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IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA,

IN AND FOR THE COUNTY OF INYO.

NATURAL SODA PRODUCTS COMPANY, a corporation,

Plaintiff,

-vs-

No. 3817

CITY OF LOS ANGELES, a municipal corporation; DEPARTMENT OF WATER AND POWER OF THE CITY OF LOS ANGELES; FIRST DOE, SECOND DOE, THIRD DOE, FOURTH DOE, FIFTH DOE, SIXTH DOE, SEVENTH DOE, EIGHTH DOE, NINTH DOE and TENTH DOE,

Defendants.

DEPOSITIONS OF

STANLEY PEDDER, G. A. KEEP AND CHARLES ECKLAND,

TAKEN BEFORE MARY D. F. HUDSON, A NOTARY PUBLIC IN AND FOR THE CITY AND COUNTY OF SAN FRANCISCO, STATE OF CALIFORNIA.

MONDAY, OCTOBER 2nd, 1939
TUESDAY, OCTOBER 3rd, 1939
WEDNESDAY, OCTOBER 4th, 1939.

HART & HART
OFFICIAL SUPERIOR COURT SHORTHAND REPORTERS
CHANCERY BUILDING, SAN FRANCISCO
DOUGLAS 0118

KENNETH FERGUSON,
JESS G. SUTLIFF,
405 Montgomery Street,
San Francisco, California.
Attorneys for Plaintiff.

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No. 3817

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STIPULATION

IT IS HEREBY STIPULATED that the depositions of STANLEY PEDDER, the President of plaintiff corporation, G. A. KEEP, the Superintendent of plaintiff corporation, and of CHAS. ECKLAND, the Treasurer of plaintiff corporation, may be taken as witnesses on behalf of defendants called under Section 2055 of the Code of Civil Procedure, commencing on Monday, October 2, 1939, at the hour of ten o'clock A. M., at 514 Financial Center Building, San Francisco, California, before MARY D. F. HUDSON, a Notary Public in and for the City and County of San Francisco, State of California, and continuing from day to day, or as otherwise stipulated

by the parties hereto, until completed.

AND IT IS FURTHER STIPULATED that such depositions, so taken, may be used in all respects in like manner and with like effect and upon like conditions in the action in the above entitled court entitled "Natural Soda Products Company, a corporation, vs. City of Los Angeles, a municipal corporation, et al.," numbered therein 3783, whether the trial of said action be held separately from, or be consolidated with, the trial of the above entitled action.

Dated: October 2nd, 1939.

Jess J. Sutliff

Kenneth Ferguson

Attorneys for Plaintiff

RAY L. CHESEBRO, City Attorney,

S. B. ROBINSON, Chief Assistant City Attorney for Water and Power,

SAMUEL POORMAN, JR., Assistant City Attorney,

ROBT. E. MOORE, JR., Deputy City Attorney.

By Robt. E. Moore Jr.

Robt. E. Moore, Jr.,
Deputy City Attorney.

Attorneys for Defendants.

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Defendants.

BE IT REMEMBERED, that pursuant to Stipulation, hereto annexed, and on Monday, the 2nd day of October, 1939, commencing at the hour of 10 o'clock A. M. thereof, at Room 514 Financial Center Building, San Francisco, California, before me, MARY D. F. HUDSON, a Notary Public in and for the City and County of San Francisco, State of California, personally appeared

STANLEY PEDDER, G. A. KEEP and CHARLES ECKLAND,

who, being by me first duly sworn, were thereupon examined and interrogated as witnesses in said cause.

Messrs. KENNETH FERGUSON and JESS G. SUTLIFF, by KENNETH FERGUSON, Esquire, appeared as attorneys for the plaintiff; RAY L. CHESEBRO, City Attorney, S. B. ROBINSON, Chief Assistant City Attorney for Water and Power, SAMUEL POORMAN, JR., Assis-

tant City Attorney, and ROBT. E. MOORE, JR., Deputy City Attorney, by ROBT. E. MOORE, JR., and REX B. GOODCELL, JR., appeared as attorneys for the defendants; and HON EARL WARREN, Attorney General, by BURDETT J. DANIELS, Deputy Attorney General, appeared as amicus curiae.

It was stipulated between counsel for the respective parties that the Notary Public, after administering the oath to the witnesses, need not remain further during the taking of these depositions.

It was further stipulated that the said depositions should be reported in shorthand by HAROLD H. HART, a competent official shorthand reporter and a disinterested person, and thereafter transcribed by him into longhand typewriting, to be read to, or by, the said witnesses, who, after making such corrections therein as may be necessary, will subscribe the same.

It was further stipulated that all objections to questions propounded to the said witnesses shall be reserved by each of the parties, save and except any objections as to the form of the questions propounded.

It was further stipulated that if the witnesses should be instructed not to answer questions propounded by counsel, in the absence of the Notary Public, it shall be deemed that the Notary Public has so instructed the witnesses to answer, but that they still refuse to answer.

MR. MOORE: Let the record show that both of these gentle-

men's depositions are to be taken under Section 2055 of the Code of Civil Procedure, and that they will be taken in shorthand and transcribed, and you will have the opportunity to read the questions and to correct them, and then to swear to them before any Notary; and that they may be used in the trial of both actions, if they are consolidated - in the trial of both the injunction and the damage suits.

MR. FERGUSON: That is, the first damage suit.

MR. MOORE: The first damage suit.

MR. FERGUSON: May we also stipulate that the Notary does not need to remain present, and she may be excused unless called.

MR. MOORE: Yes.

MR. FERGUSON: May the record also show the appearance of amicus curiae, the Attorney General of the State of California, by Mr. Burdett Daniels, of the Attorney General's office.

STANLEY PEDDER,

called as a witness under Section 2055 of the Code of Civil Procedure of the State of California, being first duly sworn by the Notary Public to tell the truth, the whole truth, and nothing but the truth, testified as follows:

EXAMINATION BY MR. MOORE

MR. MOORE: Q. Mr. Pedder, I would like to ask you a few preliminary questions with respect to your experience prior to April, of 1932; the reason being to find if you were connected

in any way with the soda ash industry prior to that time.

A. I was not.

Q. You have been a practicing attorney in California?

A. Yes.

Q. For how long? A. 26 years.

Q. At any time prior to April, 1932, did you act as attorney for any producer of soda ash or kindred products?

A. No.

Q. Prior to April, of 1932, were you acquainted with the Owens Valley, and more particularly Owens Lake?

A. No.

Q. You had never visited that territory? A. No.

Q. You are president of the Natural Soda Ash Products Company, a Delaware corporation?

A. Yes.

Q. How long have you been president?

A. The minute book, please.

(Unreported discussion.)

THE WITNESS: February 13th, 1933.

MR. MOORE: Q. Can you state the date of the incorporation of the present company?

MR. FERGUSON: By "the present company," you mean the plaintiff in this case?

MR. MOORE: The plaintiff in this action.

A. I know it was early in 1932. Do you want the exact date?

Q. If you can get it, yes.

A. I think I can. 29th day of February, 1932.

Q. And when did it qualify to do business in California; that is, the certificate filed with the Commissioner of Corporations? A. Well, I haven't the exact date. It was early in -- shortly after it was incorporated in 1932. I will get that for you. Offhand, I don't know.

Q. Would it be sometime in April, 1932, as far as you know?

A. I think it was in March. Off the record.

(Unreported discussion.)

Q. At the same time, could you get the file number of the Corporation Commissioner's office, please?

A. Yes. Will you make a note of that?

Q. Did the plaintiff do any business elsewhere than in the Owens Valley prior to 1932? A. No.

Q. And it was organized to engage in the production and sale of soda ash and kindred products?

A. Yes.

Q. Generally or in the Owens Valley? A. Generally.

Q. However, they have confined their operations to in and about Owens Lake, have they not?

A. Correct.

Q. Is the plaintiff a subsidiary of any other company?

A. Will you please define the word "subsidiary"?

Q. Say in April, of 1932, was your stock, either your preferred or your common, held by any other company as a holding

company? A. No.

Q. Or held individually? Was the stock held by individual stockholders? A. No.

Q. Will you state who did hold the stock; that is, in April, 1932? A. I think the stock records will tell the story better.

MR. FERGUSON: In other words, what you want to know is was it held by anyone -- in any major amount by any outside company -- any one single corporation?

THE WITNESS: No. I said "No."

MR. MOORE: Off the record.

(Unreported discussion.)

MR. MOORE: Q. Was it held by any corporation?

A. It was held by corporations.

Q. Will you state who held it?

A. It was owned at that time by Mitchum Tully Participations, Inc.

Q. Is that a Delaware corporation? A. Yes.

Q. Both the preferred and the common? A. One moment.

Q. I beg your pardon. A. And Mitchum Tully Participations, Inc. No. 2, and the Leslie California Salt Company.

Q. That was both the preferred and the common?

A. Yes.

Q. The preferred at that time was no par value?

A. Off the record.

(Unreported discussion.)

