAVIS. This is the time at which I was told about it. I don't know whether this was a recent decision or a previous one.

Mr. Hampton also said they were checking the aggregate every day at the aggregate plant, and said they were rejecting a large number of cars.

Mr. HARDY. Who is Mr. Roberts?

Mr. DAVIS. He is with the Ohio River Division Laboratories.

Mr. HARDY. What was he supposed to have done there, in your memorandum?

Mr. DAVIS. He was supposed to have said that 50 percent of the cherty limestone should be considered as chert.

Mr. HARDY. Mr. Roberts, are you back there somewhere? Will you stand up so we can hear you, for a moment?

Did you tell Mr. Hampton this?

TESTIMONY OF WILLIAM W. ROBERTS, CHIEF, PHYSICAL TESTS BRANCH, CONCRETE LABORATORY, OHIO RIVER DIVISION LABORATORIES, CORPS OF ENGINEERS

(A biography of Mr. Roberts appears in app. I, p. 201.)

Mr. ROBERTS. I recall that we had a conversation, I can't remember the date, concerning what cherty limestone was. And during the conversation it was kicked around as to the chert, actual chert content of the limestone, and I am sure we discussed the fact that it could range from a very small percentage up to maybe 30 or 40 or 50 percent in the various particles.

To the best of my knowledge a summary of the results of the conversation would be that of the cherty limestone—you could consider it to be about 50 percent chert on the safe average.

Mr. HARDY. You agreed with that?

Mr. ROBERTS. Agreed that would be the chert content of the cherty limestone.

Mr. HARDY. Did you agree to accept a 50-percent application of chert in order to achieve compliance with the specifications?

Mr. ROBERTS. As far as I recall that was not discussed.

Mr. HARDY. You were aware, were you not—I presume you participated in the statement—you were aware of the statement to the effect that physical and chemical properties and the effect of cherty limestone were the same as chert?

Mr. ROBERTS. I am aware of that.

Mr. HARDY. So the decision to consider only 50 percent of cherty limestone as chert would have the effect of increasing the amount of deleterious material insofar as its effect on the runway is concerned; is that right?

Mr. ROBERTS. If cherty limestone were to be considered as a deleterious material, then the entire particle should be considered to be a deleterious particle. This is more or less an academic question.

If the determination is to see about how much chert on the average would be in a cherty limestone, then I think that a safe average or safe estimate would be to consider it would be 50 percent.

Mr. HARDY. Are we interested in a determination as to actually the amount of chert involved here, or are we interested in the amount of deleterious material which can adversely affect the job?

Mr. ROBERTS. It could be considered either way.

Mr. HARDY. What is the Corps of Engineers concerned with? They are concerned with getting a proper job done. That is why you write specifications; isn't it?

Mr. ROBERTS. Right.

Mr. HARDY. So if the cherty limestone would have the same effect as chert, why should it have a different weight when determining the amount of it which is permissible?

Mr. ROBERTS. I didn't say it should have.

To the best of my knowledge, this phone call related only to what comprised cherty limestone.

Mr. HARDY. From the standpoint of the job——

Mr. ROBERTS. That was not in my consideration, that wasn't part of my——

Mr. HARDY. Isn't that the primary consideration in fixing permissible amounts of deleterious material?

Mr. ROBERTS. It would be. But not for a testing laboratory. A testing laboratory is there to provide answers to quality tests of the material.

Mr. GUBSER. What is standard practice in a testing laboratory? If part of a particle contains a deleterious material, is only the weight of that particle or the percentage of the volume of that particle weighed as a deleterious material, or is the particle considered deleterious?

Mr. ROBERTS. The entire particle.

Mr. GUBSER. How can this 50 percent business——

Mr. HARDY. It is obvious to me that the only objective was to find some way by which this pit could be cleared for use in that runway, and there was complete indifference to the effect cherty limestone would have on the final result.

Mr. GUBSER. Did Mr. Hampton use a different testing technique in not classifying the entire particle as deleterious?

Mr. ROBERTS. I know of no difference.

Mr. GUBSER. Could this account for the difference between the two laboratories?

Mr. HAMPTON. Our testing people were presumably using the same methods.

Mr. GUBSER. Let's not presume here. Testing is a very exact science. I am in the produce business. When we grade a piece of fruit, if there is a rotton spot on it the whole pear goes out, not part of it. I want to know what the exact science applied in testing is, that is applied in the trade here. Do you throw out the whole particle or just——

Mr. HAMPTON. There is no general agreement on this, sir.

Mr. GUBSER. Then why do you call yourselves testing laboratories if you have not achieved the simple ground rules that even we simple farmers have achieved in testing and grading? There are standards for testing, are there not?

Mr. ROBERTS. Yes; test methods are standard.

Mr. GUBSER. And you said the entire particle is classified as deleterious if it contains deleterious material.

Mr. ROBERTS. If you are speaking of shales, chert particles, laminates, which are definitely deleterious, even a limestone that has veins of shale through it, that would be considered deleterious. Cherty limestone is a deleterious material.

Mr. GUBSER. In the trade these contracts are written every single day and you all know there is a possibility of lawsuits, so you must, as businessmen in the trade, be exact in your specifications. In the trade when you submit to a testing laboratory, isn't there an established technique that is universal in a matter just like we are considering here?

Let's take this case. Isn't there a universal standard that is applied?

Mr. ROBERTS. So far as your cherty limestone is concerned?

Mr. GUBSER. Yes.

Mr. ROBERTS. I am not a petrographer. I couldn't answer that question. I think it would be considered a deleterious material.

Mr. GUBSER. The entire particle?

Mr. ROBERTS. Yes, sir.

Mr. GUBSER. You don't agree with that, Mr. Hampton?

Mr. HAMPTON. No, sir. There is disagreement in this field.

Mr. GUBSER. Your comparative tests don't mean a thing, because you are not adopting the same ground rules.

Mr. HAMPTON. Sir, we used the methods one of our men—we sent him down to ORD, he brought back samples of these various specimens and these things were used to train these people to pick, and the samples he got were from the laboratory in ORD, and this is what we were using for our standards. We attempted to duplicate ORD test procedures.

Mr. GUBSER. If I sell a carload of pears—you can tell that is my business—and I sell it as U.S. No. 1, an inspector in Schenectady, N.Y., or Atlanta, Ga., or San Francisco, Calif., will know what the standards are there.

Now, you can't tell me engineers don't have such standards for aggregate materials. I just can't believe it. And you are saying, Mr. Roberts, that there are such standards, and you are saying, Mr. Hampton, that there are not.

Mr. HAMPTON. There are some standards. But I am also saying that there is considerable disagreement.

Mr. GUBSER. Then there aren't standards.

Mr. HAMPTON. Well, I think the problem here is the questionable ones, what do you do with them? You pick up a stone, it may have two or three different minerals in it. What is it? How do you classify it? And there isn't general agreement on this.

Mr. GUBSER. Then in this situation here there was disagreement, and you chose to recommend that your version ought to be accepted, isn't that right?

Mr. HAMPTON. No, sir. We did not choose to do that. I am talking about this check test, now; we attempted to have our people duplicate the methods they were using at ORD. Actually, we are talking about results from a trained geologist, comparing those with some man who is not a trained geologist; he has been trained in visual field methods of picking deleterious material.

Mr. HARDY. I think if we may return—if you are through, Mr. Gubser.

Mr. GUBSER. Excuse me.

Mr. HARDY. Mr. Davis, you referred to this telephone conversation with Mr. Hampton. Could you tell us the date of that, again?

Mr. DAVIS. That was on the 21st of July.

Mr. HARDY. July 21. Can you tell us again just what was the discussion between you and Mr. Hampton?

Mr. DAVIS. Basically, I called up to see what action the district was taking with respect to this difference between the two tests. In other words, was suitable action being taken to correct the district tests to get them in line with ORD.

Mr. HARDY. It was during that conversation that a discussion took place on the question of the percentage of weight which would be applied to cherty limestone?

Mr. DAVIS. That is correct.

Mr. HARDY. And you agreed to permit the 50 percent weighting?

Mr. DAVIS. They told me Mr. Roberts had agreed to that, and I did not question it.

Mr. HARDY. Does a laboratory have a responsibility for agreeing to a change in specifications? Actually, this is a change in specifications, now, is it not? It constituted a change in specifications?

Mr. DAVIS. It is a matter of interpretation.

Mr. HARDY. It had the effect of increasing your tolerable limits; isn't that right, it increased the total?

Mr. DAVIS. It is a matter of interpretation.

Mr. GUBSER. Wasn't it a departure from the normal understanding in the trade of what deleterious material is? Wasn't it a departure?

Mr. HARDY. You had a total of 5 percent deleterious material and when you put a 50-percent weight on the cherty limestone, you increased the total to 6½ percent deleterious material; isn't that what it did?

Mr. DAVIS. No, sir; you would still be governed by your 3-percent total, sir.

Mr. HARDY. Of chert?

Mr. DAVIS. Yes.

Mr. HARDY. Suppose the total was still within the 3-percent chert, you still had a maximum of 5-percent total——

Mr. DAVIS. Yes, sir.

Mr. HARDY (continuing). And if you only gave a 50-percent weight to cherty limestone you could go up considerably above the 5 percent and still meet your total tolerance. I mean, forgetting the chert for the time being.

Mr. DAVIS. Again, it is a matter of interpretation as to whether your cherty limestone is 50-percent deleterious or 100 percent.

Mr. HARDY. Well, is it? Which is it?

Mr. DAVIS. Based on the information given to me at that time, I considered it was 50 percent.

Mr. HARDY. You heard Mr. Roberts' testimony a moment ago.

Mr. Roberts, did you know you were changing the specifications if you agreed to permit this kind of an interpretation?

Mr. ROBERTS. I did not.

Mr. HARDY. Thank you, sir.

This is about as mixed up a proposition as I have run across in a long time.

Mr. Davis, did you compare these two reports?

Mr. DAVIS. Yes, sir.

Mr. HARDY. Did it have any significance to you that the report made by the Selfridge project laboratory didn't make any determination with respect to cherty limestone?

Mr. DAVIS. I was concerned about the difference between the two reports, sir, that is the reason I called the district.

Mr. HARDY. On chert it found only an average of 1.2 percent. The Ohio River division found an average of 1.95. The Ohio River division found an average of almost 2½ percent cherty limestone. But Selfridge project laboratory didn't find a single, little, teeny bit. And that didn't really ring a bell?

Mr. DAVIS. Like I say, I called up because I was concerned about this, and they assured me they were taking steps to correct it.

Mr. HARDY. Did you suggest to anybody that they should follow this up and see to it that this material really did conform to the specifications?

Mr. DAVIS. That was the intent of my call.

Mr. HARDY. Did you make any analysis of the subsequent day-by-day reports of analyses by the Selfridge project laboratory?

Mr. DAVIS. I checked them at the time I was there on the 19th of June.

Mr. HARDY. On the 19th of June?

Mr. DAVIS. Yes, sir.

Mr. HARDY. That was before this sampling was done.

Mr. DAVIS. Yes, sir.

Mr. HARDY. Did you ever check them afterward?

Mr. DAVIS. Yes, sir; every time I was there.

Mr. HARDY. Did it occur to you there was a striking similarity between their continuing day-by-day tests and what they had found at the time of this split sample?

And I will make the observation that if it didn't, I don't know what the purpose was of having the sample split, to start with. Because we have the records here of the subsequent day-by-day tests by the Selfridge project laboratory following this split sample test, and if there is as much differentiation between those tests and the Ohio River analysis of half a sample, there is very little of this aggregate which would have been acceptable.

Mr. DAVIS. Another line of reasoning in this, sir, is that the samples were taken, as Mr. Hampton said, because there was a question about the appearance of the stockpiles.

Now, other times when I was at the job the stockpiles had improved, they looked better.

Mr. HARDY. I don't know how you could learn much about the stockpile by just looking at it. And I am not impressed particularly by this now, since Mr. Hampton doesn't even know whether the sample was taken out of the stockpile.

Mr. DAVIS. I asked that it be taken out of the stockpile. I don't know.

Mr. HARDY. You heard his testimony a minute ago, didn't you? He doesn't know where it was taken from.

Mr. DAVIS. I think he means he didn't personally take it.

Mr. HARDY. Well, he said that.

Mr. HAMPTON. That is what I meant. We were instructed to take it there, and I told my people to take it there. But you asked if I actually knew, and I didn't see it, and that is what I meant when I said I didn't know—I did not see it.

Mr. HARDY. I understand. I think it is clear. I have a little trouble understanding, Mr. Davis, why this didn't have any more significance to you, in view of this discrepancy. Maybe you have something to indicate that this was followed up later on, but you didn't give it to us. Do you have anything to indicate that anything was done to make sure that a proper aggregate was used?

I am not concerned just now with where it came from or who supplied it. We are concerned with a proper aggregate, which actually did meet the specifications.

Mr. DAVIS. We relied on the district to follow up on this, and I believe they did.

Mr. HARDY. Well, the district engineer didn't know anything about it. If he ever did, he has forgotten. Apparently it didn't impress him. Wouldn't you have thought this was a matter of sufficient gravity that at least the district engineer should be aware of it? You are representing the division, and you did have a direct responsibility for the district's performance, did you not?

Mr. DAVIS. Yes, sir.

Mr. HARDY. You took it up with Mr. Hampton, you went no further, and then you didn't follow up; is that right?

Mr. DAVIS. I did follow up. I called up to see what was being done about it, and they were checking the cars every day.

Mr. HARDY. By the same methods that they had run heretofore?

Mr. DAVIS. Presumably they were being more careful.

Mr. HARDY. What basis do you have to suppose that they did any better job than they did on this half a sample?

Mr. DAVIS. These samples were shown to them, and if they realized that there was that difference, they should be——

Mr. HARDY. I am not talking about what "should be." I am talking about what you did. Did you do anything to make a determination as to whether or not they were actually performing their job properly?

Mr. DAVIS. If you mean by a check, I did not.

Mr. HARDY. I don't care how you did it, if you had any way of knowing. Did you have any report on any steps that were taken to improve their techniques or to improve the validity of their analyses?

Mr. DAVIS. Mr. Hampton and I discussed it on the 21st, and I was satisfied with what he told me of the action.

Mr. HARDY. And if Mr. Hampton let you down, you never found it out? I don't know whether he did or not. I am saying if he did. This doesn't look very good to me. Frankly, his performance doesn't stand up very well, and neither does yours, from my evaluation up to now. And I am a little surprised that the General didn't know anything about it. He had a responsibility in this.

FURTHER TESTIMONY OF ELMER A. N. SORENSEN, CHIEF, CONSTRUCTION-OPERATIONS DIVISION, DETROIT DISTRICT, CORPS OF ENGINEERS

Mr. SORENSEN. Mr. Chairman, I seem to have the most retentive memory here, for some reason.

Mr. HARDY. Well, I am glad someone has.

Mr. SORENSEN. In order not to belabor this issue, Mr. Chairman, I would like to explain—it has been explained many times—that the reports that were at one time available during the progress of this job some 6 years ago are no longer available.

Mr. HARDY. Well, now, Mr. Sorensen, I haven't found anybody that has given us any direct testimony that they ever did exist.

Mr. SORENSEN. Sir, I can assure you that they did exist.

The CHAIRMAN. Did you see them?

Mr. SORENSEN. Yes, sir.

Mr. HARDY. Daily reports?

Mr. SORENSEN. Not daily. I didn't look at them daily, no, sir. I would say this, sir, that the report will show that when we talk about a May 1959 rejection of some—of a shipment of some 40 carloads, that as a result of this we took steps to send people to the pit—not to the batch plant, but to the American Aggregate source. Daily checks were made of every car that left that place.

Mr. HARDY. Do you have any evidence to support that?

Mr. SORENSEN. Sir, I have mentioned before that we have none. This being 5 to 6 years ago, apparently they have been retired. I have asked GAO and Mr. Woods (and obviously I have not checked with American Aggregates, or Western) whether those companies' reports would be available, but I asked it because—I am saying this facetiously—maybe they weren't as conscientious, as we were, of records retirement. And sometimes many pieces of paper are left in other files. As Mr. Woods can verify, in my own case when, on the 28th of February, it was called to my attention to verify an endorsement dated December 14, 1962. In researching the files to answer this question for one of the questioners—I think Mr. Woods asked it—I found attached to that report some indication of some prior reports.

I am interposing this on the assumption that there sometimes become available through other compilations of records the same type of information that was duplicated, and maybe it was in a stack that deep [indicating]. I don't know—obviously I wouldn't have checked with American Aggregates since this investigation was then underway or with Western, but I had wondered whether there might have been records still available. Because I know, sir, that there were checks made of carload lots shipped, before they were transshipped, and the reason for the check was that there was no sense in shipping material from the pit to the jobsite by rail if after it arrived at the jobsite it would be rejected. So there has to have been—there was a record of rejections at the pit.

Mr. HARDY. Unless we have something in the way of records to give us a little better indication that proper testing jobs were done, it still doesn't mean anything; does it?

Mr. SORENSEN. It might be well to explain—I am not a petrographer. I am a civil engineer. But sitting back there listening to some of this, I get the impression that Mr. Gubser thinks the two tests that were run are identical tests by each laboratory. And if such is the feeling in this room, I would like to dispel this right now. The tests that were run initially were tests based on an analysis of the initial material through petrographic means. The testing done by the field groups were visual checks.

Mr. GUBSER. Let me ask—if they weren't tested by the same techniques, why were you alarmed at the difference? I mean, I presume you are offering as an explanation of the wide disparity of the findings from these tests the fact that different techniques were applied. OK, I will accept that. Then why were you alarmed about it?

Mr. SORENSEN. I can't speak for Mr. Davis.

Mr. GUBSER. Could I ask Mr. Davis at this point?

Mr. SORENSEN. It is true—incidentally, I believe that sometime in July—I wasn't in the district, I was at Mayo Clinic, but I recall this report, and Mr. Hampton and I discussed the differences. And I am sure that as a result our people were again cautioned to make more careful field checks of this material. And, mind you, this is a visual check of material.

Mr. GUBSER. But you are saying to me that trying to compare these two tests is like trying to compare apples and oranges; aren't you?

Mr. SORENSEN. No, sir.

Mr. GUBSER. What are you saying, then?

Mr. SORENSEN. I am saying this is not a complete check. To have run a petrographic analysis of the type that the laboratory ran initially on this, the job may not have been done for another 2 years, sir, because it is impossible to run a petrographic analysis in the time that would be needed to run it and still get this material delivered. And it is not normally done, sir.

Mr. GUBSER. Can you reasonably expect that the two techniques should produce on an identical sample somewhat the same results?

Mr. SORENSEN. The word "somewhat" is where I——

Mr. GUBSER. Well, by "somewhat" I don't mean 100 percent variation like we have here.

Mr. HARDY. Let me get in on this. You are talking about the difference, and I appreciate the difference in the petrographic analysis made at the division laboratory and the procedures that would be followed in the field. But I am impressed by two specific things about this, in addition to the wide discrepancies between the two, and one of them is that the project laboratory found no cherty limestone at all.

Mr. SORENSEN. They were not checking for cherty limestone, as such, sir.

Mr. HARDY. Wasn't it supposed to be a deleterious material?

Mr. SORENSEN. In order to try not to belabor the point, sir, cherty limestone—and it has been repeated numerous times—cherty limestone, as such, was not listed as one of the deleterious materials in this specification; it was "chert."

Mr. HARDY. What is the date of this laboratory report that had the statement about the characteristics of cherty limestone and chert being the same?

Mr. SORENSEN. That was the 18th of August, sir.

Mr. HARDY. That was a couple weeks later?

Mr. SORENSEN. This was several weeks after the award of the contract.

Sir, there is a difference between laboratory analysis and contract compliance. The construction division—Mr. Hampton's and my group are concerned with contract compliance with the specification as written, and not—I say this advisedly—I want the understanding made that—not that we are talking about violation of other criteria, but after an award of a contract the construction divisions of the district offices are charged with the administration of contracts and compliance with contracts. That specification lists deleterious materials, of which one is chert, and soft particles, and so forth.

Mr. HARDY. The contractor, of course, has the right to demand that he be permitted to deliver materials that conform to the contract.

Mr. SORENSEN. Yes, sir.

Mr. HARDY. I understand that, and there is no quarrel about that. But, at the same time, certainly you ought to be able to detect materials which do not meet the specifications of the contract. And I get now to the second point that impresses me in these two reports. You said if you had to send these samples to the Ohio River division laboratory right along, the job wouldn't be finished for—I don't know how long.

Mr. SORENSEN. Mr. Chairman, I meant that if the same day-to-day—if the daily sampling would have to be done, it would be an impossibility.

Mr. HARDY. I think I can appreciate that problem, because of the amount of time and effort, that would be placed on the Ohio River Division Laboratory. However, I notice the Ohio River division made its analysis and reported it apparently on June 29, whereas the project laboratory report is dated July 14. So it took them 2 weeks longer to come up with a report, apparently.

Mr. SORENSEN. No, I don't believe so. I believe the letter sent to the division was the result, and I don't believe there was that much time differential between the two. One was just a confirmation.

Mr. HARDY. That is the only thing that shows in the files, and presumably the samples were delivered the same day.

Mr. SORENSEN. I think the record will show that the sample—pardon me, at this stage possibly not. But the work done at the laboratory, the Selfridge Laboratory, would have taken much less time than the petrographic that was run in the Ohio River division.

Mr. HARDY. I would think so. But the record that we have before us doesn't bear that out.

Mr. SORENSEN. I can appreciate that.

Mr. HARDY. And I don't want to belabor this much longer, we have spent a great deal of time on it. But this is important. You call attention to the difference in the two types of tests, but if there is going to be almost 100 percent difference by one method versus the other, if by one method the material is acceptable and if by the other method by a slight margin it is not acceptable——

Mr. SORENSEN. I would protest the statement that there is 100 percent difference.

Mr. HARDY. 3.2 versus 5.7, on the average. You figure it out. It is not quite 100 percent difference, no. But I didn't use the 100-percent figure. I said by the Ohio River division testing it is 5.7, which is seven-tenths of a percent above the maximum tolerable limit. On the other one it is 3.2, which is well below the total of 5 percent. Do you understand the point I am making?

Mr. SORENSEN. Yes, sir. Because of the fact that in the cherty limestone that we have discussed at length here the division laboratory included several more percentages—I don't have it in front of me.

Mr. HARDY. I have it. They do. They show a 2.45 percentage for cherty limestone, average.

Mr. SORENSEN. Yes, sir. The difference in the—I might call attention to something else. The soft particle percentage is different, also.

Mr. HARDY. Yes, I see that. I don't know what the full significance of that is. Actually, the district office—the project office—found a little higher soft particles content than did the Ohio River Division Laboratory.

Mr. SORENSEN. Yes, sir. This is some of the variation, as Mr. Hampton, I think, explained, in the check methods used.

Mr. GUBSER. Mr. Chairman, I am very curious about the difference in dates on which these reports were submitted and the fact the project field office was 2 or 3 weeks later. Did the project field office have the results of the Ohio River testing laboratory in their hands before their report came out?

Mr. SORENSEN. I think—and I am speaking again—I believe at the time this was sent in I was not in the district office, I was elsewhere.

Mr. GUBSER. Perhaps Mr. Hampton can tell us.

Mr. SORENSEN. I believe, and I recall discussing this at the time, that the tests that were run were run immediately, and I think the record will show, though I don't have the letter in front of me—didn't that letter also transmit data from the Ohio River division laboratory report?

Mr. HAMPTON. Transmitted both of them.

Mr. SORENSEN. In other words, the second one wasn't transmitted until a copy of the record from the Ohio River Division Laboratory was attached to it. That is the reason for the apparent difference in timelag in the sample we tested. We waited until the laboratory

sample results came back from the Ohio River Division Laboratory, and sent them both together. In this case you can see if we wanted to "doctor" this we would have done it at that time, and we would have lowered them.

Mr. GUBSER. Did you consider the determination that 50 percent of the cherty limestone would be considered as deleterious and—did you consider that a departure from usual procedures?

Mr. DAVIS. Well——

Mr. GUBSER. Or "usual practices," I will say.

Mr. DAVIS. Again, I think it depends on the specifications, sir.

Mr. GUBSER. I will ask you that: Did you consider this a departure from the specifications in the invitation to bid?

Mr. DAVIS. I think it is a proper interpretation for these specifications—if that answers your question.

Mr. GUBSER. You did not consider this, then, to be a change?

Mr. DAVIS. No, sir.

Mr. GUBSER. Well, is this true, that Mr. Hampton had asked of you whether or not 50 percent of it could be—only 50 percent of it could be called deleterious material?

Mr. DAVIS. I have no recollection. You are talking now about back at the time——

Mr. GUBSER. Isn't it true that this pit—Oxford pit—had been rejected?

Mr. DAVIS. That is right.

Mr. GUBSER. And it wasn't accepted until this determination that 50 percent of the cherty limestone—that only 50 percent of the cherty limestone would be considered as deleterious material?

Mr. DAVIS. I was not in on that, sir.

Mr. GUBSER. Who can answer that? That is a question that is susceptible of a "Yes" or "No."

Mr. SORENSEN. I think either of us—I can answer that.

Mr. GUBSER. I suggest, sir, unless it unduly restricts you, that you answer it "Yes" or "No."

Mr. SORENSEN. I have no qualms, sir, about answering the question——

Mr. GUBSER. I don't want to unduly restrict you.

Mr. SORENSEN. Maybe you could rephrase the question, sir, and I can give you a direct answer.

Mr. GUBSER. All right, sir. Was the Oxford pit rejected at one time? I will ask that first.

Mr. SORENSEN. OK, I will answer it this way: The word "rejected" is not——

Mr. GUBSER. As a source.

Mr. SORENSON. It was removed from the list of approved sources. There is a difference.

Mr. GUBSER. It was not approved, then?

Mr. SORENSEN. That is right, as an approved source for bidding purposes.

Mr. GUBSER. I will accept that. It was later approved?

Mr. SORENSEN. Yes, sir.

Mr. GUBSER. The reason it was approved was the fact that this determination was made that the limestone—that only 50 percent of the limestone chert would be considered deleterious?

Mr. SORENSEN. I have to go back just a wee bit. In this addendum No. 2, wherein the American Aggregates' Oxford pit was removed from the approved list, was a statement which was read—I don't know whether you were here, sir, when that was read—that also material from any other source meeting the specifications could be used. In other words, it was a statement that material from Timbuktu could be used if it met the specifications.

Mr. GUBSER. In other words, the specifications were exact?

Mr. SORENSEN. I am not sure——

Mr. GUBSER. Didn't you say other sources which met the specifications?

Mr. SORENSEN. Yes, sir; that is correct.

Mr. GUBSER. Did those specifications allow for this 50-percent allowance of cherty limestone?

Mr. SORENSEN. No; there was no mention of cherty limestone in the specifications. Chert was the material, was considered one of the constituents, and the limit was 3 percent, and a 5-percent total including the chert.

Mr. GUBSER. Why wasn't the Oxford pit on the approved list?

Mr. SORENSEN. Because checks indicated that it was one of the several marginal ones, the data indicated that the chert material was beyond the specification limits. This is why it was taken off the approved list. No question whatsoever about that.

Mr. GUBSER. Well, then, I am going to have to put a yes or no answer—put one in here for you—by repeating the question, and answering it, and inviting you to file a demurrer if you wish.

But I ask: Was the reason the Oxford pit was finally accepted or placed on the approved list the fact that this determination was made that only 50 percent of the limestone chert would be considered as a deleterious material?

Mr. SORENSEN. Yes, sir.

Mr. GUBSER. I presume that you would answer that "Yes."

Now, I would like to hear you.

Mr. SORENSEN. Fifty percent of the cherty limestone was considered chert; yes, sir.

Mr. GUBSER. And this is the reason—this is the reason that the Oxford pit was finally placed on the approved list for this job?

Mr. SORENSEN. Well, let me correct a statement. There was not such a thing as an approved list, as far as this contract was concerned, once the contract was awarded.

Mr. GUBSER. All right. But this is the reason you made the determination that this material could be taken from the Oxford pit for this job?

Mr. SORENSEN. Yes, sir. Yes, sir.

Mr. GUBSER. I want to know—this is a very basic decision; if you will pardon the language, it is the guts of the whole thing.

Mr. SORENSEN. Yes, sir.

Mr. GUBSER. I want to know who made that decision. One of you ought to know.

Mr. Davis, did you make it?

Mr. DAVIS. No, sir.

Mr. HARDY. Mr. Hampton, you made it, didn't you?

Mr. HAMPTON. I made the recommendation; yes, sir. There were some other——

Mr. GUBSER. To whom did you make the recommendation?

Mr. HAMPTON. May I add something to your other comments? There were three other reasons, which do not show up on the test report, probably.

Mr. GUBSER. Before you go into those, may I say that, granting these three other reasons without acceptance of the standard by which only 50 percent of cherty limestone is deleterious, this pit wouldn't have been used; isn't that right?

Mr. HAMPTON. Yes, sir.

Mr. GUBSER. OK; then the three other reasons are strictly immaterial, if this one reason would have still kept that pit from qualifying for use on this job, that is all we are discussing here right now.

Now, if you still think that your case requires the statement of the other three, I will be glad to listen to them. But I think they are immaterial.

Mr. HAMPTON. I think it might be well to have the record show what other steps were taken.

Mr. GUBSER. All right, sir. Go ahead.

Mr. HAMPTON. No. 1. At the pit they moved their equipment to a new section. That is No. 1.

No. 2. They slowed down their production by a third to allow more retention time in the scrubber, which has the effect of breaking up deleterious materials, and then they are removed from the final product.

No. 3. They added a considerable amount—I think someplace 35 or 30 percent, of crushed materials to the final product. Now, this has the effect of decreasing the total chert. Because in this deposit chert is usually not found in the large particles, so by crushing the large particles and adding these to the final product, then the total deleterious material is reduced, the percentage.

Mr. GUBSER. But to repeat what you said a moment ago, and I hope fairly, even with these three added factors, this pit would still not have been used for this contract except for the 50-percent determination?

Mr. HAMPTON. I don't think that is true—well, it is true, but these other things entered into it. We are not knowingly going to approve a pit on the results of one test.

Mr. GUBSER. Well, I might say this, now: Were these three changes you spoke of before these 40 cars were rejected?

Mr. HAMPTON. Yes, sir.

Mr. GUBSER. This makes it even worse, because you had one test which was 3.2, in your project field office. You had your Ohio River lab test, which brought it up to 5.7, 0.7 of a percentage point over the tolerance. This was before these changes were made, and then you still have to reject 40 cars. You must have.

Mr. HAMPTON. That is the nature of a glacial gravel deposit. It varies from one area to another. Maybe nature put a little more chert here than she did here. When you work in that area you get higher chert, you check it, and if it is higher you reject it.

Mr. GUBSER. My point is that you knowingly went into a very delicate borderline situation, and the fact that it is a borderline situation was borne out by the fact that even after you took these three added countermeasures you still came up with reject after reject, and considerable difficulty.

Mr. SORENSEN. We realize this, sir, because of that fact the material would have to be watched.

Mr. GUBSER. Do you know who made the decision to apply the 50-percent rule, to allow it, Mr. Hampton? You recommended it, but——

Mr. HAMPTON. Yes, sir.

Mr. GUBSER. But who made the decision?

Mr. HAMPTON. I don't know that it was an individual decision. If it were an individual decision I had no authority to make it.

Mr. GUBSER. To whom did you make your recommendation?

Mr. HAMPTON. I would have made my recommendation to Mr. Sorensen.

Mr. GUBSER. Are you the Mr. Sorensen?

Mr. SORENSEN. Yes, sir.

Mr. GUBSER. Did you make the decision?

Mr. SORENSEN. I was at the time General Hyzer's authorized contract representative, sir, and this decision, as Mr. Hampton points out, wouldn't have been a one-man decision. It was a decision based on what we felt was good engineering judgment, not by one person or two people, but by numbers, including, I am sure, General Hyzer.

Mr. GUBSER. Do you recall any dissent?

Mr. SORENSEN. None to my knowledge, sir.

This sounds like a statement "Have you stopped beating your wife?" But the point is, though I don't wish to belabor it, but we were forced into compliance with a contract and interpretation of a contract, and this may sound facetious, but after considerable discussion we made the decision, and we felt at the time, and after—I still feel that at the time the decision was sound. Naturally, I would not make the same one today after all this. But if I would project myself back in time, if I had to do it again, I feel——

Mr. GUBSER. We would all like to have 20–20 hindsight.

Mr. SORENSEN. Yes, sir. I don't have 20–20 hindsight glasses.

Mr. DAVIS. May I make one statement with respect to this?

I believe there has been a misunderstanding here, and that is as to the statement that if we did not take 50 percent of the cherty limestone as deleterious, that the samples on the 18th of August would not have passed.

Mr. HARDY. I did not refer to the 18th of August.

Mr. GUBSER. No, it was June and July.

Mr. DAVIS. The source was approved on the basis of the 18th of August samples, sir.

Mr. HARDY. Actually, you——

Mr. GUBSER. What did they show?

Mr. DAVIS. If you had considered the cherty limestone as 100-percent deleterious that would show you a total deleterious count of 4.45 percent.

Mr. GUBSER. That was the project field office?

Mr. DAVIS. No, this was from the ORD lab.

Mr. HARDY. How about the cherts?

Mr. DAVIS. If you take the chert as separate chert, as listed, chalcedonic chert, it would be 1.6.

Mr. REDDAN. That would include your cherty limestone, would it not?

Mr. DAVIS. You mean, now, as 100-percent chert?

Mr. HARDY. Yes.

Mr. REDDAN. Yes.

Mr. DAVIS. If you make it 100-percent chert you are over.

Mr. HARDY. And that is what the ORD lab recommended?

Mr. DAVIS. Yes, but I thought there had been a misunderstanding here.

Mr. HARDY. I don't think we misunderstand it.

In your specifications when you came up with a total of 5 percent for all deleterious, does that preclude the fact that you might have delivered some aggregate that had deleterious materials other than those listed?

Mr. DAVIS. Are you asking me, sir?

Mr. HARDY. Yes. I am asking anyone that can answer me.

Mr. DAVIS. My interpretation of that is that it is 5 percent total of the "above listed," and if you were anticipating other deleterious materials——

Mr. HARDY. I don't care whether you anticipated it or not. If someone brought in information that you received a carload of aggregate that had other deleterious material in it, material that was objectionable, you couldn't throw it out, because it wasn't listed, is that right?

Mr. DAVIS. That is my understanding. If it was bad enough you would have to come to some agreement.

Mr. HARDY. Why couldn't you throw it out if it didn't meet the specifications? There are a lot of things that may have shown up, other things, in aggregate. And you want to tell the committee you are bound to the specifications with respect to the specific items that are listed?

Mr. DAVIS. Yes, sir.

Mr. HARDY. Even though you get a carload that might have some other material that you hadn't anticipated at all, you couldn't throw it out, because it wasn't specifically listed?

Mr. DAVIS. That is my interpretation.

Mr. HARDY. Well, boy, you better change your specifications.

Mr. Zackrison, maybe you better take a look at that.

Mr. ZACKRISON. We are doing that, sir.

Mr. GUBSER. By comparison, politics is an exact science. We don't have slide rules but we can certainly be more definite than some of this.

Mr. HARDY. Well, I think we have established the fact that insofar as the sample of June 29 is concerned, if you had given 100 percent weight to cherty limesone as deleterious, the material from the pit would not have been acceptable.

Insofar as the August tests were concerned, if you had followed the recommendation of the Ohio River division laboratory and classified cherty limestone as chert, it would not have been acceptable. Nevertheless, by this kind of operation and agreement a device was found which made this pit acceptable. And especially since the original invitation had eliminated this pit, there was no obligaton on the

corps to accept material from a questionable source; and certainly it made it incumbent on everybody who had anything to do with the administration of this contract to see to it that the material that was delivered actually did meet specifications.

Mr. SORENSEN. Well, sir, we felt that it did meet the specifications.

Mr. HARDY. Well, that is a self-serving statement.

Mr. SORENSEN. Yes, sir.

Mr. HARDY. And the record I have seen doesn't indicate to me that very careful scrutiny was kept on a day-to-day basis to see that an objecive analysis was made.

I think for the moment we will excuse you gentlemen.

Do you want Mr. Keller for a few moments?

Mr. REDDAN. Yes, sir.

Mr. HARDY. To accommodate him—I understand he needs to get home to his 3-day-old son, Paul Joseph Keller.

Will you give the reporter your name and address, sir?

TESTIMONY OF DANIEL J. KELLER, GEOLOGIST, SOIL AND FOUNDATIONS LABORATORY, OHIO RIVER DIVISION LABORATORIES, CORPS OF ENGINEERS

(A biography of Mr. Keller appears in app. I, p. 202.)

Mr. KELLER. Daniel J. Keller, Ohio River Division Laboratories, Cincinnati.

Mr. REDDAN. Where are you employed, sir?

Mr. KELLER. I am employed as a geologist at the Ohio River Division Laboratory, Cincinnati, Ohio.

Mr. REDDAN. How long have you been so employed?

Mr. KELLER. About 7 years.

Mr. REDDAN. Are you an engineer by profession?

Mr. KELLER. No, I am a geologist by profession.

Mr. REDDAN. Where did you go to school?

Mr. KELLER. University of Cincinnati.

Mr. REDDAN. Do you have any postgraduate work?

Mr. KELLER. Two years.

Mr. HARDY. Then you went with the Ohio River Division Laboratories?

Mr. KELLER. Yes.

Mr. HARDY. Did you prepare the petrographic report contained in this report of August 18, 1958, on the American Aggregates Corp. Oxford pit sample?

Mr. KELLER. Yes, sir.

Mr. REDDAN. Do you have a copy of that with you, sir?

Mr. KELLER. No. I can get one right away.

Mr. REDDAN. Well, if you have one available.

At the bottom of the first page, Mr. Keller, there is a line item listing of the contents of the sample. Did you prepare that, sir?

Mr. KELLER. Yes, sir.

Mr. REDDAN. There was a separation of cherty limestone and chert. Did you do that on your own initiative or did you have instructions?

Mr. KELLER. I did that on my own initiative.

Mr. REDDAN. On the second page there is a paragraph we have referred to, headed "Cherty Limestone." Did you write that, sir?

Mr. KELLER. Yes, sir.

Mr. REDDAN. Could you tell the committee what you meant, why you included that paragraph, and what you meant by the last sentence?

Mr. KELLER. Well, the statement reads that "These particles of cherty limestone contain an appreciable and variable amount of chalcedonic chert as replacement of fossiline material and/or matrix." And I meant just what I have written here.

However, I will admit that it is not too definite in its definition: "an appreciable," that is questionable; and "variable," well, that is not questionable, though the limits are. Then I said "The greatest portion of the aggregate particle is, however, composed of carbonate," and for this reason, because carbonate is the predominant rock constituent, it is classified as "limestone," with the adjective "cherty."

And the following sentence: "It is common belief at this laboratory that cherty stone"—or I could have said "cherty limestone," but cherty stone in general is our common belief—"should be considered as having the same physical and chemical properties as massive chert."

Now, when I refer to "massive chert" I am speaking of a particle which is a massive or a nearly whole particle of chert, consisting of chert.

Mr. HARDY. What is chert, Mr. Keller?

Mr. KELLER. Chert is a rock composed of siliceous minerals, quartz, chalcedony, and opaline silica, or combinations of these, which may contain a variable amount of water. It is a very fine grained siliceous rock. It is essentially SiO_2, but when it contains opal it contains a certain amount of water, and it commonly contains chalcedonic or opaline material, and thus has a lower specific gravity than a typical SiO_2, or quartz or quartz rock.