THE WITNESS: No, all without par value. You are correct.

MR. MOORE: Q. Has there been any amendment of the articles of incorporation of the plaintiff since 1932?

A. Yes.

Q. Will you state the date or dates of such amendments, please? A. In the year 1937, the articles of incorporation were amended.

Q. Do you have the exact date on which the certificate was filed? A. July 12th, 1937.

Q. Do you have the filing number for that in the Corporation Commissioner's office?

A. No. We will get that for you.

Q. Can you obtain that for me? A. I think so.

Q. Was there any change in the stock structure between 1932 and the amendments of the articles in 1937?

A. Off the record.

(Unreported discussion.)

Q. May I ask a question which might assist in this: Were the amendments of your articles of incorporation filed in connection with the proceedings initiated by your corporation under 77 (b) of the Bankruptcy Act?

A. Correct, yes.

Q. I believe the record would show, would it not, that --

A. Pardon me?

Q. The record would show [illegible] 4,000 shares of preferred of a par value of $50.00, is that correct? A. Yes.

Q. And 4,000 shares of common of no par value?

A. Yes.

Q. Was there any change between 1932 and the amendment of the articles in 1937 as to the stock holdings? In other words, did Mitchum Tully Participations, Inc., and Mitchum Tully Participations, Inc., No. 2, and Leslie California Salt Company hold the stock of the corporation in the same amounts?

A. No, there were changes.

Q. There were changes? A. Oh, yes.

Q. Can you state what those changes were?

A. No, not without reference to the books.

Q. Do you have your stock book here?

A. No, they are in Delaware.

Q. You have no local records of the --

A. Oh, I think we have.

Q. (Continuing) -- of the stock transfers?

A. Yes, I think we have a local record.

MR. FERGUSON: I want to inquire at this time what the competency of this line of inquiry is?

MR. MOORE: I will be very glad to state it to you, Mr. Ferguson. We believe that the Natural Soda Products Company was more or less formed with the idea of experimenting in and about Owens Lake in the soda ash industry; that from time to time various corporations either were interested or became interested in its operations; assisted it financially or by giving it advice of various types; and particularly because of

the financial assistance, acquired interests in the corporation in exchange for financing; and that rather than any profits having been made by the company certainly in the latter years of its operations, it was sustained from time to time by this new financing brought in; and we feel that we should know who did the financing, and for what purposes the moneys so obtained were used.

MR. FERGUSON: Well, then, I am going to object to any testimony along this line, because it is totally irresponsive to any issues in the case. Now, I cannot conceive what bearing it would have upon the issues that there was some identity of interest between this corporation and the prior corporations and the prior owner of the land, as to who owns this corporation; and that it is entirely outside of the issues in the case; and I am going to object to any testimony along that line; and instruct the witness not to answer. If that is the sole purpose, Mr. Moore, I cannot conceive that it has got anything to do with the issues in the case, frankly.

MR. MOORE: Well, if I can explain off the record.

(Unreported discussion.)

MR. MOORE: Just for the purpose of the record, we offer to prove by this witness the stock holdings of the corporation for the purpose of showing the sources of financing, repairs, betterments and additions to plant, which, in our opinion, affect the question of whether profits were in fact earned during the period set forth in the complaint.

MR. FERGUSON: That being the purpose of this line of questioning, I object to that line of questioning; and instruct the witness not to answer.

MR. MOORE: Q. With respect to the Natural Soda Products Company, a California corporation, you are acquainted with the fact that there existed on Owens Lake prior to 1932 a corporation known as the Natural Soda Products Company, a California corporation?

66 A. I understood that, yes.

Q. And you are familiar with the fact that it was at about that time in Federal receivership?

A. Yes.

Q. Did the plaintiff corporation in and about the early part of the year 1932 acquaire any of the assets of the Natural Soda Products Company, a California corporation?

A. Yes, I believe it acquired all of them.

Q. Are you able to state of what those assets consisted?

A. In a general way, yes.

Q. Will you state in a general way, please?

A. Consisted of real estate; improvements thereon; inventories of various kinds; accounts receivable; and I believe some stock of other corporations. In other words, the usual line of assets that a corporation has.

Q. Of what did the real estate consist; that is, generally?

A. Well, it consisted of certain parcels of land, two hundred and something acres owned in fee; other parcels of land,

2500 acres, being purchased under contract from the State of California.

Q. Was that in the residual part of the lake - Owens Lake?

A. The 2500 acres --

Q. The 2500 acres you refer to?

A. The residual --. No, that is the lake land locations and certain leases.

Q. When you say this was purchased under contract, can you state - or do you have a copy of the contract available?

A. We have several certificates of purchase, I think they are called, rather than contracts.

Q. That was from the State of California?

A. Yes.

Q. Did it give you title in fee? A. Pardon?

Q. Did it give you title in fee of the 2500 acres?

A. It agrees so to do upon payment of the price, yes.

Q. Have you completed those contracts?

A. We have kept them in good shape.

Q. Requires an annual payment? A. An annual payment of interest.

Q. Did you say "of interest"? A. Yes.

Q. What about the principal amount? Is there any payment due on that? A. It could be paid off at any time.

Q. Have you purchased any land from anyone other than from the old Natural Soda Products Company or from the State?

A. Yes, we have purchased from the Great Western Electro

Chemical Company the land which comprises a part of the town of Keeler.

Q. Did the property contain improvements, the property that you purchased from the Great Western?

A. Very little, if any.

Q. The property that you are purchasing by contract from the State, does that contain deposits of chemicals?

A. No. Will you amend your question and put in the word "natural deposits of chemicals"?

Q. Natural deposits? A. No.

Q. Then you have had certain leases of residual lands and of rights-of-way, have you not?

A. That is right.

Q. Do you have records showing what those leases were in 1932 - the numbers? A. Oh, yes; I will get them for you. I don't know offhand. All of those original leases have been modified with new leases as time went on.

Q. Have any of these leases been entirely abandoned?

A. Technically, yes. You have to abandon to get a new one.

Q. Well, I will ask you this way: The leases presently held by the Natural Soda Products Company, the plaintiff herein, cover substantially the same properties as the original leases?

A. Yes, plus additional areas.

Q. Can you state when these additional areas were acquired under lease? A. Yes. In 1933 and in 1935.

Q. Would new rights-of-way be included in that?

A. Yes.

Q. The new rights-of-way were acquired in '33 and '35?

A. Yes.

Q. Were any of your rights-of-way entirely abandoned or are --

A. Practically speaking, no, though they may have been slightly modified.

Q. What improvements did you acquire from the old Natural Soda Products Company: A plant?

A. A very substantial plant, with a lot of buildings of all kinds, and a camp site with a great many buildings.

Q. Any vats or storage facilities?

A. Vats and storage facilities on lake land locations primarily.

Q. Did you take over any contracts of the old company with respect to lake land contracts - contracts with the State of California? A. Yes.

Q. (Continuing) -- in that 2500 acres? A. Yes.

Q. (Continuing) -- that were previously under contract to the old company? A. Yes.

Q. These improvements will include power lines?

A. Yes.

Q. Roadways? A. Yes.

Q. And pipe lines? A. Pipe lines.

Q. Any wells? A. Yes.

Q. Was the plant of the old Natural Soda Products Company in operation at the time of your acquisition? A. Yes.

Q. You mentioned certain inventories: Of what did they consist, generally? A. Soda ash; bicarbonate of soda primarily; ~~or as much as I was concerned~~. SS.

Moore N.P.

Q. Did they include both dense and light ash?

A. Yes.

Q. Did you have any by-products that were --

A. Oh, there may have been some by-products.

Q. Would your records show how much of these inventories you acquired? A. Yes.

Q. Your accounting records? A. Yes, the books of account would show. There was also trona in vats.

Q. Did you acquire any brine in the liquid form?

A. No.

Q. The books of account would also show what treatment you made of this as to whether you capitalized it; and if so, how much? A. Oh, yes, yes.

Q. The 200 acres that you mentioned are the 200 acres referred to in paragraph VII of the second amended complaint, are they not? I have a copy. Will it be satisfactory to you to let him see it?

(Unreported discussion.)

THE WITNESS: Yes, that is right.

MR. MOORE: Q. In that connection, you --

MR. FERGUSON: I have it here. Possibly it is better to let him look at it.

(Document shown to the witness.)

THE WITNESS: A. Oh, yes. The answer is yes.

MR. MOORE: Q. Yes. In that connection, you certified the second amended complaint, did you not?

A. I think I did. Let me see.

Q. I believe it shows -- A. Yes, yes, I verified it.

Q. What records do you have which would show the number and extent of the original leases, and the number and extent of the present leases of the company?

A. Well, we could compare the leases themselves.

Q. But you actually have the leases; and could produce them?

A. I think so, yes. I don't think that the old lease -- I don't think we could have let that go. If we did, then I wouldn't have it. I do not think that is the case.

Q. What records do you have that show the lengths of the roadways and the materials out of which they are made, and the length of the power lines and pipe lines? Do you have any records that would show that, aside from the accounting records showing the value?

A. You mean the total?

Q. Yes. A. Oh, I think we have a property ledger. Of course, that really is part of the accounting.

Q. And in this property ledger would show any replacements or changes in that from time to time?

A. Oh, yes, yes.

Q. And these books of account show the various considerations that you paid in to the receiver for these properties?

A. The books of account?

Q. Yes. A. Oh, yes, yes.

Q. You wouldn't be able to state of your own knowledge what they were?

THE WITNESS: Off the record.

(Unreported discussion.)

MR. MOORE: Q. Your books would also show the accounts receivable, and your stock ledger would show the stock of other corporations? A. No, the stock ledger wouldn't.

Q. What book do you have that would show that?

A. The general ledger.

Q. The general ledger? A. Yes.

Q. Did you acquire from the old company any contracts with other corporations or persons for the supplying to them of soda ash and other kindred products?

A. As a matter of fact, we did not deal with the old corporation at all. We only dealt with the receiver.

72 Q. I was going to inquire into that.

A. The business was done with the receiver; and the understanding, no doubt, expressed in the various documents or contracts he made; and the negotiations were conducted in the ordinary course of business. Now, I doubt very much whether we have a record of that. There were no long term contracts or anything of that kind, as far as I remember.

Q. Do you know whether a detailed outline or agreement of

the sale by the receiver to the plaintiff corporation is in the Federal records? A. I don't know.

Q. Did you acquire any chemical reports, hydrographic reports and reports of the output from the old company, showing the rainfall in and around the lake, lake levels from time to time; records of the analyses of brine and material of that type?

A. No doubt there were some. I have never seen them.

Q. Who in your organization would know that?

A. We have nobody in our organization who would know that.

Q. You have no consulting chemist?

A. Yes; but they weren't there at that time.

Q. Well, who would be in possession of any such records if they still existed, if you have kept them - any records you might have acquired?

A. They would be in the office at Keeler. We call it Keeler. It is at the plant. And if they existed, I presume they may have been filed; and Mr. Keep would know of them.

Q. You personally don't know of them?

A. No.

Q. Do you know of any patents obtained by you at that time in respect to chemical processes for the production of soda ash and other products?

A. No.

Q. Any such information of that type would also be in Mr. Keep's possession? A. Yes; but I might also say

there were no patents.

Q. There were records of the processes being used by the old company, were there not?

A. Records?

Q. Yes, showing the processes used and their application to the production. A. The ordinary production records, yes; I presume there were.

Q. And those would be in the possession of Mr. Keep?

A. Yes.

Q. Was any chemist or superintendent or other person in charge of the chemical operations of the old company employed by the new company? A. For a while, yes.

Q. What was his name? A. Schilling was the superintendent at the time the company took over the property; and he remained in that position until January, 1934.

Q. And did Mr. Keep take over from that point?

A. Yes.

Q. As superintendent. And Mr. Keep has been superintendent--

A. Ever since.

Q. (Continuing) -- to date? A. Yes.

Q. Immediately prior to the commencement by the plaintiff corporation of operations on Owens Lake, can you state what investigations were made by the company or its representatives as to lake conditions, brine conditions, et cetera? State whether any investigations were made, first.

A. I don't know what investigations were made. You see, I

did not become president of this company until a year, almost, after it took over from the Receiver of the predecessor company.

Q. You took over as of what date? A. I?

Q. Yes. A. I gave it to you earlier. February 15th, I think it was, 1933.

MR. GOODCELL: February 13th.

MR. MOORE: Yes, that is right. That is correct.

Q. Who was president at that time?

A. Mr. Jasper W. Tully.

Q. Are there any officers at the present time in the plaintiff corporation who held their position from the inception in April, 1932? A. Off the record.

(Unreported discussion.)

THE WITNESS: I was elected as secretary on the 16th day of March, 1932; and I am the only officer who ~~is still~~ was ~~oh, yes~~ -- then an officer who still remains an officer.

MR. MOORE: Q. Do you know of any records in the possession of the corporation, which would reveal investigations, if they were made, or reports of any sort?

A. No, no, I don't. The only record that I have is one from the receiver made a long time afterwards.

Q. Made a long time subsequent to April, 1932?

A. Yes; and does not cover any of those points which you have mentioned, anyway.

Q. Do you know who entered into the negotiations for the purchase of the old company's assets?

A. Yes. Kinzie Miller.

Q. What relationship did he have to the plaintiff corporation in April, of 1932?

A. I don't think he had any; but I will check that. He had none. He was neither a director nor an officer.

Q. Did he later become an officer?

A. He later became both a director and an officer.

Q. Will you give me the date of that, please?

A. I will try.

Q. You can supply that later. A. No, I can give it to you now. He was elected later in the same meeting. Off the record.

(Unreported discussion.)

THE WITNESS: He was elected later on that same day -- what was that date? March 16th, was it? Yes, apparently that is it.

MR. MOORE: Q. Of what year? 1932?

A. Yes. He was elected on the 16th of March, 1932.

Q. To what office? A. Director.

Q. But not an officer? A. Not an officer, no.

Q. Do you know if he later became an officer?

A. Later he became vice-president.

Q. Is he now an officer and director?

A. He is not. He is not either.

Q. This meeting on March 16th, 1932, was the first organization meeting, was it not? A. Yes, that is correct.

Q. Would your record show whether at that meeting any report was read as to both the condition of the assets and the general conditions of the industry?

A. Yes, it would if it were done. It shows no such report.

Q. Do you know in what capacity Mr. Kinzie Miller negotiated the transfer of the assets?

A. No.

Q. Do you know by whom he was employed?

A. Mitchum Tully & Company.

Q. These negotiations were prior to the organization of the plaintiff corporation? A. Oh, yes, yes.

Q. You wouldn't know whether Mitchum Tully & Company had any such report as I previously mentioned?

A. No.

Q. Subsequent to March 16th, 1932, did you or any officer of the plaintiff corporation make an independent investigation of the soda ash industry, the conditions around the lake, and the general conditions in the vicinity with respect to rainfall and --

A. I did not until considerably later.

Q. When did you make your investigation?

A. After the commencement of these suits.

Q. Do you know if anyone else made one prior to that time?

A. I don't know.

Q. Would you say that they did not?

A. I told you I don't know.

Q. Who in your organization would know if such a report was made? A. I don't know.

Q. Was such an investigation made by any other corporation interested in the plaintiff corporation?

A. Not to my knowledge.

Q. What was the purpose of the plaintiff corporation in acquiring the properties of the old Natural Soda Products Company in 1932? A. To enter into the soda ash business, and to have what they believed would be a profitable operation.

Q. And you immediately commenced operations toward that end?

A. That is right.

Q. In going into such a business, it is customary, is it not, to make an appraisal of the general situation to the end of determining whether you had a reasonable chance of a profit?

A. It would seem so.

Q. There was such an appraisal made?

A. I told you that I don't know.

Q. I believe you have also stated that you don't know anyone who does know. A. I couldn't state that.

Q. Well, do you know anyone that knows?

A. I presume that the people who were instrumental in the purchase of this corporation made normal investigations; but I was not part or parcel of the aggregation of individuals that made the investigation.

Q. Do you refer to Mitchum Tully & Company?

A. Naturally.

Q. And the other corporations you mentioned?

A. Naturally.

Q. Subsequent to April, of 1932, will you state what additions of betterments were made to the plant of the plaintiff corporation, generally?

A. Generally? That is rather hard.

Q. May I state this: That we are interested primarily in any major changes that you might have made there with respect to the processes or in the expansion of your operations.

A. Yes.

Q. If you can give us the dates and approximately what was done. A. In 1933 we extended the pipe line, and the necessary works that go along with a pipe line and electric line, and so forth, further out into the lake in order to tap more brine.

Q. Pardon me. In that connection, did you install additional wells? A. Yes.

Q. And what about facilities for settling the brine; were they increased at that time?

A. No, not at that time. In 1935 -- off the record.

(Unreported discussion.)

THE WITNESS: We will put it that way: We made further extensions of the pipe lines out into the deeper portion of the lake; and, of course, made additional roads, electric lines, new wells, and so on and so forth. In 1935, we built the first

unit more as a pilot plant, to make ash, - soda ash under our new process. In 1936 and 1937 primarily - principally in 1937 - we practically completed that plant on a commercial production basis.

Q. You first called it a pilot plant. You mean that you continued development of that particular plant to a capacity --

A. Yes.

Q. (Continuing) -- that is, on a commercial basis?

A. Made it on a commercial basis. Of course, in 1936 or 1937 we replaced considerable of the roads and other things which were destroyed by the Water and Power Department.

Q. Yes, we are going to ask you about those just a little later. I was getting to the general additions and betterments.

A. That states it in a general way. I can amplify that to the 'nth degree, but it would mean very little more outside of the accounting --

MR. FERGUSON: One moment. I think, so that there may be no misunderstanding, Mr. Moore, if you want to develop this logically, you understand the plant that was developed to the present plant was the new pilot plant that he referred to.