Mr. HARDY. What is the chemical nature of cherty limestone?

Mr. KELLER. It is simply finely divided microcrystalline and microfibrous silica, essentially a silica rock, but has a different atomic arrangement than quartz, it has different optical properties under the microscope, and has different physical megascopic optical properties.

Mr. HARDY. Is it a carbonate that contains water?

Mr. KELLER. It is a silicate and it could contain some attached water. It does not have to contain water.

Mr. HARDY. Since it is a silicate it does have a good many of the chemical properties which apply to chert, then, if that is also a silicate?

Mr. KELLER. I am speaking of chert here, sir.

Mr. HARDY. What is cherty limestone? Is it a mixture, or what?

Mr. KELLER. It can occur in many, many forms. Cherty limestone is limestone which contains chert.

Mr. HARDY. It is a mixture?

Mr. KELLER. A mixture of limestone and chert, and the chert may be present in the form of nodules or lenses or as irregular patches. The silica may be disseminated in irregular globs or patches through the calcareous matrix of the rock.

Mr. GUBSER. They are clearly identifiable under a microscope, aren't they, or even to the naked eye?

Mr. KELLER. It is sometimes difficult to identify by the naked eye.

Mr. GUBSER. But they are not compounded chemically?

Mr. KELLER. No, they are not. They are associated with each other, but usually one—what commonly happens is that the silica after the rock is formed enters the rock unit and replaces either selectively or wholly the carbonate rock. If it replaces it wholly or nearly wholly the carbonate rock turns into what we call chert, and this is a very wide-encompassing word.

Mr. GUBSER. If it were molten or liquid the chert would be in suspension, assuming it hadn't changed chemically.

Mr. HARDY. If it were molten it would have changed.

Mr. KELLER. You could have here a primary chert, and some petrographers and geologists think there are primary cherts. We argue, like lawyers, and engineers, and Congressmen.

Mr. GUBSER. If I look like I understand you, looks are deceiving.

Mr. KELLER. You may have primary or secondary chert or alterations or combinations of both.

Mr. HARDY. In any event, when you put them in a concrete mixture they all have the same effect?

Mr. KELLER. The statement was made here, because of our experience—not wholly mine, in fact very little of this experience was mine directly, but my superiors—particularly, the chief geologist at the laboratory under whom I work, has been in the business about 25 years, and he has observed cherty limestone which has caused deterioration. I have seen this, but on a much more limited scale.

So, the portion of the chert within the limestone could react chemically as a massive chert would react. Or it could react physically as a massive chert would react. However, its degree would depend on many things. It would depend, first, on the amount of its presence, and secondly it could depend on many other chemical and physical features.

Mr. HARDY. On the structure of the surrounding rock?

Mr. KELLER. Right, sir; and also where it is within the concrete, or on moisture, temperature, any other features.

Mr. HARDY. You have helped me a lot. I hope you will talk to the people in the district engineer's office, so they will understand it, too.

Mr. Reddan.

Mr. REDDAN. The last sentence in the report says "It should be noted that any blending of material from natural deposits will require frequent inspections."

What were you trying to say to the district in that sentence?

Mr. KELLER. Sir, I had noticed in the previous analyses of material from this source that there was considerable variation in the chert content and to some degree in the content of other deleterious constituents, and as was brought out before by other—by some of the engineers, this is a somewhat variable deposit. My analyses indicated this.

I knew at the time that the chert was a problem. I don't know if I had any direct knowledge, but there was a little talk about this. And so if we have a sample here that contains a certain percentage of chert we want to make sure that if it is approaching the limit it does not exceed it.

Mr. REDDAN. What sort of an inspection would it require to keep this under control?

Mr. KELLER. Well, some sort of inspection on the project to determine these deleterious constituents and their amounts.

Mr. REDDAN. You have been present here during the hearings, and you have heard that they had field inspections?

Mr. KELLER. Yes.

Mr. REDDAN. Would field inspection meet your requirements there?

Mr. KELLER. Yes; it could be done in the field.

Mr. REDDAN. What sort of training would a field inspector have to have in order to perform his job? What background?

Mr. KELLER. He would have to have a knowledge of the rock constituents. He would have to be able to identify them, and he would have to have a background in rock identification, or specifically, if he were looking for specific items, he would have to have a fairly good knowledge of the nature of these items, how they occur, their degree of variability, and variation in physical properties, and the like.

Mr. REDDAN. Could you give the committee any idea of what would be required in the nature of education and background to suitably carry out this inspection?

Mr. KELLER. Well, this——

Mr. REDDAN. Could you train a man to do this in 2 days, say, without any previous experience?

Mr. KELLAR. Well, in 2 days a man could be trained to pick chert. Now, whether or not he would pick all of it or could pick all of it would depend on how thorough his training was.

Mr. HARDY. Anything further?

Mr. REDDAN. No.

Mr. HARDY. Anything further, Mr. Gubser?

Mr. GUBSER. Just one quick question.

You do a lot of testing and analyses that are for the purpose of determining whether certain materials meet specifications, do you not?

Mr. KELLER. Yes, sir; about 300 a year; yes, sir.

Mr. GUBSER. Are you familiar with a standard that is usually applied with respect to deleterious materials in aggregate for paving purposes?

Mr. KELLER. We have certain standards. But, unlike——

Mr. GUBSER. Does the trade have a standard?

Mr. KELLER. The petrographic trade has standards, yes; the geologic trade in general. They are not as rigid perhaps as the standards of the doctor you mentioned this morning, or the chemist. They are not that absolute, because we are not dealing with absolute, specific items. There are certain degrees of variability. But there are certain working standards under which we operate.

Mr. GUBSER. Are they, as these other gentlemen testified, subject to interpretation on each individual job?

Mr. KELLER. There is a certain degree of interpretation necessary; yes.

Mr. GUBSER. Would this interpretation, in your opinion, include the question of whether cherty limestone may or may not be considered as deleterious material in whole or in part?

Mr. KELLER. Well——

Mr. GUBSER. I am speaking of the 50-percent rule we have discussed here.

Mr. KELLER. As I understand it, the 50-percent rule was used to determine the actual chert percentage, not whether it is 50 percent deleterious, as a group of particles, but this was used in determining chert percentage.

Mr. GUBSER. By the standards that you are familiar with would an entire particle of cherty limestone be classified or weighed in a sample as deleterious material?

Mr. KELLER. As deleterious, yes; the entire particle.

Mr. GUBSER. Not just the chert.

Mr. KELLER. There is a degree of deleteriousness there, if such a term exists. I can't say——

Mr. GUBSER. Yes; thank you.

Mr. HARDY. Excuse me. I think we are going to have to quit for the day. I was trying to see if I could excuse some of you. We want to come back tomorrow morning at 10 o'clock and conclude. Mr. Reddan will talk with you and see who may leave, so that the rest of you may not have to be with us tomorrow. Thank you very much.

Let the committee stand adjourned, to reconvene at 10 o'clock tomorrow morning.

(Whereupon, at 4:45 p.m., the subcommittee adjourned, to reconvene at 10 a.m., Friday, March 20, 1964.)

(The hearing was subsequently postponed until Tuesday, March 24, 1964.)

DETERIORATION OF RUNWAY FACILITIES AT SELFRIDGE AIR FORCE BASE

TUESDAY, MARCH 24, 1964

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE FOR SPECIAL INVESTIGATIONS OF THE
COMMITTEE ON ARMED SERVICES,
Washington, D.C.

The subcommittee met at 10 a.m., in room 304 Old House Office Building, Hon. Porter Hardy, Jr., presiding.

Subcommittee members present: Congressmen Hardy, Otis G. Pike, Walter Norblad, and Charles S. Gubser.

Staff members present: John T. M. Reddan, special counsel; Walton Woods, staff investigator; Phyllis M. Seymour, secretary.

Mr. HARDY. Let the committee come to order. This is a continuation of the hearings that were begun last week on matters relating to runways at Selfridge Air Force Base.

We had invited Mr. Warner, of the Western Contracting Corp., the general contractor on this particular job with which we have been concerned, to attend the hearings. He was here last week, and I believe he is here again this morning. There are one or two questions that he might help us clear up.

Mr. Warner, if you would be good enough to come on up and have a seat at the table? I don't think we will take very long on this aspect, but we are pleased to have you with us. Just have a seat.

Go ahead, Mr. Reddan.

Mr. REDDAN. Would you please give the reporter your full name and address?

TESTIMONY OF MEREDITH F. WARNER, VICE PRESIDENT AND CHIEF ENGINEER, WESTERN CONTRACTING CORP., SIOUX CITY, IOWA

Mr. WARNER. My name is Meredith F. Warner, Sioux City, Iowa.

Mr. REDDAN. And what is your position with Western Contracting Corp., Mr. Warner?

Mr. WARNER. I am vice president and chief engineer of Western Contracting Corp., of the same city.

Mr. REDDAN. How long have you been with that company, sir?

Mr. WARNER. I have been with Western since 1946, in various capacities—in estimating, engineering work. At the time of the Selfridge letting, my position with Western was as chief engineer. As of the 1st of January 1959, I was elected vice president, the position I have held ever since.

Mr. REDDAN. Did you have any particular responsibility with respect to the Selfridge Air Force Base contract?

Mr. WARNER. No direct responsibility; no, sir.

Mr. REDDAN. Are you familiar with the operations of your company in connection with that contract?

Mr. WARNER. Yes, sir.

Mr. REDDAN. One of the matters that we were trying to clear up last week was this business of how the American Aggregates Oxford pit came to be approved, who requested it and what sort of approval was given. Would you shed any light on that, Mr. Warner?

Mr. WARNER. Well, I believe, Mr. Reddan, that you had talked to Mr. Schaller——

Mr. REDDAN. Would you state for the record who Mr. Schaller is?

Mr. WARNER. Malcolm G. Schaller at that time was project manager for Western Contracting Corp., with power of attorney to represent and act for our company in the performance of this contract.

As of the first of this year, Mr. Schaller left our company and went into business for himself in California. We gave that information to the committee. And I believe you talked to Mr. Schaller and I believe you did obtain some statements—a statement or statements from him.

Mr. REDDAN. Yes, sir.

Mr. WARNER. Which really would be the best information that we would have on that.

Now, I could supplement that with some general comments or could give my recollection of what the statements cover.

Mr. REDDAN. You could do that. I would like to ask you first whether or not you have examined the records of your company to find out whether or not any written request was ever made by your company for approval of the Oxford pit?

Mr. WARNER. I have personally examined all of the records that remain on this contract. I have talked to all of our people who were connected with the contract, trying to get the background and the information that I thought the committee would desire. And in my search of the files and the records that we have, I could find no written records in regard to the request for the approval of the aggregates.

Mr. REDDAN. Did any of the officers of the corporation to whom you talked or any of the employees of the corporation have any recollection of ever having requested approval of the Oxford pit?

Mr. WARNER. Well, I talked to all of them. I also went through the records in regard to the entire matter. I realize that your inquiry here is directed toward the aggregate situation. However, I would like to add that the contract has basically two categories of approvals. One which is required to be in writing and one in the nature of the progress chart—safety program, shop drawings, and things of that nature.

Then the second category includes a lot of items in setting up a job which is subject to the Government's approval, which would include the aggregates, the batch plant site, the office location, the water hookup, the electrical system, the whole road layout, the compaction equipment, paving equipment, forms—there are many, many items.

Now, I asked them in regard to all of these matters or items in the second category as I described it. They couldn't recall any specific conversations in regard to any of these matters.

Mr. REDDAN. Including the aggregate approval?

Mr. WARNER. Right.

Mr. HARDY. Of course, one of the things that we were trying to clear up before had to do with a specific provision in the contract which, as I read it, required the contractor to designate, in writing, the sources from which his aggregate would be taken.

Mr. WARNER. (Nods.)

Mr. HARDY. And I also understood that a request in writing for approval of a source which was not already on the approved list was required. Do you know whether that is correct?

Mr. WARNER. That is not my understanding of it, sir.

Mr. HARDY. That is not your understanding?

Mr. WARNER. No, sir. I don't have the entire specification here, and I haven't read it recently. I did the week before we came—last week. However, I could not find any requirement to be submitted in writing for a proposed source. Now, there is a requirement that the source that will be used be designated in writing. And it would be my thinking that that would be complied with, with the submission of the purchase order.

Mr. REDDAN. Did you ever receive any approval from the Corps of Engineers for the use of this pit?

Mr. WARNER. We have no record. We have no record either way, you understand.

Mr. REDDAN. In submitting your bid on this project, what source of aggregate did you figure in computing the bid?

(See app. VII, p. 208, for Corps of Engineers comment on source of aggregate used to prepare Government estimate on Selfridge contract. Letter April 6, 1964, to Walton Woods, subcommittee staff investigator, from Col. Jeff W. Boucher, Detroit district engineer.)

Mr. WARNER. Our bid was based on using the gravel material.

Mr. REDDAN. From where, sir?

Mr. WARNER. Well, we did not have an actual source in mind. There are considerable volumes of material and land available in the vicinity of Oxford and Romeo, in that general area.

Prior to the bidding on the project we had a drill rig, a truck-mounted drill, and a geologist and two of our field engineers. This project was primarily, or one of the major portions of the project, involved the production of materials. There was some 450,000 tons, as I recall it, of concrete aggregate and something over 600,000 tons of base course material. These items were quite a factor in the contract. We spent considerable time in investigation. Some 40 tests were run, primarily gradation tests, prior to the submission of the bid. Part of our business is the production of materials, and it was our consideration that we could produce it ourselves.

Mr. REDDAN. Did you have any source which you had analyzed to find out whether or not it met the Corps of Engineers specifications prior to your bid?

Mr. WARNER. As far as the raw materials are concerned, no, we did not. You mean as far as running a petrographic test?

Mr. REDDAN. Yes, sir.

Mr. WARNER. No, sir; we did not. It was our judgment that we could, by processing the material, meet the specification.

Mr. HARDY. If I could return to the reading of the contract, there is this section that says—

concrete aggregate may be furnished from any of the above-listed sources, or from any other source proposed by the contractor and approved by the contracting officer. The contractor will designate in writing the source or sources from which he will furnish the aggregate.

Now what is the document that you say complies with that?

Mr. WARNER. Well, we would furnish to the Government a copy of our purchase order.

Mr. HARDY. A copy of your purchase order.

Mr. WARNER. Right.

Mr. HARDY. And——

Mr. WARNER. It would give the source.

Mr. HARDY. Which would be a written indication at any rate of the source.

Mr. WARNER. Yes, sir.

Mr. HARDY. And did such a purchase order accompany each delivery?

Mr. WARNER. No, sir. No; there would just be the one purchase order which would cover the job requirements.

Mr. HARDY. And then all of the aggregate was supplied by this one source?

Mr. WARNER. Yes. I would like to make one point that hasn't perhaps been brought out. That is, we had two contracts at Selfridge. We had the first contract, 2985, which was awarded to us in July of 1958. The second contract was 3278, which was an apron contract awarded to us in May of 1959. Now on the contract 3278, the American Aggregates Oxford plant was an approved source. The aggregates for both contracts were furnished under the same purchase order, which was our purchase order No. 1211.

Mr. HARDY. Which contract did you have first?

Mr. WARNER. The 2985, the runway contract—well, it is the larger contract of the two by far. The magnitude of the first contract was some $9½ million. The second contract was something over half a million dollars.

Now we started paving on the first contract in the latter part of September of 1958 and shut down due to weather if I recall—my recollection of the record would be the 14th or the 15th of November. At that time we had in place approximately 24 percent of the volume, of the total job.

Now the invitations for bidding on the second contract were issued on the 11th of May 1959.

Mr. HARDY. Well, actually, most of the discussion we have had has been about the first contract; is that right?

Mr. WARNER. Yes, sir. However, there is an indication, because of including in the second contract American Aggregates as an approved source, that we do have a written record as of that time that it was an approved source. We didn't start paving the next spring until May 14.

Mr. HARDY. I am still having a little trouble understanding how this worked out. The American Aggregates Corp. Oxford pit was deleted from the approved source list which had originally been sent out; that is correct, isn't it?

Mr. WARNER. That is correct, sir.

Mr. HARDY. I am trying to see if I can find out when—specifically when it got back on the approved list, or specifically when authorization was given to use it.

Mr. WARNER. Well, sir, we have no record of a specific authorization. By the wording in the specifications, it would have been necessary that it had been approved prior to the submitting of samples for the design mix.

Mr. HARDY. Well, that is the thing that I have been searching for, and I haven't been able to find out when it was approved. Actually, the specification says a single source may be designated. And this would be designated by writing, that is, in writing by the contractor. Now you say you submitted a purchase order. But I don't find anywhere that that was approved. They accepted the materials.

Mr. WARNER. Yes. As the job was in process, it was continually subject to testing and approval and rejection—or approval and acceptance, however you want to consider it. Materials were rejected.

Mr. PIKE. Mr. Chairman.

Mr. HARDY. Mr. Pike.

Mr. PIKE. May I ask a couple of questions along this line?

At the point when the Oxford pits were removed from the list of approved sources, you were made aware of this by a document in writing; is that not correct?

Mr. WARNER. That is correct. That took place by the issuance of addenda.

Mr. PIKE. Right, addenda to the contract specification.

Mr. WARNER. That is correct.

Mr. PIKE. How were you made aware of the fact that this Oxford pit was again permitted as a source?

Mr. WARNER. Well, I don't know exactly what you gentlemen mean as far as this approved list is concerned.

The contractor, when he bids on a project, has the responsibility to fulfill that contract. The materials that he uses must meet the specifications. The materials are sampled and tested and inspected and the approval follows those things. I mean——

Mr. PIKE. Well, you were made aware very formally that the Oxford pit was not an approved source by an addendum to the specifications. How were you made aware that the Oxford pit was again an approved source? Who told you?

Mr. WARNER. Well, we had no record of any written approval. There were many things that were being handled in this 2 weeks prior to getting started. This job was an urgent project and there were many things that had to be approved.

Mr. PIKE. Well one of the most urgent so far as you were concerned was getting a source of your aggregate.

Mr. WARNER. Absolutely.

Mr. PIKE. Was it not?

Mr. WARNER. (Nods.)

Mr. PIKE. And it meant a great deal of difference to you financially where this aggregate was obtained; did it not?

Mr. WARNER. Well, yes. We had based it on using local material. Our bid was based; that is, on using local material and also I believe the specifications required those samples within 15 days.

Mr. PIKE. So I still get back to the fact or to the question: At what point did somebody say to you it is all right to use this Oxford pit; or didn't anybody ever say to you it is all right to use the Oxford pit?

Mr. WARNER. Well, the pit would have had to have been approved prior to the running of the design mix.

Mr. PIKE. Well——

Mr. WARNER. And also it had to have been approved prior to the issuance of the second specification.

Mr. PIKE. Don't, please, tell me it would have had to have been. Was it approved?

Mr. WARNER. Yes, sir, it was.

Mr. PIKE. By whom?

Mr. WARNER. That I can't tell you.

Mr. PIKE. Here is a matter—how much difference did this make to Western Contracting as far as the choice between using this Oxford pit and using one of the approved sources?

Mr. WARNER. Well, our bid was based on using the gravel material.

Mr. PIKE. How much more would it have cost you to use a source elsewhere?

Mr. WARNER. Of course all of the pit, that is all of the materials indicated in the specifications are in the upper peninsula, quite some distance away.

Mr. PIKE. How much more would it have cost you?

Mr. WARNER. The total savings to the Government by our bid being based on local material was approximately $300,000. There are many things involved other than just materials themselves. There is specific gravity differences, quantity differences, building trackage——

Mr. PIKE. Was there any of what you have referred to as local source on the approved list of sites?

Mr. WARNER. On the second contract, yes, sir.

Mr. PIKE. I am talking about the first contract.

Mr. REDDAN. You had already submitted your bid, had you not, before this source was approved?

Mr. WARNER. Yes, sir.

Mr. PIKE. And at the time you submitted your bid you knew that you were relying on a source which was not approved; did you not?

Mr. WARNER. No, sir. We were relying on the contract documents. To my recollection, this was the first project we had ever had in the Detroit district. However, historically we have worked for the Corps of Engineers. We know that they will honor these documents and perform exactly just as any honest man would.

Mr. PIKE. What was the local source which was an approved source under the addenda?

Mr. WARNER. There were no local sources approved.

Mr. PIKE. Then at the time you submitted your bid you knew that you were relying on a source which was not approved; is that not correct?

Mr. WARNER. We were bidding on using a source that in our judgment would meet the specifications and thus would be approved. We had that right under the contract. The Government had written the contract that way. They solicited bids in that manner.

Mr. PIKE. You had the right to submit materials which would meet the specifications, but you had also been advised that the Oxford pit was not an approved source; is that not correct?

Mr. WARNER. As of that time it was not approved. However, if you met the specifications from the Oxford pit, it would be approved. You were given that alternate. The Government wanted—the entire framework of the invitation was geared to a contractor using an aggregate source, using ingenuity and giving the Government the benefit of the price.

Mr. PIKE. But also giving the Government the benefit of a certain quality of material; isn't that true?

Mr. WARNER. Whatever was required by the specifications, of course.

Mr. PIKE. And you are telling me that despite the fact that there was a very major cost difference to you between the local source and the Upper Peninsula sources which were approved sources, and despite the fact that you had been formally advised that there were no local sources approved, you can't remember who told you it was all right to use the local source?

Mr. WARNER. Well, I say we have no record, written record of that approval, and our people do not recall such an approval. However, they don't recall similar approvals that were necessary in regard to the other items—the batch plant site, the railroad trackage——

Mr. PIKE. I find it very hard to believe, Mr. Warner, that a matter which meant as much financially to your company as getting this approval of a local source is something which nobody can remember and that there is no record of. At the very least I can say that this is a very strange business practice.

That is all I have at the moment, Mr. Chairman.

Mr. HARDY. Mr. Reddan.

Mr. REDDAN. Were you in the room last week when the testimony was given with respect to this petrographic analysis which had been submitted on behalf of the Oxford pit, an analysis prepared by Andrew J. Mozola of Detroit, Mich.?

Mr. WARNER. Yes, sir; I was here when that was discussed.

Mr. REDDAN. Did your company have anything to do with the employing of Mr. Mozola?

Mr. WARNER. No, sir.

Mr. REDDAN. Can you tell the committee how this report came to be made?

Mr. WARNER. No, sir. We did have a copy of that report in our files. However, I have no knowledge of it.

Mr. REDDAN. Did you have a covering letter with the report?

Mr. WARNER. No, sir.

Mr. REDDAN. Do you know how you got it or why you got it?

Mr. WARNER. No, sir.

Mr. HARDY. You did not request that this analysis be made?

Mr. WARNER. Not to my knowledge, sir.

Mr. REDDAN. Did you pay Mr. Mozola for the report?

Mr. WARNER. No, not to my knowledge.

Mr. REDDAN. Would your books show whether or not you had paid Mr. Mozola?

Mr. WARNER. Yes, sir, they would. I didn't actually check the register.

Mr. HARDY. Now, if somebody else paid Mr. Mozola or if somebody else requested it, would your books show whether or not you paid them? I am trying to find out how this came about, that is all, Mr. Warner.

Mr. WARNER. Certainly.

Mr. HARDY. I don't know.

Mr. WARNER. I am trying to help in any way I can.

Mr. HARDY. It seems sort of strange. Here is a report that crops up and the people that stand to gain by it would seem to be your firm, if this is the basis on which the pit was approved. I don't know whether it was or not. But if it was, it would seem that American Aggregates and Western Contracting would be the people who would be particularly interested in getting a report which did give clear sailing for the Oxford pit. I am just trying to find out who arranged for this and who paid for it.

Mr. WARNER. I have no knowledge at all in regard to the Mozola report. I have seen it, I have looked at it, I haven't studied it, but——

Mr. HARDY. Do you know anything about Mr. Mozola?

Mr. WARNER. In fact, I never heard the name before.

Mr. HARDY. You don't know anything about his connections other than his shingle, which says he is a consulting geologist?

Mr. WARNER. No, sir, I do not.

Mr. HARDY. Anything further?

Mr. NORBLAD. No, sir.

Mr. HARDY. Mr. Gubser?

Mr. GUBSER. No, sir.

Mr. PIKE. Mr. Chairman.

Mr. HARDY. Mr. Pike.

Mr. PIKE. I would like to go back into this specification bit.

When they deleted the American Aggregates Corp. they said—and this is the language on which you relied:

"Concrete aggregates may be furnished from any of the above listed sources or from any other sources proposed by the contractor and approved by the contracting officer. The contractor will designate in writing the source or sources from which he will furnish the aggregate."

Now, wouldn't you read that to mean that that designation in writing should be made before the contract was entered into?

Mr. WARNER. Not at all. You have in the specifications many, many references there as to what is required to be done. This provision that you are quoting I believe is in the specifications. Back in the technical provisions there are other paragraphs which go into details as to the evaluation of aggregate sources, what tests will be run, and similar data. You wouldn't expect to designate a source that would not meet the specifications.

Mr. PIKE. At what point did you furnish to the Government a copy of the purchase order from American Aggregates?

Mr. WARNER. That would be transmitted when the purchase order was written and accepted.

Mr. PIKE. When was the purchase order written and accepted?

Mr. WARNER. The purchase order was dated on August 19.

Mr. PIKE. What was the date of the contract, Mr. Warner?

Mr. WARNER. July 28. All of these are 1958.

Mr. PIKE. Who approved this source after you submitted your purchase order?

Mr. WARNER. Well, the purchase order is submitted as a matter of record, as to what sources of materials are.

Mr. PIKE. I am asking you how you complied with this sentence: "The contractor will designate in writing the source or sources from which he will furnish the aggregate"?

Mr. WARNER. Well, I would say that the next sentence there—when we submitted the purchase order: That was the designating by writing, or in writing, however the wordage is, of the source that will be used.

Mr. PIKE. Now how did you get the approval? In what form did you get the approval of the contracting officer?

Mr. WARNER. Well, here again, sir, we have no written record of any approval. And our people do not recall a specific approval or conversation or request in regard to the aggregates, but in the same fashion they don't recall specific conversations, dates, and times in regard to all of these other matters that are in the same category.

Mr. PIKE. In other words, it is your testimony that as far as you can recall you have no written record nor any recollection of the approval by the contracting officer which was required by the specifications?

Mr. WARNER. Well, I can't go that broad, Mr. Pike. There are many, many approvals required under the contract, and they are spelled out in there. You make submittals in writing and there are approvals in writing. All of those matters we find the record on. It is the items—and they are more of an administrative control type of an item to the contract.

Mr. PIKE. In other words——

Mr. WARNER. Administrative type.

Mr. PIKE. You can find written approvals of a great many minor items in the contract but you can't find any written approval of this very major one?

Mr. WARNER. Well, I wouldn't consider them minor. They are the items such as the progress charts, the——

Mr. PIKE. They didn't mean as much moneywise to your company as this one did, did they?

Mr. WARNER. Well, they all are in regard to the same contract, and they are all very critical.

Mr. PIKE. That is hardly an answer to my question. They didn't mean as much financially to your company as this item did, did they?

Mr. WARNER. Well, I would say they are all important and they could.

Mr. PIKE. Did they?

Mr. WARNER. As it turned out, the contract was performed and completed on time. There were no liquidated damages. There were no problems as to changes and things of that sort. So the relative——

Mr. PIKE. Mr. Warner, you never finished answering the question I asked you about three times earlier. How much more would it have cost you to get this aggregate from an approved source?

Mr. WARNER. Well, I would say we got it from an approved source. I would say from the sources indicated in the specifications, there was a difference of $300,000.

Mr. PIKE. First you tell me you can't remember who ever approved it. You haven't any record that it was approved by the contracting officer, no record whatsoever, nothing in writing, that it was ever approved by the contracting officer. You got it from a source which had been deleted from the specifications, and I am asking you how much more it would have cost you to get it from one of the sources that were approved in the specifications?

Mr. WARNER. Well, we performed the work in accordance with the contract from an approved source of aggregates. We met the specifications. The materials were tested and accepted.

Mr. PIKE. Who approved the source of aggregates?

Mr. WARNER. I have no written record that they were approved, that they were disapproved——

Mr. PIKE. You haven't any proof whatsoever that it has been approved. You keep repeating you got from them an approved source of aggregates.

Mr. WARNER. I don't believe it is a requirement that it is a written approval.

Mr. PIKE. It says "and approved by the contracting officer." I say to you, who approved it, and you say you don't know. I said, was the approval in writing, and you say you haven't got any record of any such writing.

I have asked you many times now how much more would it have cost you to get your aggregate from an approved source.

Mr. WARNER. We got it from an approved source.

Mr. PIKE. Who approved the source?

Mr. WARNER. That I can't answer.

Mr. PIKE. That is all, Mr. Chairman.

Mr. HARDY. Thank you, Mr. Warner. Thank you very much, sir.

Mr. WARNER. I would like to, if I may, just add one more thing in regard to this contract. The performance of this work we feel was done in an efficient and economical manner. We feel that the costs we incurred were necessary to the performance of the work.

I would like to state for the record that the total revenue that we received under both contracts exceeded our project costs for performing the work by $162,000. Against this $162,000, we would have a charge of some $417,000 dollars which would represent our overall company's expense of doing business. Which would leave us a net loss on this contract of $255,000 for the total effort of performing this ten and a half million dollars worth of work.

Our company's records are available to this committee for audit or we will be pleased to submit to you any additional information along this line that you would like.

Mr. HARDY. In other words, when you applied your normal overhead percentage to this contract you lost a lot of money on it?

Mr. WARNER. That is right, sir. It was——

Mr. HARDY. Without taking into account your overhead, you did have a margin there.

Mr. WARNER. Our revenue was in excess of our costs at the project level by $162,000.

Mr. HARDY. But your overhead costs, when distributed proportionately to this particular contract, put it in the red.

Mr. WARNER. That is correct, sir.

Mr. HARDY. Did you have something——

Mr. WARNER. These are very competitive days.

Mr. PIKE. Is it not also true that had you gotten the aggregate from a different source, from the Upper Peninsula, instead of $250,000 it would have been $550,000?

Mr. WARNER. No sir. I would say that the situation if that developed—and I think you can see from the testimony of the Corps of Engineers people there is some disagreement as to just what the specifications required. We would not have volunteered to go to the Upper Peninsula. I believe our position—of course you must understand we never reached that point. But our position I believe would have to have been that we could meet the contract from the gravel materials. We would not have volunteered to go up. And we would have filed a claim.

Mr. PIKE. Let me ask you one small additional question. If the material which you provided complied with the specifications and if the work was done in a workmanlike manner, why did the runways fall apart?

Mr. WARNER. Well, I would say, sir, that we did do the work in accordance with the contract. The materials met the specifications. I would say that there was a design inadequacy in regard to the standards that the Air Force required. These popouts are not new. They occur on many, many things. I think you could probably see them right outside the building here in the sidewalks. It is just a matter of the usage you put them to, what your needs are.

Mr. PIKE. In other words, you think that the results of this job were normal?

Mr. WARNER. Well, I don't know what you mean by normal.

Mr. PIKE. Is the end result of the work which you did at the Selfridge Air Force Base a normal result?

Mr. WARNER. Well, our company does a lot of concrete paving. It is one of our major endeavors. When the SAC needs developed in 1951 for these jet runways and aprons, we did one of the first jobs down in Witchita, Kans. Prior to that time——

Mr. PIKE. Mr. Warner, I am really not interested in what you did down in Witchita, Kans. I asked you a relatively simple question. Do you consider the results of the contract that you performed at Selfridge a normal result?

Mr. WARNER. Well, what I am trying to say, sir, it is certainly not normal to the type of contruction that we do. Is that what you meant?

Mr. HARDY. In other words, your runways don't usually pop out like this one did?

Mr. WARNER. That is right, sir. Between the years 1951 and 1958 we poured some 9 million square yards of concrete.

Mr. HARDY. And this one turned out pretty badly, but the rest of them did pretty well; is that right?

Mr. WARNER. That is what I understand, sir. I haven't seen it.

Mr. HARDY. What did you say?

Mr. WARNER. I did not see it——

Mr. HARDY. Oh, you didn't see them.

Well, if we can tell from the cost of keeping it operable, it would be reasonable to conclude that the runway didn't stand up like it generally would be expected to.

Mr. WARNER. That is correct, sir. I would like to——

Mr. PIKE. Would it be fair to say, Mr. Chairman, that we could have imported the aggregates from Hong Kong and still be better off?

Mr. HARDY. I don't know whether we could have gotten it from that far or not.

Mr. REDDAN. Mr. Chairman.

Mr. HARDY. Go ahead.

Mr. REDDAN. Just for the record, Mr. Warner, in reply to one of Mr. Pike's questions, you said you believe that had the Oxford pit not been approved or a local aggregate had not been approved you would not have volunteered to go up to the Straits area to get aggregate.

Mr. WARNER. Well, I preceded that with we never, of course, reached that point, in that decision. So——

Mr. REDDAN. Well, had it not been approved, it wouldn't have been a question of volunteering, would it? Under the terms of the contract you had to obtain aggregate from an approved source.

Mr. WARNER. We would expect the Corps of Engineers to exhaust all tests and not just a superficial rejection on the materials. In other words, we would expect them to comply completely with the contract. The——

Mr. REDDAN. Well, I am not suggesting that they wouldn't. Neither am I suggesting that when they made all these tests that they ever found that the Oxford pit would meet the specifications. However, what I am saying is there would have been no volunteering—you wouldn't have been volunteering to go up north. They could have required you to go up north if the Oxford pit had not been approved.

Mr. WARNER. Well, we had to finish the job, sir.

Mr. REDDAN. Yes.

Mr. WARNER. We would have built the job.

Mr. REDDAN. Well, this was the start. This was to start the job. They could have required you to go to a pit which they had approved.

Mr. WARNER. Only if we could not meet the contract requirements.

Mr. REDDAN. That is right.

Mr. WARNER. From this pit.

Mr. REDDAN. That is right.

Mr. GUBSER. Mr. Chairman, were all of these approved pits upstate?

Mr. WARNER. Oh, yes, quite some distance. They involved—they were quarries way up on the Upper Peninsula. They required, oh, some 300 miles by boat, then unloading onto docks, loading into trucks, and some 25-mile truck haul.

Mr. GUBSER. Now at the time you responded to the invitation for bid, this questionable quarry—what is that, Oxford pit—was not on the approved list?

Mr. WARNER. That is correct, sir.

Mr. GUBSER. So when you made your bid, you bid on the presumption that you would get your aggregate from an upstate pit?

Mr. WARNER. No sir. The contract provided an alternate to the contract. It provided from any source as long as it met the contract.

Mr. GUBSER. What other sources were there available downstate other than this——

Mr. WARNER. The gravel materials in the vicinity of the job, sir, I mean compared to these that are quite removed.

Mr. GUBSER. Did I understand you to say, sir, that had you been forced to go upstate you would have submitted a claim?

Mr. WARNER. I can't say that. It was——

Mr. GUBSER. Yes.

Mr. WARNER. It was a hypothetical question as to what we might have done.

Mr. GUBSER. Yes.

Mr. WARNER. We would build the job. We would have fulfilled our commitments. It would be completely based on how the rejection of the pit was made. In other words, if we felt it was completely thorough, that there was no possibility of producing the materials out of there, it would be one thing. If it was a superficial, broad brush type of rejection, that would be a different matter. We never reached that point, you understand.

Mr. GUBSER. But certainly in figuring your cost when you submitted your proposal, you had a pit in mind, didn't you?

Mr. WARNER. We had investigated many pits.

Mr. GUBSER. Well, you had——

Mr. WARNER. You can't make——

Mr. GUBSER. You had a pit in mind other than one that was upstate?

Mr. WARNER. Oh, yes, absolutely.

Mr. GUBSER. And could that have been any other pit but the Oxford pit?

Mr. WARNER. Yes.

Mr. GUBSER. It could have?

Mr. WARNER. Not northern. In the same area. In the Oxford-Romeo area.

Mr. GUBSER. In the lower Michigan area?

Mr. WARNER. Yes.

Mr. GUBSER. Did you have any other pit than the Oxford pit in mind when you were submitting your proposal?

Mr. WARNER. We did not bid on a specific pit. It has been our experience that it is quite difficult to deal with property owners in these matters unless you have a contract and are ready to conclude a specific offer and deal.

Mr. GUBSER. What you are saying in effect is that you thought the chances were sufficiently good that you could find a closer source of aggregate, that you went ahead and bid on the presumption that you would find it?

Mr. WARNER. That is correct, sir.

Mr. GUBSER. And you thought the chances were sufficiently good that you took that risk?

Mr. WARNER. That is correct, sir.

Mr. GUBSER. Thank you.

Mr. WARNER. Now following that——

Mr. GUBSER. Yes.

Mr. WARNER. Prior to the letting we had run about 40 tests. As soon as we were low bidder on the contract and awarded the contract, we had a time limitation here as to when this material had to be submitted. We accelerated our effort. We moved in backhoes, dug trenches, and concentrated our effort in the vicinity of Oxford.

In the period between the letting and the submission of the materials from Oxford we ran some 60 more tests. We dug, I would—I never actually made a count, but it would be in the neighborhood of 60 to 70 different test pits or drill holes, in investigating these materials.

We had thought—our whole thinking was directed toward producing the materials ourselves. We never had a firm offer from American Aggregates on this project until the very final point in the time limit.

Mr. GUBSER. If I may say so, I think the significant point is that you didn't bid, so you testify, with the Oxford pit in mind.

Mr. WARNER. That is correct, sir.

Mr. GUBSER. And that your bid was not based upon securing aggregate from there, and that you felt there was sufficient chance that you could get locally——

Mr. WARNER. That is correct, sir.

Mr. GUBSER. That you felt justified in taking the risk in submitting the bid which you did submit.

Mr. WARNER. That is correct, sir.

Mr. HARDY. Go ahead.

Mr. REDDAN. I have no more questions.

Mr. HARDY. Thank you, Mr. Warner.

Mr. WARNER. Yes, sir.

Mr. HARDY. Mr. Zackrison, would you come on back up here, please, sir?

Mr. REDDAN. Mr. Zackrison, this morning you handed to me a copy of a letter dated April 10, 1958, to the division engineer, U.S. Army, Engineer Division, North Central, from Lt. Col. G. W. Svoboda, acting district engineer; subject: "Approved Aggregate Sources, Richard I. Bong Air Force Base." Do you have a copy of that with you, sir?

FURTHER TESTIMONY OF HARRY B. ZACKRISON, SR., CHIEF, ENGINEERING DIVISION, MILITARY CONSTRUCTION, OFFICE OF THE CHIEF OF ENGINEERS, U.S. ARMY, WASHINGTON, D.C.

Mr. ZACKRISON. Yes, sir.

Mr. REDDAN. And to that are several attachments. Can you explain to the committee where you got that letter and just what the significance of it is?

Mr. ZACKRISON. Subsequent to my testimony here last week I asked that a thorough search be made to determine where in fact there was any correspondence anywhere which did authenticate the approval of the 5-percent limit on deleterious material. This morning Mr. Davis, who has previously testified from the North Central Division, brought in a copy of this letter, together with the endorsements.

This verified that on the 23d of April 1958, Mr. Thorley, who is the Assistant Chief of the Engineering Division and acts in my absence—he is delegated that authority—wrote a letter or signed a letter to division engineer, U.S. Army Engineer Division, North Central, which did approve a total of all types of deleterious substances and coarse aggregates to not exceed 5 percent.

Mr. REDDAN. This is material in that it goes to the interpretation of the engineering manual which was in effect at the time of this contract?

Mr. ZACKRISON. That is correct, sir.

Mr. REDDAN. There was some discussion last week as to the meaning of the parenthetical sentence which appears on page 22 of part XII, chapter 7, of that April 1956 manual.

Mr. ZACKRISON. Yes; that is correct, sir.

Mr. REDDAN. Which says—

other local deleterious substances should be listed and limits specified.

Mr. ZACKRISON. That is correct.

Mr. REDDAN. And as I understand, your testimony this morning is that an order had been sent out by the Chicago office as of April 1958 placing a maximum limit of 5 percent on all deleterious materials?

Mr. ZACKRISON. They requested its approval and I would assume from this correspondence that they did so.

Mr. REDDAN. That is all.

Mr. HARDY. Now the specific letter of transmittal which you said was signed by Mr. Thorley—is this the one dated April 10, 1958?

Mr. ZACKRISON. No, sir. That is dated April 23. It is the second endorsement. The top letter, which is signed by Lieutenant Colonel Svoboda, simply transmits a request.

Mr. HARDY. I see.

Mr. ZACKRISON. This was endorsed by the division to the Chief of Engineers, and this was returned by reply on April 23.

Mr. HARDY. Now the top letter, which is signed by Colonel Svoboda, encloses—

a copy of the paragraph on approved aggregate sources which deviates in some respects from the standard paragraph. Approval of this paragraph is requested.

That is what item 2 says.

Mr. ZACKRISON. That is correct, sir.

Mr. HARDY. Now the first endorsement, signed by MacNish. What is the date of that?

Mr. ZACKRISON. April 15.

Mr. HARDY. Well, on April 10, he is not forwarding a document dated April 15, is he? That is what I am trying to understand right now.

Mr. ZACKRISON. He is making a request through the division office to our office. And of course his letter is dated April 10, and is addressed to the division engineer. On the 15th of April, Mr. MacNish, who was acting for the division engineer, who has since received this——

Mr. HARDY. Then he forwarded it.

Mr. ZACKRISON. He forwarded it.

Mr. HARDY. Is that what he did on that date?

Mr. ZACKRISON. Yes, sir; with a recommendation that the request be honored.

Mr. HARDY. Now then we come to the one signed by Thorley. That is dated the 23d of April?

Mr. ZACKRISON. That is correct, sir, 8 days following.

Mr. HARDY. He is forwarding these two documents on to somebody. Now to whom does he send them?

Mr. ZACKRISON. He has replied to the division engineer, to the North Central Division engineer.

Mr. HARDY. So this goes to the division engineer for the North Central Division—that is Chicago?

Mr. ZACKRISON. That is in reply, sir.

Mr. HARDY. And does this enclose the document which is attached to that, "Approved Aggregate Sources"?

Mr. ZACKRISON. It attaches special condition 26, which was enclosed with the original letter.

Mr. HARDY. That was enclosed with the original letter of April 10?

Mr. ZACKRISON. That is correct.

Mr. HARDY. So Colonel Svoboda sent this SC–26 and asked for its approval?

Mr. ZACKRISON. Yes, sir.

Mr. HARDY. In the letter signed by Thorley for you, he approved them subject to a modification of the total deleterious substances, reducing the total to 5 percent?

Mr. ZACKRISON. That is correct.

Mr. HARDY. Now he did not change the specification for "chert chalcedony, cherty or chalcedonic limestone, total of all types 3 percent."

I find that interesting. This specification has a maximum of 3 percent, including cherty limestone. Does that have any significance to you, Mr. Zackrison?

Mr. ZACKRISON. That is the statement here, sir.

Mr. HARDY. But you deviated from that when you got to the Selfridge contract. Doesn't that mean anything to you?

We had quite a discussion here the other day about putting a 50-percent weight on cherty limestone. And here is a specification written up on the 5 percent. And 5 percent was what you used on the Selfridge one, but you permitted a deviation from this on cherty limestone. I think that calls for an explanation.

Mr. ZACKRISON. Mr. Thorley's reply did not specifically relate to the SC–26. It simply stated that the total amount of deleterious material would be reduced from 7 to 5 percent.

Mr. HARDY. But here is a request for approval. And he didn't change that item. He didn't suggest that you eliminate cherty limestone and put it in a special category. He did change the overall total from 7 to 5 percent. And certainly he had set a pattern here for cherty limestone to be included as chert. He agreed to it. Was the Selfridge contract in the mill at the same time as the Bong contract, Mr. Zackrison?

Mr. ZACKRISON. Relatively the same time frame.

Mr. HARDY. They were in the mill at the same time, and here on the Richard I. Bong Air Force Base you have an all-inclusive requirement with respect to cherty limestone, and its says "total of all types 3 percent." Why didn't you do that on Selfridge?

Mr. ZACKRISON. I am afraid we will have to ask the representative of the Detroit district, because I am not in position to answer it. I wasn't there, Mr. Chairman.

Mr. HARDY. I am afraid they can't answer it, either.

Mr. ZACKRISON. This question in this letter was raised with respect to Richard I. Bong, which was considered applicable by them to Selfridge.

Mr. HARDY. What is the difference in conditions weatherwise between Bong and Selfridge?

Mr. ZACKRISON. Nothing substantial.

Mr. HARDY. Nothing substantial. Does it strike you as peculiar that two different specifications were applied in the field with respect to chert and cherty limestone within the same time frame, on contracts being approved within the same time period, both under the Chicago division and both under your cognizance, indirectly, weren't they?

Mr. ZACKRISON. Indirectly, yes, sir.

Mr. HARDY. Mr. Davis tries to justify the 50-percent weighting for cherty limestone. This went through his office; didn't it?

Mr. ZACKRISON. He was the one that furnished me this copy, sir.

Mr. HARDY. It went through his office. He OK'd it. He permitted two different specifications for cherty limestone on two contracts for construction at airfields going on at the same time. And if somebody can come up with any justification for that, I would like to know who it is and I would like for him to come forward and produce it.

Mr. GUBSER. Mr. Chairman, was Mr. Hampton at Bong?

Mr. HARDY. Mr. Hampton presumably didn't have anything to do with Bong; did he?

Mr. ZACKRISON. No, sir.

Mr. HARDY. Mr. Davis has a responsibility and Mr. Sorensen has a responsibility.

Mr. ZACKRISON. Mr. Chairman, I should correct it. I am not sure that Mr. Hampton wasn't acting in the district office and didn't have something to do with Bong.

Mr. HARDY. I don't know. Maybe he did. Maybe he did.

I think Mr. Sorensen—come up here and sit down and give us an answer to this. You looked like you were trying to answer it.

FURTHER TESTIMONY OF ELMER A. N. SORENSEN, CHIEF, CONSTUCTION-OPERATIONS DIVISION, DETROIT DISTRICT, CORPS OF ENGINEERS

Mr. SORENSEN. No, sir; not in that regard. I would be happy——

Mr. HARDY. You had the responsibility for it. Can you tell us why you have two different specifications on two different contracts going on at the same time, both clearing through the Chicago office?

Mr. SORENSEN. Mr. Chairman, could I have your indulgence for a moment to possibly set the record straight?

Mr. HARDY. If the record is wrong, please correct it.

Mr. SORENSEN. No, a misconception, sir.

I am Chief—was at the time Chief of the Construction Division of the Detroit district. My responsibility as such was that after a contract award I was to administer a contract, specifically the one we are talking about. I reiterate my responsibility as such was administering a contract document. And this is what in my capacity I do.

Mr. HARDY. Do you want the committee to understand that you didn't have anything to do with the recommending of a 50–50 percentage with respect to cherty limestone?

Mr. SORENSEN. No, sir; I do not want that impression. I am saying, sir, that after award of a contract, it becomes my responsibility as

contracting officer's representative to discuss the contract, I mean to—the word escapes me—to administer the contract under its terms, and this is what I feel I have done.

Mr. HARDY. I wish I felt so.

Mr. SORENSEN. Yes, sir. And this is why I would like to try to explain, that anything that any members of the committee would like to ask me in my official capacity, they would feel free to do so. I would not go beyond my official capacity and say someone else should have done this.

Mr. HARDY. All right, sir. But was it your determination that a 50-percent weight be put on cherty limestone?

Mr. SORENSEN. Yes, sir.

Mr. HARDY. All right.

Mr. SORENSEN. Could I explain that, sir.

Mr. HARDY. I think you talked about it for a right good while the other day and you didn't come up with any reasoning that made any sense to me. Now maybe it makes sense to somebody else.

Mr. SORENSEN. Mr. Chairman, I ask your indulgence for a few moments. I contend, sir and have stated that there was not in this specification a statement about cherty limestone.

Mr. Warner's testimony this morning in some respects become my words. And believe it or not, I have not talked to Mr. Warner for years.

My point is that after a contract is awarded, my total responsibility is administering that contract with the contractor. And in doing that, I find, or I found that there was no indication in the specification of cherty limestone per se.

Mr. HARDY. But you did have before you the laboratory's recommendation that it have the same weight as chert.

Mr. SORENSEN. Well——

Mr. HARDY. You also must have known about this particular recommendation with respect to Bong, where it was specifically included.

Mr. SORENSEN. Sir, I would have no knowledge of that because I am—and may I interject at this point? Sometimes when I get wrapped up in this thing I may sound disrespectful, and I hope to have your indulgence in this respect.

Mr. HARDY. Well, have mine, too, because I don't know——

Mr. SORENSEN. Mr. Hardy, you and I are cut from the same cloth apparently.

The point being, sir, that I may have had knowledge. I don't recall. Bong is not in my district, in the Detroit district.

Mr. HARDY. Well, is Selfridge?

Mr. SORENSEN. Yes, sir.

Mr. HARDY. All right.

Mr. SORENSEN. My point, that I have not been able to get across apparently, is that I was charged with administration of a contract, and under its terms I did this not by myself, but with Mr. Hampton who has previously testified. The determination was made, not by one person and not by two, but after considerable discussion.

Mr. HARDY. It might be real interesting to find out who was the tail wagging the dog in this particular instance. I was trying to see if we could figure out who did wield the pressure and the power that brought this forth.

Mr. SORENSEN. Sir, may I——

Mr. HARDY. Mr. Zackrison wants to say something. Would you yield to him for a moment?

Mr. SORENSEN. Yes, sir.

Mr. ZACKRISON. I just want to make this statement in behalf of Mr. Sorensen which I don't believe he made clear.

Mr. Sorensen is chief of the construction bureau. He would not have cognizance over the preparation of the contract specifications. The preparation of the contract specifications and any deviation from any instructions in my office would have had to be in the engineering division.

Mr. HARDY. Mr. Zackrison, I don't have a different understanding from that.

Mr. ZACKRISON. Yes, sir.

Mr. HARDY. And he made it amply clear that he was administering a contract. The thing I am trying to understand now is how, as contract administrator he could have made the determination to place only a 50-percent weight on cherty limestone when he had available the report of the Ohio River division laboratory.

What are we talking about except the effect of chert? If chert wasn't going to have some undesirable effect, then why limit it in the specifications? But if cherty limestone has the same physical and chemical characteristics and the same effect as chert, it looks to me like a contract administrator or an engineer who is worth his salt would recognize the need to give it the same weight as chert in the administration of a contract. And I understand that was what you did. You made the determination, disregarding entirely the Ohio River laboratory's statement.

Mr. SORENSEN. No sir, I object to that statement, "disregarding entirely."

Mr. HARDY. All right, you can put in any interpretation you want. That is my interpretation of it.

Mr. SORENSEN. That is right. I would not wish to belabor this point, Mr. Hardy. But in my judgment, to this moment, sir, my professional judgment was that under the circumstances in administering the contract this was a due and proper statement or consideration to have made.

Mr. HARDY. What are your engineering qualifications which would justify you even in acquiescing in a recommendation that you put a 50–50 weight on it?

Mr. SORENSEN. Sir, I have been—my record will show that I have had responsible positions in pavement work throughout my career. I don't take my responsibilities lightly. I use my staff. In using my staff, I take their recommendations, plus other recommendations.

Mr. HARDY. In this case you relied pretty heavily on Mr. Hampton.

Mr. SORENSEN. Not solely, sir.

Mr. HARDY. I didn't say solely. I said pretty heavily. Now if you want to change that, go ahead.

Mr. SORENSEN. Pretty heavily is correct, because I still have confidence in his competency.

Mr. HARDY. All right, I am not raising a point on that.

Mr. SORENSEN. I don't wish to belabor this point, but the point, Mr. Chairman, is that on the term "cherty limestone" as such in the

industry is a matter of discussion and has been for many years. I am not belaboring the point of engineer documents, engineering background, nor am I justifying it one way or the other. I am making the sole statement that in this determination under this contract, this is what was done, sir.

Mr. HARDY. Well, that is what we found out, that was what was done.

Mr. SORENSEN. Yes.

Mr. HARDY. And I am trying to understand how it happened, because there are, possibly, some rather serious implications involved.

Mr. SORENSEN. Yes, sir, I understand this. And this I am sure, Mr. Chairman, you will realize. This is why sometimes I get rather heated about it. For the sake of the record, I have probably been known to be, in fact I have probably been called a knight in white armor. I am proud of this, sir.

Mr. HARDY. I wish you had worn your white armor when you were working on this contract.

Mr. SORENSEN. I think I did, sir.

Mr. HARDY. Well, maybe you did. I certainly wouldn't want to suggest otherwise.

Now to get back, you say you relied heavily on Mr. Hampton?

Mr. SORENSEN. Yes, sir.

Mr. HARDY. Who else did you rely on for this decision?

Mr. SORENSEN. I am sure that based on discussion—I am now sure I know—based on discussion with people from the NCD, people from the ORD laboratory.

Mr. HARDY. People from the NCD certainly should have had in mind a specification which they just approved for Bong.

Mr. SORENSEN. Sir, I am not trying to belabor the point of who did what.

Mr. HARDY. Well, I am, right now.

Mr. SORENSEN. Yes, sir; I know you are. And somebody else will speak to this.

And my point is I feel that the Detroit district made the correct decision and I made the correct decision. Apparently I have not been able——

Mr. HARDY. You certainly haven't convinced me that the Detroit district made the correct decision on the cherty limestone.

Mr. SORENSEN. I know I haven't.

Mr. HARDY. As a matter of fact, if you had kept this on a basis of 100 percent weight to cherty limestone, as was done in Bong and as was, in effect, recommended by the Ohio River division, you might not have had all this costly experience that you had.

Mr. SORENSEN. Sir——

Mr. HARDY. The chances are you wouldn't even have been able to approve the Oxford pit.

Mr. SORENSEN. This could have been, sir. But it would have become under this contract as Mr. Warner put it "a claim." And we never got into this portion of discussion.

Mr. HARDY. So you are perfectly willing to spend several million dollars in rebuilding a runway which was defective because you permitted too much chert in it?

Mr. SORENSEN. No, sir. The records will show—incidentally, in reading over some of the drafts, the apparent position or the inference I get is that people feel that we add, that we have added chert. This is a matter——

Mr. HARDY. As a matter of fact, I am inclined to think that you did.

Mr. SORENSEN. Well——

Mr. HARDY. Even if it was done unintentionally. I wouldn't suggest that it was done deliberately.

Mr. SORENSEN. Sir, this is your privilege.

Mr. HARDY. Well, when we get into a question of how the tests were run in the laboratories in the field, I certainly wouldn't suggest that anybody deliberately added any chert to it.

Mr. SORENSEN. Yes.

Mr. HARDY. And I don't think you ought to make any such suggestion that the committee is pointing that out.

Mr. SORENSEN. Sir——

Mr. HARDY. But I do think that we may show before we finish that the manner in which your tests were run in the field certainly made it possible for a tremendous amount of chert to get into the concrete there without being detected, without it being realized.

Mr. SORENSEN. Sir, I have—pardon me.

Mr. HARDY. We are going to get to that a little bit later.

Mr. SORENSEN. All right, I don't intend to belabor the point. You and I could talk about this from now on——

Mr. HARDY. I don't intend to do that. Maybe you are the wrong witness on this, except that it was your decision. Sooner or later we will get back. I don't know. But as a matter of fact I think it was at the last session we had, when we were discussing whether or not this didn't actually constitute a revision of the specifications, this 50–50 weighting. And I understood that Mr. Davis, I believe, testified that Mr. Hampton told him that Mr. Roberts had authorized the change. Now we are getting a little round robin here.

Mr. SORENSEN. Yes, sir; I can understand your feeling on this.

Mr. HARDY. So I don't know actually where the fly in this ointment originated.

Did you have a question, Mr. Pike?

Mr. PIKE. Well, I would like to ask Mr. Sorensen this: Mr. Warner said that he couldn't remember who approved this source and how that approval was made. Can you remember who approved to Mr. Warner the source of the Oxford pit of the American Aggregate Corp.?

Mr. SORENSEN. Sir, Mr. Warner, to my knowledge, was not on the job. A Mr. Malcom P. Schaller was the project manager on this particular contract.

Mr. PIKE. That doesn't answer my question.

Mr. SORENSEN. I am sorry, sir.

Mr. PIKE. Do you know who approved the source of the Oxford pit of the American Aggregates Corp.?

Mr. SORENSEN. I think it has been brought out that, based on the laboratory analysis, that we, in effect, did approve the pit, sir.

Mr. PIKE. Who is we?

Mr. SORENSEN. The Detroit district.

Mr. PIKE. Did you, Mr. Sorensen, approve the Oxford pit of the American Aggregates Corp.?

Mr. SORENSEN. Sir, the record will show—the records we have do not indicate a formal approval of this source.

Mr. PIKE. Would you say that it was not approved?

Mr. SORENSEN. No, sir; I would say it was approved.

Mr. PIKE. Who approved it?

Mr. SORENSEN. In order not to belabor this further, sir, I think it has been shown, possibly not to this committee's satisfaction, that the Oxford pit was approved and that, again, it was approved by the contracting officer. And since I was his representative, that I would back up this approval, sir.

Mr. PIKE. The contracting officer was whom?

Mr. SORENSEN. Then Colonel Hyzer.

Mr. PIKE. Colonel Hyzer?

Mr. SORENSEN. Yes, sir.

Mr. PIKE. Now, he is the man who approved the source?

Mr. SORENSEN. No, sir; I would not even put this on him. But recall, gentlemen—this seems to be getting deeper.

Mr. PIKE. I don't think it is getting deeper. I think it is getting more circular, Mr. Sorensen.

Mr. SORENSEN. Well, this is what I apparently have failed to do. If I would talk to any one of these gentlemen—and I have nothing to hide on this thing.

Mr. PIKE. You think that the decision approving the Oxford pit, it was a proper one?

Mr. SORENSEN. Yes, sir; under the circumstances.

Mr. PIKE. If you had——

Mr. SORENSEN. Well, Mr. Chairman——

Mr. HARDY. Oh, me.

Mr. SORENSEN. Not enough credence is given to the addendum 2, sir, which states that "the approved sources listed." Those approved sources are a guide. I can't understand that. They are a guide to a contractor, but it does not say that he has to use that source. Mr. Warner this morning testified——

Mr. HARDY. You don't have to explain that to us. We know that.

Mr. PIKE. If that is a guide to a contractor, wouldn't it also be fair to say that the removal of a source from an approved list might also be a guide to a contracting officer?

Mr. SORENSEN. Yes, sir. And I think it was. It was a guide or we wouldn't have doublechecked this material, sir.

Mr. PIKE. You think that the decision was a wise one? If you had to do it all over again you would do it, and apparently anybody that had anything to do with making this decision feels the same way about it and, accordingly, I am simply amazed that nobody will come out and say, "I made the decision."

Mr. SORENSEN. Well, in retrospect, I don't think there is a person in this room who would say that they would approve it at this time. But at that time, projecting back, I still feel, sir, that this was a decision that was sound.

Mr. PIKE. Well, I am at least glad to hear that you don't think there is anybody in the room who now would make the same decision.

Mr. SORENSEN. Well, anybody, sir, who would state that he would

make the decision after this extensive investigation would have "holes in his head," so to speak.

Mr. PIKE. Thank you.

Mr. HARDY. It is a pity that somebody didn't plug up some holes in their head when they made this decision to start with.

Mr. SORENSEN. This——

Mr. HARDY. At the district level, perhaps.

Mr. SORENSEN. This may be, sir.

Mr. HARDY. I want to return very briefly to the decision to consider cherty limestone as 50 percent chert. I don't know how closely this decision is tied to the approval of the Oxford pit, but maybe we can find out. You did approve the 50-percent decision?

Mr. SORENSEN. Yes, sir.

Mr. HARDY. That was your decision.

Mr. SORENSEN. I was a decision——

Mr. HARDY. How did you arrive at that? Did you just tell somebody that was the way you would consider the cherty limestone?

Mr. SORENSEN. No, sir. If you are saying did I specifically say, "Let's use 50–50," no. It was a determination that cherty limestone—we had nothing in the specification, sir, that says that cherty limestone has this percentage of material, pardon me, limits the material. So in evaluating this material, this source, in using this, we had to take a percentage. There is a percentage of chert in this. Everybody knows this, sir. But in evaluating this under the specifications, we still felt that we were on the safe side in approving this material based on chert.

Mr. HARDY. Well, I don't understand that, but we will pursue that with somebody else.

Now let's get back for one moment, briefly, to the question of approval of the source.

Mr. SORENSEN. Yes, sir.

Mr. HARDY. The Oxford pit had to be approved as a source. I believe you indicated that, as a representative of the district engineer, you approved it.

Mr. SORENSEN. Yes, sir. That can be. By inference.

Mr. HARDY. I want to know who you told it was an approved source. We haven't been able to pin that down.

Mr. SORENSEN. Yes, sir; I understand this. And unfortunately, apparently, I am not communicating the way I wish to. My point, sir, is that in making this determination of a percentage of chert in limestone, that, in order to approve or disapprove, some credence had to be given to cherty limestone. And it is true, as Mr. Warner even stated this morning, that we never got beyond this point, of disapproval. Because with my experience in contracting procedures we would have been into a claim, sir, if we had disapproved this. We never got to this point, because we felt that our approval—that this material was correct.

Incidentally, I did not know until Mr. Warner spoke this morning that they had used, in their figures, material from the Oxford area. Because we would, sir, have no knowledge of what source the contractor used.

Mr. HARDY. Well, I don't think that is of importance as far as you are concerned, on the matters that we are discussing now.

If I remember Mr. Davis' testimony—I think he was probably talking about the 50–50 rather than the pit approval—I believe, according to Mr. Davis, Mr. Hampton quoted Mr. Roberts as having authorized the 50–50.

Mr. SORENSEN. Sir——

Mr. HARDY. Did I misunderstand that?

Mr. SORENSEN. As far as authorizing, I think that word—possibly the word should be——

Mr. HARDY. Approved?

Mr. SORENSEN (continuing). "Agreed" to it. Because the contracting officer, sir, is the one who is charged with administration.

Mr. HARDY. That is what bothers me. What is Mr. Roberts' job?

Mr. SORENSEN. Mr. Roberts is in the Ohio River Division Laboratories who run the tests for us.

Mr. HARDY. What I couldn't understand is why Mr. Hampton said you had authorized it rather than Mr. Roberts.

Mr. SORENSEN. Sir, this was——

Mr. HARDY. Of course you probably wouldn't have the answer to that.

Mr. SORENSEN. Sir, I believe—no, I don't have the answer as such. But I believe I might have the reason for it. This was a matter of discussion and asking other people's advice on what would happen, what would be done.

Mr. HARDY. Now, let me get back to the approval of the Oxford pit very briefly, again. Where does a purchase order go to?

Mr. SORENSEN. Pardon me, I didn't hear you.

Mr. HARDY. The purchase order, which Mr. Warner referred to. Where does it go to, when it is submitted?

Mr. SORENSEN. Sir, normally——

Mr. HARDY. Where did this one go?

Mr. SORENSEN. Well, where this particular one went—I have a copy of what we call our policy——

Mr. HARDY. Let's talk about this one. I want to find out actually when you saw this order.

Mr. SORENSEN. Copies of purchase orders are given by the contractor to either our field representative—many times to both the field representative and our district office staff, in order to know of the materials. Many of them, many times——

Mr. HARDY. I am interested in this one. Mr. Warner has testified that his notice in writing consisted of a purchase order.

Mr. SORENSEN. Sir, I didn't know that this became a point. And so naturally I wouldn't have—my memory is good, but certainly not this good to know the number.

Mr. HARDY. I am not interested in knowing whether it is a point or not, but is it a provision of the contract?

Mr. SORENSEN. No, sir; I don't believe it is a provision, of listing purchase orders as such. But many contractors do submit purchase orders.

Mr. HARDY. There is a provision in the contract that there shall be notice in writing.

Mr. SORENSEN. Yes, sir.

Mr. HARDY. Now there was no notice in writing according to Mr. Warner, except the purchase order?

Mr. SORENSEN. Right.

Mr. HARDY. Now he gave the purchase order to somebody. How can you approve a source—and this was apparently your responsibility?

Mr. SORENSEN. Yes, sir.

Mr. HARDY. Without having been sure that there had been compliance with the requirement that notice in writing had been submitted? The contract called for that. And you now don't know whether you ever saw the purchase order or not, if I understood you.

Mr. SORENSEN. Sir, are you asking me after 6 years to remember, sir, in administering several hundred million dollars worth of work—do I remember one purchase order?

Mr. HARDY. Was this a single purchase order for the whole contract?

Mr. SORENSEN. No, sir. For the aggregate, sir, I believe.

Mr. HARDY. I am talking about for the aggregate.

Mr. SORENSEN. I don't remember one—if it was shown to me, I may, by my powers of recollection, recall whether I saw it or not. But at this stage, sir, I can't say that.

Mr. HARDY. That isn't too surprising; but that was a requirement of the contract, that there be a notice in writing?

Mr. SORENSEN. Yes, sir.

Mr. HARDY. So we can't establish whether or not——

Mr. SORENSEN. Right.

Mr. HARDY. You had it before you. You knew about it, when you approved the source, the Oxford pit.

Mr. SORENSEN. Sir, could I restate that? I knew whether it was at this minute or 2 weeks later. At one time I knew. And I will say I knew of the Oxford approval.

Mr. HARDY. Oh, yes, you knew of the Oxford approval. You had to approve it.

Mr. SORENSEN. Because—pardon me. The statement "of approval" was wrong. "Of the Oxford problem with the material" because of the design mix that had been sent down, sir.

Mr. HARDY. All right. Let's get on to something else. I give up on this one. I have something I want to pursue with Mr. Zackrison.

Mr. Zackrison, what is the responsibility of the Chicago office for approving specifications of contracts administered by the district offices?

Mr. ZACKRISON. The North Central Division which I assume is what you are referring to, the Chicago office——

Mr. HARDY. I am talking about your office.

Mr. ZACKRISON. There is another Chicago district office, so I am assuming you are referring to the North Central Division.

Mr. HARDY. Well, let me rephrase it. What is the responsibility of the North Central Division for approving the contracts of the district offices which work under the North Central Division?

Mr. ZACKRISON. I can't speak for the contracts. I can speak for the engineering.

Mr. HARDY. The specifications.

Mr. ZACKRISON. They have the responsibility for review and approval.

Mr. HARDY. For review and approval. Now the North Central Division had before it the specifications for the Richard I. Bong Airfield and the Selfridge runways at approximately the same time?

Mr. ZACKRISON. Yes, sir.

Mr. HARDY. Can you explain the difference in the specifications with respect to chert and cherty limestone?

Mr. ZACKRISON. No, sir; I can't, because I wasn't——

Mr. HARDY. Well, now, the North Central Division had a responsibility for approving them both.

Mr. ZACKRISON. I would say that the question should be addressed to North Central Division, because I never saw the specification until recent weeks.

Mr. HARDY. That would be Mr. Davis' responsibility or somebody else's?

Mr. ZACKRISON. It would be the Chief of the Engineering Division and under him—Mr. Davis can speak to whether he had been assigned this responsibility or not. That I can't say. But I would assume he had been assigned that.

Mr. HARDY. What responsibility if any does the Chief's office have with respect to specifications in the individual contracts? Any other than just providing the general guidance which is included in this manual that we have discussed?

Mr. ZACKRISON. We do not review and approve individual project specifications unless specifically requested to do so by the division or district. And normally we—our policy is this, sir, that we have one review and approval, rather than several, first of all to reduce expense and to reduce the time involved. But we do require one review and approval by one echelon higher than that which prepares the specification.

Mr. HARDY. So in this case it would be the North Central Division?

Mr. ZACKRISON. That is correct, sir. If the division had prepared the material, we would have reviewed it.

Mr. HARDY. I see. In this case the district offices—in the case of both of these contracts, Bong and Selfridge, those specifications were originally prepared in the Detroit district office?

Mr. ZACKRISON. That is correct, sir.

Mr. HARDY. And they were submitted to the North Central Division?

Mr. ZACKRISON. That is correct.

Mr. HARDY. For review and approval?

Mr. ZACKRISON. In the case of Bong, I believe that that wasn't prepared in the Detroit district. I believe that was prepared, I think, in the Chicago district at that time, who were preparing the specifications.

Mr. HARDY. I think the documents indicate that they were prepared in the Chicago district. But nevertheless, both of these cleared through the North Central Division?

Mr. ZACKRISON. Yes, sir.

Mr. HARDY. And were approved by the North Central Division?

Mr. ZACKRISON. I would assume so.

Mr. HARDY. Well, don't you know so, from the documents that you have looked at?

Mr. ZACKRISON. Well, I haven't reviewed the Bong case. I have reviewed the Selfridge case.

Mr. HARDY. I thought maybe you had looked at this document which you handed us this morning.

Mr. ZACKRISON. I haven't reviewed this document, sir, and that would indicate that they had reviewed and approved it. I can't tell you that they review the whole document. They asked us a question and we answered.

Mr. HARDY. I am talking about specification now.

Mr. ZACKRISON. Yes, sir; we answered.

Mr. HARDY. The specifications are appended to this particular document which was signed by Mr. Thorley.

Mr. ZACKRISON. But that particular part of the specification was reviewed; yes, sir.

Mr. HARDY. That was reviewed in the Chief's Office, too?

Mr. ZACKRISON. Yes, sir.

Mr. HARDY. So the specifications were approved by the Chief's Office and by the North Central Division?

Mr. ZACKRISON. With respect to that provision.

Mr. HARDY. And sent back to the Chicago district with respect to Bong?

Mr. ZACKRISON. With respect——

Mr. HARDY. And this was in the same time frame that the Selfridge specifications were under consideration, at least in the Chicago district—I mean——

Mr. ZACKRISON. North Central Division.

Mr. HARDY. North Central Division?

Mr. ZACKRISON. Yes, sir.

Mr. HARDY. I have difficulty understanding why the North Central Division would approve different specifications on two contracts that are in essentially the same geographical area and have essentially the same climatic problems. Of course, you can't answer that. You are not in the division.

Mr. ZACKRISON. No, sir.

Mr. HARDY. All right. Anything further?

Mr. REDDAN. Just one further question: As I understand your testimony, the contractor was permitted to use aggregate from the Oxford pit because of this 50–50 decision on cherty limestone; is that correct, sir?

Mr. SORENSEN. I don't understand your question as such, Mr. Reddan.

Mr. REDDAN. The report from the Ohio River Laboratory of August 18, 1958, placed chert and cherty limestone into two different categories, did it not?

Mr. SORENSEN. That is correct.

Mr. REDDAN. And stated that the cherty limestone would have the same effect as the chert, or something to that effect? I will get that for you in just a second.

Mr. SORENSEN. I read the statements.

Mr. REDDAN. Now, as I understand your testimony, it was the district's interpretation of that report, the interpretation being that cherty limestone could be considered as 50 percent chert.

Mr. SORENSEN. Well——

Mr. REDDAN. That decision is what you used as a means of bringing the aggregate within Corps of Engineers specifications; is that right, sir?

Mr. SORENSEN. Mr. Reddan, I think it is rather unfair to say to use "as a means," because it appears to me it may be a leading question.

Mr. REDDAN. You characterize it, sir. You use your own words.

Mr. SORENSEN. Yes.

Mr. REDDAN. I mean, without that decision you couldn't have used it. Would it be fair to say that?

Mr. SORENSEN. Let's put it this way: When this came in, knowing that the definition that they give to this states that cherty limestone is mostly carbonate—I don't want to appear to be repetitious, because I think I have stated this a number of times—we felt, I still feel, that cherty limestone, as such, must contain less, a smaller amount by far, of chert, or its would not be called that by definition. It wouldn't be called cherty limestone, if it wasn't a small percentage, if there wasn't a small percentage of chert in the limestone, and the statements are—I think the "big"—and I can understand your frustration, gentlemen, in trying to get to the nub of this cherty limestone. There is not agreement in the engineering field on cherty limestone. In fact, there is now, and there has been for a considerable time, research on this cherty limestone problem. And I understand the Michigan State Highway Department right at this present time is going into research on chert and cherty limestone.

Mr. REDDAN. Yes, Mr. Sorensen, this is all very interesting, but it is not pertinent to my question.

Mr. SORENSEN. I am sorry, sir.

Mr. REDDAN. What I am trying to find out is whether or not you could have used the aggregate from the Oxford pit without having made this 50–50 decision.

Mr. SORENSEN. Without having—it may seem peculiar—without having that one in front of me at this moment——

Mr. REDDAN. What do you want, sir?

Mr. SORENSEN. That 18th of August report.

Mr. REDDAN. Yes, sir. Hand him a copy of this.

You have just looked at the Ohio River laboratory report.

Mr. SORENSEN. Yes, sir.

Mr. REDDAN. For—what is the date of that, sir?

Mr. SORENSEN. August 18, 1958.

Mr. REDDAN. Now, could you answer my question?

Mr. SORENSEN. Would you restate the question, sir? I am sorry.

Mr. REDDAN. Could the Oxford pit aggregate have been used on this job if the Detroit district had not made this 50–50 decision with respect to cherty limestone?

Mr. SORENSEN. In looking at this now, I see that depending—as we know, this cherty limestone is the key to this whole problem.

Mr. REDDAN. That is right.

Mr. SORENSEN. Based on this—mind you, there is no item in the contract on cherty limestone being called deleterious.

Mr. REDDAN. That is right. And I know how the Michigan State Highway Department considers it and so forth. But would you just answer my question, Mr. Sorensen, please, sir.

Mr. SORENSEN. Based on my interpretation—well, I will be presumptuous, because I know what you are asking—based on—"if some one else had interpreted this, sir," if this is what you are leading to—if someone else had interpreted cherty limestone as being totally dele-

terious. Yes, this material would have met this specification, because it would have been under the 5 percent total deleterious material, if you did not consider cherty limestone as being chert but as a deleterious material. But I submit, sir, that we had nothing in this contract which says that cherty limestone, as such, is deleterious material.

Mr. REDDAN. What does that report show with respect to chert and cherty limestone?

Mr. SORENSEN. Cherty limestone, on the 1- to 2-inch stone, 1.9.

Mr. REDDAN. Combine it for us, please, sir.

Mr. SORENSEN. 4.9, or an average of 2.45.

Mr. REDDAN. 2.45, and that is which?

Mr. SORENSEN. That is the cherty limestone.

Mr. REDDAN. And how much for the chert do you have?

Mr. SORENSEN. Chert is 3.2, or 1.6.

Mr. REDDAN. All right. Now, if you combine your cherty limestone and your chert, it will not meet the specifications, will it?

Mr. SORENSEN. Sir, under the specifications, how could we combine——

Mr. REDDAN. You wrote the specifications, Mr. Sorensen. Now you say you are hung up by them, you wrote them. If you failed to put in cherty limestone, that is your fault, no one else's. These were written in Detroit.

Mr. SORENSEN. Yes, sir; it was written in Detroit.

Mr. REDDAN. Now, you say you are stuck with it because you didn't mention it.

Mr. SORENSEN. Sir, if I inferred that——

Mr. REDDAN. That is what I——

Mr. SORENSEN. I did not intend to infer that we are stuck with anything, because I am a Detroit district——

Mr. REDDAN. Then you must close your eyes to it because you didn't think to put it in.

Mr. SORENSEN. No, sir; there was no eye closing in this, sir.

Mr. REDDAN. All right, having made this decision, this 50–50 decision, you applied it to this report, did you not, sir?

Mr. SORENSEN. Yes, we would have had to have applied it to this report because this was the basis for it.

Mr. REDDAN. And with that 50–50 decision, that would bring the aggregate within the then prescribed limits of the Corps of Engineers specifications.

Mr. SORENSEN. For chert; yes, sir.

Mr. REDDAN. Now, having done that and having gotten the Oxford pit approved in that manner, did you ever again apply the 50–50 rule?

Mr. SORENSEN. The reason I am hesitating, sir, is not because I am trying to reconstruct some things, but because I was in and out of the district a number of times because of a health problem for a few weeks. But yes, in July—I think it was in our previous day's testimony, that I tried to clear this up—I apparently don't seem to be doing what I am trying to clear up—is that in July there was another one run; yes, sir.

Mr. REDDAN. In July of what year?

Mr. SORENSEN. In July of 1959. That was sent to the laboratories.

Mr. REDDAN. You have that July test before you there, sir? Would you read the results of that test to the committee. Show him where that is. The July 1959 test.

Mr. SORENSEN. Are you referring, sir, to the July 14, 1959, letter, what was submitted to the North Central Division?

Mr. REDDAN. No. I am referring to the report that you just referred to, from the Ohio River laboratory.

Mr. SORENSEN. Well, it was appended as an enclosure to this, sir.

Mr. REDDAN. All right. Then you have it before you, sir.

Mr. SORENSEN. Yes.

Mr. REDDAN. What does that show with respect to the chert content of the aggregate?

Mr. SORENSEN. You want the average of the two, as we discussed before?

Mr. REDDAN. No. Just take the chert, the plain chert, and see what you come up with.

Mr. SORENSEN. 2.2 and 1.7. It would be 1.95. Is this the one you are referring to here?

Mr. REDDAN. [Indicating.]

Mr. SORENSEN. This one.

Mr. REDDAN. 3.9.

Mr. SORENSEN. Yes.

Mr. REDDAN. And your cherty limestone is what, sir?

Mr. SORENSEN. 4.9 total. Or average of the sample, 2.45.

Mr. REDDAN. And you add the two together and what do you get, sir?

Mr. SORENSEN. I made a miscalculation here someplace apparently. Oh, I haven't taken half of that, sir. I have too many figures in. Over 3 percent, sir. My figures are garbled.

Mr. REDDAN. So that even with the application of the 50–50 rule in 1959, it showed that the aggregate was running higher than the specifications allowed.

Mr. SORENSEN. Sir——

Mr. REDDAN. For chert.

Mr. SORENSEN. Sir, this true from one sample, from one checked sample.

Mr. REDDAN. All right. Now, did you send them another one to see if you could get the next one to pass, or did you rely on this one?

Mr. SORENSEN. Sir——

Mr. REDDAN. Did you rely on this sample, Mr. Sorensen?

Mr. SORENSEN. Sir, reliance as far as doing something about it, I believe yes, sir. I know—I don't want to say I believe, because I believe the committee doesn't want me to say this—"think." If I don't know, to say so. Our people did something about it, yes, sir.

Mr. REDDAN. And what did they do, sir?

Mr. SORENSEN. As far as I am concerned, as Mr. Hampton, again, testified yesterday, or the other day, this shook us up.

And, incidentally, so I won't sound presumptuous, in July I think I have indicated to the committee I was not in the district, when this letter was written. I was here when the sample was taken, and I saw the results of it after I came back. But my memory serves me on this, that there was considerable discussion with our laboratory people on making sure of test reliance data—in other words, our inspectors making sure that they are performing their function correctly.

And, incidentally—I don't have any notes here with me. But the point seems to be that if we take two samples, where two people run them, that they are going to come out with exactly the same answer. And I have a copy—there could be a copy made available to the committee—of results in research run by a Michigan Tech professor on this very thing we are talking about, and that is the difference between laboratory techniques and field techniques.