MR. MOORE: Yes, I understood that.

MR. FERGUSON: It wasn't the old plant that was changed over.

MR. MOORE: Yes.

MR. FERGUSON: All right.

MR. MOORE: I understood that he first had a pilot plant for testing the new process, and then when they perfected that

plant, they put it on a commercial basis.

THE WITNESS: That is right.

MR. FERGUSON: Yes.

MR. MOORE: And generally, those were the only additions and betterments?

A. Well, we added - in 1936, we built large new vats to take care of the dekahydrates.

Q. Where were they located?

A. Just north of the plant on our -- on the upland, so to speak.

Q. Was that part of the 2500 acres or part of the 200 acres?

A. I think wholly part of the 200 acres. Is that correct, Mr. Keep?

MR. KEEP: No, it is not on the 2500 acres.

THE WITNESS: Wholly on the 200 acres.

(Unreported discussion.)

MR. MOORE: Q. You would not be able to give the exact amounts expended and the breakdown of the items?

A. Oh, no. That is up to the accounting department.

Q. I see. That is entirely accounting. Can you state how the amount of $500,000.00 referred to in paragraph VII of your second amended complaint is to be allocated?

MR. FERGUSON: Off the record.

(Unreported discussion.)

MR. MOORE: Page 11, I believe, towards the top of the page. Part of it is apparently acquisition, and part of it is subse-

quent improvements. Would you be able to give that breakdown?

A. Off the record.

(Unreported discussion.)

A. I can give it to you in a rough, general way.

Q. Could you do that, and then perhaps we will get specific --

A. Subject to correction. The books of account will show that.

Q. Yes, surely. A. In short, the property cost in the general neighborhood of between $350,000.00 and $400,000.00. Since then there has been expended in improvements -- I think I had better let the accounting record speak for itself.

Q. I see. A. Because I cannot quickly differentiate replacements from new costs. The figure of $500,000.00 is extremely conservative. It is upwards of $500,000.00, with a big upwards.

Q. Does the initial cost of $350,000.00 to $400,000.00 represent an outlay of cash or --

A. No, not wholly. About $125,000.00 worth of cash, and the issuance of $225,000.00 of bonds; and then there was the assumption of certain current liabilities.

Q. These bonds were purchased by whom? Were they issued to the company supplying the financing?

A. Oh, no, no. They were issued to prior creditors of the old company; bondholders, I believe, as far as I remember.

Q. And then in the improvements of '33 to '35 and '36, and '36 to '37, you expended further sums, which would run the total

to an amount in excess of $500,000.00?

A. Considerably in excess.

Q. And which your records will show? A. Will show.

Q. Can you state generally how the money was obtained to make these improvements?

A. Yes. $209,000.00 was acquired by assessment upon the stockholders.

Q. As of what date? A. Approximately May, 1934.

Q. Yes. A. That, however, was not wholly put into property at that time; but all by degrees went into the property; and $297,000.00 was obtained by a mortgage upon the property, as part and parcel of the reorganization plan; all cash and no commissions.

Q. Do you know if the Federal records in 77 (b) would contain a copy of the mortgage and the information in respect to it?

MR. FERGUSON: Off the record.

(Unreported discussion.)

MR. MOORE: Q. What was the purpose of the assessment in 1934?

MR. FERGUSON: Object to that. I do not think that is material.

MR. GOODCELL: Off the record.

(Unreported discussion.)

MR. FERGUSON: I will withdraw my objection.

A. What was the question?

(Question read by reporter.)

A. Was the objection withdrawn?

MR. FERGUSON: The objection was withdrawn.

A. It was to put the company into a position where it could improve its methods of manufacture so as to meet a new condition in the soda ash industry which had resulted in a substantial reduction of the price of the product.

MR. MOORE: Q. You are referring to an improvement of the product itself?

A. Well, an improvement of the process and an improvement of the product, of course, go hand in hand. There was no apparent immediate need for the improvement of the product, inasmuch as we were able to sell all that we made; but it was desirable, of course, in developing a new process, to develop one which would produce ~~the~~ a product with a better standard at a lesser cost; and it was obvious in 1934 that that was the course of the industry.

Q. Will you state what those circumstances were in the industry?

A. Yes. It was a new soda ash plant in course of construction. I think it went into operation toward the end of '34, but I can't be sure.

Q. Is that on the lake or elsewhere?

A. That was on Searles Lake.

Q. You have mentioned the $209,000.00 and the $297,000.00. Were there any others?

A. No other mortgages or assessments, no.

Q. Would this $297,000.00 include the money borrowed at that time from the Michigan Alkali Company or from the Ford Collieries Company?

A. $297,000.00?

Q. Yes. A. That is what it is, yes. That is the same thing.

Q. Some of the money obtained from the stockholders, of that $209,000.00, was used for the purchase of the Emeryville Chemical Company? A. Yes, and subsequently the Emeryville Chemical Company was sold, and that money used in the plant.

Q. At the same time that you built your pilot plant, I believe you extended your pipe lines into more favorable brine areas, isn't that correct?

A. It might not have been exactly at that time; but at or around that time, yes.

Q. What reasons lay back of the building of a new plant and developing the new process in 1935 and 1936?

A. To develop it; make it possible to produce a better product at a lesser price.

Q. The same reason that prompted your activities in '34?

A. Yes, surely.

Q. Were there any new competitors in the field?

A. No.

Q. Has there been any competition during that period from the Dupont Company? A. Dupont?

Q. Dupont or Solvay Corporation? A. No.

Q. They did not engage in any soda ash?

A. Not to any extent on the Pacific Coast Just a little.

Q. Could you tell us as of a period around the first of the year 1937, what companies were producing soda ash in the United States? A. In the United States?

Q. Would they be a large number?

A. Oh, a very large number; but I may be so bold as to say that would have very little relation to the Pacific Coast.

Q. Am I to understand that the Pacific Coast supply is almost entirely produced by soda ash that comes from around the Pacific Coast area?

A. Primarily. There are certain grades which are used in very small quantities out here, which it would not be economical to produce out here; perhaps impossible; I don't know; and they are imported from the East; but generally speaking, the Pacific Coast requirements are taken care of by the Pacific Coast plants.

Q. Which are located where?

A. All in California. The American Potash & Chemical Company on Searles Lake; the West End Chemical Company on Searles Lake; the Pacific Alkali Company on Owens Lake; and the Natural Soda Products Company on Owens Lake.

Q. So there would be only two on Owens Lake?

A. Yes.

Q. As of that date? A. Yes.

Q. Is that condition of there being two operators on Owens Lake true in 1938 also? A. Yes.

Q. The Pacific Alkali and the Natural Soda Products Company?

A. Yes.

Q. Can you state what the comparative production activities of the plant of the Pacific Alkali Company and the Natural Soda Products Company are?

A. Approximately?

Q. Yes. A. I would say that the Pacific Alkali, approximately 10,000 tons a year.

Q. Can you give that in terms of per day; tons per day?

A. Yes. That would be -- well, roughly call it 30 tons a day; and ours 100 tons a day.

Q. Was the market for your product entirely within the State of California?

A. Oh, no, not entirely. Primarily.

Q. What other markets did you have available?

A. Well, there is an appreciable export market, and some market in the northwest Pacific Coast States; some of it went into Utah and Nevada; and as far east as Denver. I think Denver is the dividing freight point.

Q. What were your types of --

A. And Arizona, yes. Arizona and New Mexico.

Q. Soda ash is used for the manufacture of glass and other things, is it not? A. Yes.

Q. What other types of markets did you have besides the

glass manufacturing market? A. Soaps.

Q. (Continuing) -- for your products?

A. Soaps; sugar.

Q. For the refining of sugar? A. Yes, it is used in sugar. The steel companies use it appreciably. Quite a little use by oil companies. Quite a little use by water companies. That is about the whole thing.

Q. Would you be able to give us a physical description of your roadways, pipe lines, heating plants, and so forth, immediately prior to February of 1937; materials of roadways and of what construction?

A. No, I think Mr. Keep would be able to do that better than I. He supervised it, and I would be very much on a limb.

Q. The same would apply to the plant?

A. Yes.

Q. And to the various improvements that you referred to?

A. Oh, yes, that is right.

Q. Have you spent much time since you became associated with the plaintiff corporation in and around Owens Lake?

A. Oh, yes, quite a little.

Q. And prior to '37? A. Oh, yes.

Q. With respect to any so-called flooding of the lake prior to 1937, did you have occasion to observe any at any time between '32 and '37?

A. I think '35 was the first time that they -- that we had occasion to protest the flooding of the lake.

Q. Well, I mean to observe it. You may not have protested earlier; but did you observe any unusual -- what you considered unusual additions to the lake?

A. No.

Q. (Continuing) -- prior to 1935?

A. No, I think '35 was the first time.

Q. Do you remember approximately what month in '35?

A. My impression is that it was March or April; but that is subject to correction from the record.

(Mr. Ferguson hands document to the witness.)