Mr. REDDAN. Well, let's talk——

Mr. HARDY. We will get into that a little bit later.

Mr. SORENSEN. Yes, sir, I understand.

Mr. HARDY. That is something that I don't believe we want to pursue now.

Mr. SORENSEN. No, I understand, sir.

Mr. HARDY. Based on the tests that were run in the laboratory, the aggregate was not acceptable; is that right?

Mr. SORENSEN. Based on one, sir.

Mr. HARDY. That is right, based on this one, the aggregate was not acceptable; is that correct?

Mr. SORENSEN. Based on one, sir, out of many.

Mr. HARDY. What other ones do you have?

Mr. SORENSEN. We have many tests that were run on this.

Mr. HARDY. By the laboratory? The laboratory test that you had before you showed that the aggregate which it tested was not acceptable. Now, you were asked what was done about it. You said a lot of things were done. I don't know what was done. Maybe something definite was.

Mr. SORENSEN. Sir, I think possibly the laboratory people can——

Mr. HARDY. Wait just one minute. Is there any record that any single quantity of it was rejected because of too much chert?

Mr. SORENSEN. Sir, in order not to——

Mr. HARDY. Do you know? If you don't know, just say you don't know.

Mr. SORENSEN. Sir, I know of many tests that were run and saw them, but not—I don't have them today, sir.

Mr. HARDY. I didn't ask you that, Mr. Sorensen. I don't want to get you confused.

Mr. SORENSEN. You are not, sir.

Mr. HARDY. I just wanted to know whether, of your own knowledge, subsequent to this particular test that was run by the laboratory which showed that the material was not acceptable, there is any record of aggregates being rejected.

Mr. SORENSEN. Sir, I couldn't tell you what record was available.

Mr. HARDY. You don't know that there was any, now do you, of your knowledge? Well, that is either "Yes" or "No."

Mr. SORENSEN. Well, sir, sometimes a "Yes" or "No" is not the correct answer.

Mr. HARDY. Well, in this situation there can't be any answer but "Yes" or "No." If you know that there was a specific load rejected, why that would be "Yes." If you don't know of any, the answer is "No." And it is just as simple as that, Mr. Sorensen. And you can make all the explanations in the world as to why you don't know, it doesn't make any difference.

Mr. SORENSEN. Sir, again I don't want to be presumptuous on this. But it would appear that the committee would expect—and as I say I don't want—this is only a statement. I know that you don't feel this way. But that one person could do all these things and have a complete knowledge of this——

Mr. HARDY. Oh, no——

Mr. SORENSEN. I depended on my staff.

Mr. HARDY. All right.

Mr. GUBSER. If he doesn't have knowledge, his answer is "No," isn't it?

Mr. HARDY. Your answer is "No."

Mr. SORENSEN. OK, sir.

Mr. HARDY. It has to be.

Mr. SORENSEN. To clear the record, on this specific one, on the 14th of July 1959, my answer is "No."

Mr. HARDY. Well, this didn't have anything to do with that at all. I asked you if you had any knowledge of any rejection following that test. And you can't answer it in the affirmative.

Mr. SORENSEN. Yes, sir, I had knowledge at the time, but I can't come forward at this moment, sir.

Mr. HARDY. I didn't ask you for a specific date. I asked you if you had any knowledge, and you haven't been able to answer that in the affirmative.

Mr. SORENSEN. Sir, I have knowledge of it, I had knowledge at the time of numerous loads that were rejected at the pit as a result of this, sir.

Mr. HARDY. As a matter of fact, the specific material from which this sample was taken should have been rejected?

Mr. SORENSEN. No, sir. This is an average sample, sir. I don't mean to contradict you, sir, but this is a matter—the engineers in this room know what I am speaking of, sir. This is based on continuous sample checking of materials. And this is not an exact science, which is proven by the research that is presently going on.

Mr. HARDY. It is not an exact science, but if you come up with a test that exceeds your specifications, then you are violating the law if you accept it and know it as well as I do.

Mr. SORENSEN. No, sir. This is based on continuous check testing, sir.

Mr. HARDY. Well, I don't know what this sample consisted of but if you have a right to accept material that has more deleterious matter in it than the specifications allow, then there is no need of drawing specifications, Mr. Sorensen.

Mr. SORENSEN. Sir, you and I differ in this, and we could talk about it from now on.

Mr. HARDY. Well, I want to ask Mr. Zackrison about that.

Mr. Zackrison, is a contracting officer authorized to accept materials that are shown by laboratory test to exceed the specifications?

Mr. ZACKRISON. It is expected of him that he check test material to see if that was a true sample, and if not, if it didn't meet it, to reject it.

Mr. HARDY. Is there any evidence that there was a second sample taken of this material?

Mr. ZACKRISON. I have no evidence, sir, and I can't answer for the district. I don't know if this has been explained to the committee.

It it my understanding that there are two types of tests made. One was at the pit when they took it off the conveyor, and one when they received the material and put it in the stockpile.

Mr. HARDY. Well, taking it off the conveyor is a very interesting part of the testing.

Mr. GUBSER. Mr. Chairman.

This was a lab test?

Mr. HARDY. That is right.

Mr. GUBSER. That we are speaking of right now, isn't this right?

Mr. SORENSEN. This 14th of July, Mr.——

Mr. GUBSER. Yes.

Mr. SORENSEN. There were two tests. This is what was discussed last week. One was run by the field people and one in the laboratory, yes, sir.

Mr. GUBSER. Yes. But the one that the chairman was speaking of, that he says should have been rejected, was a lab test, right?

Mr. SORENSEN. I think he is talking about the ORDL Laboratory report that accompanied the 14th of July letter from the district.

Mr. GUBSER. Were any lab tests made subsequently?

Mr. SORENSEN. Sir, what type of lab test now are we referring to?

Mr. GUBSER. The same type as this one we have been talking about.

Mr. SORENSEN. Petrographic analysis?

Mr. GUBSER. Yes.

Mr. SORENSEN. To my knowledge, no sir.

Mr. GUBSER. In other words, your petrographic test showed that there was an overage of deleterious materials, and yet you didn't turn down or reject any of the loads because of that test, nor did you have any subsequent tests made.

Mr. SORENSEN. Sir, I submit——

Mr. GUBSER. Well, now, did you have any subsequent tests made?

Mr. SORENSEN. Not on that, not at ORDL, but our people ran continuous ones, sir.

Mr. GUBSER. Yes; but you already told us that there is frequently a wide variance of findings between the field test and the laboratory test.

Mr. SORENSEN. And, sir, between the same field tests.

Mr. GUBSER. Yes; that is right. But the point is that after you had one laboratory test made which showed there was an overage of deleterious materials, you didn't reject anything on the basis of that test, nor did you ask for a subsequent lab test.

Mr. SORENSEN. Sir, I think this is a leading question.

Mr. GUBSER. Now did you ask for a subsequent lab test?

Mr. SORENSEN. Pardon, sir?

Mr. GUBSER. Did you ask for another lab test at a later date?

Mr. SORENSEN. To my knowledge, no sir.

Mr. GUBSER. No. In other words, you completely discredited the lab test?

Mr. SORENSEN. No, sir, we didn't discredit anything.

Mr. GUBSER. Well, you sure as heck ignored what you found out from it.

Mr. SORENSEN. I don't think we ignored it, sir.

Mr. GUBSER. Well——

Mr. HARDY. You have just made a statement that you did reject the material. Your earlier statements are not consistent with that.

Mr. SORENSEN. Sir, I don't think they are inconsistent. I say we had rejected—through this job we rejected much material. And the records I think will show this. Unfortunately, our records—incidentally, could I ask are there any other records? I have not talked to any contractors. There were records made, and I submit that there were records made at the pit, because we had a man there, and we rejected material at the pit, not at the Selfridge Air Force Base but at the pit.

Mr. HARDY. Well, we have got records of tests, the one at the pit—is that where they were run?

Mr. REDDAN. Yes, at the pit.

Mr. HARDY. But there isn't a single rejection in the whole batch that we have been able to find.

Mr. SORENSEN. Isn't there, sir?

Mr. HARDY. We have been trying to find a single one and haven't been able to. That is why we are trying to get information.

Mr. SORENSEN. I understand.

Mr. HARDY. This is unfortunate. It indicates somebody didn't do his job right, unless there is something we don't know anything about.

Mr. SORENSEN. Sir, I say this advisedly. Under oath, sir, I would state that there were many lab tests run and that there were rejections of materials.

Mr. REDDAN. Lab tests——

Mr. SORENSEN. Field tests.

Mr. REDDAN. You are not talking about the Ohio River Laboratory?

Mr. SORENSEN. No, sir; field tests run, and that there were rejections as a basis of this. What more, sir, can I say?

Mr. HARDY. I don't know there is anything else you can say, Mr. Sorensen.

Mr. SORENSEN. OK, sir. I am trying to keep the record straight in regards to the Detroit district and to show that we are still a professional district and show that the Corps of Engineers is a professional organization.

Mr. GUBSER. When you were having trouble, why didn't you ask for any further, what do you call it, petrographic tests?

Mr. SORENSEN. I think——

Mr. GUBSER. Why did you stop at the one?

Mr. SORENSEN. I think you answered—one of these fellows said the other day that they don't have 20–20 hindsight glasses. To ask me why at this stage—sure, knowing this, we would have run some, and not finished the job, because petrographic tests, as we indicated, take much more time. And we didn't think they were indicated.

Mr. GUBSER. Well, perhaps this is a farfetched simile, but if you went to one doctor and submitted to one test and it showed you to have a cancer and another test from another doctor showed you not to have a cancer, would you refuse to pursue what the first doctor told you?

Mr. SORENSEN. No, sir.

Mr. GUBSER. Or would you think enough of your body that you would go out and take care of yourself?

Mr. SORENSEN. Yes, sir. I think the simile is unfair.

Mr. GUBSER. It is just as ridiculous in this case, sir.

Mr. SORENSEN. That is your privilege, sir.

Mr. HARDY. Well, I don't know—we have got what it says here is the wall chart for gradation and moisture control of concrete aggregates. And this supposedly is a chart on which a record of each of these tests was made. And during this whole period of time we find one rejection.

Mr. SORENSEN. Sir——

Mr. HARDY. Let's see if we can find the date of it. This is apparently May 21, 1959. I believe we have no records from 1958.

Mr. SORENSEN. May, the 21st——

Mr. HARDY. I believe these are purported to represent all of the records from May 1 through September 30, 1959.

Mr. SORENSEN. Yes, sir.

Mr. HARDY. There is only one that we have located on there that shows any rejection.

Mr. SORENSEN. Sir, you are talking about sometime in May 1959, a record of 40 carload rejections?

Mr. HARDY. Yes.

Mr. SORENSEN. To explain that, this was the first time—because of this rejection and because it was delaying, or would delay a program, at that time, sir, we put people at the pit to check the cars after they were loaded but before they came to Selfridge, in order to avoid having material come onto the job that would be subsequently rejected. And this was the reason for that. After that they were checked and rejected, sir, right at the pit.

Mr. HARDY. Well, why wouldn't the rejection show on this chart? This is the only rejection that appears.

Mr. SORENSEN. This rejection, sir, was at the plant, at Selfridge, right at the batch plant, this 40-carload rejection.

Mr. HARDY. But you didn't continue to do that, did you?

Mr. SORENSEN. We doublechecked, sir. But we also had a group at another place checking the cars before they left the pit.

Mr. HARDY. What is this chart? Is this at the plant or is it at the pit?

Mr. SORENSEN. Sir, it is at the plant.

Mr. HARDY. Well, this is at the plant. And this particular 40-car rejection is the only single rejection that we have been able to find on there.

Mr. SORENSEN. Yes, sir. It is the only one shown on that chart. I am trying to say, sir, that after the 21st of May, or whatever, the 25th——

Mr. HARDY. Everything was perfect.

Mr. SORENSEN. No, sir. As a result of this, we sent people to the pit to reject the material before it was shipped out of that pit. And this is why you will find that there weren't rejections. They weren't released until they were passed.

Mr. HARDY. Do you want the committee to understand that there was actually an inspection and test of the material twice, once at the pit and once at the job?

Mr. SORENSEN. Yes, sir. This is exactly what it was.

Mr. GUBSER. Is that customary in normal procedure in a job of this kind, to test in both places?

Mr. SORENSEN. Well, that is really hard to say, whether it was customary or not.

Mr. HARDY. Who paid for this extra service?

Mr. SORENSEN. I think it is shown that the Government is responsible for approval of materials.

Mr. HARDY. It is responsible for establishing two different checkpoints?

Mr. SORENSEN. No, sir. But we are forgetting one thing. This was a job of extreme urgency. I don't—you don't care to hear this.

Mr. HARDY. I am not forgetting that it was urgent, but it was also pretty urgent that it be properly done.

Mr. SORENSEN. Yes, sir. This is what we thought we were doing, sir.

Mr. GUBSER. Would you name one other job that you have been connected with at which there was an inspection at both the pit and the batching plant, continuous inspection, as there was in this Selfridge job?

Mr. SORENSEN. I think we have had others.

Mr. GUBSER. Well, can you name one? From the information presently at your disposal, could you name one?

Mr. SORENSEN. You are taxing my memory now, sir, but I believe at Wurtsmith that was also done.

Mr. GUBSER. Is this highly unusual?

Mr. SORENSEN. Yes, sir; it is unusual.

Mr. GUBSER. Why is it highly unusual?

Mr. SORENSEN. Well, the word "highly"—it may be unusual. It is a matter of semantics.

Mr. GUBSER. Yes; it is. I will let you take your own interpretation.

Mr. SORENSEN. All right, sir.

Mr. GUBSER. Is it normal on a job to have this inspection at both places?

Mr. SORENSEN. Now, I picked up the thread, sir. If you will recall, the statement was made in a laboratory report that this material would have to be—we would have to watch it. This was an alert to us from our laboratory. This is one of the reasons it was done this way. Does that answer your question, sir?

Mr. GUBSER. Have you ever had this situation occur before?

Mr. SORENSEN. I believe so.

Mr. GUBSER. On any job that you have been connected with?

Mr. SORENSEN. Yes, sir. I don't think——

Mr. GUBSER. Could you name one [witness handed paper]?

Mr. SORENSEN. Thank you.

Mr. Davis has just refreshed my memory there. There were also check tests run of aggregates for the Wurtsmith project.

Mr. GUBSER. Were they on the job at all times at both places, the pit and the batching plant?

Mr. SORENSEN. Are you ready, sir?

Mr. GUBSER. Yes, sir.

Mr. SORENSEN. Your question was were they continuous?

Mr. GUBSER. Yes.

Mr. SORENSEN. As such, I would have no direct knowledge of it, whether there was a man there all the time. But I would have to rely on my staff for that.

Mr. GUBSER. All right. Now what was the name of this other job? Would you repeat it for me, please?

Mr. SORENSEN. Wurtsmith Air Force Base.

Mr. GUBSER. Was this 50–50 formula with regard to cherty limestone also used at this Wurtsmith job?

Mr. SORENSEN. I would—this, again, is taxing my memory, because these two jobs were within, as I recall, a month of each other. I can't, to state categorically that it was, without having some paper to refresh my memory, I couldn't state positively.

Mr. GUBSER. I believe there has been made available to the committee information which indicates that it was used at the Wurtsmith job. Now, was Mr. Hampton connected with the Wurtsmith job?

Mr. SORENSEN. Yes, sir.

Mr. GUBSER. Was American Aggregates connected with the Wurtsmith job?

Mr. SORENSEN. On the contract, sir? You are talking about the contract job?

Mr. GUBSER. Yes. Were they?

Mr. SORENSEN. No, sir. To my knowledge they had nothing——

Mr. GUBSER. Were they as a subcontractor, or did they have anything to do with the Wurtsmith job?

Mr. SORENSEN. No, sir.

Mr. HARDY. Are you through?

Mr. GUBSER. Yes.

Mr. HARDY. Let me just explore a little bit more what happened at the inspection at the pit. What did they do at the pit? Did they do any blending at the pit or was that done at the plant?

Mr. SORENSEN. Sir, which blending?

Mr. HARDY. I don't know. Any.

Mr. SORENSEN. In processing, sir, in processing aggregates there is a blending, yes, because of their—they have much machinery in any of these pits for processing, because this is what it is. It is processing materials.

Mr. HARDY. Well, is it blended again when it gets to the point of use, the mix?

Mr. SORENSEN. Blending,? If you mean whether other sizes of aggregate——

Mr. HARDY. Well, I don't know. The word "blending" has been used. I am not expert in this area.

Mr. SORENSEN. No, sir. I realize that.

Mr. HARDY. I am just trying to understand what happened.

Mr. SORENSEN. I am trying to reach for your term "blending." sir. If you could clarify?

Mr. HARDY. Wasn't there a blending of materials on this job?

Mr. SORENSEN. Yes, sir.

Mr. HARDY. Well, I asked you whether or not it was blended at the pit or at the plant or where.

Mr. SORENSEN. There was material blended at the pit, yes, sir.

Mr. HARDY. Well, was it also blended at the plant?

Mr. SORENSEN. Blending is a word that we use, and we did use and the contractor has used, for recrushing material at the pit in order to conform to a specification. The blending that you are probably talking about is that. Yes, that was done at the pit.

Mr. HARDY. Done at the pit?

Mr. SORENSEN. Yes, sir.

Mr. HARDY. Was there any blending done at the plant?

Mr. SORENSEN. The blending that was done at the plant was the various size aggregates that were used to make up this composite of concrete; yes, sir, if you want to call that blending.

Mr. HARDY. Well, I don't know what you call it. But I was trying to find out whether or not there was any blending at the plant to make sure that the deleterious content was within specifications.

Mr. SORENSEN. At the pit, sir, yes.

Mr. HARDY. At the plant?

Mr. SORENSEN. There would be no way to do that, sir, at the plant as such——

Mr. HARDY. All right. Here is a record of samples taken at the pit—I don't know how many cars There are eight cars represented on this particular letter, signed by Duane Salswedel.

Mr. SORENSEN. I don't know him—oh, pardon me, I know him.

Mr. HARDY. What?

Mr. SORENSEN. You are talking apparently about something from American Aggregates now.

Mr. HARDY. American Aggregates has some records you all don't, apparently. This is a letter addressed by Mr. Salswedel to Mr. Evans, American Aggregates. He says:

Listed below are the test results of the samples taken by Mike Demma of the Corps of Engineers on July 2, 1959.

and he lists eight cars.

Mr. SORENSEN. Yes, sir.

Mr. HARDY. Of the eight, four of them exceed the 5-percent total for deleterious material, and three of them exceed the 3 percent allowed for chert. There isn't anything said about cherty limestone on here. This is inspection made at the pit. And you said there is no blending at the plant. Now how do you account for that one?

Mr. SORENSEN. I don't get—I don't understand the line of reasoning, sir.

Mr. HARDY. There is no line of reasoning. I raised a question here. I asked you whether there was any blending or whether the blending was at the pit. You testified that the blending was at the pit.

Mr. SORENSEN. Well, sir—maybe I understand. In building up a stockpile, if this is what you mean by blending—yes, in building up a stockpile this material would all become part of the conglomerate material in the stockpile. Perhaps——

Mr. DZWONKIEWICZ. Mr. Chairman——

Mr. HARDY. I tried my best to get you to give a complete picture of it. And now that I have showed you that there were cars shipped from the pit that had more deleterious material than was permissible, you try to rationalize its use.

Mr. SORENSEN. I am not trying to rationalize.

Mr. HARDY. I don't appreciate this testimony at all, sir.

Mr. SORENSEN. All right, sir.

Mr. DZWONKIEWICZ. Mr. Chairman, maybe I can help out a little bit on this.

Mr. HARDY. Who are you?

Mr. DZWONKIEWICZ. My name is Frank Dzwonkiewicz.

Mr. HARDY. Now let me see who you are before we get your testimony, because as far as I know, you are just a visitor.

Mr. DZWONKIEWICZ. Sir, I was in charge of the central testing laboratory at Selfridge, as distinguished from the project laboratory at the plant. In 1958——

Mr. HARDY. Well, I don't know whether you are the witness I want on this one or not. And I am not sure that I understand just what your job was.

(Discussion off the record.)

Mr. HARDY. Since we have to go answer a quorum call, I think we had better adjourn now until after lunch.

I want to get as complete information as we can, and I want it to be as accurate as possible. We have a volunteer witness now that I didn't even know was here, and he is a gentleman I have never heard of, and I am not sure who put him up here, anyhow we are glad to have him if he can really shed any light on this matter.

So we will adjourn now, to reconvene at 2 o'clock.

(Whereupon, at 12:21 p.m., the subcommittee was adjourned, to reconvene at 2 p.m.)

AFTERNOON SESSION

Mr. HARDY. Let the committee come to order.

Let the record show the presence of Mr. Norblad and myself, constituting a quorum under the committee rules.

All right, Mr. Reddan, where do you want to start?

Mr. REDDAN. We will start with these gentlemen here, along with Mr. Giacomini.

Mr. HARDY. Mr. Giacomini, come up here, if you will.

Mr. REDDAN. Would you please give the reporter your full name and address, sir?

TESTIMONY OF JOSEPH M. GIACOMINI, CONSTRUCTION MANAGEMENT ENGINEER, BALTIMORE DISTRICT, CORPS OF ENGINEERS

(A biography of Mr. Giacomini appears in app. I, p. 202.)

Mr. GIACOMINI. Joseph Matthew Giacomini, Baltimore, Md.

Mr. REDDAN. Where are you employed at the present time, sir?

Mr. GIACOMINI. I am employed with the Baltimore district, Corps of Engineers.

Mr. REDDAN. In 1958–59 where were you employed?

Mr. GIACOMINI. I was employed with the Detroit district, Corps of Engineers.

Mr. REDDAN. In what capacity, sir?

Mr. GIACOMINI. I was employed as a Chief of the Field Project Laboratory, for testing of materials.

Mr. REDDAN. The Field Project Laboratory out at the Selfridge Air Force Base?

Mr. GIACOMINI. Yes, sir.

Mr. REDDAN. Was there another laboratory at Selfridge?

Mr. GIACOMINI. Yes, sir; there was the Central Testing Laboratory.

Mr. REDDAN. What was the relationship between the field laboratory and the Central Testing Laboratory?

Mr. GIACOMINI. The Central Testing Laboratory only does tests that the field laboratory couldn't handle.

Mr. REDDAN. I am sorry——

Mr. NORBLAD. Please speak up. We can't hear you.

Mr. REDDAN. I couldn't hear.

Mr. GIACOMINI. The Central Laboratory handles tests that the field laboratory couldn't handle.

Mr. REDDAN. Now, with respect to the test on aggregates, which is our principal concern here today, were there any tests which the field laboratory could not handle?

Mr. GIACOMINI. At the time I was there, we handled all tests.

Mr. REDDAN. During what period of time were you with the Field Laboratory, sir?

Mr. GIACOMINI. That would be practically April or May of 1959, through the fall.

Mr. REDDAN. Who headed the field laboratory prior to your tenure?

Mr. GIACOMINI. I do not remember the man's name.

Mr. REDDAN. And who appointed you the head of the laboratory?

Mr. GIACOMINI. I was appointed by Mr. Hampton.

Mr. REDDAN. Mr. Hampton?

Mr. GIACOMINI. Yes, sir.

Mr. REDDAN. How many employees did you have under you who were engaged in testing of aggregate?

Mr. GIACOMINI. Oh, on aggregate. On concrete aggregate, I had three people.

Mr. REDDAN. And who were they, sir?

Mr. GIACOMINI. Machek—I cannot spell it.

Mr. REDDAN. How does it sound, again?

Mr. GIACOMINI. Machek; you have his name there, haven't you?

Mr. REDDAN. Is he listed on one of the responses we received?

Mr. GIACOMINI. Yes.

Mr. REDDAN. All right, I will give that to the reporter later.

Mr. GIACOMINI. Gary Knoll—that is K-n-o-l-l. And Mr. Demma. And, excuse me, there is another one, Mr. Truskowski.

Mr. REDDAN. That one is spelled T-r-u-s-k-o-w-s-k-i.

Mr. HARDY. Does that sound right to you?

Mr. GIACOMINI. Yes.

Mr. REDDAN. How about Barry Brudo?

Mr. GIACOMINI. Not at the time I was there. I do not believe he was in 1958. I am not sure of that.

Mr. REDDAN. Now, could you tell the committee briefly what you did—when I say "you," I mean you and those inspectors under you—to insure that the aggregate received from the Oxford plant met Corps of Engineers specifications, just the step-by-step operation.

Mr. GIACOMINI. All right.

Mr. REDDAN. From the time aggregate came in, what did you do?

Mr. GIACOMINI. First, the aggregate was tested at the pit. And, of course, each car was sealed after it was——

Mr. REDDAN. Now, that was tested at the pit by a Corps of Engineers inspector?

Mr. GIACOMINI. Correct, yes.

Mr. HARDY. How did he test it?

Mr. GIACOMINI. He tested it under the same procedure we did. In other words, he would separately take a carload sample, I mean he would sample it——

Mr. HARDY. Sample it in the car?

Mr. GIACOMINI. In the car.

Mr. HARDY. Did he take it with an auger?

Mr. GIACOMINI. No, sir.

Mr. HARDY. How did he get it sampled?

Mr. GIACOMINI. There is a procedure which I am trying to remember. He would take it at different points in the cargo, down maybe 18 inches or 2 feet.

Mr. HARDY. How does he go down 18 inches or 2 feet?

Mr. GIACOMINI. He would use a shovel.

Mr. HARDY. A shovel. He didn't use a probe?

Mr. GIACOMINI. No, sir. What do you mean? What type of probe?

Mr. HARDY. Any type of a probe. There is a gadget, I thought, for this kind of a thing that you could stick down in there and get a sample wherever you happen to hit. Isn't there such a gadget for testing the soil?

Mr. GIACOMINI. Soil, yes, sir; but not for gravel, I don't believe. It might be. I don't know.

Mr. HARDY. I don't know, either. I have seen them for something. I thought you would probably have them for these.

Mr. GIACOMINI. We didn't have them.

Mr. HARDY. You didn't have them; you used a shovel?

Mr. GIACOMINI. That is right.

Mr. HARDY. And how were you sure that you actually got your sample down 2 feet below the top?

Mr. GIACOMINI. How was I sure?

Mr. HARDY. Yes; you dig your hole in there and then go down and get a hunk of it out?

Mr. GIACOMINI. Take a sample; take a portion of it out, with the——

Mr. HARDY. How many actual samples did you take in a car to get what you called a representative sample?

Mr. GIACOMINI. I think we picked five locations.

Mr. HARDY. Five locations; and how many of them were on top and how many of them were 2 feet down? You must have had a standard procedure, didn't you; or did you?

Mr. GIACOMINI. Well, most of them were down below the—I would say all of them were down below the 2 feet, not just on the top.

Mr. HARDY. You said 18 inches to 2 feet a while ago. That was your figure, not mine.

Mr. GIACOMINI. Right.

Mr. HARDY. So I was just trying to understand how you actually did get your sample.

Mr. GIACOMINI. Well——

Mr. HARDY. Did you have a requirement that so many samples be taken? And did you specify the point in the car that they be taken at? Was there any procedure, written procedure for this?

Mr. GIACOMINI. Yes; there is a written procedure which states how to sample a railroad car.

Mr. HARDY. Was that followed in this case?

Mr. GIACOMINI. Yes, sir.

Mr. HARDY. How did you know a man just didn't go in there and get what he wanted right at one spot?

Mr. GIACOMINI. Well, you never know unless you are there every minute.

Mr. HARDY. As a matter of fact, you didn't know, is that right, except with respect to the ones you tested, or the ones where you were present when they were tested?

Mr. GIACOMINI. That is right.

Mr. HARDY. But there was a written procedure?

Mr. GIACOMINI. That is right, sir.

Mr. REDDAN. Now, your man at the pit didn't test each car, did he?

Mr. HARDY. Wait a minute——

Mr. GIACOMINI. No, sir.

Mr. HARDY. I didn't finish, either. Let me get back. After you got your sample, assuming that the procedure, the prescribed procedure was followed, after you got your sample, what did you do with it?

Mr. GIACOMINI. He put it in a bag, he would bag it, and then take it back——

Mr. HARDY. How big a sample did you get?

Mr. GIACOMINI. I would say for the 10—A, aggregate; yes, sir; he would have to have probably sampled about 50 pounds.

Mr. HARDY. Well, how much did you get in each?

Mr. GIACOMINI. I mean he would take the sample, and then he has to quarter it down to a size where he can run it through a sieve.

Mr. HARDY. Let's back up a little bit. I believe you said a while ago there were five locations in the car from which he took a sample?

Mr. GIACOMINI. Right, sir. We took a little bit from each location.

Mr. HARDY. All right. How much did he get each time? Did he get some reasonable amount? Did he get a handful, or what?

Mr. GIACOMINI. He would get part of a bag. Let's say he has——

Mr. HARDY. What kind of a bag?

Mr. GIACOMINI. An aggregate bag.

Mr. HARDY. How big is an aggregate bag?

Mr. NORBLAD. As big as a gunny sack?

Mr. GIACOMINI. No, it is about this high [indicating by fingers].

Mr. NORBLAD. A shopping bag at a supermarket?

Mr. GIACOMINI. No; it is a regular——

Mr. HARDY. What is it, a canvas bag?

Mr. GIACOMINI. It was a lined canvas bag.

Mr. HARDY. A lined canvas bag?

Mr. GIACOMINI. Right.

Mr. HARDY. And you don't know how much it holds?

Mr. GIACOMINI. Oh, I say they hold probably around 25 pounds.

Mr. HARDY. General Hyzer is not here today, is he?

General CLARKE. Sir, General Hyzer is over testifying before the Senate on another matter.

Mr. HARDY. He would be better off if he were here.

Mr. NORBLAD. I thought you said, a minute ago, 50 pounds. Now you say 25 pounds. Is my recollection wrong?

Mr. GIACOMINI. Well, he could use more than one bag.

Mr. HARDY. Did your procedures call for any specified amount at each place? I am trying to understand how you make a sample of a carload of aggregate. And if you——

Mr. GIACOMINI. Well, you dig a trough; in other words, along the width of the car, and from this trough you go down a certain distance, as I say it is 18 inches to 2 feet deep. Then you get from there. Then you put your shovel and go all the way across the car and put it in your bag.

Mr. HARDY. How do you get that trough in there? By hand?

Mr. GIACOMINI. By shovel.

Mr. HARDY. Get in there with a shovel and dig a trench all the way across the car?

Mr. GIACOMINI. Yes.

Mr. HARDY. You want to tell us that you do that in this sampling procedure, that that is actually what is done, to dig a trench all the way across the car?

Mr. GIACOMINI. Right, sir.

Mr. HARDY. And how many samples do you get out of that trench? Now, you said it is five places, a while ago.

Mr. GIACOMINI. Five.

Mr. HARDY. So you take five places and you dig the trench. What is it, a 40-foot car you use? And that is a short one. You must use a longer car than that.

Mr. GIACOMINI. I really don't know how long the car was, sir.

Mr. HARDY. But you dig a trench all the way across there?

Mr. GIACOMINI. Across the width of the car.

Mr. HARDY. Across the width of the car.

Mr. GIACOMINI. Right, sir. You draw, or dig a trough across the width of the car, and you make them in five places along the length of the car.

Mr. HARDY. You mean you dig five trenches across the car?

Mr. GIACOMINI. Right, sir, in its length.

Mr. HARDY. Well, how many samples do you get along this little trench now?

Mr. GIACOMINI. Well, you get—well, you get a small sample from each trough.

Mr. HARDY. Mr. Zackrison, do you have any procedures, written procedures, for taking a sample of an aggregate car?

Mr. ZACKRISON. Mr. Chairman, the current standards of the Corps of Engineers is contained in CRDC–100–55, entitled "Method of Sampling Concrete Aggregate and Aggregate Sources."

Mr. HARDY. Well, presumably your people who were operating the laboratory had access to those.

Mr. NORBLAD. Was that in effect in 1959, or is it since then?

Mr. ZACKRISON. Yes, sir; it was.

Mr. NORBLAD. In 1959?

Mr. ZACKRISON. Yes, sir.

Mr. HARDY. I don't want to be hard on the gentleman who is testifying, but I get a very distinct impression that if he knew what the procedures were, he has forgotten them. Maybe that is the case. But I am a little concerned here now that actually anybody knew what they were doing when they were making the inspection, in gathering

the samples. Do your procedures indicate what size sample is to be taken out of a particular lot of a particular size?

Mr. GIACOMINI. Yes, it would indicate.

Mr. HARDY. What size? Now, you had a carload of aggregate there. How much of a sample were you supposed to get?

Mr. GIACOMINI. Well, you go by the size of the aggregate of your sample. In other words, if you have a larger stone, then you have to use a larger weight for it. So on a 10–A, on that size, I believe it is about 10,000 grams, which is about, roughly, 25 pounds.

Mr. HARDY. All right. You had your aggregate bag, your sample bag. So you went through the car and you followed the procedures, and you put your sample in that bag.

I am not satisfied that the people working under you knew what they were doing, but any way let's assume they did.

After you got your bag full, then what did you do?

Mr. GIACOMINI. Well, then, they would quarter their samples.

Mr. NORBLAD. What?

Mr. GIACOMINI. Quarter the samples.

Mr. HARDY. How did they mix the sample to be sure they had a good cross section? You didn't just take it and dump it out and quarter it, did you?

Mr. GIACOMINI. No.

Mr. HARDY. Well, how did they get it homogenized, or whatever you want to call it?

Mr. GIACOMINI. Well——

Mr. HARDY. We are ignorant. I am just trying to find out what you did.

Mr. GIACOMINI. The method you would use, you would take a shovel and go around and mix it completely.

Mr. HARDY. What did you do, dump it in a trough or something, or dump it out on the ground?

Mr. GIACOMINI. Dump it in a canvas bag so you wouldn't lose any part of your sample.

Mr. HARDY. Did you weigh it before you dumped it out or did you weigh it after?

Mr. GIACOMINI. No, sir.

Mr. HARDY. You spotted it for your samples, you mixed it, and then poured it into canvas bags.

Mr. GIACOMINI. Then you split your sample down, through the size, for testing.

Mr. HARDY. All right. Now, you have your sample poured. What size sample were you supposed to test? How much were you supposed to have when you got through?

Mr. GIACOMINI. About 25 pounds.

Mr. HARDY. About 25 pounds. Then what did you do?

Mr. GIACOMINI. Then you weighed it.

Mr. HARDY. You weighed it. Then what?

Mr. GIACOMINI. You dry it out first, sir.

Mr. HARDY. You dried it out. How did you dry it? We are awfully ignorant. I just want to find out how you did it.

Mr. GIACOMINI. Using a gas stove oven or——

Mr. HARDY. What did you use?

Mr. GIACOMINI. A gas stove.

Mr. HARDY. What kind of a gas stove?

Mr. GIACOMINI. Gee, I don't know. I don't remember, sir.

Mr. HARDY. You don't know what kind of equipment you had out there at the pit where you were doing this?

Mr. GIACOMINI. We were using Oxford's, that is American Aggregate's equipment.

Mr. HARDY. Well, what was their equipment?

Mr. GIACOMINI. Well, it was a gas stove. I don't remember the name, sir.

Mr. HARDY. I am not talking about the name. What does it look like?

Mr. GIACOMINI. It is a regular gas range.

Mr. HARDY. A gas range. A cook stove?

Mr. GIACOMINI. Right.

Mr. HARDY. Like you find in a home?

Mr. GIACOMINI. It is like the old iron—just a pedestal type, I believe, where you had two burners.

Mr. HARDY. Then how did you do it? You put it on top of the burners?

Mr. GIACOMINI. Right, sir. You put it in a pan and you put it on top of the burners.

Mr. HARDY. How long did you cook it?

Mr. GIACOMINI. Depending on the moisture, sir.

Mr. HARDY. How did you test the moisture content?

Mr. GIACOMINI. You weighed it before you put it in, sir.

Mr. HARDY. You weighed it before you put it in. But, then, how did you know when you had it dry enough?

Mr. GIACOMINI. You can weigh it again, during the drying process, and if you put it back on and dry it some more, and weigh it again, if the weight doesn't change then you know you have a dry sample.

Mr. HARDY. So you cooked it until you got all the moisture out of it, so that if you cooked it some more you didn't get it lighter; is that right?

Mr. GIACOMINI. That is one way; yes, sir.

Mr. HARDY. I am talking about how it was done on this job, if you can tell me. That is what we are trying to find out.

Mr. GIACOMINI. That is the way it was done, sir.

Mr. HARDY. So you weighed it at first, and then you kept on cooking it until you got all the moisture out of it. I take it that was the purpose; is that right?

Mr. GIACOMINI. Right, sir.

Mr. HARDY. And then you weighed it again?

Mr. GIACOMINI. Right, sir.

Mr. HARDY. And then what did you do?

Mr. GIACOMINI. Then you would sieve it, run it through a Gilson sieve.

Mr. HARDY. All right. And did you just run it through one mesh or more than one mesh?

Mr. GIACOMINI. No, sir; we ran it through the screens that are indicated on the contract.

Mr. HARDY. All right. Now, when you got through, how many different separations did you have?

Mr. GIACOMINI. Well, there would be the number of separations that would be indicated on the contract.

Mr. HARDY. I don't know what that calls for.

Mr. GIACOMINI. I don't remember, sir.

Mr. HARDY. I am trying to find out. All right, after you got it separated then what did you do?

Mr. GIACOMINI. Then you weighed each separation.

Mr. HARDY. And you made a record of each size you had?

Mr. GIACOMINI. Right, sir.

Mr. HARDY. Then what did you do?

Mr. GIACOMINI. Sir, then you would—it is recorded.

Mr. HARDY. Record what?

Mr. GIACOMINI. Then we would take the—pardon me, sir.

Mr. HARDY. Record what? You recorded the weights?

Mr. GIACOMINI. Recorded the weights.

Mr. HARDY. All right. Then what did you do?

Mr. GIACOMINI. Then you would quarter that sample down to a size that you could run your chert count.

Mr. HARDY. Recorded each one. Now, you started out with 25 pounds. You cooked all the moisture out of it. What did the moisture percentage run?

Mr. GIACOMINI. Gee, I don't——

Mr. HARDY. We can tell from these documents we have here. We have the laboratory tests.

Here is a 3 inch, 2½, 2 inch, 1½ inch, 1 inch, three-quarter inch, half inch, three-eighths, No. 4, and No. 8. Does that sound right?

Mr. GIACOMINI. It sounds right.

Mr. HARDY. For screens that you used on this particular job?

Mr. GIACOMINI. Well, we didn't—No. 4 I believe would be—we went all the way down through the samples.

Mr. HARDY. And No. 4 is quarter-inch mesh, is that what that is?

Mr. GIACOMINI. Not exactly, I don't think on chert.

Mr. HARDY. What does No. 4 and No. 8 mean, sir?

Mr. GIACOMINI. Sir, I don't remember how the gaging is. I think it is the number of openings, per inch.

Mr. HARDY. Per inch?

(Mr. Giacomini nods.)

Mr. HARDY. That is what I understood it to mean.

Mr. GIACOMINI. Yes, sir.

Mr. HARDY. It would mean that one of them was a quarter-inch mesh and the other one was an eighth-inch mesh, if you disregarded the size of the wire.

Mr. GIACOMINI. Well, that is where your difference comes in, is the size of the wire.

Mr. HARDY. That is right, there would be a little. Now, this is to give different sizes. You started out with 25 pounds. And I don't know what it weighed when you got through with the moisture. But you couldn't have more than 2½ pounds in each sample if it was on an average. Some of them would be more and some of them would be less; is that right?