MR. FERGUSON: You may refresh your recollection.

MR. MOORE: Pardon me. May I ask off the record --

(Unreported discussion.)

THE WITNESS: Yes, it is April, 1935.

MR. MOORE: Q. And at that time did you communicate with the Department of Water and Power relative to that?

A. That is my recollection, yes.

Q. Do you know how many times?

A. Oh, I think only once in regard to 1935. It only lasted for a very short time; and it didn't cause any particular disturbance to us.

Q. Do you have any records that would show any rise in the lake at Keeler or in or about your plant at that time, if it occurred? A. I haven't, no.

Q. Well, I mean, has the corporation?

A. I don't know.

Q. Does the corporation have such records?

A. I don't know. You will have to ask Mr. Keep.

Q. Yes. A. It only lasted, as I say, just a short time, and had no appreciable effect, as far as I remember. We protested it, because we wondered what in ~~the~~ thunder was happening.

Q. Now, the next time --

A. The next time was in 1936.

Q. What month? A. Starting in February. February to May.

Q. And what communications at that time did you have with the Department? A. My recollection again is that there is both correspondence and conversation.

Q. With whom did you have your conversations?

A. Well, I couldn't say for sure whether it was only Mr. Phillips that year, or whether it was Mr. Phillips and Mr. Van Norman; but I think it was both.

Q. You are sure of Mr. Phillips. That is your recollection that it was with Mr. Phillips, and that it was also with Mr. Van Norman? A. Yes. And our Los Angeles man had numerous -- made numerous calls also; reporting to me that he had made numerous calls.

Q. Who is he? A. Frank Jones.

Q. What capacity did he have at that time?

A. Well, he has no official capacity. He is, I might say, a general utility man in Los Angeles. He is our purchasing

agent and our salesman and our liaison officer, you may call him, or factotum.

Q. You maintained at that time a Los Angeles office?

A. Yes, and still do.

Q. Now, again in 1937?

A. The same old thing went on.

Q. And that is correct of 1938 also?

A. Oh, no. In 1938 we stopped protesting. We started a suit.

Q. But you still noticed a condition of water --

A. Oh, yes. I misunderstood your question.

Q. And my question was going to the observation of flooding.

A. Yes.

Q. So-called flooding. A. Yes.

Q. And any protest that you made. A. Yes.

Q. And Mr. Keep would have the records, if any, showing the various rises in lake levels, and things of that type?

A. I think so, yes.

Q. There are one or two general questions I would like to ask you, Mr. Pedder, with respect to the correspondence; but before I do that, I would like to ask you something off the record.

(Unreported discussion.)

MR. MOORE: Mr. Pedder, I will show you a photostatic copy of a letter dated December 27th, 1937 -- I beg your pardon, that is not the letter. It is December 17th, 1935.

(Document in question handed to Mr. Ferguson and to the

witness.)

MR. MOORE: It is a letter purportedly addressed by you on behalf of the Natural Soda Products Company to the Division of State Lands, and ask if you can identify that letter and your signature and the letter as having been sent.

A. Yes. Oh, yes.

Q. In the last paragraph on the first page, you refer to certain individual wells as apparently varying in quantity and quality of brine. Will you state what you mean by that paragraph?

A. Shall I read the paragraph?

Q. Yes. A. It is quite clear. "We, of course, do not know how long individual wells will hold up either in quantity or quality of brine, which is the reason for asking at this time for a variety of laterals, as we would then be in a position to drill wells in various locations calculated to give us both quality and quantity for our current and future operations." That is exactly what I meant.

Q. Well, by that do you mean that an individual well from time to time varies in the quality of the brine, and perhaps becomes dry, so to speak?

A. No, I didn't mean that. I do not say that. We were then for the first time drilling in the deepest portion of the lake; and we were taking a normal, cautious attitude toward a quantity which was only partially known; and, therefore, we did not wish to be definitely bound to a circumscribed line or

definite line, if by chance the topographic survey of the bottom of the lake proved not to be in accordance with what was shown on the map. You see we had gone out and we had drilled 22 wells, I think it was, just tapping and testing; and now for the State purposes we had to define a line for our right-of-way; and on that line are the laterals. Well, we are human; not like the Water and Power Department; and consequently, we wanted to have certain leeways in case in the determination of the location of a well we made a mistake. That is all it means. That is exactly what it says. As a matter of fact, we know now that the variations in quantity depends solely upon the thickness of the crystalline cake and the brine underneath to the bottom.

Q. Now, you say that you meant the distance between the bottom of the cake and the top of the sandy gravel bottom?

A. I presume so. I have never personally dug one of those wells; but that is what I meant as a layman.

Q. Now, I will show you this.

MR. FERGUSON: Is that the other one?

MR. MOORE: That is his March letter. This is not the one that you looked at.

(Document in question handed to Mr. Ferguson.)

MR. MOORE: Q. I show you another letter addressed to the State of California, Department of Finance, dated March 19th, 1936, and ask if such a letter was sent by you? (Document in question handed to the witness.)

A. Yes.

Q. Now, in this letter you refer to the condition of the soda ash industry as being extremely unsatisfactory. What did you have in mind in making that statement?

A. The price commencing with 1935 dropped off about 30 per cent.

Q. Could you state what it was in connection with soda ash; from what price to what price the drop was?

A. Yes. Taking the lowest price, from approximately $17.00 a ton to approximately $12.40, I think it was, a ton.

Q. And the demonstration plant and the extension of the pipe line referred to in that letter are those that you have previously explained as being the improvements and additions made in 1936 and '37?

A. The commencement of the improvements, yes.

Q. Now, in connection with that same letter, you speak of "putting the industry on Owens Lake in a competitive position." What did you mean by that?

A. May I see the letter?

Q. Yes. About the middle of the first paragraph, I believe.

A. Well, I don't think this needs any explanation. I say here, "The condition of soda ash industry for the past year and a half has been extremely unsatisfactory, and we have been spending very considerable sums of money in research, the building of a demonstration plant, and the extension of our pipe line to a more favorable brine area in the hope that we

would again put the industry on Owens Lake in a competitive position." In other words, we were going to improve our product and reduce our cost.

Q. Might we not assume from this that you were not in a competitive position prior to that time? In other words --

A. You can assume anything you wish. I stand by my letter.

Q. Is it not a fact that other corporations were able to outsell you on the competitive market at that time; and that is what you meant by your letter?

A. I meant what I say; that we were suffering losses; and those losses were caused by the inefficiency of our then process and plant; consequently, as indicated there very clearly, we spent time and money developing a new plant and preparing -- developing a new process and preparing to put in a new plant.

Q. What was your competition at that time?

A. Our competition at that time were the other manufacturers of soda ash on the Coast.

Q. The three that you mentioned?

A. Yes.

Q. Previously? A. Yes.

Q. Two on Searles Lake? A. Yes.

Q. And the Pacific Alkali? A. Yes.

Q. What did you mean by the difficulty with a desert operation? A. A desert operation is not an easy operation to run, Mr. Moore.

Q. Was that due to the distance or --

A. Due to distance and location and conditions; distance from a market, freight differential, and things of that kind; but in that, we were no different from any of our competitors. But generally speaking, a desert operation is not an attractive one.

MR. MOORE: I wonder if at this time we might suspend.

MR. FERGUSON: Yes.

(Discussion. Thereupon an adjournment was taken until 2 o'clock P. M., Monday, October 2nd, 1939, and by consent of counsel to be resumed at the same place.)

Room 514 Financial Center Building, San Francisco, Calif., Monday, October 2nd, 1939, 2:00 P. M.

(Pursuant to the foregoing adjournment, depositions in the above-entitled cause were resumed, there being the same appearances as heretofore indicated.)

STANLEY PEDDER,

recalled, having been previously sworn, testified as follows:

EXAMINATION BY MR. MOORE (Resumed)

(Unreported discussion.)

MR. MOORE: Q. I will ask that as the first question: You state in paragraph VII of your second amended complaint, "That Natural Soda Products Company upon said condition and upon the continued diversion of said waters of said Owens River by defendant into said aqueduct, and on or about April 15th, 1932, plaintiff purchased approximately 200 acres of land upon the shore of and riparian to said Owens Lake as it existed prior to defendant's said diversion." Did you assume that reliance, or did you have information in your possession showing the basis of that reliance?

A. It is a very difficult question to answer. My understanding at the time of the formation of the company and thereafter for several years was that the lake was a fast drying and practically a dry lake, because the City of Los Angeles had appropriated all of the waters of Owens River, and diverted them

from the lake. Does that answer your question?

Q. I wanted to know upon what information you base that knowledge of that condition.

A. Well, I presume that the information came from --

Q. Did you have information in your possession?

A. What do you mean by "information"?

Q. Showing long term diversion.

A. Do you mean did I have any record of that personally?

Q. Yes. A. No.

Q. Did the company have any records?

A. I don't know.

MR. FERGUSON: But the information might be gained by other than documentary evidence of the information.

MR. MOORE: Q. You were personally informed, is that it?

A. I was informed that the City of Los Angeles had appropriated and diverted all of the waters of Owens watershed so that they would no longer come into the lake.

Q. By whom were you so informed?

A. That would be very hard to answer specifically. My conversations on that matter were naturally with the parties who formed this company, to-wit, Messrs. Tully and Miller.

Q. In paragraph X of your first cause of action of your second amended complaint, certain allegations are made with respect to activities of the plaintiff in mitigation of damages. Do you know of your own knowledge what acts were done by the employees or representatives of the corporation in mitigation

of damages? A. Oh, yes, in a very general way. At a very considerable expense we replaced all of the ~~low~~ lake works which had been destroyed by the flooding of 1936.

Q. When did that flooding occur? What month?

A. Well, that occurred --

Q. I believe you stated before it was February to May, is that correct? A. February to May, yes; almost into June. Wait a minute. Am I twisted up on my years here? Let me get a file that I have here. I am just trying to re-create these facts here. Well, it was after the flooding of 1937 that we -- the first flooding of 1937 that we replaced our pipe line, and so on and so forth.

Q. Let me ask you in that connection this: Did you make any replacements in 1936?

A. I don't remember offhand how serious the damage in 1936 was; but my belief is that all of it that was substantially damaged was roads.

Q. The records in the possession of Mr. Eckland would show that as to dates? A. Yes.

Q. And amounts? A. And amounts, yes.

Q. Then your substantial expenditures in mitigation of damages were after the first flooding in 1937, is that correct?

A. That is right. That is right. And at that time what we did was to raise our pipe lines from about a foot and a half or two feet to four feet.

Q. The expenditures to which you refer are those contained

in paragraph IX of the second amended complaint?

A. Page what?

Q. Pages 13 to 15. A. Yes, that is right. Those are the items. I have no records; and I do not think it is in the suit about any damages resulting from the flooding of 1936.

MR. MOORE: This is off the record.

(Unreported discussion.)

MR. MOORE: Q. But in 1936, you did make some repairs?

A. Yes, in the roadways. I have forgotten about the pipe line; but the record will show if there were any damages to the pipe line in that year.

Q. In 1937, the roadways were raised, were they?

A. Not the roadways particularly; but the pipe line was raised; the roadways were also raised to some extent, but not proportionately.

Q. And you now say that would be for the protection or insulation that you rebuilt your pipe line?

A. Yes; not, however, with the thought that would prevent its demolition by flooding, because we thought we were putting the pipe line then in 1937 higher than even any remote possibility that flooding could possibly reach.

Q. Did you change the location of any of your power lines in 1937? A. I believe we did, to a small extent; but Keep would know more about that. He may have straightened out the power lines to some extent, not making them follow the

road quite as slavishly.

Q. In this paragraph X, you say that equipment and plant were damaged. By "plant," do you refer only to the items contained in paragraph IX or to the same portion of the plant located on the shore?

A. There was no portion of the plant located on the high land - on the rim of the lake - damaged at any time by these floods. It was the lake plant.

Q. Then your lake plant would consist of roadways, pipe lines -- A. Power line.

Q. Power line and wells?

A. And pumping station, and things of that kind.

MR. FERGUSON: Let me interpolate here: Is it not a fact, Mr. Pedder, that each of the wells was also pumped to the brine heaters, and so forth?

A. Yes; oh, yes.

MR. FERGUSON: Q. So, at least, the lake plant is distinguished from the regular plant?

A. Yes. Well, in relation to the pumping, when we speak of the lake plant, we mean all of those things that are part and parcel of the pumping equipment.

MR. MOORE: Q. Were there any dykes built subsequent to the first flooding in 1937 to protect your pipe lines and roadways against wind and wave action?

A. To some extent that was done; particularly around the wells and the roads.

Q. And how high were those built?

A. I don't know. You will have to ask Keep. I have ~~not~~ seen them, ~~and~~ but I couldn't estimate ~~that~~ McLeight.

Q. As to the chemical process, I will ask you for the purpose of the record: The process which you acquired from the old Natural Soda Products Company, you continued in operation until sometime in 1935?

A. I will just check that date. That is my recollection; but I can easily check it. (Witness examines document.) Yes, in 1936. I think on April 18th, 1936, we shut down the old plant.

Q. What process did you use between '35 and '36?

A. We started --. I think I had better check that date. Off the record.

(Unreported discussion.)

MR. MOORE: Q. Have you used the old plant since that time?

A. Only for a subsidiary purpose: For calcining trona into what we call concentrates, but not for making soda ash. That is an incidental part of our business, is the making of what are called concentrates, or low alkalinity soda, which is useful for some purposes, but not useful for soda ash purposes.

Q. And since April, of 1936, your production of soda ash has been entirely from the pilot plant and from its enlargement?

A. That is right.

Q. For commercial purposes? A. That is right.

Q. Are you acquainted with the aqueduct system of the Depart-

ment from its intake at a point near what is known as Charlie's Butte down to the --

A. Only from seeing it on the map. I have gone over parts of it personally; but did not stop; and only from seeing it on the map.

Q. Have you ever been up to the intake itself?

A. No.

Q. I will direct your attention, Mr. Pedder, to paragraph VI, pages 3 and 4 of the second amended complaint.

A. Yes.

Q. And ask you what is meant by the words "lake bed" used in that paragraph on page 3?

A. Well, that means the surface of the lake.

Q. Would it be the portion above the crystalline cake?

A. Yes.

Q. Or at the surface of the crystalline cake?

A. At the surface of the crystalline cake.

Q. Now, on the last line you speak of a high degree of alkalinity. A. Yes.

Q. What do you refer to in that connection?

A. The sub-surface waters have ~~to~~ acquired a high degree of alkalinity.

Q. Yes. A. But I mean they have been impregnated with the sodium salts to a high degree. Now, a "high degree of alkalinity," of course, is a relative term.

Q. When you said "sodium salts," do you refer to sodium

carbonate - bicarbonate of soda?

A. Sodium is referred to usually as na_2O; and it may comprise either bicarbonate or a straight carbonate. It also comprises, perhaps frequently in its use, a little borax; but it makes no difference which it is.

Q. In other words, your ratio, though, is in terms of na_2O, and that is what you mean by high alkalinity?

A. Is what I mean by high alkalinity.

Q. Now, you refer in this paragraph to salts of a considerable value for commercial exploitation.

A. Yes.

Q. What salts do you refer to?

A. Well, I am speaking of the na_2O content of the salts primarily; but there are other salts in the lake which are susceptible to commercial exploitation as well,

Q. Are there salts other than the na_2O that you have commercially produced from the brine?

A. Not that we have commercially produced from the brine, no.

Q. Well, would you tell us what those salts are?

A. Primarily potash and borax; but there are others also; but those are the primary ones.

Q. Now, you refer to dekahydrate of sodium carbonate.

A. Yes.

Q. That does not exist in the brine as such, does it?

A. Not while it is brine, no; but precipitates out under temperature changes which occur which permit it to fall out.

Q. And in this connection with the crystallization of dekahydrate of sodium carbonate, is the brine pumped during the cold fall and winter months, or is it that the brine is pumped at some other period and the crystallization takes place in the cold fall and winter months? Explain that.

A. It can be either. You get dekahydrate precipitation under either circumstances; but if you are going to control the precipitation of it, you ~~would~~ have to pump ~~out a precipitate as well as a fluid of some other liquid~~ in such manner that after precipitation of the dekahydrate the mother liquor can be removed.

Q. What were your actual operations?

A. Our actual process is to start pumping as soon as the nights become sufficiently cold to precipitate dekahydrate; and we added ~~the temperature of~~ a spray system so as to precipitate the dekahydrate more freely ~~of the various forms of sulphate~~.

Q. And that generally takes place then - the whole process involving the crystallization takes place in the cold fall and winter months? A. Yes, that is correct; the whole process.

Q. Now, will you turn to paragraph VII, page 11, please.

A. Yes.

Q. I believe, with respect to that, that you stated Mr. Keep would be able to give the information better than you on the 100 tons of soda capacity of the plant?

A. Yes, if you wish to go into details.

Q. When you use the word "normal," is that the same as the use of the actual plant as a commercial plant capacity that you

have referred to? A. No. That really means exactly what it says: The normal plant capacity. You might boost it up to 110 temporarily, but it would not be an efficient point at which to keep it; or by making a slight change here or there or somewhere else you might get it up to 115; but as installed under normal conditions, it would have an average of 100 tons a day, as I understand it.

Q. And that was not based upon any question of demand for the product? A. Why, of course. Of course it was. We believed that we could sell 100 tons a day, or thereabouts.

Q. And constructed your plant accordingly?

A. And constructed out plant accordingly. That is, the market demand indicated that 100 tons a day was the amount which we could efficiently make and sell under normal conditions.