Mr. GIACOMINI. All right.

Mr. HARDY. Well, I am trying to understand you.

Mr. GIACOMINI. Well, we didn't work in pounds—I mean, I don't remember pounds. We worked in percent.

Mr. HARDY. Now, after you got through with screening the stuff then you said you quartered it again; is that right?

Mr. GIACOMINI. Yes, sir.

Mr. HARDY. You had a little bit of a sample left, then, by this time, in some cases. After you got it quartered what did you do then?

Mr. GIACOMINI. Then it was checked for chert. In other words, he would take each particle, examine it, and scratch it with the iron file.

Mr. HARDY. What did that show you?

Mr. GIACOMINI. Well, in checking the hardness of the material. It is a way of identifying chert. If your chert is harder than limestone, and if the filing came off on the stone, then it would indicate that this is a cherty stone.

Mr. HARDY. In other words——

Mr. GIACOMINI. If the stone came off onto the file, then this would indicate it is noncherty.

Mr. HARDY. How precise is that?

Mr. NORBLAD. Do you know a better way to do this whole thing than that?

Mr. GIACOMINI. I don't know of a way right now. It is the only way I know, except for a petrographic analysis.

Mr. HARDY. About how many pieces would you have to test in this sample?

Mr. GIACOMINI. Well, I think we ran—probably run about 500 pieces.

Mr. HARDY. Around 500 pieces?

Mr. GIACOMINI. Yes, sir.

Mr. HARDY. Of the 3-inch size?

Mr. GIACOMINI. No, sir; 10–A I am speaking about.

Mr. HARDY. What does 10–A mean?

Mr. GIACOMINI. That is three-quarter inch or 1-inch maximum.

Mr. REDDAN. 10–A and 4–A.

Mr. HARDY. 10–A is three-quarter inch, with a 1-inch maximum. That would mean everything that went through a 1-inch screen and stay on top of a three-quarters. Is that what that means?

Mr. GIACOMINI. No, sir.

Mr. HARDY. What does it mean?

Mr. GIACOMINI. The 10–A would be the range from a No. 4–I am not sure of that—to the 1 inch.

Mr. HARDY. So if it went through the 1-inch and stayed on top of a No. 4, that would be 10–A?

Mr. GIACOMINI. Right, sir.

Mr. HARDY. Was that the only part of it that you tested?

Mr. GIACOMINI. No, sir; we tested the 4–A also.

Mr. HARDY. And what did the 4–A consist of?

Mr. GIACOMINI. We tried to run approximately the same size sample, about 500 pieces.

Mr. HARDY. Well, but what size was your 4–A, is that what you mean?

Mr. GIACOMINI. Oh, that ran from the three-quarter up to the 2 or 2½ screen.

Mr. HARDY. Well, you have included the three-quarter in your 10–A, haven't you? You went from your No. 4 screen up to 1 inch.

Mr. GIACOMINI. Well, it still wouldn't make any difference, would it, sir?

Mr. HARDY. I don't know that it would make any difference, but I am trying to understand your procedure.

Mr. GIACOMINI. Well, you have two size samples, sir. The one sample they had they stockpiled separately from the other size—the 10–A and the 4–A.

Mr. HARDY. When you wind up, you have only two piles; is that all?

Mr. GIACOMINI. Right, sir.

Mr. HARDY. Well, then, a lot of this is unnecessary. You didn't actually run it through all these screens. If you had it in your 10–A and 4–A, which was a combination of these screens, you actually didn't run it through all these screens then, did you?

Mr. GIACOMINI. Yes, sir; we had to, to check——

Mr. HARDY. To check the quantity of the different sizes?

Mr. GIACOMINI. Right, sir, to see if they would meet the specifications for size.

Mr. HARDY. All right. Now, having separated it into the two piles, you picked up each hunk of it?

Mr. GIACOMINI. Right, sir.

Mr. HARDY. And you looked at it. Can you recognize chert by sight?

Mr. GIACOMINI. Not always. Sometimes chert in a pure form you could. If you are familiar with the area, and knew from this particular location that this was what the chert looks like, you could. You could identify it possibly by the way it is fractured, if you have fractured faces on it.

Mr. HARDY. Is the only way you can tell——

Mr. GIACOMINI. Just by sight, I mean just by looking at a piece in your hand, sir.

Mr. HARDY. By looking at a piece in your hand you might or might not recognize it; is that right?

Mr. GIACOMINI. That is right, sir.

Mr. HARDY. Then how do you find out whether it is chert?

Mr. GIACOMINI. Well——

Mr. HARDY. You use the file?

Mr. GIACOMINI. We use the file. Then if we suspect that the particle may have chert inside or some chert, we would bang it open.

Mr. HARDY. What makes you suspect it?

Mr. GIACOMINI. Possibly the way it fractured or maybe the colorization of it.

Mr. HARDY. What is to keep a lot of it that you didn't suspect from having chert on the inside of it?

Mr. GIACOMINI. Well, if you have weathered chert, if your chert is weathered, it is possible that your file won't work.

Mr. HARDY. So that your file might not tell you anything at all?

Mr. GIACOMINI. It is possible, yes; yes, sir.

Mr. HARDY. Then, looking at it and filing it might not give you the story. Suppose you did file it and your file said to you this looks like limestone. What would determine whether or not you cracked it open to see what is inside of it?

Mr. GIACOMINI. Just by suspicion, sir, only.

Mr. HARDY. Just pure judgment. It is a matter of judgment?

Mr. GIACOMINI. That is right, sir.

Mr. HARDY. What other method did you use to determine whether or not there was chert?

Mr. GIACOMINI. Well, you could use a freshly fractured piece on your tongue.

Mr. HARDY. So you would fracture the lump, and then you would taste it. What does chert taste like?

Mr. GIACOMINI. It tastes like a stone, I guess, sir.

Mr. HARDY. Tastes like what?

Mr. NORBLAD. Like a stone.

Mr. HARDY. Well, there are a heap of different kinds of stones. How do you know whether this is chert or whether this is flint?

Mr. GIACOMINI. I don't know, sir.

Mr. HARDY. Well, didn't——

Mr. GIACOMINI. I never tasted flint.

Mr. HARDY. You might have been making an awful lot of mistakes. All of this stuff might have been flint, instead of chert. How many of these samples did you have to taste before you lost the sense of taste for chert?

Mr. NORBLAD. General, is that chert you have in that sack there?

FURTHER TESTIMONY OF BRIG. GEN. FREDERICK JAMES CLARKE, DIRECTOR OF MILITARY CONSTRUCTION, OFFICE OF THE CHIEF OF ENGINEERS

General CLARKE. Yes, sir.

Mr. NORBLAD. It is?

General CLARKE. But it is not from this pit.

Mr. HARDY. General, can you tell us what it tastes like? I don't want to taste it.

General CLARKE. Mr. Chairman, I never tasted it. I don't know.

Mr. NORBLAD. Let's see what it looks like.

General CLARKE. Mr. Chairman, that is not all chert in there.

Mr. NORBLAD. I wouldn't know the difference, I assure you. It is just a bunch of rocks, as far as I can see. Which is the chert, the white or the brown?

General CLARKE. Sir, I will defer to the geologists.

Mr. NORBLAD. Let Mr. Lankford test it. Maybe he can tell us.

Mr. HARDY. Mr. Lankford, can you tell us what chert tastes like? Now, taste the different kinds.

Mr. LANKFORD. I wouldn't know what it tastes like.

Mr. HARDY. Mr. Keller, are you going to help this gentleman? I think he is doing pretty well. He is showing us how confused you all were, and he is the fellow that was in charge of these laboratories. Now, was he operating under your instructions?

FURTHER TESTIMONY OF DANIEL J. KELLER, GEOLOGIST, SOILS AND FOUNDATIONS LABORATORY, OHIO RIVER DIVISION LABORATORIES, CORPS OF ENGINEERS

Mr. KELLER. No, sir; not to my knowledge.

Mr. HARDY. You are the geologist. Maybe you can help us understand what chert tastes like.

Mr. KELLER. When you crack or expose the fresh surface and expose your tongue to it, actually it is not your intention to taste it. But because of its porous absorbent nature, it will draw moisture from your tongue, you see. It will draw moisture from your tongue, and your tongue will adhere to some varieties of chert.

Other types of rocks, the clays, will do this and so on, because they have an absorbent quality.

Mr. HARDY. You can't always tell by tasting it?

Mr. KELLER. It is an indication of a highly porous absorbent rock. This is the limit of that type of test.

And the conclusion you can draw is that some of these cherts are highly porous and absorbent and this property can be used as a tool in helping to identify the chert particle.

Mr. HARDY. I can understand, if you have a real delicate taster, that you might be able to use that as a tool for testing this rock. But I wonder how scientific this really is. Now you are a scientist, a geologist, and you testified about running this sample in the Ohio River division. How accurate is this measurement?

Mr. KELLER. It is scientifically valid. I don't think this is a conclusive identification of chert, but it is a conclusive identification of a porous absorbent-type rock, or material.

Mr. HARDY. All right. This may be a scientifically valid test as you claim. However, I am concerned about its use in this particular situation. Actually, the Corps of Engineers was testing for a fraction of 1 percent chert to see whether or not this aggregate met specifications. Nine tests which you ran in your laboratory showed that it did not meet specs, and the aggregate pit had been removed from the list of acceptable sources. And it stayed that way until the Detroit office decided to count cherty limestone as only 50 percent chert. As a matter of fact, I think it was your recommendation that cherty limestone should be considered as having the same properties as chert, or would have the same effect as chert.

Mr. KELLER. Yes, sir.

Mr. HARDY. Now, even with their own strained interpretation of your ORDL report, the Detroit office had a marginal situation, where a fraction of a percent, one-tenth of 1 percent, might result in the Oxford pit aggregate being rejected again. In spite of this, they decided to make that determination on the basis of some novice out in the field tasting the rock. You see how stupid and silly this whole thing is.

To me, it is difficult to believe that the Corps of Engineers ever engaged in this kind of a fool procedure. And to think that people in the district office and the division, and even down at the Chief's office, acquiesced in this kind of operation.

Now, if you had had a situation where you had evidence of the presence of only a slight amount of chert, it might be entirely different. Here, however, everyone knew in advance of the poor-quality aggregate that could be expected from the Oxford pit.

All right, anything more?

Mr. NORBLAD. What procedure do you follow in your laboratories down in the Ohio River? The same as this? How do you do it down there? Chemical analysis or what?

Mr. KELLER. Sir, we use primarily optical means and some mechanical means.

Mr. NORBLAD. In addition to what was done at the pit site?

Mr. KELLER. Well, I don't know what was done at the pit site.

Mr. NORBLAD. You heard it. You were sitting in the room. You heard him just as well as I did.

Mr. KELLER. Yes. I don't know the exact procedure.

Mr. HARDY. He was the gentleman who was in charge, wasn't he?

Mr. KELLER. I don't even know that, sir.

Mr. HARDY. Well, he testified that he was.

Mr. KELLER. Yes, well——

Mr. NORBLAD. He was sitting right in the second row, as I saw it. He heard as much as I did about it. My question is, How much work is done in your laboratory at Ohio district, over and above what is done in the field?

Mr. KELLER. We take a sample of the material and separate it into the constituents, into its various constituents, based on its physical and chemical or mineral properties. This is a matter of recognition of the various rock types. We use such tools as hardness, if the unusual separation is based on megascopic or those optical properties which are readily seen by the unaided eye. We also, like Mr. Giacomini did, crack the rock specimens and look at the type of fracture and we look at the texture of the rock and we look at the composition of the rock and by its general appearance we can tell its mineralogic composition.

Mr. HARDY. Now you are a geologist?

Mr. KELLER. Yes, sir.

Mr. HARDY. And you have a practiced eye in this. You are a trained scientist. This is not true of Mr. Giacomini. His training in testing for chert was cursory, at best. And this brings me to your previous testimony—and I don't think you believe your own testimony—when you said you could teach a man to identify chert in a couple of days.

How long have you worked in this field, Mr. Giacomini?

Mr. GIACOMINI. This was my first job, on chert.

Mr. HARDY. How long were you in charge of this laboratory?

Mr. GIACOMINI. I was working on materials a year prior.

Mr. HARDY. Working on materials a year prior?

Mr. GIACOMINI. Yes, sir. One, sir, I would like——

Mr. HARDY. Well, if the tests you performed had any significance, you failed to convince me of it.

Mr. Keller, I think you are a competent man in your field, but I certainly am not impressed with your claim that you can train a person to identify chert in 2 days.

Mr. KELLER. Sir, I could teach you to identify chert. If you wanted to come to the laboratory and spend a few days with me, I could teach you to identify chert.

Now my statement the other day. One's competence in this field is a matter of question. You may not identify all, but you could identify a great many varieties of chert if you were trained by me for a few days, sir.

Mr. HARDY. That might be so if the chert is in its naked form. But that apparently is not the case. The rock is only fractured if the tester

is suspicious of it, and this requires a judgment on his part. From what I have heard, I suspect there is more guesswork than judgment used. And after the rock is fractured, the procedure for testing it is highly undependable, in my opinion. I am surprised that you, a trained scientist, would give such testimony.

Mr. KELLER. I am not saying you are going to be a perfect scholar in 2 days.

Mr. HARDY. No, I am not suggesting that. But with his limited training, Mr. Giacomini was supposed to make a determination that there was not 3 percent chert in this particular aggregate on every delivery that was made; is that right?

Mr. KELLER. Everywhere, sir.

Mr. HARDY. Every single, solitary delivery that went into this contract was supposed to have a chert content of less than 3 percent. That is what they had inspectors out there for. That is what the laboratory was operated for.

This is preposterous. I just can't really believe the Corps of Engineers would be responsible for this kind of an operation. My faith in you all is shaken considerably, and General, I hope you will carry this back to the Chief. If these procedures are still being used in any of your contracts, it is about time we had a shakeup in the whole organization.

Who employed you, Mr. Giacomini?

Mr. GIACOMINI. I was employed originally by Mr. Hampton from Detroit. I was working in a district office on another project.

Mr. HARDY. And did Mr. Hampton show you how to test for chert, or who told you how to test it?

Mr. GIACOMINI. The man that showed me how to test this stuff was the man we sent to ORDL Laboratory.

Mr. HARDY. Now suppose you selected a rock, ran your file over it, decided there was no reason to be suspicious of it, so you threw it over into the good pile, and you do the same thing with a few more lumps. Then, as you scratch another one with a file and even though the file doesn't tell you anything, you decide you had better check this one, so you break it up. Then, what did you do?

Mr. GIACOMINI. Well, if we found the chert inside we considered the whole particle chert.

Mr. HARDY. The piece that you found the chert on? Suppose you break this rock up into several pieces, and some of them are cherty and others aren't?

Mr. GIACOMINI. I don't understand, you mean——

Mr. HARDY. You have a 3-inch rock. You hit it with a hammer you are liable to break it up into 15 or 20 pieces, aren't you?

Mr. GIACOMINI. Right.

Mr. HARDY. Some of them you might see some chert on and some of them you wouldn't.

Mr. GIACOMINI. Well, if we saw any chert, chert that is only part of the whole stone, we considered it the whole stone.

Mr. HARDY. All right. Suppose it was a piece of limestone, and you saw some chert in it.

Mr. GIACOMINI. We would consider that a whole——

Mr. HARDY. You would consider that a whole piece of cherty limestone? You didn't consider it here.

Mr. GIACOMINI. No; I would consider it as chert.

Mr. HARDY. Mr. Keller, let's get back to you. What does cherty limestone mean?

Mr. KELLER. Cherty limestone is limestone which contains chert.

Mr. HARDY. Now you just heard his testimony that if a specimen had any chert in it, it was considered all chert.

Mr. KELLER. Well, this is a procedure they are using, sir. I can't comment on that.

Mr. HARDY. But what about the decision to consider cherty limestone as 50 percent chert?

Mr. KELLER. This apparently is a procedure they are using—and I am on my own here—in making this judgment. But presumably they are using this procedure so they would be on the safe side.

Mr. HARDY. So they could qualify the pit?

Mr. KELLER. In other words, they are giving the benefit of the doubt there. If they see any chert, they are saying it is all bad.

Mr. HARDY. I don't recall that kind of testimony from anybody else. If it was cherty limestone, you have only been counting half of it as chert. Didn't you do that, Mr. Giacomini?

Mr. GIACOMINI. No, sir; we considered the whole stone chert.

Mr. DZWONKIEWICZ. Mr. Chairman——

Mr. HARDY. You still want to testify. Come on up here. We will get the benefit of your judgment.

Mr. DZWONKIEWICZ. Mr. Chairman, it isn't that I want to testify——

Mr. REDDAN. Did you identify yourself?

TESTIMONY OF FRANK DZWONKIEWICZ, CHIEF, CENTRAL TESTING LABORATORY, DETROIT DISTRICT, CORPS OF ENGINEERS

Mr. DZWONKIEWICZ. My name is Frank Dzwonkiewicz, Corps of Engineers, Detroit.

Mr. REDDAN. And how long have you been employed by the Corps of Engineers, sir?

Mr. DZWONKIEWICZ. For 23 or 24 years, sir.

Mr. REDDAN. And where are you located now?

Mr. DZWONKIEWICZ. In the Detroit district, sir.

Mr. REDDAN. And in 1958 and 1959, during the entire period of this Selfridge contract we are talking about, what was your position?

Mr. DZWONKIEWICZ. I was Chief of the Central Testing Laboratory of the Corps of Engineers.

Mr. REDDAN. And where was that located?

Mr. DZWONKIEWICZ. It was located at Selfridge Field.

Mr. REDDAN. And in addition to that, there was the field laboratory that Mr. Giacomini was the head of?

Mr. DZWONKIEWICZ. Yes, sir.

Mr. REDDAN. In 1959?

Mr. DZWONKIEWICZ. Yes, sir.

Mr. REDDAN. Who was the head of it in 1958?

Mr. DZWONKIEWICZ. There was no field lab in 1958.

Mr. REDDAN. There was none in 1958?

Mr. DZWONKIEWICZ. The central field testing laboratory was running the tests for that project.

Mr. REDDAN. All right, sir.

Mr. DZWONKIEWICZ. I just wanted to support Mr. Giacomini's testimony, to the fact that any particle of aggregate that contained any chert at all was to be considered as all chert, and all our laboratory technicians were instructed to classify it that way. We never told the laboratory technicians, or we never expected them to identify any other minerals or any other stones except the chert and the soft particles, the known deleterious particles.

Mr. HARDY. Mr. Keller, did you ever make any comparison of the tests that were run in the field laboratory with the results of the tests which you ran in the Ohio River Division Laboratory?

Mr. KELLER. Yes, sir; I saw the report of the sample that was indicated to have been a part of an originally larger sample.

Mr. HARDY. Weren't you impressed by the difference in the results?

Mr. KELLER. Yes; I was.

Mr. HARDY. Did that suggest that you take any action at all?

Mr. KELLER. Sir, as I recall, my report was sent back to them within a matter of days after I received the sample.

Mr. HARDY. Which report was that?

Mr. KELLER. The petrographic report. I am not sure of the dates.

Mr. HARDY. Was that the one on which you made the recommendation that chert and cherty limestone should be treated alike?

Mr. KELLER. No, sir. This was of the later sample, I believe. Could I see that report there?

Mr. KELLER. This is the June 29, 1959, report. And this was a check sample, as indicated, of the 1-inch top size and 2-inch top size sample, and it was requested in the accompanying letter that the chert in soft materials in this sample be determined. This is the only thing that was requested and the only action that we took on this sample.

Mr. HARDY. You were requested to check chert and cherty limestone, to separate them?

Mr. KELLER. I don't know if we were, sir. However, I did in this case because I had on the previous year's test, the two samples of the previous year that I had tested, I had made that separation. I tried to follow the same form all the way through on identifying constituents from a single source.

Mr. HARDY. Now in the test that you ran, this sample would have been disqualified both because of total deleterious material and because of chert, would it not?

Mr. KELLER. Let's see. It would have had a total of 5-percent deleterious, as I consider it, on the 1-inch size, and a total of 6.3 percent on the 2-inch size.

Mr. HARDY. Well, that being the case, it was all mixed in together, unless you separated it, it would have thrown the whole sample out, wouldn't it?

Mr. KELLER. On the 50–50 basis as has been used here, in previous days——

Mr. HARDY. That is if you don't count half of the cherty limestone as deleterious. Is that on the basis of total deleterious material? How about on the basis of chert?

Mr. KELLER. Well, on the basis of chert, as distinct chert particles, it would have been within the specific limits here. I indicated 2.2 percent on the 1-inch top size material and 1.7 on the——

Mr. HARDY. That is if you completely ignore the cherty limestone.

Mr. KELLER. Yes, sir.

Mr. HARDY. Now the cherty limestone—does that mean that each stone that you included in your sample had some chert in it?

Mr. KELLER. Yes, sir.

Mr. HARDY. On that basis, on the basis of the testimony that we have had, that would have been thrown in with the chert. You heard the testimony.

Mr. KELLER. As they were classifying, this is true.

Mr. HARDY. Now, that being the case, what do you draw from this as to the competence of their testing, the validity of it?

Mr. KELLER. Well, there is an obvious difference between the percentages that were determined by the two different organizations.

Mr. HARDY. How do you account for them?

Mr. KELLER. Well, either I guessed, or found more chert in my samples or they found less than actually existed.

Mr. HARDY. Now let's get back to the word you used there, "guessed." Is that what you were doing?

Mr. KELLER. No; I don't guess. I determined and——

Mr. HARDY. I think that is what they were doing, but I hope that is not what you were doing. I am afraid——

Mr. KELLER. I am not guessing. I either know it or I don't, and if I don't know it, I would not be in the business.

Mr. HARDY. I would hope that is right. Thank you.

Mr. KELLER. Thank you.

Mr. HARDY. Who is this gentleman here? How do you pronounce your name?

Mr. DZWONKIEWICZ. Dzwonkiewicz.

Mr. HARDY. Is there anything you want to tell the committee? If you have something that will help us on, we will be glad to hear from you.

Mr. DZWONKIEWICZ. I am willing to help on anything I can. I would like to say that I thought we gave, or we made every effort to give our technicians as thorough a training as we could in all phases of testing.

Mr. HARDY. Did you train Mr. Giacomini?

Mr. DZWONKIEWICZ. Partly; yes, sir.

Mr. HARDY. What do you mean partly?

Mr. DZWONKIEWICZ. Well, there were more of us involved in the training. Mr. Hampton was part of the training team. I believe we also had Mr. Cole.

Mr. HARDY. I am beginning to believe Mr. Hampton did it all.

Mr. DZWONKIEWICZ. No, sir, I did quite a bit of the training myself.

Mr. HARDY. You ought to be proud of the results.

Have you anything, Mr. Norblad?

Mr. NORBLAD. No, sir.

Mr. HARDY. Have you anything, Mr. Lankford?

Mr. LANKFORD. No questions, Mr. Chairman.

Mr. HARDY. Go ahead.

Mr. REDDAN. Mr. Giacomini, if we could get back to the testing of the material at the pits. You had the cars spot-tested by a Corps of Engineers inspector?

Mr. GIACOMINI. Right; we tested every fifth car.

Mr. REDDAN. And if you found a bad car, what did you do?

Mr. GIACOMINI. We would go back to the last good car we tested, until we found the next best—until we found the car that passed, and then we would work the other way, until we find—going in the other direction, until we found the total group of cars that were bad.

Mr. REDDAN. And is there any record as to what happened to the cars that did not pass?

Mr. GIACOMINI. There is no present record as I know of right now.

Mr. HARDY. Do you have any personal knowledge of what happened to them?

Mr. GIACOMINI. I do not. We left—the last time I seen them, they were in the resident office, where I left all the records. What happened from there, I don't know.

Mr. LANKFORD. Why do you say there is no present record? Why did you use the word "present"? Were there records at one time?

Mr. GIACOMINI. There were records, yes, sir.

Mr. LANKFORD. You don't know what happened to those records?

Mr. GIACOMINI. No, sir.

Mr. LANKFORD. You last saw them in the resident engineers's office?

Mr. GIACOMINI. Yes, sir. They were either in the resident engineer office or in our main laboratories.

Mr. HARDY. Who was the resident engineer then?

Mr. GIACOMINI. Mr. Hart Campbell.

Mr. REDDAN. After the cars were inspected and passed, then what happened to them out there at the pit? Were they sealed or marked in some way?

Mr. GIACOMINI. Yes, sir, they were sealed and weighed and ready for shipment.

Mr. REDDAN. When they arrived at Selfridge, did you test the cars as they came in?

Mr. GIACOMINI. No, sir. We did not test the cars in a railroad sampling. We were testing them at the plant from the conveyor belt as they went into the batching bins.

Mr. REDDAN. What was the purpose in testing the material which had already been tested and approved?

Mr. GIACOMINI. Well, you are getting a stockpile where you are having, you might say, an average of all of your cars of shipment, and testing is to determine if your stockpile is going over or under.

Mr. REDDAN. Over or under what, sir?

Mr. GIACOMINI. I mean over your limits, of 3 percent chert.

Mr. REDDAN. Well, if none of your cars had more than 3 percent chert coming in, your stockpile couldn't go over 3 percent, could it?

Mr. GIACOMINI. That is right, sir, but your cars could possibly in one group size come in over the 3 percent and still, when combined with your other aggregate would, of course, bring it within your specifications.

Mr. HARDY. How would you know it was going to be combined in a way that would bring it within specifications?

Mr. GIACOMINI. Well, your 4–A and 10–A were batched separately into your cars. So that they went in by weights. In other words, each group, I mean each size aggregate was weighed individually for a batch weight.

Mr. HARDY. Well, was your aggregate separated by 4–A and 10–A, before it was loaded into cars?

Mr. GIACOMINI. Yes, sir.

Mr. HARDY. It was already separated?

Mr. GIACOMINI. Yes, sir. Your cars were designated 10–A or they were designated 4–A.

Mr. HARDY. You didn't have both of them in the same car?

Mr. GIACOMINI. No, sir.

Mr. HARDY. That is what I am trying to get at. You separated them at the pit and your car was a load of either 4–A or 10–A, is that correct?

Mr. GIACOMINI. That is correct, sir.

Mr. HARDY. Now, suppose you had a car that ran 5 percent chert and you shipped it on in; how did you know that when it went into the concrete it was going to be diluted down to the point where it would have been tolerable?

Mr. GIACOMINI. Well, it would depend on what your other cars that came in with it were.

Mr. HARDY. How would it?

Mr. GIACOMINI. Because——

Mr. HARDY. What did you do to assure a blending of the stockpile so that you didn't get all of this 5 percent material in one place? Actually you didn't do anything, did you? You just dumped it? Isn't that all that was done?

Mr. GIACOMINI. Yes, sir. But the way your stockpile is characterized—I mean the way your stockpile is, you would have to blend in more cars than just one.

Mr. HARDY. Yes, but you could still wind up with all the 5 percent loads in one spot, couldn't you?

Mr. GIACOMINI. No, sir.

Mr. NORBLAD. Why?

Mr. GIACOMINI. Because you have a cone-shaped stockpile. As you are dumping on the top, it runs down along the sides.

Mr. DZWONKIEWICZ. May I expound on that a little? The stockpile was built from the top and unloaded from the bottom, so that—onto a conveyor belt which ran in a tunnel underneath the stockpile, and in this case as the material ran out from underneath there was a good mixture of whatever is in the stockpile.

Mr. NORBLAD. I think the condition of the runway doesn't prove that.

Mr. HARDY. I am surprised to find in the record of the American Aggregates Corp. this kind of a report. Here were loaded 50 cars of 10–A, 34 cars of 4–A, 35 cars of 2–NS—what is that?

Mr. GIACOMINI. That is the sand.

Mr. HARDY. There were two 4–A cars in this lot tested, out of 34 cars. Now, the chert content in those was 1.3 and 1.7, respectively. You had six 10–A cars that were inspected. And that was six out of 50. Out of those six, you had three that ran over 3 percent chert, one that was at 3 percent, one at 2.9 and one at 2.6. I don't know what that proves. Six out of 50.

One of those cars had 4.8 percent chert and 3.7 percent soft—I don't know what that means. Presumably that is the rest of your deleterious material. Which gives you 8½ percent deleterious material that you threw into this stockpile.

Mr. Zackrison, is this a permissible type of operation, in the Chief's office?

Mr. ZACHRISON. Sir, to that I can't answer expressly. We don't provide or permit that, no, sir. However, this operation was not under the direct surveillance of the Chief's office.

Mr. HARDY. Well, I guess the Air Force would be interested in knowing who in the Sam Hill did really survey it.

Mr. LANKFORD. The Chief is ultimately responsible, isn't he?

Mr. ZACKRISON. Yes, sir.

Mr. LANKFORD. It may not have been under your direct surveillance, but it was under your direct responsibility.

Mr. ZACKRISON. I am not Chief of the Construction Division, sir. I am not trying to abdicate my responsibility. But I don't have the physical surveillance of the field operation. This has been delegated to the Division office.

Mr. LANKFORD. Well, the buck has to stop somewhere.

Mr. ZACKRISON. Right at the Chief's office.

Mr. LANKFORD. It has to stop at the Chief's office because he is responsible.

Mr. ZACKRISON. We are responsible for setting procedures to make sure these things don't happen.

Mr. LANKFORD. Let me ask you this question: If all of these procedures did take place, as has been testified, how do you account for the condition of the runway?

Mr. HARDY. I don't believe he needs to answer that, unless he takes into account—and I think, Dick, maybe you will be concerned with this—unless he takes into account what was determined actually went into this runway through the tests that were made of the runway.

Mr. LANKFORD. Well, yes, but they testified as to how they tested.

Mr. HARDY. Yes.

Mr. LANKFORD. And how it was mixed in the stockpile, which would bring the percentage down and all that. I want to know how they account for what—what reason do you attribute to the condition of the runways?

Mr. NORBLAD. That is a good question. I would like to have that answered myself.

Mr. ZACKRISON. I don't know.

Mr. HARDY. General Clarke wants to answer that. General, you haven't testified yet. Now, here is a good opportunity.

Mr. LANKFORD. General.

FURTHER TESTIMONY OF BRIG. GEN. FREDERICK JAMES CLARKE, DIRECTOR OF MILITARY CONSTRUCTION, OFFICE OF THE CHIEF OF ENGINEERS

General CLARKE. Mr. Chairman, in answer to your earlier question, you said the buck has to be stopped someplace. In the Chief's office it stops at my desk. This whole problem——

Mr. HARDY. It is an awful long way up to the Chief's office. We ought to stop somewhere further down the line.

Mr. LANKFORD. The ultimate responsibility is with the Chief.

General CLARKE. Yes, sir; there is no question about that. And within the Chief's office, the ultimate responsibility is the desk that I hold.

Mr. NORBLAD. I hope you would answer Mr. Lankford's other question. That is the one I want to hear.

General CLARKE. All right, sir. I have listened to the testimony and what you have heard here is what I had heard orally from others before. You asked how did this happen, sir. It is——

Mr. LANKFORD. How do you account for the condition of the runway?

General CLARKE. The runway——

Mr. LANKFORD. If all of these procedures were followed, as has been testified to.

General CLARKE. It is a combination, sir. It starts, I think, with lack of knowledge in the beginning, a lack of a contract specification that was sufficiently clear so that it could be followed without interpreting. There is a debatable interpretation of the specification.

Field procedures which are crude, but which are still rather the best that are in existence, but still should have been better correlated with the laboratory procedures as we went along. I think we have a combination of these that add up to a runway that in other respects was good but in this respect, in respect to the popouts, was something less than we would have desired or less than we want.

Mr. LANKFORD. All right, sir. Who is responsible for setting up specifications that are "debatable"?

General CLARKE. In this particular case the responsibility lies initially with the engineering division of the Detroit district. This was checked——

Mr. LANKFORD. Is there no overall directive from headquarters telling how specifications must be drawn?

General CLARKE. Yes, sir; there are.

Mr. LANKFORD. Well, aren't those directives sufficiently specific to enable the divisions to write specifications that would not be debatable?

General CLARKE. We would hope so, sir, but this is an instance which clearly proves that it is not in all cases that precise. We write general guide specifications in Washington. They have to be interpreted locally, and we allow these interpretations locally. These are subject to review by the division, based on their knowledge of the local circumstances.

Mr. LANKFORD. All right. Then I also gathered that one of the reasons you gave is that there was not sufficient technical competence in the field, is that correct?

General CLARKE. Sir, I didn't say that. I said initially there was a lack of knowledge.

Mr. LANKFORD. I said I gathered that. I didn't say you said it. I say I gathered from your statement that this is true.

General CLARKE. Sir, could I state it another way? I would have preferred that when they were in doubt that they had called for help from somebody who might have had more competence in the field.

Mr. LANKFORD. Then why didn't they? Is this lack of training, lack of directives, or what?

General CLARKE. Sir, I go back again somewhat to the lack of knowledge. They are operating in Michigan. They operate in the

context of what happens in the State of Michigan. They take as their guidance what the State highway department does, what the city of Detroit does, and what others do in that area.

Mr. LANKFORD. All right. But this is not the State of Michigan. This is the U.S. Army Corps of Engineers.

General CLARKE. That is correct, sir.

Mr. LANKFORD. With all due respect to my two colleagues from Michigan, do you take the specifications that the Highway Department of Michigan takes, or do you take the criteria laid down by the Army Engineers?

General CLARKE. Well, in this case——

Mr. LANKFORD. Or is it really just a lack of technical knowledge? Now——

General CLARKE. I think on the whole subject of chert, there is a great lack of technical knowledge, not confined to the Corps of Engineers at all, but throughout the entire engineering profession. There is a lack of knowledge about what you should do with chert. You were not here earlier, Mr. Lankford, but it had been testified to that all chert is not bad. It is only certain cherts——

Mr. LANKFORD. Just bad chert that is bad?

General CLARKE. That is right, sir. But earlier testimony was that many good airfields have been built in which the majority of aggregates are chert. So you can't say that chert by itself is bad, but chert in Michigan is bad. This is known to the people in Michigan and it is known to the Corps. Could I go back just a little bit further, sir? I can't say that I personally am aware of this, because I have never built anything in the State of Michigan.

Mr. NORBLAD. Be glad to have you, too.

General CLARKE. It is told to me by our professional engineers, Mr. Zackrison among others, that we probably always had trouble with chert, but we didn't see it before. And the problem we used to have with concrete was spalling.

Mr. LANKFORD. What is that word?

General CLARKE. Spalling, coming off in thin sheets at the top. You see evidences of it all over the country. They cured that problem, and then the chert problem showed up. And it was showing up just about the time or perhaps just a little bit earlier than the occasion that we have been discussing here at Selfridge.

Now, it has been likened to the fact that we don't die of pneumonia any more, we die of cancer, because we have cured or we have good cures for pneumonia. But air entraining cured the spalling, and now the chert stands out like sore thumbs in great quantities.

Mr. Chairman, I am not trying to say that this airfield is good, because——

Mr. HARDY. It is going to be hard to do, General.

General CLARKE. No, sir; I am not trying to say that. I am simply trying to say that the state of the art, the knowledge of what should be done with chert is a lot better today than it was in 1958.

Mr. NORBLAD. Is this a problem in all the 50 States, or just in Michigan?

General CLARKE. Sir, the problem is pretty much confined to the glacial areas of the United States and not even throughout all the glacial areas. It is just—this region of the fields that we have been

talking about earlier, of Minot, or is it Grand Forks, and Michigan airfields—these are the ones that have been causing the trouble.

Mr. LANKFORD. General, let me ask you this: You said that your people drew on the knowledge of the Michigan and Detroit engineers?

General CLARKE. Yes, sir.

Mr. LANKFORD. Just in what way did they draw?

General CLARKE. Well, for example, the specification of Michigan for chert—we are talking about 5 percent for deleterious material. On their highways, their current specification is 8 or 9 percent.

Mr. NORBLAD. For an automobile, not a jet, though.

Mr. LANKFORD. For an automobile or truck?

General CLARKE. No, sir; I am talking about highways, really.

Mr. NORBLAD. Yes; you can't compare a B–52 with a Chevrolet.

Mr. LANKFORD. You can't compare an airfield and a highway, can you?

General CLARKE. Well, we would like to get this to the same durability, but the safety practices, of course—you are in a different level of operation.

Their current specification on chert is 4 percent, and deleterious material, 9 percent.

Mr. HARDY. Well, one other thing that bothers me——

Mr. LANKFORD. That is for a highway?

General CLARKE. Yes, sir, for a highway aggregate. Their specification at that time was: chert, 5 percent, and 10 percent for all deleterious materials.

Since all this has happened—as I say, we are all a lot better educated, the Air Force and ourselves. We now have a specification that says chert, one tenth of 1 percent, and deleterious materials 1 percent. We are going to pay for this, too. It is going to increase the cost. The impact of it hasn't been felt yet. We are concerned about what the aggregate industry is going to say about this. Because it is an almost impossible specification, and particularly if we are going to be building in these areas of the country. It is going to mean everything has to be crushed, and from very selected quarries. But this is the product that the Air Force must have for their jets, and this is what we will produce for them.

Mr. HARDY. Well, the thing——

General CLARKE. I hope—Mr. Chairman, I am not trying to plead the case that we had a perfect job, but I hope——

Mr. HARDY. No; General, actually, there are several things that stick out here like a bunch of sore thumbs. But one of them was the fact that the North Central Division approved two sets of specifications along about the same time.

General CLARKE. Yes, sir.

Mr. HARDY. On one of them they put a top limit of 3 percent——

General CLARKE. I——

Mr. HARDY (continuing). On chert and cherty limestone, and the other one they put it strictly on chert. Now, that is one that I have a hard time following.

General CLARKE. I think we all had the same hard time with that, sir.

Mr. HARDY. I have another one that bothers me a little bit: One of the first things that you said was you had been sitting here listening

to the same kind of thing that you had been hearing before. I don't know when you heard it.

General CLARKE. Very recently, sir, within the past week or so.

Mr. HARDY. I tell you frankly—and I said this to you before—The memorandum which you sent me didn't leave me under the impression that you heard this at all. Now, maybe you heard it since. But, and I don't want to be too critical, the memorandum that you sent left me with a feeling, maybe I didn't read it right, and I am willing to agree, that maybe I was on the rosy side when I read it—it left me with the feeling that you viewed this as being all OK, you are not going to find anything that you were going to be concerned with in this series of hearings. I wish that were so.

General CLARKE. Sir, that was not our attitude, and is not.

Mr. HARDY. Frankly, I am inclined to think that you may have learned during the course of the testimony here more than you did in the course of the preparation of the reports that were sent out to you. But anyway, the whole thing disillusions me, and I don't like to be disillusioned in this fashion.

Now, if we could get back——

Mr. LANKFORD. Mr. Chairman, may I just say one thing to the general about the cost of the better grade aggregate and the relative costs, what the concrete would cost in that I am informed—it would increase the cost of concrete 10 to 15 percent. But a jet engine costs $200,000. So I don't think we are talking the same amounts of money, in whether the better grade aggregate would run up the cost of paving runways, to an amount that is not acceptable as against the damage to $200,000 jet engines.

General CLARKE. Mr. Lankford, we have come to the same conclusion that you do. And this will be our practice. But this is with hindsight as to what has happened in the past.

Mr. HARDY. There were petrographic examinations of specific slabs from the runway at Selfridge Air Force Base. I am reading from a report of March 20, 1963; this is from the Corps of Engineers' investigation of the popouts in the runway.

Paragraph No. 3 says:

> Slab No. 2 was determined to contain approximately 54 percent coarse aggregate. The coarse aggregate consisted of 91.4 percent hard durable particles of limestone; igneous rock and quartzite; 6.3 percent chert; and 2.3 percent soft weathered particles and shale.