Q. And that would include then the words "means of merchandising"? A. That is right.

Q. What do you refer to in that paragraph when you speak of normal seasonal cyclic changes?

A. Well, now, you are getting rather deeply into chemistry there; but in layman's language, with the variations of temperature, there are changes in the composition of the brine. In the cold months, there is less na_2O in the subsurface brine, and more precipitated underneath the top surface, which would not come out with the brine. In the warm weather, more of that is liquefied -- what is the word I want to use -- dissolved

into the brine itself, so that when you pump the brine, you get it out. That is just a layman's way of explaining it.

Q. Well, then, that being the case, if there is less na_2O in the cold fall and winter months -- and I am correct in my understanding of your testimony in that respect?

A. Yes. May I just give --

Q. Why is it pumped out at that time?

A. Because it has --. Those months are not cold in the open air, except that they cool off during the night; but they have a series of very hot months from April, let us say, until August - extremely hot months - so that there has been an opportunity for ~~that~~ heat to permeate through the upper crust and dissolve a great deal of the na_2O into the brine; so that when you pump it out in September, you have the highest alkalinity available at any time of the year, running from September to December, and perhaps into January, and even into January, or at the latest February 1st it decreases because of the effect of the lower temperatures upon the upper crust, and therefore on the brine, and it is decreased to a point where it won't be worth while to pump those wells for the purpose of precipitating dekahydrate.

Q. Do you know over what period of time you normally pumped? How many months?

A. Well, we can't be very exact about that; but it would be from three to four months. Sometimes it might be a little more; or it might be a little less.

Q. And you have to pump in that time the full amount of brine necessary?

A. Precipitate enough dekahydrate for the year's supply.

Q. For your year's supply? A. Yes.

Q. Now, in paragraph VIII on page 13, you refer to flooding of the bed of the lake.

A. Yes.

Q. What portion of the lake do you refer to in making that statement? A. Well, I was referring to such portion of the surface of the lake as was actually covered by water; and which included all of the area where our lake wells were located, and a very large part of the area which was crossed by our pipe line.

Q. It didn't quite come to the plant?

A. Didn't come actually up to our plant, ~~for instance~~, at any time that I know; but, of course, there was a nine mile pipe line. Now, I don't know of -- you can check this with Mr. Keep -- I don't know at any time it came nearer than three miles, approximately. Maybe it was a little more from our plant.

Q. But all of your wells --

A. But all of our wells were completely under water, at one time, I believe, eight or nine feet; and sufficient of the pipe line had been inundated to make it practically useless, even had we been able to pump, which, of course, we were not able to with our ~~low~~ lake wells thoroughly covered with water.

Q. Now, in paragraph XI, page 18, about the middle of the page -- A. Yes.

Q. It is stated that plaintiff was and is unable to procure dekahydrate of sodium carbonate elsewhere in sufficient purity, quality and quantity and at such price at plaintiff's plant so as to economically or profitably meet the balance of plaintiff's said requirements. What efforts were made in that behalf to obtain the products?

A. Well, we know first of all that there is no such quantity of dekahydrate made anywhere as we would have required to operate our plant. We know also that ~~the~~ -- even if it were made or could be made elsewhere, it could not be made at such a price which would permit it to be conveyed to Keeler, by reason of freight rates and other handling charges, so that it could be manufactured into soda ash at our plant. It was a practical impossibility.

Q. So that in view of that fact, you made no actual effort to obtain it? You just knew that was the condition of the market, and where you could obtain that product?

A. And we knew that there was no place from which we could obtain such a product. There was no place where it was made. We know a little about the chemical business; not much, but a little; but we know that it just isn't made.

Q. What about obtaining it from Searles Lake?

A. They didn't make it.

Q. You mean the product is not the same type that you were pro-

ducing, or no product there which would be available?

A. They made soda ash. We could buy soda ash.

Q. But this dekahydrate?

A. We are talking about dekahydrate here.

Q. Don't you manufacture your soda ash from your dekahydrate?

A. Yes; but they don't.

Q. Well, do you --

A. At least, that is my impression.

Q. Do you supply your market with dekahydrate in that form, or do you supply it in the form of soda ash?

A. We supply it in the form of soda ash.

Q. It was impossible to obtain a soda ash which you could supply -- A. I don't say that. I say we couldn't get dekahydrate. We did buy soda ash; but there are market requirements for it, as our statement of claim will show. We bought soda ash in 1937 and 1938 and 1939.

Q. Would Mr. Keep have records or Mr. Eckland have records of the prices at which you procured that?

A. Yes.

Q. The quantity? A. Yes. It is there as a part of our claim, all set out in detail; because we naturally offset the amount of our claim with the profits that we have made on buying and reselling soda ash.

Q. When you state your claim, you mean the sheet from which these allegations were made? A. Yes.

Q. Because the claim that was actually filed with us does

not give that detailed information.

A. No; but I mean the further data that you are going to get in the course of these depositions from others.

Q. May I ask one more question?

A. Ask as many as you like, sir.

Q. In some of your correspondence with the State, I believe there is some discussion of the Inyo Chemical case, is there not?

A. Yes.

Q. Did you have any knowledge of the circumstances of the Inyo Chemical case prior to that correspondence; or was that called to your attention for the first time by Mr. Sturzenbacker?

MR. FERGUSON: One moment. Off the record.

(Unreported discussion.)

THE WITNESS: I really don't remember when I first came across that case. I am sure it was after '32; I am sure it was after '33; but how long after, I don't know. I don't even remember when it came up in the correspondence with the Land Division now.

MR. MOORE: Does that refresh your recollection?

(Document shown to the witness.)

A. Yes, in a way. I would say that I gave this matter of the flooding of the lake by the Water and Power Department no consideration even prior to that first flooding in 1935.

Q. Is it your statement that you had no knowledge prior to that time of any flooding of the lake?

A. I believe that is true. I believe that is true.

Q. May I ask it in this way: We have used the word "flooding;" and perhaps you and I have a different conception of the word, or are giving it a different meaning. I will put it this way: Did you have any knowledge prior to '35 of there being waters in the natural channel of the Owens River flowing on down to the lake in any quantities whatsoever?

A. What do you mean by "any quantities whatsoever"? There was always -- I mean not always, but practically always some little water going under the Owens Bridge, which is what the -- the point to which the first --

Q. You refer to the Keeler Bridge? Is that what you refer to when you say the Owens Bridge?

A. The Owens River Bridge; the one at Keeler, yes.

MR. FERGUSON: The one on the road to Keeler.

MR. MOORE: The one on the road to Keeler?

A. Yes, that is the one.

Q. That is what we refer to as the Keeler Bridge.

A. Well, it has always been known ever since I have been going there as the Owens Bridge, which is since 1933; and there were some small amounts of water from time to time, perhaps continuously, going under the bridge.

Q. Did you ever make any estimate of the amount?

A. Personally I never did, because the amounts which went under there were of no -- were normally not of a volume which bothered us at all, or could bother us under any condition.

It was only when the excess waters which we assumed had been appropriated or were diverted by the Water and Power Department, were permitted to go under there, that any damage could occur to us. These trifling little amounts of a few inches or even up to a foot or two at some times of the year could not possibly be of any detriment to us.

119 Q. As far as you remember, you had seen no quantities in excess of a second foot?

A. I wouldn't know a second foot from a man on the street when it is spread over that width of the -- under the bridge there. You see, I don't think you realize perhaps, Mr. Moore, that the ordinary small amounts of water evaporate to the point -- in fact, they evaporate so completely that they don't bother us at all. Now, I don't know how serious -- Mr. Keep can probably tell us -- ~~tell us~~ how serious that two or three days in 1935, I think it was -- yes, there was a portion of April, 1935. I don't believe that bothered us at all; but I may be wrong. Because there was a large amount of water come under for just two or three days, and then it evaporated. In April. Heavens, that was all gone by July. It didn't bother us any.

Q. I would like to show you a letter of February 28th, 1936. Perhaps I had better show it to counsel first.

(Document shown to Mr. Ferguson and the witness.)

A. Yes. What is your question?

Q. I wanted to specifically call your attention to the use of the word "again." This is February, 1936; so it must be

referring to some previous time.

A. 1935 is the first time that we protested. I think I told you that before.

Q. I wondered if that was the time you referred to in that letter? A. I think so. I think so. I would have to look at my own correspondence file; but whether as a result of the protest or not, I don't know, ~~but~~ the amount of water that was turned into the lake in 1935 was very, very small. We naturally protested, though.

Q. From what record did you get the 100 second feet at Keeler? A. Let me see.

Q. (Continuing) -- referred to in the first paragraph?

A. Well, I presume that my correspondence will show that Mr. Keep reported that to me. I certainly did not measure it myself.