This was twice as much chert as was permissible in your aggregate, and gives you a total of 8.6 percent deleterious materials as against a maximum of 5 percent which was permissible.

The report continues:

> Slab No. 3 was found to be of similar composition with 5.8 percent chert and 2.6 percent soft particles and shale.

Now the report does not give the chert content for slabs 3 and 4. Presumably, they were tested for something other than for chert. But of the two slabs tested for chert, both had high chert contents. The report says:

> Slabs 1 and 2 are reported to be from an area of "few popouts," while 3 and 4 are reported as from an area of "numerous popouts."

From the area where there were numerous popouts, you had 6.3 percent chert.

I think it speaks for itself. It is a serious reflection on the performance of somebody in the field.

General CLARKE. Mr. Chairman, could I discuss a little about—something about the lessons that we have learned from this?

Mr. HARDY. Well, General, I am going to give you plenty of opportunity to do that when we send our report over to you. We will certainly want your comments on what you have done and what you plan to do.

General CLARKE. All right, sir.

Mr. HARDY. And if you want to do that before we write our report, that is all right. I hope that you have done something about it.

General CLARKE. We have, sir.

Mr. HARDY. We would be interested in knowing when you did it. I am worried about your self-policing activities, as I have told you. And I am not at all sure that you shouldn't have found this out a long time before you did.

Mr. LANKFORD. Mr. Chairman——

Mr. HARDY. I do want to have an indication of what has been done. I would just as soon you do it by letter, but you can do it right here too if you want. How long will it take?

General CLARKE. I can tell you what we have done to date in a very few minutes, sir, and then I would like to supplement it in our report on your committee's report.

First of all, the question of popouts was a matter of concern to both the Air Force and the Army before this particular investigation began.

Mr. HARDY. Oh, that is obvious. That is why you had some of these slabs tested.

General CLARKE. That is correct, sir. And, of course, this is why the resurfacing of the runway began, because of the popouts.

I don't have the chapter and verse on the changes in the continual tightening up of the specifications. But prior to the investigation there was a substantial tightening up of the specifications that were permitted on airfields with respect to chert. I should say in all fairness that since this investigation began, sometime last fall, we have tightened up even more, to the point, that, as I said, we will now allow 1 percent deleterious material.

We have been discussing and concerned about the soundness of the test that has occupied the committee's attention. I think we should say that these tests are the same tests that have been used by others, and they are the tests that, to my knowledge—now, others may have better knoweldge—are the field tests that are in common use for these materials. We have got to develop a better procedure for testing. Now, this——

Mr. HARDY. General, do you see a difference in using that kind of a test in a pit where laboratory inspections indicate that the deleterious material is relatively low and using it in a pit where it is marginal to start with, which is the best you can say for it?

General CLARKE. Sir, I think the test would be all right if the test and the people performing the test were correlated with the laboratory results. And this couldn't get done on the basis of one sample but has

to be done over a range of samples so that you can establish a correlation.

I don't object particularly to the crudity of the test, but I do feel that the lack of correlation between the test and the laboratory results is an omission on our part. And we will try to get a better test. But this is going to have to be developed not only by us, but by the industry at large.

Mr. HARDY. This leaves me with the feeling, and I don't mind telling you, it leaves me with the feeling that somebody was deliberately trying to get this aggregate passed regardless of its content.

I wish that we had the adequate evidence to either prove or disprove this. I would like to be able to disprove it. But that is the feeling that I have right now, that somebody deliberately worked at this plant to get this aggregate used in this contract regardless of its content.

General CLARKE. Sir, as you say, this is a matter that from my point of view I can neither disprove nor prove it.

Mr. HARDY. I can't disprove it or prove it either at this point.

General CLARKE. The matter of the qualifications of the laboratories, or field laboratory personnel, is a matter of concern to us, and particularly pointed out to us in this investigation.

We have not had a uniform procedure throughout the Corps of Engineers as to "certifying" the personnel who are engaged in certain laboratory tests which are rather crucial. We are going to take a look at this and see whether or not we shouldn't require certification of our field test personnel.

In some divisions we get the essence of this, and in others we do not. We will have to work on this.

We have also the matter of records and the question of retirement of records. Our manuals are quite clear as to what records should be maintained in the field, but they are not quite so clear as to how long we should maintain them or just where we should maintain them. Now we have got some work to do in that respect, too. Our contract files, of the normal contract modifications and the negotiations that go on with respect to those, are pretty clearly spelled out. But the preservation of field records has been a matter of judgment as to which ones are maintained. Perhaps we will have to be more specific on those, sir.

Mr. HARDY. I hate to see us get to a point where we clutter up everything with a lot of field records. I recognize——

General CLARKE. We have to strike a balance on this, sir.

Mr. HARDY. But when you get a situation where there is evidence that a runway is breaking down, that there is likely to be a reason to try to determine what did happen, it does seem to me that somebody has the responsibility for preserving those records for a reasonably longer period of time to permit an opportunity to evaluate just what did take place.

General CLARKE. Yes, sir. Now I am sure the chairman appreciates there is an element of judgment as to which records we do maintain, though, and we will take a look at these to see. Now, in fairness to the committee, I think we all share the same quandary as to whether certain documents which the contract said should be in writing were ever put in writing. There seems to be no recollection of these. And this again is an area where we need some tightening up.

Mr. HARDY. Well, we have had testimony about judgments made by some personnel in the field which may be questionable. The judgment to utilize aggregate from this pit was not necessarily questionable, if you can establish that it could meet specifications. But there in a question as to whether it did meet specifications. You had a judgment involved in the decision to consider cherty limestone as only 50 percent chert.

What have you done to clarify or to place a point at which such a judgment is appropriately exercised and to make sure that it is exercised by someone who is competent and reliable?

General CLARKE. Mr. Chairman, our organization I think is no different from any other organization. We have many, many valuable employees throughout the corps, as I am sure you appreciate—men of good, professional background. And I think I could only answer your question with respect to allowing these people to exercise their judgment, that we try to place in our positions of responsibility people of mature judgment. And we will continue to do so. I don't think we could ever so circumscribe their judgment that they couldn't operate, or we would lose these people.

Mr. HARDY. I recognize that. But I don't mind telling you I have a hard time understanding how the decision could reasonably be made to consider cherty limestone as 50 percent chert in the face of the Ohio River Division's report. I don't know what influenced that judgment.

General CLARKE. Mr. Chairman, I can only state from what I have heard, the conclusions that I get from it—from what I heard I believe this was an honest effort on the part of Mr. Sorensen and others to be conservative in the application of this chert factor, the cherty limestone factor. Now, the time has shown that perhaps this——

Mr. HARDY. Conservative in whose direction? I don't know what——

General CLARKE. In the favor of the Government, sir.

Mr. HARDY. I don't know how in the world you come up with that conclusion.

Mr. NORBLAD. I don't either.

Mr. HARDY. I sat here and listened to every bit of this testimony and how you can come up with that one is just beyond me.

General CLARKE. I——

Mr. HARDY. Actually, even Mr. Giacomini didn't do that.

General CLARKE. No, sir.

Mr. HARDY. In the application that he made.

General CLARKE. Mr. Giacomini was even more conservative in the way he interpreted the specification. He put all of the cherty limestone in the chert classification. Mr. Sorensen and his staff put half of that in that category.

Mr. HARDY. I wish that we had records enough and Mr. Sorensen had memory enough that we could really run this thing down and find out where the real emphasis for this decision came from. We haven't gotten it yet.

We haven't gotten to the point at which the pressure was applied or the influence was applied that resulted in this. And I am not suggesting that anybody has given us testimony that wasn't given in good faith. It has left me with a feeling that somebody did wield some influence.

Mr. NORBLAD. Just for the record, what is the difference in weight of a DC–6 and a jet when it comes down and hits the runway?

General CLARKE. A DC–6 and a jet, sir?

Mr. NORBLAD. Yes. Of course, I am talking of the planes of some years ago as against the very modern.

General CLARKE. Taking the KC–135?

Mr. NORBLAD. Yes.

General CLARKE. I am not a real expert. I would say a DC–6 would come in—actually the serious weight is the takeoff weight, sir, rather than the landing.

Mr. NORBLAD. Yes.

General CLARKE. I would say—and this is just a hasty recollection—a DC–6 is probably 150,000 or 160,000 pounds, and a KC–135 probably coming in at 320,000 pounds, somewhere in that range. We have some air people that could tell you a lot better than I could, sir.

Mr. NORBLAD. Just for the record.

General CLARKE. That would be takeoff weight, sir.

Mr. NORBLAD. Yes.

General CLARKE. They always made a runway much better than a public highway, for airplanes, over many, many years.

Mr. ZACKRISON. Structurally?

General CLARKE. Structurally, yes, sir, because of the heavy weights that have to be loaded on these.

Mr. NORBLAD. I just wanted that for the record, that is all.

General CLARKE. Your average highway would run 8 to 10 inches of concrete, and some of these runways run 18 to 20 inches, and I guess some of them are even heavier than that, sir.

Mr. HARDY. Mr. Lankford.

Mr. LANKFORD. General, who is responsible for the final acceptance of a job such as this one at Selfridge?

General CLARKE. From the contractor, sir?

Mr. LANKFORD. Yes.

General CLARKE. The district engineer.

Mr. LANKFORD. And what test does he make to determine whether the job is acceptable or not?

General CLARKE. Sir, on a job such as this, it goes on the basis of the day-to-day tests that are used as the job is being put in place.

Mr. LANKFORD. He makes no samplings, no test borings, or anything of the sort?

General CLARKE. Normally he would not, sir. Now I can't say whether he did in this case.

Now, after the job is finished and occupied, we go back and make an evaluation on the runway as to what kind of a loading it would take and whether or not it generally was a satisfactory runway. And we did make such——

Mr. LANKFORD. That is after you accepted it and paid the bill?

General CLARKE. Yes, sir.

Mr. LANKFORD. That is sort of like locking the stable after the horse is gone, isn't it?

General CLARKE. It is the same way on any job that the contractor does for any governmental agency.

Mr. LANKFORD. No, sir, because I know that in my own State we test our roads after they have been laid—we test them before they are accepted. We take test borings or whatever you call them.

General CLARKE. There may have been test borings on this, I am not sure.

Mr. LANKFORD. Wouldn't this be SOP with the engineers, to do this?

General CLARKE. From my runway experience, fortunately none of them were involved with chert——

Mr. LANKFORD. Well, it is not just chert.

General CLARKE. We made tests as we went along, sir. We made some borings——

Mr. LANKFORD. You mean as a section of runway was laid and it hardened and set and everything, then you went back and made your test borings or whatever you call them?

General CLARKE. That is right. And of course as we go along with the concrete we pour test beams at the same time.

Mr. LANKFORD. I beg your pardon?

General CLARKE. We pour test beams to be tested in the laboratories at the same time as the runways are going in. I am not sure how many a day.

Mr. NORBLAD. What do you mean by a beam?

General CLARKE. A sample beam so you can test it in flexure.

Mr. NORBLAD. A sample slab, in other words?

General CLARKE. Well, it is a beam, not a full slab. It is to test it in flexure to see whether or not you are getting the strength of the concrete you wanted.

Mr. LANKFORD. Now, General, let me ask you this—if this is done—as you say you tested it as you went along and the specifications called for what percentage, Mr. Chairman, of deleterious material?

Mr. HARDY. A total of 5.

Mr. LANKFORD. A total of 5 percent.

The report shows from the test slabs that there was in excess of 5 percent of deleterious material. Why was this not caught as the work progressed?

General CLARKE. Because the reliance was put on the field tests of the aggregate as it was being made into concrete, sir.

Mr. LANKFORD. Rather than testing what was actually there?

General CLARKE. Yes, sir. Now, this test of which we speak, the 8.5 percent, was performed several years after the runway was completed, these——

Mr. LANKFORD. Well, the composition of it hasn't changed any.

General CLARKE. No, sir; but I say that particular test.

Mr. LANKFORD. That is sort of looking at an elephant and saying, "I don't believe it." Because you say the field tests of the aggregate show one thing but the concrete in place shows another thing, you don't believe what is in place. You take the field tests. This doesn't make sense to me.

General CLARKE. Sir, perhaps I could—as I say, I have never built anything in Michigan. I have never personally run into——

Mr. LANKFORD. I have never built anything anywhere. I am just trying to go on commonsense.

General CLARKE. Well, the main thing that one is concerned with in one of the runways is that the concrete is up to strength. This is the first concern. This is what the beam tests do day after day, to be sure that the quality for concrete is good, and I might say this runway

was exceptionally good in that respect. But, unfortunately, it was bad in the chert respect.

Mr. LANKFORD. Well——

General CLARKE. There may well have been these cores and if there were I am not familiar with them, sir. Perhaps—were there cores?

Mr. SORENSEN. Yes, sir; there were cores made.

Mr. LANKFORD. What did the cores show? Did they show there was an excess of deleterious material?

General CLARKE. I don't know, sir.

Mr. SORENSEN. Sir, the cores were made to determine thickness and not chert content.

Mr. LANKFORD. To determine what?

General CLARKE. The thickness.

Mr. SORENSEN. The thickness.

Mr. LANKFORD. And that is the only core test you made, just to be sure that they had put down 18 inches; instead of 17.5?

General CLARKE. Mr. Lankford, as I said, normally—I hate to use the word "normally" because I know the chairman objects to it, but we test for the quality of the aggregates, the gradation and the other qualities of the aggregates before it is made into concrete.

Mr. LANKFORD. Well, all right, let's say that this is accepted practice, how do you account for the fact if these tests were carried out as they should have been, how do you account for the fact that there was 3 percent in excess of deleterious material? This is what I can't understand now. True, I haven't been at all of the hearings, but I just don't understand how you explain this away.

General CLARKE. I put it largely, sir, to the lack of correlation of the field test procedures and the personnel really because they are all tied together in getting the results, with the laboratory results that were accomplished at the Ohio River Laboratory.

Mr. LANKFORD. You mean the laboratory results showed one thing and the field tests showed another?

General CLARKE. On one occasion they did, sir, and that, I believe, should have been followed up.

Mr. LANKFORD. But it was not followed up?

General CLARKE. Well, not in the way in which the chairman has indicated or the way that I would figure it.

Mr. HARDY. If you had provided a correlation, you couldn't possibly have used this material. As a matter of fact, the only way you qualified this to start with was by putting a 50–50 basis on cherty limestone.

General CLARKE. That is correct, sir.

Mr. HARDY. Is the only way you could even authorize the use of this pit.

General CLARKE. That is correct, sir.

Mr. HARDY. And then the Corps of Engineers came along in its final evaluation report of the Selfridge contract and said it relied on the May 1958 test. I don't understand that, because that one showed clearly that the aggregate from the Oxford pit did not meet your specifications. If you had used the May 1958 test, you couldn't even have approved this pit.

(See app. II, p. 203, for Corps of Engineers letter, dated April 8, 1964, relative to the use of this test report.)

Mr. LANKFORD. No, I was just going to ask you whether this has been brought out in the testimony. Is this the only pit that was available?

Mr. HARDY. It is the only one that was nearby, the only one that the contractor could have used without losing his shirt. He testified this morning that he lost money on the contract even using this, but if he had had to use one of the other pits, some figures that we have had here have indicated that it would have cost him at least another half million dollars. We didn't get that from him, but there are some figures we have.

Mr. LANKFORD. Does this have anything at all to do with the OK'ing of the use of this pit, General?

General CLARKE. I am sorry, sir, I am not sure—which part?

Mr. LANKFORD. Well, both parts. Well, the main part, that if he hadn't used this pit he would have lost more than he did.

General CLARKE. I don't think the district at the time knew whether he was going to make or lose money. Certainly anyone there in the area would have been aware that a close-in pit was more economical to the contractor than a pit several hundred miles away.

Mr. LANKFORD. This was a fixed-price bid, was it not?

General CLARKE. Well, a unit price for concrete, sir. It was essentially a fixed price; yes, sir.

Mr. LANKFORD. It was a bid. It wasn't an incentive contract?

General CLARKE. No, sir.

Mr. LANKFORD. Or a cost plus fixed fee, or anything like that?

General CLARKE. No, sir.

Mr. LANKFORD. It was a fixed-bid contract?

General CLARKE. The price was all settled before this question appeared to have arisen.

Mr. LANKFORD. Well, we are not getting anywhere along this line. I would like to ask one other question of the general.

Mr. Giacomini said something about some records that there were, but he didn't know what happened to them. Do you know what happened to those that had to do with the cars of aggregate?

General CLARKE. I don't know.

Mr. LANKFORD. Can you find out?

General CLARKE. Well, this is where the effort has been recently on the part of the district, to try to find these records, and they are apparently no longer in existence.

Mr. LANKFORD. Well then, let me ask you this: What is your normal procedure with records?

General CLARKE. Normally, after 2 years this type of a record would be thrown away.

Mr. HARDY. Thank you.

Mr. LANKFORD. Yes.

Mr. HARDY. Off the record.

(Discussion off the record.)

Mr. HARDY. I appreciate your comments, General Clarke.

I had wanted to ask Colonel Boucher if he had anything that he wanted to say.

I also have one or two questions that we would like to explore with Mr. Hampton. Maybe we can dispose of Mr. Hampton's. I doubt if

Colonel Boucher has very much that he would like to throw in the record. We may not be able to conclude that today.

Colonel, did you have anything much you wanted to say?

FURTHER TESTIMONY OF COL. JEFF W. BOUCHER, DISTRICT ENGINEER, DETROIT DISTRICT, CORPS OF ENGINEERS

Colonel BOUCHER. I would like to say, sir, that after being in the district a year, as district engineer, and being pretty thoroughly familiar with the people who have testified here from the district, and fairly well experienced in this type of construction, that had I been the contracting officer in 1958 at this time, I very probably would have made the same decision in the best interest of all concerned, based upon the state of the art at that time and what we do about it.

Mr. HARDY. Well, Colonel, I don't know whether that helps the cause or not, but anyway, I am glad to have any statement you want to make.

Colonel BOUCHER. I would be glad to answer any questions, sir, that the committee might have. My knowledge of the case is based upon a study of documents and what I have been told.

Mr. HARDY. Well now, have you any documents that we don't have?

Colonel BOUCHER. No, I do not, sir.

Mr. HARDY. I would just as soon rely on my study of them as on yours.

Colonel BOUCHER. Right, sir. That is the reason why I wondered, sir, if there was anything else that you wanted to ask me.

Mr. HARDY. No, I don't have any questions. I wanted to give you an opportunity, in case something had developed during the course of the hearing that you wanted to comment on.

You know, to try to evaluate what you would have done under similar circumstances is a little difficult. And maybe you would have done the same thing.

Colonel BOUCHER. That is right.

Mr. HARDY. And I am not suggesting that General Hyzer was remiss in his performance. I don't know whether he was or not yet. But something certainly went awfully sour. Maybe there was some personnel that you relied on too heavily, I don't know. Maybe they performed fine, too. Maybe it was just a set of circumstances beyond the control of anybody. But, Colonel, I don't believe it.

Colonel BOUCHER. Well, sir, it is possible that it is a circumstantial case or a set of circumstances. I don't believe that there is anything that can disprove that. If I had something, I would come out and offer it to you.

Mr. HARDY. I wish to goodness you did.

Colonel BOUCHER. I would like to be able to.

Mr. HARDY. Thank you very much, Colonel.

Colonel BOUCHER. Yes, sir.

Mr. HARDY. Now, gentlemen, we will excuse you all.

Mr. Hampton, would you come up for just a couple of minutes. We will try to see if we can't complete with you.

Mr. REDDAN. Mr. Hampton, I just wanted to clear up one or two points in the record.

Last week you testified concerning a telephone conversation which you had with Mr. Roberts at the laboratory, and Mr. Davis testified to a conversation which he had with you in which the conversation between you and Mr. Roberts came up.

FURTHER TESTIMONY OF JAMES E. HAMPTON, CIVIL ENGINEER, AMERICAN AGGREGATES CORP.

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. Could you tell us now what Mr. Roberts told you with respect to this 50–50 division of the cherty limestone and whether or not it was acceptable under the Corps of Engineers specifications?

Mr. HAMPTON. To the best of my recollection, he concurred in my analysis of the situation.

Mr. REDDAN. What was your analysis, sir?

Mr. HAMPTON. That we would apply this 50-percent factor to the cherty limestone.

Mr. REDDAN. Well, Mr. Roberts states, at page 193 of the record:

> I recall that we had a conversation. I can't remember the date, concerning what cherty limestone was. And during the conversation it was kicked around as to the chert, actual chert content of the limestone, and I am sure we discussed the fact that it could range from a very small percentage up to maybe 30, 40, or 50 percent of the various particles. To the best of my knowledge, a summary of the results of the conversation would be, that of the cherty limestone, you could consider it to be about 50-percent chert on the safe average.

Now is that your recollection of the conversation, sir?

Mr. HAMPTON. I think that is substantially my recollection. There was a lot more to it than that, but I think this is the pertinent information.

Mr. REDDAN. Did you tell Mr. Roberts that you were in any way going to change the specifications or invoke this 50–50 rule, to bring the pit within the specifications?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. What did you tell him about that, sir?

Mr. HAMPTON. I told him that we proposed to make that interpretation.

Mr. REDDAN. And what did he say?

Mr. HAMPTON. He said he thought that was a reasonable interpretation. He did not say—or he did not say that we should do it. He just concurred in my interpretation.

Mr. HARDY. Did you discuss with him the fact that the recommendation from the laboratory, Ohio River division laboratory, had stated that cherty limestone had essentially the same properties as chert?

Mr. HAMPTON. Yes, sir. This was the problem. We were aware of the fact that it was deleterious and we didn't know how to apply it to the contract specifications.

Mr. HARDY. I asked Mr. Roberts, this is on page 195 of the transcript: "If the cherty limestone would have the same effect as chert, why should it have a different weight when determining the amount of it which is permissible?" And Mr. Roberts said "I didn't say it should have. To the best of my knowledge, this phone call related only to what comprised cherty limestone." That is what he said—"what comprised cherty limestone."

Mr. REDDAN. One other point, Mr. Hampton. Did you have anything to do with this airfield evaluation report? It is on Selfridge Air Force Base, Mount Clemens, and it is dated February 6, 1960.

Mr. HAMPTON. No, sir, not to my knowledge.

Mr. REDDAN. Do you know who would have made up the evaluation report?

Mr. HAMPTON. I expect that it probably came from the engineering division in the district office.

Mr. REDDAN. Just one other question, Mr. Hampton. During the time that you were employed by the Corps of Engineers, did you hold any position in any outside company?

Mr. HAMPTON. Yes, sir. I was a director of a drilling company.

Mr. REDDAN. What was the name of the company, sir?

Mr. HAMPTON. Michigan Drilling Co.

Mr. REDDAN. What sort of work did they do?

Mr. HAMPTON. Soil borings.

Mr. REDDAN. Were you an officer of the company?

Mr. HAMPTON. Yes, sir.

Mr. REDDAN. What position did you hold, sir?

Mr. HAMPTON. I was president.

Mr. REDDAN. When was the company formed, sir?

Mr. HAMPTON. I could not tell you that date, sir.

Mr. HARDY. Do our records show when the company was formed?

Mr. REDDAN. Yes, sir.

Mr. HARDY. What do our records show?

Mr. WOODS. July 1958.

Mr. HARDY. July 1958. Does that sound about right?

Mr. HAMPTON. I think so, sir.

Mr. HARDY. In other words, it was along about the time this contract was being worked out; is that right?

Mr. HAMPTON. Yes; the date shows that.

Mr. HARDY. That is right; exactly. Sure it does.

Mr. HAMPTON. Yes, sir.

Mr. HARDY. But you didn't remember the date a minute ago.

Mr. HAMPTON. No, sir; I didn't.

Mr. HARDY. That is all right. It is understandable.

Mr. REDDAN. Now did that company do any work in connection with this Selfridge Air Force Base contract?

Mr. HAMPTON. Not as far as I know, sir.

Mr. REDDAN. Did the company have any contracts at the Selfridge Air Force Base?

Mr. HAMPTON. This is possible. I cannot—I did not get into any of their operations with respect to who they were working for.

Mr. HARDY. You were the president of the company?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. Is it true that actually you did have some contracts with them? And I don't know—if you sat on the board of directors and served as principal executive officer of the corporation, it is rather strange you didn't know you had some contracts with the Corps of Engineers.

Mr. HAMPTON. Sir, I did not get into a discussion of the clients.

Mr. REDDAN. Did the company have any contracts with the Corps of Engineers while you were employed with the corps?

Mr. HAMPTON. It is quite possible. I don't know.

Mr. HARDY. You are the president of the company and you don't know?

Mr. HAMPTON. No, sir. I was not actively engaged in the operation. Mr. Chairman.

Mr. HARDY. Are you now or were you employed by or part owner of a testing laboratory?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. When?

Mr. HAMPTON. The testing laboratory was formed in March.

Mr. HARDY. Of what year?

Mr. HAMPTON. 1960, I believe. I think the record shows that. If I am wrong on the date, I would appreciate having it corrected.

Mr. HARDY. What percentage of the stock do you own in that corporation?

Mr. HAMPTON. At the present time——

Mr. HARDY. Or is it a corporation?

Mr. HAMPTON. At the present time, sir?

Mr. HARDY. At the time it was organized.

Mr. HAMPTON. Ten percent.

Mr. HARDY. Do you own more than that now?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. That corporation was organized after you separated from your employment with the Corps of Engineers?

Mr. HAMPTON. Yes, sir.

Mr. HARDY. Were you engaged prior to the incorporation of that company in any sort of a partnership or other arrangement with the principals of that company, prior to the time that you left the Corps of Engineers?

Mr. HAMPTON. No, sir.

Mr. HARDY. Have you had any contracts with the Corps of Engineers since you organized that company?

Mr. HAMPTON. I think there were two or three cement testing contracts that the company bid on and were successful in getting.

Mr. HARDY. What is the name of that company?

Mr. HAMPTON. Michigan Testing Engineers.

Mr. REDDAN. Do you know whether or not in 1958 the drilling company had a contract with the Corps of Engineers to take runway cores at Selfridge?

Mr. HAMPTON. This is possible, but I don't recollect this.

Mr. HARDY. Have you seen their records?

Mr. WOODS. I have seen their records.

Mr. HARDY. I think we may have that information.

Mr. HAMPTON. I think so, sir. I have given Mr. Woods every stick of information I have, on everything that he has asked for.

Mr. HARDY. What I am worried about is what information might be pertinent that he didn't ask you for.

Mr. HAMPTON. I will say this about Mr. Woods. He is very thorough.

Mr. HARDY. I know that.

Thank you, Mr. Hampton.

Now, before we adjourn for the day, I had wanted to take some testimony from the Air Force. I think we have a couple of gentlemen

here from the Air Force. I don't know how long their testimony would take. I don't believe we are going to be able to take it this afternoon. Maybe we had better try to meet in the morning. How would that be, Colonel?

Colonel BARNETT. Barnett. Colonel Barnett, sir. There are three of us here.

Mr. HARDY. There are three of you?

Colonel BARNETT. Yes, sir.

Mr. HARDY. Well, let's adjourn to reconvene at 10 o'clock in the morning. Are you all in Washington, or do you come from Selfridge?

Colonel BARNETT. Mr. Arnett is from Colorado Springs and Mr. Leslie and I are from Washington.

Mr. HARDY. They have enough people out there they can do without him and he can get another day's vacation. So if it is not too inconvenient, we will ask you all to return in the morning and we will try to conclude this part of it.

Colonel BARNETT. Thank you, sir.

General CLARKE. Mr. Chairman, may we let our Detroit people go home?

Mr. HARDY. Yes; let them go home. If we run into a snag and we have to have them back, we will do so. But I don't think we will need them any further. Let the committee stand adjourned until 10 o'clock tomorrow morning.

(Whereupon, at 4 p.m., the hearing was adjourned.)

DETERIORATION OF RUNWAY FACILITIES AT SELFRIDGE AIR FORCE BASE

WEDNESDAY, MARCH 25, 1964

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE FOR SPECIAL INVESTIGATIONS OF THE
COMMITTEE ON ARMED SERVICES,
Washington, D.C.

The subcommittee met at 10 a.m., Hon. Porter Hardy, Jr., chairman of the subcommittee, presiding.

Subcommittee members present: Messrs. Hardy (presiding), Richard E. Lankford, and Walter Norblad.

Staff members present: John T. M. Reddan, special counsel; Walter Woods, staff investigator; Phyllis M. Seymour, secretary.

Mr. HARDY. All right, let the committee come to order.

Let the record show the presence of Mr. Norblad, Mr. Lankford, and myself, constituting a quorum under the committee rules.

Mr. Reddan, who is our first witness?

Mr. REDDAN. We will start off with Mr. Arnett this morning.

Mr. HARDY. Mr. Arnett, will you take a seat up at the table, please, sir?

Mr. ARNETT. Yes, sir.

Mr. REDDAN. Mr. Arnett, would you please give the reporter your name and address?

TESTIMONY OF JAMES A. ARNETT, PAVEMENT ENGINEER, AIR DEFENSE COMMAND, COLORADO SPRINGS, COLO.

Mr. ARNETT. Yes. J. M. Arnett. I am with the Air Defense Command, Colorado Springs.

Mr. REDDAN. Now how long have you been there, Mr. Arnett?

Mr. ARNETT. A little over 10 years.

Mr. REDDAN. In what capacity, sir?

Mr. ARNETT. Well, in practically the same capacity. It has been in pavement engineering the whole time.

Mr. REDDAN. You have been in the room during the testimony the past few days in this matter?

Mr. ARNETT. Yes, I have.

Mr. REDDAN. I would like to direct your attention to a report dated July 16, 1962, entitled "Report of Visit to Selfridge Air Force Base on July 10–11, 1962, To Attend Meeting on Repair of Pavement." Do you have that before you, sir?

Mr. ARNETT. Yes, I do.

Mr. REDDAN. Did you write that report?

Mr. ARNETT. Yes, sir; I did.

Mr. REDDAN. What was the purpose of the visit to Selfridge Air Force Base, other than this? Is there anything you can tell us other than what is contained in the title of the report?

Mr. ARNETT. No, sir. The primary purpose of the visit was to inspect the pavements with some people from Headquarters, USAF, and to discuss several projects that had been previously programed.

Mr. REDDAN. At Selfridge?

Mr. ARNETT. Yes, sir; at Selfridge.

Mr. REDDAN. Were you inspecting any bases other than Selfridge?

Mr. ARNETT. I don't believe so, sir, not on this trip.

Mr. REDDAN. Was there anything about the condition of the Selfridge base that caused you to be there? Why were you going there to inspect it?

Mr. ARNETT. Well, we were going there to inspect the pavements and to reconsider all of these projects. In other words, the people from Headquarters, USAF, had never seen the pavements recently, and before they approved certain projects they wanted to make the trip there and inspect all of these pavements.

Mr. REDDAN. Is that a normal procedure, sir?

Mr. ARNETT. It is a normal procedure for some representatives from Headquarters, USAF, to also inspect the pavement, and the size projects that we were considering here.

Mr. REDDAN. Well, now, the size—you mean physical size or dollar volume?

Mr. ARNETT. Right, sir; dollar volume.

Mr. REDDAN. I see. Had USAF ever inspected the pavements at Selfridge before, that is, a representative of USAF?

Mr. ARNETT. I am sure that they had, but I don't know the dates. The purpose of any previous trip would not have been for consideration of these projects. They had been there before, I am sure of that.

Mr. REDDAN. In addition to yourself, who made that inspection?

Mr. ARNETT. Well, there was a Colonel Debus; W. C. Fowler, who was from Headquarters, USAF, in civil engineering. There was a Col. J. B. Cobb, who was the commander at Selfridge Air Force Base. There was a Lt. Col. D. E. Swanson, who was the base civil engineer. There was a Maj. E. E. Estes, who was the assistant base civil engineer. There was a Mr. L. B. Crowley, who is a pavement engineer with Headquarters, USAF. There was a Mr. Russell Woelz—that is spelled W-o-e-l-z—who was from Headquarters, SAC. There was a Mr. Jack Dawson, from Headquarters, 30th Air Division, which is under ADC. And there was a Mr. O. B. Thompson, who was Chief Engineer, Office of the Base Civil Engineer.

Mr. REDDAN. Is this a normal size for an inspection party?

Mr. ARNETT. Yes, sir; I would say so.

Mr. REDDAN. Now, in your inspection what, if anything, did you find with respect to the injury to aircraft or tires as a result of the surface of the runways and adjoining strips?

Mr. ARNETT. There was a lieutenant colonel who was the base aircraft maintenance officer, whose name I didn't include in this report and I don't remember his name right now. But he took us into one of the shops there and showed us the aircraft tires, the F–106 tires, that had been changed during the period of 4th of June to the 2d of July 1962. Now, this was all given to us orally. But his information

was that during that period of 179 tire changes, 119 were attributed to cuts in the tires.

Mr. REDDAN. Caused by what, sir?

Mr. ARNETT. Well, they attributed these cuts to some kind of sharp object out on a pavement.

Mr. REDDAN. Ragged holes in the pavement?

Mr. ARNETT. There was some speculation that this might also have caused part of them.

Mr. HARDY. Presumably that could be from the ragged holes, it could have been from the sharp-edged stones that had popped out?

Mr. ARNETT. Yes, sir.

Mr. HARDY. It would seem that would be the normal type of thing, unless somebody had been along and sprayed some broken glass on the runways, which I don't imagine they would do.

Mr. REDDAN. Would you read that part of your report where you discuss that, sir?

Mr. ARNETT. In paragraph 3 of my report I said:

> All pavements affected by the above-referenced projects, and the CONAC apron were inspected. F–106 aircraft tires worn or damaged during the period June 4 to July 2, 1962, were also inspected. During this period it was necessary to replace 179 tires for all reasons. Of this number 119 were replaced because of serious cuts which were attributed to ragged holes in the pavement, or sharp objects lying on the runway surface.

Now, I should have said pavement surfaces there, but it got in my report one way.

> The maintenance officer advised that this percentage of changes caused by cuts in the tires were far above the average. The average tire cost was $120, and each tire change consumed an average of 4 man-hours. Due to the very tight schedule of representatives from Headquarters, U.S. Air Force, only 2 hours were used for inspection of all areas and discussions pertinent thereto.

Shall I continue on?

Mr. REDDAN. No; that is far enough, sir. Did you ask for any submission from the base as to the total number of tires which had been cut during the past year or the past 6 months, something additional to what you received here?

Mr. ARNETT. I believe we did. Now, I do not have those figures here. I know that later on we asked for them, to go back for several years. But the information that we had received—these records were kept for only 1 year. And for the specific reasons for tire cuts or engine damage, the records were destroyed after that time.

Now, a summary report is sent into the Air Force Logistics Command, but it is only a very brief summary report. It does not show any of the details.

Mr. HARDY. Do you know, Mr. Arnett, if the records were not kept for more than a year, whether you have records for 1 year on this particular point?

Mr. ARNETT. I believe we did get some of those records, sir, but I do not have them with me.

Mr. HARDY. That is all right. Could you supply them—do you think you can find them?

Mr. ARNETT. I will certainly make an effort to; yes, sir. If they have them, I am sure we can supply them.

(See app. VIII, p. 209, letter April 10, 1964, to Hon. Porter Hardy, Jr., from Col. James M. McGarry, Jr., Assistant Director for Legislation and Investigations, Office of the Secretary of the Air Force.)

Mr. REDDAN. The tires that you looked at, Mr. Arnett, were they the ones that had been damaged just the month previous to your visit there?

Mr. ARNETT. That is what we were told; yes, sir.

Mr. REDDAN. Would it be possible to just multiply that period by 12 to get the———

Mr. HARDY. No. You would have to vary that according to the usage of the runway, I would think.

Mr. ARNETT. It might vary somewhat. I wouldn't say that it would be a straight-line ratio.

Mr. HARDY. All months in the year wouldn't necessarily reflect the same usage?

Mr. ARNETT. No, sir. Because most of the popouts as we have experienced them occur in the springtime, during the late winter and spring. And at that time we would expect the intensity of debris out on the runway to be higher than during other months.

Mr. REDDAN. Did you have any discussions with the base at that time as to any projection of tire and engine damage?

Mr. ARNETT. Yes, sir; I think we did. We talked to the base commander, Colonel Cobb, considerably about this. And Colonel Cobb made the trip out on the runway to see, during this time, just how much debris, how many pieces of aggregate were out on the runway. And my impression was that he was very concerned about it.

Mr. REDDAN. Did he have records which he maintained as to aircraft tire and engine damage?

Mr. ARNETT. He did not show us those records at that time, sir.

Mr. REDDAN. Do you know whether there were any such records?

Mr. ARNETT. No, sir; I can't say that I know positively that there were.

Mr. REDDAN. In your report did you discuss the possible causes for these popouts and make any recommendations in your report?

Mr. ARNETT. Yes, sir, we discussed the causes. We continually believed that these popouts were caused by the chert and also some soft particles.

Mr. REDDAN. Did you find anything with respect to the popout condition in areas where the aggregate was brought in from upstate?

Mr. ARNETT. Yes, sir. We did go over those areas, too.

Mr. REDDAN. What did you find there, sir?

Mr. ARNETT. Well, the intensity of popouts were practically nil on those other areas.

Now, in all pavements you can get a few popouts. There are many things that can cause popouts—a piece of wood, a cigarette butt, an apple core, many things can cause popouts. But due to the aggregate, there were practically none.

Mr. REDDAN. In those areas where they had imported the aggregate——

Mr. ARNETT. Yes, sir.

Mr. REDDAN (continuing). From upstate?

Mr. ARNETT. Yes, sir.

Mr. REDDAN. Now, did you make any recommendations as to the specifications for aggregate in future pavements?

Mr. ARNETT. Right, sir. We have always recommended either using the dolomite from upstate Michigan or slag which is produced locally.

Mr. REDDAN. I notice on page 5 of your report it states that "all aggregates used in the replacement of PCC pavements should not contain popout-forming particles."

Mr. ARNETT. Yes, sir.

Mr. REDDAN. Now, with respect to the primary runway, can you tell the committee the condition of the runway from your examination of it during this inspection trip?

Mr. ARNETT. Well, I personally noticed that there were numerous popouts. There were several that we noticed in the areas but we didn't walk the whole area. It is very difficult to close a runway down long enough to walk it. But we looked at certain representative areas. And we noticed that there were several popouts as large as 6 inches in diameter and there were numerous smaller ones.

Mr. HARDY. How deep were they?

Mr. ARNETT. Well, those that are—actually, the depth is usually about a third of the diameter on top. Now, when we are talking about a popout 1 inch in diameter, we are talking about the top diameter. The depth usually goes down about a third to a half.

Mr. REDDAN. Where you had a 6-inch popout, you probably would run 2 inches deep?

Mr. ARNETT. Yes, sir. And some of them were deeper than that, but I would say that would be the average depth.

Mr. REDDAN. On page 6 of your report, Mr. Arnett, you state:

> The Corps of Engineers has reported that local aggregates were used and up to 6 percent of deleterious particles were allowed in the mix.

Could you tell the committee who gave you that information?

Mr. ARNETT. Well, we had been talking with the Rigid Pavement Lab, Cincinnati, of the Corps of Engineers, about making some tests for us.

Now, the percentage of deleterious aggregate that was used wasn't the prime concern. Our prime concern was to try to forecast what the 10-year intensity of popouts would be. But it was my impression—and we talked to several people there—that they had told us possibly up to 6 percent. Now, I am sure they didn't mean this to be a consistent percentage, but——

Mr. HARDY. Did it occur to you to check the specifications on that? As I recall it, what we are talking about here now—maybe this is not the only one involved—had a maximum of 5 percent deleterious material. And if they acknowledged 6 percent, obviously, either they were wrong or there was a violation of the contract. Or maybe I am wrong.

Mr. ARNETT. No, sir; we didn't go into that any further. It didn't appear to be pertinent for what we wanted to know then. Of course, we were interested in the amount of deleterious materials. But the purpose of these tests was not primarily to find out the percentage of deleterious materials, but simply to find out the intensity of popouts.

Well, there were three reasons for the test, and that was one of them.

Mr. REDDAN. Do I understand you, Mr. Arnett, that the statement made to you by the Corps of Engineers, that up to 6 percent deleterious particles were allowed in the mix, was the result of tests which

they had run for you? What tests are these that they got the 6 percent figure from?

Mr. ARNETT. Well, now, I am not sure, sir. This was before they started any testing for us.

Mr. REDDAN. Yes. Their test of the Selfridge Air Force Base for you was made in 1963; was it not, sir?

Mr. ARNETT. It started in 1962.

Mr. REDDAN. At the time of your visit out there had they started their test?

Mr. ARNETT. No, sir; they had not started their test.

Mr. REDDAN. Well, that is the point I am getting to.

Therefore, the remarks made by the Corps of Engineers or the information which they passed on to you with relation to this 6 percent deleterious particles did not come from the results of the test which they subsequently made; they got this information somewhere else?

Mr. ARNETT. That is correct.

Mr. REDDAN. Now, do you know what the basis was for their statements and specifically who you talked to? Who told you that?

Mr. ARNETT. Well, sir, this is the one point that I am just not sure of. I had talked with Mr. Frank Mellinger, who is their Director. I had talked with a Mr. Ike Narrow, who has been here. And Mr. Roberts and possibly Mr. Keller. I just do not remember who. We talked more with Mr. Narrow, I think, than anyone else.

Mr. REDDAN. How long after your conversation with these people did you write this report?

Mr. ARNETT. Let's see. This is July. It was some time before that, sir, but I would have to go back over my records to be sure.

Mr. REDDAN. It was a relatively short time, however?

Mr. ARNETT. Yes, sir; it wasn't a very long time.

Mr. REDDAN. Did you have field notes that you relied on when you made this report?

Mr. ARNETT. Right, sir. We always take field notes. I don't believe I retained those. But we always take field notes.

Mr. REDDAN. Have you made any examination to find out, or any search to find out whether or not you do have those field notes?

Mr. ARNETT. I have a report. Of course, we have to make a report of each trip. And I do have the dates that we visited or that I visited the Rigid Pavements Lab in Ohio.

Mr. REDDAN. I am just trying to find the source of this information that is contained in the report.

Mr. ARNETT. Right, sir.

Mr. REDDAN. Do you have anything in your notes which would help us on that?

Mr. ARNETT. I don't believe that I would, sir. As I say, they were my individual notes. I am reasonably sure that those have been destroyed.

Now, the report of my visit, the office report of my visit, of course, is on file back at headquarters.

Mr. REDDAN. Have you looked for your notes recently?

Mr. ARNETT. No, sir; I have not, so far as that part is concerned.

Mr. REDDAN. Where would they be if you still had them?

Mr. ARNETT. They would possibly be in my desk.

Mr. REDDAN. Well, would you look in your desk when you go back?

Mr. ARNETT. Yes, sir.

Mr. REDDAN. And see if they are there and let the committee know, sir?

Mr. ARNETT. Yes, sir; I certainly will.

(See app. VIII, p. 209, letter April 10, 1964, to Hon. Porter Hardy, Jr., from Col. James M. McGarry, Jr., Assistant Director for Legislation and Investigations, Office of the Secretary of the Air Force.)

Mr. NORBLAD. I can't see what it is going to accomplish or prove if we are going to get a bunch of old notes that have already been made into a report.

Mr. REDDAN. I am trying to see if the notes will identify these individuals, where the report does not.

I don't have any more questions of the witness.

Mr. HARDY. Have you any questions?

Mr. NORBLAD. Yes.

Mr. Reddan asked you a question with reference to tires and engines, and he also used the word "damage" and then didn't develop it further. I never heard anything about engine damage in connection with this runway. Does that element enter into it at all?

Mr. ARNETT. So far as the records are concerned, sir—as I remember the record, they showed very little engine damage.

Mr. NORBLAD. I couldn't see that there would be any engine damage in anything like this.

Mr. ARNETT. Well, we have in the past, in the sub-Century series aircraft, suffered quite a lot of engine damage.

Mr. NORBLAD. You say it wasn't an element here of any great consequence?

Mr. ARNETT. No, sir; I don't believe so.

Mr. NORBLAD. Thank you.

That is all, Mr. Chairman.

Mr. HARDY. At least you have no knowledge of it. Actually, I had understood that engines had been repaired somewhere else and might not necessarily be reflected at Selfridge. Do you know anything about that?

Mr. ARNETT. Well, the base would keep a record, as I say, for 1 year's time of all engines that would be damaged from all causes. Now, when there is major damage to engines they send them somewhere else for repair, but the base should have a record, though, of all engines that have been damaged for this one year.

Mr. HARDY. Thank you. I think we will get into that with the next witness anyway. Thank you very much.

Do you have anything, Mr. Pike?

Mr. PIKE. No, sir.

Mr. HARDY. Thank you, Mr. Arnett.

Mr. REDDAN. Mr. Leslie.

Mr. HARDY. Mr. Leslie, come up and have a seat, will you, please, sir.

Mr. REDDAN. Mr. Leslie, will you please give your name and address to the reporter?

TESTIMONY OF GEORGE W. LESLIE, CIVIL ENGINEER, DIRECTORATE OF CIVIL ENGINEERING, U.S. AIR FORCE

Mr. LESLIE. My name is George W. Leslie. I am a civil engineer. I work with the Director of Civil Engineering in Headquarters, USAF.

Mr. REDDAN. What is your present position, sir?

Mr. LESLIE. I am a civil engineer in the Engineering Division, sir, the Directorate of Civil Engineering.

Mr. REDDAN. How long have you been so employed, sir?

Mr. LESLIE. In that or a similar capacity, since about 1951, sir.

Mr. NORBLAD. Is that Washington, Colorado Springs, Chicago, or where?

Mr. LESLIE. Headquarters, USAF, here at the Pentagon.

Mr. NORBLAD. Oh, you are here in town?

Mr. LESLIE. Yes, sir.

Mr. REDDAN. In your official capacity, has the problem of airfield pavement in the jet age been a particular concern of yours?

Mr. LESLIE. Yes, sir; it has.

Mr. REDDAN. And have you made inspections and conducted studies of the problem?

Mr. LESLIE. Yes, sir; I have.

Mr. REDDAN. Could you tell the committee briefly what those problems are, with particular reference to the damage to jet engines by foreign objects?

Mr. LESLIE. Apparently the problem with foreign object damage, as it is known in the Air Force, is the result of engine damage caused by foreign objects which may be parts of pavement. They might be gravel. They might also be metallic objects such as nuts, bolts, tools—or any item other than what is supposed to go into a jet engine, sir. And naturally, when the engines—usually the turbines or the blades of the turbines or the compressors are damaged, they have to change the engine.

Mr. REDDAN. Do you have any cost figures on that sort of damage?

Mr. LESLIE. I have none with me, sir, but I think we——

Mr. REDDAN. Are you sufficiently familiar with them to give the committee some idea of the dollar volume annually?

Mr. LESLIE. No, sir; I don't have those figures with me.

Mr. REDDAN. I have before me what purports to be a paper that you delivered in December 1957, the proceedings of the American Society of Civil Engineers, and in that paper it states that repair to jet engines damaged by foreign objects is costing the Air Force approximately $15 million a year. Has it increased or decreased since that time, sir; do you know?

Mr. LESLIE. I would say it has increased, principally because we have more jet aircraft in use.

Mr. REDDAN. Could you give the committee a submission on that particular point?

Mr. LESLIE. Yes, sir; I can.

(See app. VIII, p. 209, letter, April 10, 1964, to Hon. Porter Hardy, Jr., from Col. James M. McGarry, Jr., Assistant Director for Legislation and Investigations, Office of the Secretary of the Air Force.)

Mr. REDDAN. Do you have any figures from which you can give the committee any information as to how these foreign objects break down? You have enumerated a number of different types of foreign objects which could damage aircraft engines.

Mr. LESLIE. You mean the percentage of the various types?

Mr. REDDAN. Yes.

Mr. LESLIE. Of the total?

Mr. REDDAN. What I am trying to get at is the seriousness of the popout problem with relation to aircraft engine damage.

Mr. LESLIE. The overall problem—no, sir; I don't have any figures readily available.

Mr. REDDAN. Does the Air Force make any specific study of aircraft damage due to popouts?

Mr. LESLIE. Yes, sir; there is a continuing study and we do keep records.

Mr. REDDAN. Now, does anybody total those figures? I am just wondering if there is a total somewhere that can be made available.

Mr. LESLIE. I am quite sure there is a total, sir, and I am quite sure we can get it, but I don't have the figures with me.

Mr. REDDAN. I see.

TESTIMONY OF COL. JAMES A. BARNETT, DEPUTY DIRECTOR FOR CONSTRUCTION, DIRECTORATE OF CIVIL ENGINEERING, U.S. AIR FORCE

Colonel BARNETT. Mr. Reddan, I have about a year and a half period showing Selfridge Field engine damage, if you would like it.

Mr. REDDAN. That would be most helpful.

Colonel BARNETT. It indicates the causes of this engine damage.

Mr. REDDAN. At Selfridge?

Colonel BARNETT. That is right.

Mr. REDDAN. Is it very long? Could you give us just a summary on that?

Mr. HARDY. Have a seat, Colonel.

Colonel BARNETT. Beginning March 3, 1960, engine type J–47, serial No. 028664, cause: one-quarter-inch bolt, suspect.

I mean it is not certain, but it was suspected of being a quarter-inch bolt.

July 5, 1960, a J–33 engine, serial No.—do you need these serial numbers?

Mr. HARDY. No; I don't think we need the numbers.

Mr. REDDAN. Do you have the dollar total cost of repairs?

Colonel BARNETT. Negative. I will have to supply that, Mr. Reddan.

Small stones was the cause of this one.

July 5, 1960, again, a J–57 engine: The cause unknown.

July 29, 1960, a J–33 engine: Small stones.

July 29, 1960, again, a J–57 engine: Cause unknown.

September 1, 1960, a J–33 engine: The cause, small stones.

September 1, 1960, again, a J–75 engine: Cause unknown.

February 1, 1961, a J–33 engine: A hex nut.

April 1961 a J–75 engine. Cause unknown.

August 1961 again a J–33 engine. Cause: Metal object.

September 1961 again a J–75 engine. The cause: Unknown.

And that completes this list that I have.

Mr. HARDY. Colonel, on this "cause unknown," if it was established that damage was caused by a foreign object, then presumably the foreign object must have been expelled or something?

Colonel BARNETT. That is correct.

Mr. REDDAN. These are all jet engines, sir?

Colonel BARNETT. Yes, sir.

Mr. REDDAN. If a jet engine has to be replaced, what would one of those cost?

Colonel BARNETT. Here, again, sir, I can only talk from hearsay. I would rather check up and find out for certain. I think we have had the figure of $200,000 here, but I believe this is a little high.

(See app. VIII, p. 209, letter April 10, 1964, to Hon. Porter Hardy, Jr., from Col. James M. McGarry, Jr., Assistant Director for Legislation and Investigations, Office of the Secretary of the Air Force.)

Mr. REDDAN. Do you have any records as to whether or not there have been any crashes due to foreign objects being sucked up?

Colonel BARNETT. No, sir; and I know of no way where they would be able to determine that a crash was due to foreign object damage to the turbines.

Mr. REDDAN. Does the Air Force have any record of cases in which that is suspected?

Colonel BARNETT. I can't answer that.

Mr. HARDY. I don't think that would matter. I think we are getting into the realm of speculation.

Mr. REDDAN. All right.

Mr. Leslie, could you tell the committee how Headquarters, USAF, would get information with respect to pavement defects? What is the normal process, sir?

Mr. LESLIE. The information that has reached us came by letter from the major command.

Mr. REDDAN. Do you have any requirement that the chain-of-command report matters of this nature periodically?

Mr. LESLIE. Yes, sir; we have a regulation which requires that construction or design deficiencies be reported through channels.

Mr. REDDAN. How about——

Mr. LESLIE. Sir—I am sorry.

Mr. REDDAN. Go ahead, sir. I didn't want to interrupt you.

Mr. LESLIE. Generally the reports are required soon after a job is completed.

Mr. REDDAN. Would popouts be considered the result of a construction or design deficiency?

Mr. LESLIE. Yes, sir.

Mr. REDDAN. How often do these things have to be reported to USAF?

Mr. LESLIE. There is no regular schedule, sir. Normally when a job—I am sorry to use that word "normally."

Whenever a job is completed and shortly thereafter, if there are any notable deficiencies which may be either design or construction deficiencies, they would be reported. They may be something that would show up right at the time a job is accepted by the base or they may not show up until several months afterward.

Mr. REDDAN. Well, now, isn't it true that the base commander makes his report to the next higher command?

Mr. LESLIE. Yes, sir.

Mr. REDDAN. And that command does not report it to Headquarters, USAF, unless they can't solve it at that command level?

Mr. LESLIE. That is the practice; yes, sir.

Mr. REDDAN. So that you might have extensive repairs going on throughout the country that USAF would never know about?

Mr. LESLIE. That is right.

Mr. REDDAN. I haven't any further questions.

Mr. HARDY. Any questions, Mr. Pike?

Mr. PIKE. No, sir, Mr. Chairman.

Mr. HARDY. Mr. Norblad?

Mr. NORBLAD. No.

Mr. HARDY. Thank you very much, gentlemen.

Colonel, I think Mr. Reddan has one or two more questions for you, sir.

Colonel BARNETT. Yes, sir.

Mr. HARDY. And we ought to have Colonel Harding.

Colonel BARNETT. Colonel Harding was unable to be here.

Mr. REDDAN. Colonel, can you tell the committee what the Civil Engineering Directorate's responsibility is in establishing specifications for Air Force runways?

Colonel BARNETT. The Directorate of Civil Engineering prepares in broad outline the regulations which enumerate what should be done in the way of obtaining facilities.

Again, I think the specifications, if you want to term them that, which are prepared by Headquarters, USAF, are primarily along the lines of guide specifications. They are not at all specific and not in detail.

Mr. HARDY. I think what we are concerned with in this particular situation, Colonel, is the extent to which the Air Force participated in the development of specifications with respect to Selfridge and whether or not it actually fully discharged its responsibility based on its knowledge of the matter when these specifications were determined.

Colonel BARNETT. At the time that this contract was let, we did not become involved in the specific details of the preparation of the specifications.

As you are aware, we have the construction agencies of the Army and the Navy, specifically the Corps of Engineers and the Bureau of Yards and Docks, to perform our construction for us. As such, they are responsible for the preparation of the technical specifications and also responsible for technical adequacy of the construction. However——

Mr. REDDAN. Wholly responsible, sir?

Colonel BARNETT. Pardon?

Mr. REDDAN. Are they wholly responsible?

Colonel BARNETT. No. I was going to say: However, if we feel at any time that the specification is not fully responsive to our requirements, we are permitted to request the Corps of Engineers or the Bureau of Yards and Docks to modify their specifications as we see fit.

Mr. HARDY. In this case I take it you did not exercise that privilege?

Colonel BARNETT. That is correct, sir. We did not exercise this privilege in this respect until 1961, at which time we asked that the

deleterious material requirement be reduced to 3 percent, and in 1963, to 1 percent.

Mr. HARDY. Now, you had had some experience with this problem in other airbases; had you not?

Colonel BARNETT. That is correct, sir.

Mr. HARDY. But it hadn't seemed to be serious enough, or maybe you hadn't recognized the cause of it. Alpena had been in operation for 2 or 3 years before these runways were built.

Colonel BARNETT. Well, sir, we do not exercise surveillance of the National Guard bases. This is strictly up to the National Guard. If they do not advise us of the situation or where we do not by happenstance become aware of the problem, then we would not know the situation had occurred.

Mr. HARDY. Who maintains those bases?

Colonel BARNETT. I can't answer that. Generally speaking——

Mr. HARDY. Maybe they are not maintained.

Colonel BARNETT. They are maintained by the National Guard; yes, sir, but how they do it, whether they do it by contract or in-house forces, I don't know. Normally, I am sure that it is a matter of contract with the local civilian aviation authorities. But it could vary depending on the location.

Mr. HARDY. You had Sioux City Air Force Base. That is an ADC base.

Colonel BARNETT. Yes, sir.

Mr. HARDY. And you had some experience there in 1956. Actually that went back to 1953.

I am a little surprised that the Air Force wasn't more concerned with these problems.

Colonel BARNETT. Well, Mr. Chairman, I think it has been brought out in previous testimony that the paving problems have been with us ever since we first started putting concrete down.

Mr. HARDY. As a matter of fact, we have had some hassle right here in this room over the advantages of portland cement versus asphalt.

Colonel BARNETT. Yes, sir. And I think there is much, as far as the state of the art, in placing portland cement concrete that we don't know even at this time.

We have overcome certain of the obstacles, and as we overcome those obstacles we generate new ones or find out we have different ones from those that we have been exposed to in the past.

We felt at the time of these specifications that there is a matter of evaluating the cost of a strict specification against the cost-of-maintenance difficulties that might be encountered in future years. And generally speaking, I believe that we felt that maintenance of spalling or pitting or corner cracking on concrete was simpler than attempting to obtain a perfect concrete surface, which I don't think we could have done anyhow.

Mr. HARDY. Well, I don't know. In the course of our study of this particular contract we have come across a number of other bases where this popout problem has apparently been serious and recognized as being serious since 1953. In one Corps of Engineers report there was specific reference made to damage being caused to engines.

This is a report entitled "Inspection of Popouts in Concrete Airfield Pavements at Sioux City and Grand Forks AFB," dated November 7,

1958. According to a note on it, a copy of it was furnished to Headquarters, USAF.

The report states:

Foreign object damage to jet engines is a major problem for the Air Force. At Sioux City Air Force Base, for example, an average of 11 engines per month are damaged.

Are you familiar with this?

Colonel BARNETT. This is dated November 7, 1958?

Mr. HARDY. That is right.

Mr. REDDAN. It is on page 3, paragraph 12.

Mr. HARDY. And it continues:

The damage can range from a scratched turbine or compressor blade to total destruction of the engine, which may be worth up to $200,000. Spalled concrete is not the only culprit, since other foreign objects, such as nuts, bolts, and small tools left on the pavement, or in the engine intake by plane maintenance crews, also cause damage to engines.

I wanted to point out that there has been damage from things other than popouts, but popouts have been a problem since as far back as 1958 in areas with climates similar to Selfridge.

Colonel BARNETT. Sir, this problem is not confined to the bases in the Midwest of the United States. It is a universal problem. It can occur whether there is freezing or no freezing, simply by the moisture intruding into the pavement.

Mr. NORBLAD. You are speaking of popouts now?

Colonel BARNETT. That is correct.

Mr. NORBLAD. We understood at the beginning of the hearing that it was cold weather that caused it, was my recollection.

Colonel BARNETT. It is a very definite contributing factor to it. However, they can occur without freezing.

Mr. NORBLAD. In Florida, California, and Arizona?

Colonel BARNETT. That is right. As a matter of fact, they have occurred in California.

Mr. HARDY. Maybe that comes from a different deleterious material, or is it the same thing?

Colonel BARNETT. It is the same material.

Mr. HARDY. The same material?

Colonel BARNETT. Yes, sir.

Mr. HARDY. Well, maybe we better get the Corps of Engineers to take a look at this testimony. If my memory serves me correctly, they testified that cherty material was perfectly satisfactory in some areas.

Colonel BARNETT. In some areas chert is satisfactory, sir. This is one of the things that we really don't know. There were certain cherts that caused no problem whatsoever. Other cherts do.

Mr. NORBLAD. My recollection is that the emphasis was put by the engineers at the beginning of the hearing on the fact that they happened in North Dakota and upper Michigan, up in these cold areas, and not in the warmer climates.

Colonel BARNETT. The cherts that occur in the Midwest portion of the United States are the biggest culprits.

Mr. NORBLAD. I am talking about the popouts. That was my understanding of your initial testimony.

Colonel BARNETT. That is true. The cherts in the northwestern part of the middle United States, included within the area of the glacial deposits, are the ones that do cause the most trouble.

Mr. NORBLAD. But it has nothing to do with freezing weather up there, as against Arizona and California?

Colonel BARNETT. I am not saying freezing weather doesn't cause it. I think it aggravates the situation, more than just the actual wetting of the material.

Mr. HARDY. Well, my whole point is that certainly the problem has been with us long enough for us to have made some progress by now. And apparently there is a tightening up of specs on this permissible amount. It may be coming a little late. I don't know what this is going to do to the cost. Have you made any determination on that?

Colonel BARNETT. Well, yes, sir. Actually, this could increase the cost of aggregate anyplace from, let's say, 10 percent up to 100 percent, depending on how far away you had to go to get desirable sources of material.

Mr. HARDY. And if you are limiting allowable deleterious material to 1 percent, why, that is getting it down pretty pure, isn't it?

Colonel BARNETT. Yes, sir.

Mr. PIKE. Mr. Chairman, at this point we have talked about down to 1 percent deleterious material. That is the total, is it not, of all deleterious material, and the chert is 0.1 of 1 percent; isn't that correct?

Mr. REDDAN. That is correct.

Mr. HARDY. I believe that is right.

Mr. PIKE. Under the current specifications.

Mr. HARDY. Yes.

Mr. NORBLAD. How much liaison is there between the Air Force and/or Army Engineers and your civilian operations—Kennedy or Washington National, or what have you, as to the same problem? You people work together, or with CAB, or some other agency?

Colonel BARNETT. Yes.

Mr. NORBLAD. The same with them?

Colonel BARNETT. We have constant liaison with their personnel. We get their reports and they get our reports.

Mr. NORBLAD. Whose reports, sir?

Colonel BARNETT. As you say, the Federal Aeronautics Administration.

Mr. NORBLAD. Yes.

Colonel BARNETT. Any other commercial agencies involved, possibly even air lines, would have information that they furnish to us.

Mr. NORBLAD. It is a troublesome thing to all of you, I take it?

Colonel BARNETT. That is correct.

Mr. NORBLAD. You are all working to try to get a solution to it, I take it?

Colonel BARNETT. Yes.

Mr. HARDY. Did the Air Force review this Selfridge contract before it was awarded, do you know?

Colonel BARNETT. The Selfridge?

Mr. HARDY. I am trying to understand whether or not the Air Force was aware of these specifications and put its OK on them.

Colonel BARNETT. To the best of my information, we did not review these specifications. We are unable to find anyone in the Air Force who was specifically exposed to these specifications.

Mr. HARDY. Well, is it a normal procedure to review specifications for Air Force construction, including airfeld pavements?

Colonel BARNETT. No, sir; it is not a normal procedure for the U.S. Air Force to review the construction agency's specifications.

Mr. HARDY. That surprises me. I have been sitting through the construction authorization bills now ever since they have had them. We haven't always had them as we do now. But I had thought that the Air Force Engineers did review all of the construction specs.

Colonel BARNETT. Sir, if we reviewed the specifications in complete detail we would have to duplicate construction agency's personnel. We have been instructed to——

Mr. HARDY. I certainly have been laboring under a misapprehension, then, as to what you were doing.

Colonel BARNETT. We superficially review them, sir. We don't go into detail on them. We might—wherever we have any specific questions or want to insure maybe that something——

Mr. HARDY. I don't think you are going to get off free on this one, not in my book.

Colonel BARNETT. I have no intention.

I have been AFRCE for 7 years, sir, with the Corps of Engineers Divisions. I have been involved directly with the construction that has been performed. I have——

Mr. HARDY. One of the things that I have trouble understanding: You had two contracts under negotiation at the same time. You had Richard I. Bong and you had Selfridge. And the specifications varied between the two even though they are in essentially the same kind of area. I don't understand why the Corps of Engineers did it, in the first place, and I don't understand why you let them.

Colonel BARNETT. I can't answer that.

Mr. HARDY. OK. Thank you. Mr. Reddan.

Mr. REDDAN. During the testimony of the General Accounting Office witness it was stated that the revision of specifications was the responsibility of the Directorate of Civil Engineering, Headquarters, USAF. Is there anything you wanted to state on this, or any comments?

Colonel BARNETT. Will you state what the specifications were?

Mr. REDDAN. Yes.

Mr. HARDY. Read that out. That is a GAO statement; isn't it?

Mr. REDDAN. Yes.

The revision of specifications would have been the responsibility of the Directorate of Civil Engineering, Headquarters, U.S. Air Force.

Colonel BARNETT. I don't know exactly what it means by that. However, the preparation of plans as well as specifications are the responsibility of the construction agencies who perform for us. We give them our criteria——

Mr. HARDY. You know doggone well the Air Force is not going to let the Corps of Engineers build something for them that they don't think is going to serve their purposes. When I look back at some of the innovations the Air Force made in its airmen's dormitories,

by golly, the Corps of Engineers were building a lot fancier dormitory for the Air Force than it did for the Army way back yonder.

You all had these things built up to rigid specifications, high-powered specifications, and everybody was bragging about getting in the Air Force to get the best that the military has to offer. And I am not too critical of that. But the Army was getting lousy barracks by comparison with what the Air Force was insisting on. And now we find out on an operational system like a runway, why, you say the Corps of Engineers has the responsibility. Colonel, I am a little bit surprised.

Colonel BARNETT. Mr. Chairman, I think there is a difference between a specification and a definitive indication of what you want. Now, if you are talking specification, you are going way down into the nuts and bolts end of this business.

Mr. HARDY. Yes, sir; I am.

Colonel BARNETT. We are establishing the broad requirements.

Mr. HARDY. I am. And I know that at times the Air Force gets way down into the nuts and bolts of this business, too. And I am inclined to think that on this one you didn't do it well enough.

Colonel BARNETT. I couldn't agree with you more, sir. I wish we had.

Mr. HARDY. Anything further?

Mr. NORBLAD. No.

Mr. HARDY. Anything, Mr. Pike?

Mr. PIKE. No, sir.

Mr. HARDY. Thank you, gentlemen, thank you very much.

General Clarke, I have a question or two left over from yesterday. Maybe you or somebody could answer it. Maybe Mr. Zackrison can.

FURTHER TESTIMONY OF BRIG. GEN. FREDERICK JAMES CLARKE, DIRECTOR OF MILITARY CONSTRUCTION, OFFICE OF THE CHIEF OF ENGINEERS; ACCOMPANIED BY HARRY B. ZACKRISON, SR., CHIEF, ENGINEERING DIVISION, MILITARY CONSTRUCTION, OFFICE OF THE CHIEF OF ENGINEERS, U.S. ARMY

General CLARKE. All right, sir.

Mr. HARDY. In the specifications on this contract there are percentages set out for tolerances of these deleterious materials. Now, these percentages always are on a weight basis?

Mr. ZACKRISON. Yes, sir; they are, sir.

Mr. HARDY. Now, then, the percentages relate to the total weight of the particle that contains the deleterious material?

Mr. ZACKRISON. Yes, sir; that would be correct, sir.

Mr. HARDY. We had a report—sit down there just a minute, both of you. I want to try to see if I can clear my own thinking a little bit.

We had a report from an independent consulting geologist on a sample of this material from American Aggregates' Oxford pit on July 30, 1958, Andrew J. Mozola. Do either of you know anything about that; what its purpose was, and what was done with it?

General CLARKE. Mr. Chairman, I can give you my impression. It was submitted, and I am not sure whether by American Aggregates or Western Contracting, I suppose to get approval of the pit or at least to show that the pit was sufficiently good to be considered.

Mr. HARDY. This was submitted, then, by one of the contractors?

General CLARKE. Sir, I have to assume that. I can't guarantee it.

Mr. HARDY. Well, is there anything that would tell us what its purpose was and what consideration was given to it?

General CLARKE. Sir, our records didn't disclose any of that. And I think it would go back to the absence of records of that time, of any letters or correspondence on this report. Now, again, sir, I assume that this started the approval process for the Oxford pit.

Mr. HARDY. Do you have anything on which to base that assumption?

General CLARKE. No, sir; I don't.

Mr. HARDY. That is what I thought. And that is what I am trying to understand.

General CLARKE. Yes, sir.

Mr. HARDY. It was about this time that an effort was underway to get the Oxford pit approved?

General CLARKE. Yes, sir.

Mr. HARDY. I was hoping that we might be able to find some indication as to what weight the Mozola report was given and what effect it had on a final acceptance of the material from Oxford pit. And you say there isn't anything to——

General CLARKE. No, sir. If I could assume what I think probably happened, it justified getting it into the chain of approval. But the responsibility for approval was the corps, using their Ohio River Division lab.

Mr. HARDY. Well, I can't take the Ohio River Division Lab reports and come up with a basis for approving it. Apparently the Corps of Engineers did.

General CLARKE. Yes, sir.

Mr. HARDY. To my mind, those reports don't justify it. Now, your subsequent field lab tests were the bases on which the material was accepted. This one report of a consulting geologist does seem to provide a basis for using it.

General CLARKE. Yes, sir.

Mr. HARDY. So I was trying to see if we could determine where this thing came from. I understood that Western Contracting indicated they had no knowledge of it. Mr. Warner said that.

Mr. NORBLAD. He is back there——

General CLARKE. Mr. Warner is here.

Mr. NORBLAD. He is back here.

General CLARKE. That is my recollection of what he said.

Mr. HARDY. Mr. Warner.

FURTHER TESTIMONY OF MEREDITH F. WARNER, VICE PRESIDENT AND CHIEF ENGINEER, WESTERN CONTRACTING CORP., SIOUX CITY, IOWA

Mr. WARNER. Yes, sir.

Mr. HARDY. Am I correct? You have seen this Mozola report?

Mr. WARNER. Right, sir. In searching our files, a copy was in the file.

Mr. HARDY. Yes; do I understand that you had no knowledge of this report prior to that time.

Mr. WARNER. That is correct.

Mr. HARDY. Thank you. Anything further?

Mr. REDDAN. No.

Mr. HARDY. Mr. Pike?

Mr. PIKE. Mr. Chairman, I did miss the session yesterday afternoon and I don't want to go into anything that you have already covered or intend to cover in a different manner. But if there have been no questions asked about the subsequent tests of slabs of concrete sawed from the runway, I would like to go into that a little bit.

Mr. HARDY. We discussed that yesterday.

Mr. PIKE. All right.

Mr. HARDY. And read from the report.

Mr. PIKE. OK. No questions.

Mr. HARDY. Mr. Norblad?

Mr. NORBLAD. No questions.

Mr. HARDY. Well, thank you very much, gentlemen.

General CLARKE. Yes, sir.

Mr. HARDY. I think this will conclude this phase of this analysis of the Selfridge Air Force Base contract.

We will now have to make an analysis of the testimony and the documentation and determine whether additional hearings will be required. It may be that any gaps which exist can be cleared up through additional submissions.

Thank you very much for your helpfulness, gentlemen, all of you.

The committee will stand adjourned subject to call of the Chair.

General CLARKE. Thank you, sir.

(Whereupon, at 11:30 a.m., the subcommittee adjourned sine die.)

APPENDIXES

APPENDIX I

Brig. Gen. Frederick James Clarke

Frederick J. Clarke was born in Little Falls, N.Y., March 1, 1915, and attended elementary and high school there. He was appointed to the U.S. Military Academy from the 33d Congressional District of New York, entering in 1933. He graduated from West Point with a bachelor of science degree in June 1937, when he was commissioned a second lieutenant of the Corps of Engineers of the Regular Army. His first assignment was with the 5th Engineer Regiment at Fort Belvoir, Va., where he served as a company officer and company commander. He attended maneuvers at Plattsburg, N.Y., in 1939. In August 1939 he was detailed as a student at Cornell University for 1 year of postgraduate work in civil engineering.

He received a degree of Master of Science in Civil Engineering in August 1940, and was assigned to the 15th Engineer Battalion with the newly formed 9th Division at Fort Bragg, N.C. He remained there until June 1941, when he was assigned to the 38th Engineer Battalion (combat) with the I Corps at Fort Jackson, S.C. He participated in the Carolina maneuvers in the fall of 1941 and attended the sixth special course at the Command and General Staff School, Fort Leavenworth, Kans., which began immediately after Pearl Harbor.

He returned to the 38th Engineer Regiment in February 1942, as it was embarking for Ascension Island. He served as a battalion commander of the 38th Regiment during the construction of the airfield at Ascension Island. In August 1942 he returned to the United States for assignment with Planning Division, Army Service Forces. For the next 3 years he was engaged in the logistic planning for the support of oversea operations. In this time he made planning trips to South America, Africa, Italy, the Middle East, and India and China; and later to Europe and the Philippines.

In October 1945 he was reassigned to the Manhattan Engineer District as area engineer for the plutonium production works at Hanford, Wash. After the transfer of the Manhattan District to the Atomic Energy Commission in January 1947, he remained as Area Manager for the Atomic Energy Commission until September 1947. He was then assigned to Sandia Base, Albuquerque, N. Mex., the field installation of the Armed Forces special weapons project, where he served as executive officer until November 1949. Sandia Base was a joint command engaged in training of military units in the use of atomic weapons and research and development of atomic weapons.

In December 1949 he was transferred to Okinawa where he served for 2 years as operations officer and executive officer of the Okinawa Engineer District engaged in the construction program to build Okinawa as a peacetime base in the Pacific. In February 1952 he attended the Armed Forces Staff College in Norfolk, Va., and upon graduation in July of 1952 was assigned as Chief of the Atomic Section, Research and Development Division, Office of the Assistant Chief of Staff, G4, Department of the Army. In April 1953 he became executive officer to the Deputy Chief of Staff for Logistics, remaining there until he attended the 25th advanced management program of the Graduate School of Business, Harvard University in February 1954. Upon his return to the Pentagon he served successively as Chief of the Construction Management Branch, Chief of the Production Branch, and Special Assistant to the Deputy Chief of Staff for Logistics.

From August 1956 until June 1957 he attended the National War College. After graduation he was assigned as District Engineer, Trans East District, U.S. Army Corps of Engineers with station at Karachi, Pakistan. In this position he was responsible for military aid construction in Pakistan and Saudi Arabia, some construction for the U.S. Air Force and the initiation of surveys of transportation in East Pakistan and Burma.

He returned to the United States in July 1959 and served as Chief of Staff, U.S. Army Training Center, Engineer, Fort Leonard Wood, Mo., until August 1, 1960, when he was detailed as Engineer Commissioner for the District of Columbia. Upon completion of this tour in July 1963 he was assigned as Director of Military Construction, Office of the Chief of Engineers.

General Clarke and his wife, Isabel Van Slyke Clarke, have one son, Warren, a lieutenant in the Corps of Engineers, and two daughters, Isabel and Nancy.

General Clarke has been recommended for promotion to major general.

JULY 1963

BRIG. GEN. PETER C. HYZER, DIVISION ENGINEER, U.S. ARMY ENGINEER DIVISION, NEW ENGLAND, CORPS OF ENGINEERS

Brig. Gen. Peter C. Hyzer has been division engineer, New England Division, Army Corps of Engineers, with headquarters at Waltham, Mass., since October 1962.

Prior to his present command, the general was on Taiwan for 2 years as Chief of the Combined Service Forces Advisory Team, Military Assistance Advisory Group, Republic of China.

He is a 1937 graduate of the U.S. Military Academy, at West Point, and was commissioned a second lieutenant of infantry. He transferred to the Corps of Engineers in 1947 and received his master's degree in civil engineering from Massachusetts Institute of Technology in 1949.

General Hyzer served with infantry troop units and as assistant G–3, XII Corps, in Europe in World War II. A War Department General Staff assignment in Washington, D.C., occupied the general for 2 years following that conflict. He went to Japan in 1949.

He took command of the 3d Engineers, 24th Infantry Division, at the outset of the Korean conflict, and served with distinction. Following Korean service, General Hyzer was assigned to the Reserve Officers Training Corps, Norwich University, Northfield, Vt. He next served for 2 years as Chief, Military Personnel Division, Office of the Chief of Engineers, Washington, and from 1956 to 1959, as District Engineer, Detroit.

General Hyzer graduated from the Army War College in 1956, and the Industrial College of the Armed Forces in 1960.

His decorations for Korean service include the Silver Star for gallantry in action; Legion of Merit; Air Medal; Purple Heart; Distinguished Unit Citation; and a citation from the President of Korea. The general won the Bronze Star for meritorious achievement with the XII Corps in World War II. He also was decorated with the Army Commendation Ribbon with two Oak Leaf Clusters, and decorated by the Governments of France, Belgium, and Luxembourg.

Generay Hyzer is a registered professional engineer in Michigan, a fellow of the American Society of Civil Engineers, and a member of the Society of American Military Engineers.

Born and reared in Rockford, Ill., he became the 10th general or flag officer in the Rockford High School alumni. He attended the University of Illinois for a year before going to West Point.

General and Mrs. Hyzer presently reside at 160 Church Street, Waltham, Mass. The general's daughters, Judith and Sue, are in college, and son, Peter, attends Kemper Military School, Booneville. Mo.

COL. JEFF W. BOUCHER, DISTRICT ENGINEER, U.S. ARMY ENGINEER DISTRICT, DETROIT

Col. Jeff W. Boucher, district engineer of the U.S. Army Engineer District in Detroit, is a graduate of Oklahoma A. & M. College and of the Armed Forces Staff College, Norfolk, Va. In 1947 he was awarded a master's degree in civil engineering by the University of California. He is a registered professional engineer in the State of Mississippi.

During World War II his service was performed in the Panama Canal Zone. Since the war, Colonel Boucher has served in the Office, Chief of Engineers, on the staffs of the Memphis, Tenn., District and the Lower Mississippi Valley Division, and as organizer and commander of an Engineer combat battalion which he took to Germany. He was also secretary of the Mississippi River

Commission, a member of the faculty of the Armed Forces Staff College and commanding officer of the Seoul Area Command in Korea.

Prior to becoming district engineer in Detroit on March 28, 1963, he was on duty in the Office of the Assistant Army Chief of Staff for Intelligence, Washington, D.C.

HIGHLIGHTS OF RESPONSIBILITIES, U.S. ARMY ENGINEER DISTRICT, DETROIT

The U.S. Army Engineer District, Detroit, is responsible for all real estate, engineering and construction activities for the Army and Air Force in Michigan; for Engineer supply activities; and for Federal civil works functions including flood control and navigation. The administration and operation of the Soo Locks at Sault Ste. Marie, Mich., is one of the more important navigation activities. The district boundaries vary according to function, but generally include most of Michigan and the northern portions of Ohio and Indiana.

BIOGRAPHICAL SKETCH, ELMER A. N. SORENSEN

Born.—December 6, 1916, in Dorchester, Wis.

Residence.—20115 Oakfield, Detroit, Mich.

Education.—Graduate of St. Mary's High School, Mount Morris, Mich.; bachelor of civil engineering, University of Detroit, 1939.

Professional activities.—Registered civil engineer, State of Michigan; registered civil engineer, State of Wisconsin; member of National Society of Professional Engineers, Michigan Society of Professional Engineers, and the Society of American Military Engineers.

Work history.—

May 1939 to December 1945: Inspector to project engineer (P–3), U.S. Army Engineer District, Detroit.

December 1945 to July 1947: Project and chief engineer (P–4), U.S. Army Engineer District, Detroit, and Fort Wayne.

July 1947 to March 1948: Area engineer, Selfridge Air Force Base, Mich. (P–4), U.S. Army Engineer District, Chicago.

March 1948 to March 1950: Assistant resident engineer (P–4), U.S. Army Engineer District, Milwaukee.

March 1950 to April 1951: Assistant area engineer, GS–11, U.S. Army Engineer District, Wilmington.

April 1951 to August 1952: Assistant chief, construction division, GS–12, U.S. Army Engineer District, Detroit.

August 1952 to March 1954: Chief, construction division GS–13, U.S. Army Engineer District, Detroit.

March 1954 to October 1954: Chief engineer, $1,000 month, Prudential Investment Co., Detroit, Mich.

October 1954 to January 1956: Chief, construction division, GS–13, U.S. Army Engineer District, Detroit.

January 1956 to present: Chief, construction division, GS–14, U.S. Army Engineer District, Detroit.

BIOGRAPHICAL SKETCH, JOHN J. MECHLER

Born.—March 27, 1926, Marshfield, Wis.

Residence.—31132 Merritt, Garden City, Mich.

Education.—Marshfield Senior High School; bachelor of science in civil engineering, University of Wisconsin, 1952.

Professional activities.—Professional engineer in training, Wisconsin, 1952.

Work history.—

April 1951 to December 1951: Engineer, Midwest Engineering Co., Marshfield, Wis.

February 25, 1952 to March 1, 1953: Highway engineer, GS–5, U.S. Forest Service, Milwaukee Division.

March 1, 1953 to July 5, 1954: Highway design engineer, GS–7, U.S. Forest Service, Milwaukee Division.

July 5, 1954 to October 9, 1955: Construction management engineer, GS–9, U.S. Army Engineer District, Detroit.

October 9, 1955 to March 10, 1957: Supervisory civil engineer, GS–11, U.S. Army Engineer District, Detroit.

March 10, 1957 to February 17, 1963: Supervisory civil engineer, GS–12, U.S. Army Engineer District, Detroit.

February 17, 1963 to March 7, 1963: Civil engineer (general), GS–12, U.S. Army Engineer District, Detroit.

BIOGRAPHICAL SKETCH AND PROFESSIONAL QUALIFICATIONS OF WILSON L. DAVIS

Wilson L. Davis was born in Jackson County, Mich., in 1904. He graduated from Michigan State College in 1927 with the degree of bachelor of science in civil engineering.

During the summer of 1926 and after graduation until June 1929, with the city of Ferndale, Mich. Inspector of materials and construction on curb and gutter, concrete pavements, sidewalks, and sewers.

June 1929 to November 1932, Genesee County Road Commission, Flint, Mich. Engineer doing drafting and design work on concrete pavement, gravel roads, and reinforced concrete bridges.

February 1933 to August 1933, Fenton Township Board, Fenton, Mich. Engineer correcting tax roll descriptions, surveying and drafting.

August 1933 to November 1933, Genesee County Road Commission, Flint, Mich. Inspector on construction of 4 miles of concrete pavement.

December 1933 to April 1934, Genesee County Road Commission, Flint, Mich. Chief of survey party establishing permanent bench marks throughout Genesee County.

September 1935 to April 1936, Lexington area office, Kansas City District, Corps of Engineers, U.S. Army, Lexington, Mo. Draftsman computing traverse lines, fourth order triangulation net works, and miscellaneous engineering computations.

April 1936 to September 1936, Tucumcari District, Corps of Engineers, U.S. Army, Tucumcari, N. Mex. Draftsman tracing topographic maps and mechanical drawings, computations and charts.

September 1936 to January 1937, Conchas District, Corps of Engineers, U.S. Army, Conchas Dam, N. Mex. Draftsman working in the Soil Mechanics Laboratory performing tests, computations, and drafting in connection with test results.

January 1937 to August 1937, Peterson Construction Co., Minneapolis, Minn. Engineer on a $400,000 contract on the All American Canal at Yuma, Ariz. Made detailed drawings of forms, figured estimates, figured bids on new jobs, and supervised the construction on one overchute.

August 1937 to March 1938, Sacramento District, Corps of Engineers, U.S. Army, Sacramento, Calif. Draftsman doing hydraulic computations and some drafting.

March 1938 to May 1942, Sacramento District, Corps of Engineers, U.S. Army, Sacramento, Calif. Engineer, established and had charge of the Soil Mechanics Laboratory. Also had charge of moisture control and compaction on construction and soil exploration and sampling. This covered civil work such as levees and proposed earth dams. From December 1940 the work included airfields, Army Camps, hospitals and depots.

May 1942 to September 1943, Sacramento District, Corps of Engineers, U.S. Army, Sacramento, Calif. Engineer in charge of the district laboratory, which was composed of a soils section, a concrete section, and a chemical section. In charge of all soils exploration and sampling in connection with military construction. Served on special assignment as assistant area engineer in charge of field control on pavement construction at the Fairfield-Suisun Airport, Calif., and Ephrata and Moses Lake Air Bases, Wash. Served on special assignment as consultant to the area engineer on field control for the paving of the Tonopah Bombing and Gunnery Range, Nev. Also supervised the exploration and evaluation of the pavements at the Cut Bank Airport, Mont., and made recommendations for reconstruction.

September 1943 to June 1944, Sacramento District, Corps of Engineers, U.S. Army, Sacramento, Calif. Engineer in charge of all field and technical work in connection with the airport evaluation program conducted in the Sacramento district. This covered fieldwork, laboratory work, and a report on each of 55 airfields. Consultant to area engineers on field control for paving and earthwork projects, rendering advice and assistance on engineering problems and procedures. Consultant to the district laboratory.

June 1944 to March 1945, Sacramento District, Corps of Engineers, U.S. Army, Sacramento, Calif. Engineer in charge of the laboratory branch, consisting of a laboratory section and a field section. The laboratory section performed all standard tests, as well as numerous special tests, for all divisions of the district on oils, soil, aggregates, concrete, and water. The field section supervised and trained technical help and furnished such help to resident engineers for the testing and inspection of construction materials and compaction. Supervised special soil investigations and explorations for military and civil works. Served as a consultant to resident engineers on field control for paving and earthwork projects, rendering advice and assistance on problems and procedures.

March 1945 to March 1947, Sacramento District, Corps of Engineers, U.S. Army, Sacramento, Calif. Engineer in charge of the Materials and Laboratory Section, having responsibility for programing and planning work assignments and special projects related to soil analysis, paving materials, and concrete, as needed. Served as a consultant for the entire district on the following engineering problems:

(*a*) Soils investigation and explorations.
(*b*) Field control of paving and earthwork projects.
(*c*) Technical evaluation studies on pavements.
(*d*) Interpretation of laboratory test results as applied to foundations, stability of slopes for earthfills, and the permeability of materials.

Engineer in charge of the accelerated traffic test with 150,000 pound wheel load, Stockton test section No. 2, Stockton, Calif. Had charge of the test section through the planning or design stage, the construction, and through 7 months of testing. This was a $230,000 project.

March 1947 to August 1948, Chicago District Corps of Engineers, U.S. Army, Chicago, Ill. Engineer in charge of the Soils and Geology Section. Responsible for the direction, supervision, and coordination of the fieldwork in connection with geological and field investigations, the obtaining of samples for laboratory tests, performing the necessary laboratory tests on soil samples, conducting special studies and tests on soils, designing foundations and earth structures, and the testing, or the arrangements for testing various types of engineering materials.

August 1948 to March 1964, North-Central Division, Corps of Engineers, U.S. Army, Chicago, Ill. Engineer in charge of the Soils and Materials Branch, which consists of a laboratory section and a design review section. The laboratory section performs standard and special tests on soils, base course aggregates, and asphalt mixtures. The design review section reviews plans and specifications, design memorandums, reports, investigations, and surveys submitted by the districts for approval by higher than district authority. During these reviews particular attention is directed to the following aspects:

(*a*) Soils as they affect the project.
(*b*) Pavement.
(*c*) Foundations, and
(*d*) Concrete.

Serve as a consultant to the various district engineers and their technical staffs. Make frequent field trips to inspect and determine adequacy of construction practices, compliance of private contractors with specifications, and adequacy and effectiveness of field control laboratory procedures. Recommend revision in design during construction and modification of testing procedures on basis of field reconnaissance and laboratory tests results. During this period the design and construction of the American section of the St. Lawrence Seaway was accomplished. This project involved stability problems of design for side slopes of highly sensitive marine clay and of constructing structures such as walls and cofferdams founded on this clay.

Mr. Davis has coauthored two technical papers: "Physical Properties of Marine Clay and Their Effect on the Grass River Lock Excavation," published in the Proceedings of the Fourth International Conference on Soil Mechanics and Foundation Engineering, and "Epoxy Resin for Structural Repair of Concrete Pavement," published in the February 1960 Journal of the Construction Division of the American Society of Civil Engineers.

Mr. Davis' present grade is GS–14. He has held this grade since March 1955. He is a member of the American Society of Civil Engineers, American Concrete Institute, Society of American Military Engineers and the Permanent International Association of Navigation Congresses.

BIOGRAPHY, HARRY B. ZACKRISON, SR.

Harry B. Zackrison, Sr., has been, since January 1952, Chief of the Engineering Division, Military Construction, in the Office of the Chief of Engineers, U.S. Army, Washington, D.C. In that position he is responsible for engineering criteria and engineering performance of a multibillion-dollar construction program performed by the Corps of Engineers for the Air Force and the Army.

Mr. Zackrison's contributions to the advancement of construction techniques have received recognition from both inside and outside of the Government.

In 1945, for his outstanding performance during the World War II years, Mr. Zackrison was given the top U.S. Government civilian recognition in the form of the Exceptional Civilian Service Award.

Mr. Zackrison received Outstanding Performance Awards from the Department of the Army for the years 1957 through 1962, and Sustained Superior Performance Awards in 1957 and 1958.

Mr. Zackrison has presented papers to the Building Research Institute and the National Chamber of Commerce on activities of the Corps of Engineers in construction. He also presented two papers to the IV World Meeting of the International Road Federation which was held in Madrid, Spain, in October 1962.

Mr. Zackrison received the American Standards Association 1955 award for his outstanding and continuous work in the development of modular coordination, a building design technique. He was selected for the award by the American Institute of Architects, the Producers' Council, and the National Association of Home Builders.

Mr. Zackrison has played an important part in the development of codes for the American Concrete Institute in the use of structural concrete in their application to military structures.

He was the motivating force in the establishment of uniform standards for negotiation of fees for architect-engineer services utilized by the Corps of Engineers. As a result of these efforts, uniform standards for use throughout the Military Establishment were developed. These standards were accepted by the American Society of Civil Engineers and the American Institute of Architects.

In addition to his duties as Chief of the Engineering Division, Mr. Zackrison is a member of the Executive Committee and Past Chairman of the Building Research Advisory Board of the National Academy of Sciences—National Research Council, and presently is on the Executive Committee of the Engineering Division of the National Academy of Sciences—National Research Council; also Vice Chairman of the Executive Committee of the U.S. National Committee for the International Council for Building Research, Studies, and Documentation.

Mr. Zackrison's contributions and interest in arctic construction problems have been instrumental in the establishment of design criteria for construction in arctic regions. He took an active part in organizing the first International Conference on Permafrost.

Mr. Zackrison has been with the Army since 1933 when he was employed by the Quartermaster Corps. In 1941 he transferred to the Corps of Engineers. At that time the Engineers took over military construction responsibilities from the Quartermaster Corps.

Prior to coming to the Government, Mr. Zackrison had been employed by Stone & Webster Co., Boston engineering firm; Pennsylvania Water & Power Co., at Baltimore, Md.; the Allied Chemical Corp., Hopewell, Va.; New England Power Co., at Boston, Mass.; and the Vermont Highway Commission.

Mr. Zackrison is a graduate of Worcester Polytechnic Institute, Worcester, Mass., where he received his degree in bachelor of science in civil engineering in 1926. He is a member of Tau Beta Pi and Sigma Xi, honorary professional and scientific fraternities. He attended elementary school, and high school in Springfield, Mass. He was born September 28, 1904, in Bridgeport, Conn.

Mr. Zackrison, his wife, the former Ethel B. Barnes, of Enfield, N.C., and his son, Harry B., Jr., and daughter, Alice B., reside at 3921 North Fifth Street, Arlington, Va.

QUALIFICATIONS AND EXPERIENCE RECORD—ISRAEL NARROW

1. *Present position.*—Supervisory civil engineer, GS–14, June 1957.

2. *Education.*—Pennsylvania State College, bachelor of science in civil engineering, June 1929.

3. *Experience.*—(*a*) June 1929 to October 1932. Stone & Webster Engineering Corp. Construction of large coal breaker buildings and supporting facilities

at Mount Carmel and Mahanoy City, Pa. Various duties as surveyman, building and equipment layout, and inspection of concrete and steel building construction.

(*b*) March 1935 to November 1940. Corps of Engineers, Pittsburgh Engineer District, Pittsburgh, Pa. Construction of Tygart Dam, Grafton, W. Va.; Johnstown flood protection project, Johnstown, Pa.; Mahoning Dam, Dayton, Pa. Started at Tygart Dam as concrete placement inspector, then served as concrete control technician and as assistant to the concrete technician. Was concrete technician at the Johnstown project and Mahoning Dam project. In charge of field laboratory, responsible for design and control of concrete mixtures, and all tests of concrete materials and concrete. Also in charge of concrete batching and mixing plant inspectors.

(*c*) November 1940 to July 1944. Corps of Engineers, Ohio River division laboratories. Materials engineer, conducting concrete mix design studies, aggregate investigations, and tests of other construction materials. Prepare reports on tests, review project specifications and make field inspections in connection with problems related to concrete construction.

(*d*) July 1944 to March 1964. Corps of Engineers, Ohio River division laboratories. In charge of concrete laboratory, first as materials engineer, then as supervisory civil engineer since June 1957. Responsible for planning of work and operation of this division of the ORD laboratories and coordination with other laboratory divisions. Since September 1944, when the rigid pavement laboratory for the Corps of Engineers was established at the Ohio River division laboratories, a large portion of the work has been in connection with development and improvement in design and construction of airfield pavements. This has involved close contact with concrete airfield pavements construction throughout the country. Problems related to this construction are investigated, and many improvements in construction requirements and procedures have been developed; e.g., sawed joint procedures, concrete plant requirements, concrete curing requirements, preparation of guide specifications for airfield pavement construction, Standard Practice Manual and Manual of Inspection for Concrete Airfield Pavements.

4. *Publications (typical examples).*—

(*a*) Corps of Engineers construction guides:

(1) Manual of Inspection for Concrete Airfield Pavements, October 1953.

(2) Guide Specification CE–806, "Pavement Concrete for Roads, Runways, Aprons and Taxiways," April 1956, August 1958, and currently being revised.

(3) Engineering Manual, Part XII, Chapter 7, April 1956, "Standard Practice for Concrete Pavements." (EM 1110–305–307, May 1959, currently being revised.)

(*b*) Investigations:

(1) Studies of Flexural Strength of Concrete, June 1954.

(2) Investigation of Sawed Joints in Concrete Pavements, May 1954.

(3) Investigation of Joint Construction in Airfield Pavements, November 1956.

(4) Investigation of Paper-Formed and Vibro-Sawed Contraction Joints in Concrete Pavements, October 1957.

(5) Report on Survey of Batching Plant Requirements for Airfield Pavements, July 1957.

(6) Survey of Cracking in Airfield Pavements Constructed in Hot, Dry Climates, November 1957.

5. *Registration.*—Registered professional engineer, Ohio.

6. *Engineering societies.*—American Concrete Institute, 1939.

7. *Committees.*—ACI Committee 115, research.

QUALIFICATION AND EXPERIENCE RECORD—WILLIAM W. ROBERTS

Name.—William W. Roberts.

Position.—Chief physical tests branch, concrete laboratory, Ohio River Division Laboratories.

Education.—Civil engineering, University of Minnesota, 1920–23.

Member.—American Concrete Institute (1946); Society American Military Engineers.

Experience.—Soils and materials engineer, Minnesota State Highway Department, 1930–37. Soils and materials engineer, North Dakota State Highway Department 1937–40. Senior engineering aide, Wright Field District, Corps of

Engineers, 1941–42. Engineer, materials, Wright Field District, Corps of Engineers, 1942–45, including temporary (6 months) assignment to Recife, Brazil District. Engineer, materials, Ohio River division laboratories, Corps of Enginers, 1945 to present.

EXPERIENCE AND QUALIFICATION SHEET, DANIEL J. KELLER

Name.—Daniel J. Keller.

Position.—Geologist (general) GS–1350–12; ORD laboratories, soils and foundations laboratory.

Education.—B.S., June 1955, University of Cincinnati; M.S. June 1957, University of Cincinnati.

Professional associations.—1954, member, Sigma Gamma Epsilon, honorary geological fraternity; 1955, member, Society of Sigma Xi; 1961, member, Geological Society of America.

Experience.—Summer, 1954, field assistant, Virginia Geological Survey. Mapping of rock structure and stratigraphy of Piedmont province in Virginia. Mapping involved use of aerial photos and topographic maps and the application of geologic principles including megascopic and microscopic petrography.

Summer, 1955, junior geologist, Shell Oil Co., Baton Rouge, La. Application of geologic principles in determining the subsurface structure and stratigraphy of a portion of the Gulf Coastal Plain province. Work involved the study and interpretation of seismic and electrical resistivity data plus examination of well cuttings and well records.

Summer, 1956, geologist, the California Co., Casper, Wyo. Part of a two-man survey party determining the surface geology (stratigraphy, structure) of potential oil producing areas in the Rocky Mountain area. Work involved interpretation of areal photos, topographic maps and use of surveying instruments. Megascopic petrographic methods were continuously employed in the field in determining rock types and describing these units.

1955–57 (school terms) graduate assistant, Department of Geology, University of Cincinnati. Assistant to Dr. George Barbour, dean, College A. & S. and Prof. Richard Durrell. Duties: Teaching of elementary courses in geology (laboratory and lecture) to undergraduate students plus assisting in mineralogy laboratory identification and cataloging of mineral species.

June 1957–October 1958, geologist (engineering petrography).

October 1958 to present, geologist (general).

MAJOR DUTIES

1. Plans and conducts entire series of megascopic and microscopic petrographic analyses and prepares reports which are used in the evaluation or rock foundations and in the mineralogic and petrofabric suitability of materials for use as concrete aggregate. Examines, describes, tests and evaluates materials to be used as riprap and in rockfill structures.
2. Supervises district geologists in reconnaissance and field investigations of potential aggregate sources.
3. Logs diamond-drill core and describes in technical terms those characteristics which may influence the engineering properties of the rock.
4. Operates bore hole camer, seismograph, electrical resistivity equipment and DTA equipment and interprets results.

BIOGRAPHICAL SKETCH, JOSEPH GIACOMINI

Born June 6, 1932.

Residence: 1109 Gleneagle Road, Baltimore, Md.

Education: Mormion Military Academy; Virginia Military Institute; BSCE 1955.

Work history:

July 1955–March 1956: Engineer trainee, Virginia Department of Highways.

March–October 1956: U.S. Army obligation; second lieutenant, artillery, Fort Sill, Okla.

January 1957–April 1958: Civil engineer, GS–7, Detroit district.

April 1958–May 1960: Civil engineer, GS–11, materials and general, Detroit district.

May 1960–June 1961: Construction engineer, general, GS–11, Kansas City district.

January 1961–March 1963: Construction management engineer, waterways, GS–11, Detroit district.

March 1963 to present: Construction management engineer, waterways, GS–12, Baltimore district.

Member American Society of Civil Engineers.

APPENDIX II

APRIL 8, 1964.

Mr. JOHN T. M. REDDAN,
Special Counsel, Subcommittee for Special Investigations, Committee on Armed Services, House of Representatives.

DEAR MR. REDDAN: In accordance with your verbal request to Mr. Melville, I am sending you the erratum which will be included in all copies of the February 1960 Airfield Evaluation Report, Selfridge Air Force Base, Mount Clemens, Mich.

The enclosed erratum dated March 30, 1964, was prepared and signed by Mr. W. C. Otto, of the Detroit district, who prepared the report.

We regret the oversight and appreciate your calling it to our attention.

Sincerely yours.

F. J. CLARKE,
Brigadier General, U.S. Army,
Director of Military Construction.

DISPOSITION FORM

Office symbol or file reference: NCEED–F.
Subject: Airfield Evaluation Report, Selfridge Air Force Base, Mount Clemens, Mich., dated February 1960 (background data report).
To: Chief, Engineering Division.
From: Chief, Foundations and Materials Branch.
Date: March 30, 1964, OTTO/cfn/341.

1. Reference is made to the petrographic data shown on the bottom of the plates, aggregate data sheets, appendix II, plate 15 and appendix III, plate 11, of the subject report.

2. The petrographic data shown in the report is that obtained by precontract testing of aggregates (May 1958) and not that from aggregate tests made after award of contract (August 1958) which were used as a basis for aggregate acceptance. This data was previously omitted during assembly of subject report.

3. As a result, the following revision is made to the petrographic data shown on the bottom of the above referenced plates:

"The petrographic data for the coarse aggregate is deleted in its entirety and the following data, obtained from the Ohio River division laboratories test report, dated August 18, 1958, representing processed material, is substituted therefor:

Coarse Aggregate	*No. 4 to ¾ inch (percent)*	*1 to 2 inches (percent)*
Limestone, dense, hard	48.7	46.8
Igneous rock	27.8	28.8
Quartzite and quartz conglomerate	17.5	21.5
Deeply weathered rock	+.3	.5
Cherty limestone	3.0	1.9
Chalcedonic chert	2.7	.5
	100.0	100.0"

W. C. OTTO,
Chief, Foundations and Materials Branch.

APPENDIX III

OHIO RIVER DIVISION LABORATORIES SUMMARY DATA SHEET OF PETROGRAPHIC TESTS OF AMERICAN AGGREGATES CORP. COARSE AGGREGATE

STATE: Michigan	INDEX NO.:	AGGREGATE DATA SHEET	TESTED BY: ORD Laboratories
LAT.: 42 N	LONG.: 83 W		DATE: May 1958
LAB. SYMBOL NO.: 58262-3-4			TYPE OF MATERIAL: Sand & Gravel
LOCATION: Oxford, Michigan			
PRODUCER: American Aggregates Corporation			
SAMPLED BY: Detroit District			
TESTED FOR: Selfridge AFB (209/582)			
PROCESSING BEFORE TESTING:			
GEOLOGICAL FORMATION AND AGE			

GRADING (CRD-C 103)(CUM. % PASSING):

SIEVE	3-6"	1½-3"	¾-1½"	#4-¾"	FINE AGG.
6 IN.					
5 IN.					
4 IN.					
3 IN.					
2½ IN.					
2 IN.			100		
1½ IN.			80		
1 IN.			20	100	
¾ IN.			2	90	
½ IN.			1	59	
⅜ IN.				34	100
NO. 4				4	99
NO. 8					90
NO. 16					75
NO. 30					54
NO. 50					25
NO. 100					4
NO. 200					
- 200(a)					
F.M.(b)					2.52

(a) CRD-C 105 (b) CRD-C 104

TEST RESULTS

	3-6"	1½-3"	¾-1½" (c)	#4-¾" (c)	FINE AGG.
BULK SP. GR., SAT SURF DRY (CRD-C 107,108):			2.74	2.70	2.63
ABSORPTION, PER CENT (CRD-C 107,108):			1.1	1.2	1.0
ORGANIC IMPURITIES, FIG. NO. (CRD-C 121):	—	—	—	—	1
SOFT PARTICLES, PER CENT (CRD-C 130):					—
PER CENT LIGHTER THAN SP. GR. ____ (CRD-C 129):					—
PER CENT FLAT AND ELONGATED (CRD-C 119,120):					
WEIGHTED AV. % LOSS, 5 CYC. $MgSO_4$ (C) ¾-1", #4-½) (CRD-C 115)				4.5	6.4
ABRASION LOSS (L. A.), %, (CRD-C 117)			19		—
UNIT WT., LB/CU FT (CRD-C 106):					
CLAY LUMPS, % (CRD-C 118)					
COAL AND LIGNITE, % (CRD-C 122):	—	—	—	—	
SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):					
REACTIVITY WITH NaOH (CRD-C 128): Sc, mM/L:				114	108
Rc, mM/L:				336	138

MORTAR-MAKING PROPERTIES (CRD-C 116)

TYPE ____ CEMENT, RATIO ____ DAYS, ____ %, ____ DAYS, ____ %

LINEAR THERMAL EXPANSION X10 ⁶/DEG. F. (CRD-C 125,126):

ROCK TYPE	PARALLEL	ACROSS	ON	AVERAGE

MORTAR:

MORTAR-BAR EXPANSION AT 100F, % (CRD-C 123):

	FINE AGGREGATE 3 MO.	6 MO.	9 MO.	12 MO.	COARSE AGGREGATE 3 MO.	6 MO.	9 MO.	12 MO.
LOW-ALK. CEMENT: % Na_2O EQUIVALENT:								
HIGH-ALK. CEMENT: % Na_2O EQUIVALENT:								

SOUNDNESS IN CONCRETE (CRD-C 40, 114):

			F & T	HW-CD	HD-CW
FINE AGG.	COARSE AGG:	DFE_{300}			
FINE AGG.	COARSE AGG:	DFE_{300}			

PETROGRAPHIC DATA (CRD-C 127):

Coarse Aggregate	#4 to 3/4"	3/4" to 1½"
Crystalline igneous & metamorphic rock	13%	23%
Impure quartzite, quartz conglomerate & sandst.	25	32
Dolomite and limestone	57	41
Cherty limestone & chert	5	4
	100%	100%

Fine Aggregate	
Quartz, quartzite & limestone	91
Igneous rock	3
Soft weathered limestone & friable sandst.	3
Chalcedonic chert	3
Heavy minerals and mica	trace

REMARKS:

WES FORM 726 JAN. 1951

APPENDIX IV

U.S. ARMY ENGINEER DISTRICT, DETROIT
CORPS OF ENGINEERS,
Detroit, Mich., August 15, 1953.

Subject: Request No. C–22 for Aggregate Tests and Mix Design for Airfield Pavement at Selfridge Air Force Base, Mich., contract No. DA–20–061–eng–2985

To: Director, Ohio River Division Laboratory, Corps of Engineers, Cincinnati, Ohio

1. Reference is made to the telephone conversation between your Mr. Roberts and Mr. Hampton of this office on August 14, 1958, concerning tests in connection with a concrete mix design for subject project.

2. A representative of the American Aggregate Corp. is delivering a sample of material to your laboratory on August 15, 1958. This sample represents material produced after modifications to their normal plant operation which are intended to reduce the chert and deleterious particle percentages from that which was reported on your results, dated May and June 1958. Fundamentally, the modifications provide for the replacement of some of the natural material in the ¾-inch, ½-inch, and ⅜-inch sizes with material crushed to these sizes from plus 1¼-inch material. Field checks conducted on this material on August 13, 1958, indicate that the objectionable particle percentages have been reduced sufficiently to comply with specification requirements.

3. If your preliminary checks indicate that the material does comply with the specifications, the following quantities will be shipped: 1,000 pounds, No. 4 to 1-inch processed gravel; 1,000 pounds, 1- to 2-inch processed gravel; 800 pounds, fine aggregate; and 6 bags, portland cement.

It is requested that you prepare a mix using 5.5 bags per cubic yard of cement using these aggregates for purposes of establishing a correlation between the original design and one using the modified material.

4. The contractor, Western Contracting Corp., proposes to commence paving approximately September 3, 1958.

5. Charges in connection with this work are chargeable to appropriation No. 57x3300 077–6505 P321–10 S20–064 (BAN 259) SF–588.

ELMER A. N. SORENSEN,
Chief, Construction Division
(For The District Engineer).

APPENDIX V

EXCERPT FROM MINUTES OF RIGID PAVEMENT LABORATORY PORTION OF ALL-DIVISION AIRFIELD PAVEMENT DESIGN CONFERENCE, CORPS OF ENGINEERS, HELD AT THE WATERWAYS EXPERIMENT STATION, VICKSBURG, MISS., MARCH 10–14, 1958

Question: Tested aggregate for a facility indicates the natural aggregates contain chert ranging from about 5 to 8 percent, with about 3 percent being chalcedonic chert. Realizing the chert may produce popouts, would sources of aggregate with the said percentages of chert be considered satisfactory for new pavements? There are only two sources of crushed stone available which will cost more money.

Discussion: Chert popouts have been a problem in certain areas. A limit on chert would be desirable in this instance, and a maximum of 3 percent chert was suggested as a limit. Also, it is believed desirable to require a 1½-inch maximum size aggregate, in order that the popouts which may occur would be comparatively small in size.

APPENDIX VI

OHIO RIVER DIVISION LABORATORIES PETROGRAPHIC REPORTS OF TESTS OF AMERICAN AGGREGATES CORP. COARSE AGGREGATE OF AUGUST 18, AUGUST 13, AND JUNE 13, 1958

PETROGRAPHIC REPORT, CORPS OF ENGINEERS, OHIO RIVER DIVISION LABORATORIES, MARIEMONT, OHIO

Source: American Aggregate Corp., Oxford, Mich.
Material: Crushed gravel.
Project: Selfridge Air Force Base.
District: Detroit.
Date: August 18, 1958.
Laboratory Job No. 90/59Z.

Introduction

On August 15, 1958, a representative of the American Aggregate Corp., Mr. Jack Salswadel, delivered gravel samples produced from the Oxford, Mich., plant. The samples represented the 1- to 2-inch and the ¾ to No. 4 materials. The samples were examined in the presence of Mr. Salswadel. The ¾ to No. 4 gravel was produced by blending 35 percent crushed coarse stone with the smaller material. The purpose of blending was to lower the percentage of deleterious stone in the product. It was determined that the 1- to 2-inch stone contained 2.9 percent deleterious material and the ¾ to No. 4 gravel contained 6 percent deleterious material.

Discussion

Representative fractions of each of the samples were washed and examined. Primary separation was based on visual examination. The deleterious fractions were checked by use of the stereomicroscope. Etched and polished samples of the chert and cherty limestone were prepared and examined under the microscope.

A total of 26,973 grams of 1- to 2-inch aggregate and 8,404 grams of No. 4 to ¾ aggregate were critically examined. The analyses of these samples given in percentage by weight are as follows:

Constituents	*1- to 2-inch stone (percent)*	*No. 4 to ¾-inch stone (percent)*
Limestone—dense, hard	46.8	48.7
Igneous rock	28.8	27.8
Quartzite and quartz conglomerate	21.5	17.5
Deeply weather rock	.5	.3+
Cherty limestone	1.9	3.0
Chalcedonic chert	.5	2.7
	100.0	100.0

Limestone.—Most of this rock is dense, hard and fine grained crystalline. It is commonly siliceous.

Igneous rock.—This material varies in texture and composition from coarse to fine grained and from highly silicic (granitic) to subsilicic. Included in this group are granite, granitic gneiss, intermediate igneous rock and basalt. Fine grained metavolcanics and schistose metasediments (greenstones) are also included. Most of this rock is composed of tightly interlocking crystals, is dense and hard and considered to be durable.

Quartzite, quartz conglomerate.—Silica cemented quartz sandstone and conglomerate and metamorphic quartz sandstone is included. The rock is dense, hard, and durable.

Deeply weathered rock.—This group includes soft punky limestone, soft friable sandstone and soft crumbly clay ironstone. It is considered to be physically unsound in concrete.

Cherty limestone.—Included are aggregate particles containing an appreciable and variable amount of chalcedonic chert as replacement of fossiline material and/or matrix. The greatest portion of the aggregate particle is, however, composed of carbonate. It is common belief at this laboratory that cherty stone should be considered as having the same physical and chemical properties as massive chert.

Chalcedonic chert.—Aggregate particles which are composed dominantly or wholly of chert are included in this group. Most of the chert occurs as a replacement of limestone. It is commonly banded and is occasionally highly fractured. This material is considered to be potentially reactive with the alkalies of portland cement. In addition, the high coefficient of thermal expansion of this material might cause popouts on exposed surfaces.

Conclusions

In evaluating aggregate from this source for the Selfridge Air Force Base project, this report and the reports of June 13 and August 13 should also be considered. It should be noted that any blending of materials from natural deposits will require frequent inspection.

D. J. KELLER, *Geologist.*

PETROGRAPHIC REPORT, CORPS OF ENGINEERS, OHIO RIVER DIVISION LABORATORIES, MARIEMONT, OHIO

Source: American Aggregate Corp., Oxford, Mich.
Material: Natural gravel.
Project: Selfridge Air Force Base.
District: Detroit.
Date: August 13, 1958.
Laboratory sample No.: 59105–106.
Laboratory job No.: 90/59Z.

Summary

Two samples of natural gravel from the American Aggregate Corp., Oxford, Mich., were submitted by the Detroit District in order to determine a percentage content of chert. Examination shows that sample 59105, No. 4 to 1 inch material, contains 5.4 percent (weighted percentage) chert. Sample 59106, 1- to 2-inch material, contains 2.4 percent chert.

Discussion

Three sacks of each sample were delivered to these laboratories August 11, 1958. The three sacks containing the individual samples were combined and a representative portion of each sample was obtained by quartering. Three thousand six hundred and twenty-four grams of the No. 4 to 1-inch gravel was examined. It was found to contain 5.4 percent or 195 grams of chert. Twenty-eight thousand three hundred and eleven grams of the 1- to 2-inch material was found to contain 2.4 percent or 679 grams of chert. Much of the chert has a banded texture indicative of chalcedony; some is deeply pitted and highly fractured. The chert is considered to be potentially reactive with the alkalies of portland cement.

NOTE.—The examined materials appear to be quite similar to those examined previously. See report of June 13, 1958.

DAN KELLER, *Geologist.*

PETROGRAPHIC REPORT, CORPS OF ENGINEERS, OHIO RIVER DIVISION LABORATORIES, MARIEMONT, OHIO

Source: American Aggregate Corp. (Oxford Pit), Michigan
Material: Natural and crushed gravel
Project: Selfridge Air Force Base
District: Detroit
Date: June 13, 1958
Laboratory Sample No. 58263–64
Laboratory Job No. 209/58Z

Summary

Two samples of natural and crushed gravel from the American Aggregate Corp.'s Oxford pit, Oxford, Mich., were submitted by the Detroit District for petrographic analysis. Examination shows that the samples are composed of the following rock types:

	58263 No. 4 to ¾ inch	*58264 ¾ to 1½ inch*
Crystalline igneous and metamorphic rocks	13	23
Impure quartzite, quartz conglomerate and sandstone	25	32
Dolomite and limestone	57	41
Cherty limestone and chert	5	4
	100	100

The ¾-inch gravel contains 92 percent chemically and physically sound material, a trace of moderately soft or fair material, and 8 percent unsound material. The 1½-inch gravel contains 90 percent sound material, 5 percent moderately weathered material, and 5 percent unsound material.

The gravels consist dominantly of rounded particles with a minor amount of angular material and a small percentage of "flats."

Discussion

The gravel samples were examined megascopically and with the stereomicroscope. The major constituents are igneous rick, quartzite, dolomite and limestone, and chert. The igneous and metamorphic rock is divided into two major types: sample 58263 contains (1) 7 percent granite, gneiss, and silicic crystalline igneous rock, and (2) 6 percent diorite, gabbro, and basalt; sample 58264 contains 12 percent of type 1 and 11 percent of type 2. Most of this material is free from weathering and is chemically and physically sound. The quartzite and standstone is dense and well lithified and is essentially free from weathering. Most of the limestone and dolomite is physically sound, but the samples do contain a minor amount of moderate to deeply weathered, soft friable particles. Chert and cherty limestone occurs in all fractions of the samples. Some of the chert has a banded texture indicative of chalcedony; some is deeply pitted and highly fractured. The chert is considered to be potentially reactive with the alkalies of portland cement.

With the exception of the chert and of the deeply weathered particles, the quality of the gravel is considered to be good for use as a concrete aggregate.

APPENDIX VII

U.S. Army Engineer District, Detroit
Corps of Engineers,
Detroit, Mich., April 6, 1964.

Mr. Walton Woods,
House Armed Services Committee, Subcommittee for Special Investigations, Cannon House Office Building, Washington, D.C.

Dear Mr. Woods: Reference is made to your telephone call on April 3, 1964, requesting information as to the source of aggregate used in preparing the Government estimate for Selfridge Air Force Base, Mich.

The back-up data for the Government estimate for the 1958 Selfridge Air Force Base airfield pavements are no longer available and there is no record of what source of aggregate was used for the Government estimate.

Estimating personnel recall figuring water borne transportation, indicating that a Northern Michigan source was considered. The two closest Northern Michigan sources on the approved list were: Michigan Limestone Co., Rogers City, Mich.; and Drummond Island Quarry, Drummond Island, Mich.

Sincerely yours,

Jeff W. Boucher,
Colonel, Corps of Engineers, District Engineer.

APPENDIX VIII

DEPARTMENT OF THE AIR FORCE,
Washington, April 10, 1964.

Hon. PORTER HARDY, JR.
Chairman, Subcommittee for Special Investigations,
Committee on Armed Services, House of Representatives.

DEAR MR. CHAIRMAN: In the course of your subcommittee hearing on paving deficiencies at Selfridge Air Force Base, the subcommittee requested certain additional information from Air Force witnesses. The information furnished below is keyed by page and line number to the transcript of the March 25, 1964, session of the hearing.

At page 429, lines 18 through 20, the subcommittee requested a report showing the total number of tires which have been cut during the past year at Selfridge Air Force Base. Records on total number of sorties and tire damages for the F–106 aircraft from January 1963 until December 1963 indicate the following:

Year 1963

Month	Number of sorties	Number of damaged tires	Month	Number of sorties	Number of damaged tires
January	328	34	August	(1)	(1)
February	320	44	September	(1)	(1)
March	406	51	October	430	42
April	493	79	November	341	33
May	372	40	December	339	20
June	268	27			
July	241	57	Total	3,538	427

[1] Aircraft at Bunker Hill Air Force Base.

At page 434, lines 9 through 12, the subcommittee requested that Mr. Arnett review his field notes and ascertain, if possible, the source of the following statement which appears in his trip report dated July 16, 1962: "The Corps of Engineers has reported that local aggregates were used and up to 6 percent deleterious particles were allowed in the mix." Mr. Arnett made a diligent search but has failed to find notes or records of conversations upon which the statement was based. It must be assumed that such notes were destroyed upon completion of Mr. Arnett's final report.

At page 441 beginning with line 11, the subcommittee requested an estimate of the cost of repairing foreign object damage to jet engines for the latest year on which data is available. Subcommittee counsel has indicated that he is interested in a gross Air Force total. The cost of repairing jet engines damaged by foreign objects during fiscal year 1963 is estimated at $30 million. Precise data is not available.

At page 445, lines 12 and 13, the Air Force was requested to furnish the cost of replacing a jet engine. Subcommittee counsel has amplified this request and suggested that we include engine cost on a range of jet engines for representative aircraft using Selfridge Air Force Base. Listed below are replacement costs, i.e., new engines as well as the cost of overhauling engines for aircraft which normally use Selfridge Air Force Base.

Type	Replacement engine	Overhaul
T–33	$21,936	$6,283
F–100	163,000	11,601
F–101	332,376	13,844
F–106	273,810	15,522

To these costs must be added cost of removing and replacing an engine in an airframe.

I trust that this information will be useful in completing the subcommittee's report. If I may be of further assistance, please let me know.

Sincerely,

JAMES M. MCGARRY, JR.,
Colonel, U.S. Air Force,
Assistant Director for Legislation and Investigations, Legislative Liaison.

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