Q. Any records to that effect would be in his possession, then? A. If there are any, yes.

Q. Mr. Goudey has asked that I direct one further question to you, Mr. Pedder: You mentioned that some of the uses for the soda ash were the manufacture of glass, soap --

A. Yes.

Q. (Continuing) -- sugar and steel; or used in the steel industry, and used in the oil industry, and water softening?

A. Yes.

Q. Did you sell that product of your own knowledge for all of those different uses? A. Yes, I think so. We cer-

tainly sold it for soap, to the Los Angeles Soap Company. We sold it for glass, to the Owens Illinois Pacific. What are the others?

Q. Then refining of sugar? A. Refining of sugar. We sold to several of the sugar companies.

Q. Entirely on the West Coast? A. Yes, I think so.

Q. How about the steel industry? A. The steel industry? We still sell that.

Q. What is the use of soda ash in the steel industry?

A. Why, it is used for desulfurization, for one of their uses. Now, exactly what use they make of this particular product, I don't know; but for desulfurization is one of the uses of soda ash in the steel industry.

Q. In the oil industry? A. In the oil industry, I don't know. I am not sufficiently familiar. The Shell people use it for a water softener at one of their plants; but whether the other companies use it solely for that purpose, or whether they use it for some other purpose, I don't know.

Q. Did you sell some to the Shell Company?

A. Yes. Oh, yes, the Southern Pacific bought it in their foundry. ~~for a water softener~~.

Q. Did you sell any to municipalities or water companies?

A. Not as far as I know; but I may have.

MR. MOORE: I think that will be all with Mr. Pedder. Did you care to cross examine him?

MR. FERGUSON: No.

October 11 1939

G. A. KEEP,

called as a witness under Section 2055 of the Code of Civil Procedure of the State of California, being first duly sworn by the Notary Public to tell the truth, the whole truth, and nothing but the truth, testified as follows:

EXAMINATION BY MR. MOORE

MR. MOORE: Q. You are presently associated with the Natural Soda Products Company, a Delaware corporation?

A. Yes.

Q. In what capacity? A. General superintendent.

Q. Are you an officer or director? A. No.

Q. How long have you been associated with the company?

A. Since January 15th, 1934.

Q. In the same capacity? A. Yes.

Q. What are your duties in connection with your position?

A. Well, I think they are similar to any general superintendent. I have charge and am responsible for the production end of the business; and also connected with production in the way of reduction of costs, improvements on production; development of potential production, and so forth. Does that answer your question?

Q. Yes. A. Handling of labor and handling of the camp; the industrial relations with employees.

MR. FERGUSON: Q. You are general superintendent of the whole plant operation? A. Yes.

MR. MOORE: Q. Including the maintenance of the plant?

A. Oh, yes.

Q. And its facilities? A. Yes.

Q. In that connection, do you keep, directly or under your control and direction, records with respect to the various processes used and analyses made of brines and products?

A. Yes, we keep such records that we think are necessary for the operation of the plant, or records of such a nature that they may be useful to us in the future in regard to such things.

Q. When you took over your duties in January, of 1934, there were turned over to you certain records of that type that had already been compiled with respect to the operations from April, '32 to January, '34?

A. Well, all the records that were there were turned over to me.

Q. Well, there were such records, were there not?

A. Yes, there was to an extent records.

Q. Were there any records of the old Natural Soda Products Company, a California corporation, turned over to you?

A. Well, as a matter of fact, Mr. Moore, there was a great number of files of various sorts, of correspondence there, which I have never read.

Q. I refer primarily to the technical records.

A. There were a great many years records there made by previous superintendents, I think; and a lot of those I never read. I glanced over a few of them, and saw they were not of

any particular value or of interest to me. Most of them have to do with various breakdowns and troubles, and things of that nature; and so I don't know exactly what is there, or may have been there, as far as that is concerned.

Q. The records with respect to the process being actually used by the company at the time you went in as superintendent --

A. Well, there were records there pertaining to how much they produced and shipped out in a month, and things of that nature. I don't know just what sort of records you mean.

Q. Did you acquaint yourself with the operations of the plant so that you could take over and operate it?

A. Well, in the first place I had a great many years of experience.

Q. In the soda ash industry? A. No, sir, in the chemical industry; in the metallurgical industry.

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Q. What type of experience was that?

A. Well, for one thing, I was connected for ten years with the Grasselli Chemical Company, which is now a subsidiary of the Dupont, - a subsidiary which now conducts all of the heavy chemical manufacturing for the Dupont Company.

Q. What was your position immediately prior to going with the Natural Soda Products Company?

A. I had been a superintendent of the pocket pyrites department at the Cerro de Pasco Copper Corporation.

Q. In what capacity? As a consulting chemist?

A. No, I was superintendent of what was known as the pocket

pyrites department. If you want to know more about that, the purpose of that department was to develop a process of recovering primarily silver from the low-grade ores of the Cerro de Pasco mine of Peru, which was owned by the Cerro de Pasco Copper Corporation. This particular silver body being, I believe, the largest known deposit of silver in the world.

Q. Prior to 1934, what experience had you had with the soda ash industry? A. No experience in the manufacture of soda ash, but considerable experience in the use of it; and of the making of chemicals.

Q. Did you have any experience of its application to the manufacture of the various products such as those that have been enumerated? A. Yes.

Q. Glass, soap -- A. Well, there are a great many other products chemically made from soda ash.

Q. Besides those that were mentioned?

A. Yes. For instance, the Grasselli Chemical Company made silicate of soda, of course. It is a product made over here by the Emeryville Chemical Company in ~~huge~~ quantities. They used large quantities of soda ash for that purpose. As a matter of fact, we were talking of dekahydrate a little while ago; and a large quantity of soda ash is used in the ~~extraction of soda, and so is~~ manufacture of dekahydrate which is sold as sal soda. Sodium phosphates are made from soda ash. Its products are used largely in weighting silk. ~~Sodium~~ Trisodium phosphates are also made of soda ash; and there are numerous others of that nature.

Q. I was simply trying to get your general experience, rather than all of the products with which you are familiar.

A. Well, you asked what use is made of those products, and I have stated a few of them. There are many others. For instance, the hypo you use to develop films is all made from soda. The chemical industry makes a great many products from soda ash.

Q. In connection with the use of soda ash for these products, did you become familiar with the processes necessary for the making of soda ash itself?

A. Not particularly the making of the ash, because at that time Grasselli made no ash. ~~They~~ others were producing all of it, and the ~~Dupont~~ Grasselli Company were using it. Gak Co. Gak Co.

Q. When you came in as superintendent in 1934, then it was necessary to acquaint yourself with that particular industry, was it not? A. Yes.

Q. And you made a study of the processes then being used by the Natural Soda Products Company?

A. Yes; but it didn't take me long to understand that. I not only made a study of it, but I made a study of the conditions on Owens Lake and immediately about it.

Q. What type of study on Owens Lake did you make?

A. Well, I think I asked for and received authority to put down the wells, the prospect wells, out on Owens Lake.

Q. There were no wells there at that time?

A. Oh, yes, there were some wells; but I say the prospect

wells; the 22 prospect wells; and I think we started those about two weeks after I got there. That was when I received authority to do that.

Q. From whom? A. Mr. Pedder.

Q. In connection with learning the various types of processes then used, did you refer to any records that were already in the possession of the company showing alkalinity of brines for any purpose; things of that sort?

A. Well, to a limited extent. Mr. Schilling stayed there a week with me after I got there, and went over the various parts of the workings there; out on the lake, and explained to me what the situation was, as much as he could during that time.

Q. Can you state of what steps the process used in 1934 consisted?

A. When I went there?

Q. Yes. A. Yes, sir.

Q. Will you do that, please?

A. When I went there, brine of what we now regard as low alkalinity was pumped into the plant.

Q. Can you state how that was acquired? That was from ~~these~~ pumps that were placed out in the lake?

A. Yes, out in the neighborhood, we will say roughly, five miles from the plant, where there was a series of shallow wells.

Q. How deep would you say they were?

A. Well, they varied from two feet to a point -- I think well No. 17, that was about four feet deep. The well was sunk

in deep into the mud.

Q. When you say it was sunk into the mud, do you mean that it pierced the crystalline cake? A. Yes.

Q. And went down into the mud below that?

A. Yes.

Q. Was there any brine between the crystalline cake and the mud? A. No distinct layer, no.

Q. No distinct layer? A. No.

Q. All right. Proceed.

A. There was some four or five of those. As I say, some of them were only two feet. Naturally, they were affected by the winter weather very quickly, because when it cooled off, the alkalinity ~~density~~ content dropped in the brine. GAK Co. 13

Q. When you had water only two feet - you mean it was only two feet over the ~~cake~~ mud? GAK Co. 13

A. Yes, it just ~~filled~~ drained in at that shallow depth; and some of the wells became so that you couldn't operate them at all in the winter. GAK Co. 13

Q. Did you make any tests to see how deep this mud layer was before you reached the sand and gravel? Co. 13 GAK

A. Well, once you go through the salt layer there out in the lake, it is very fine mud. After you break through this cake -- you can take a pipe and push it down in there as much as you want to; and we have heard - that was before my time - that it is 500 feet deep - they have gone that far, and never hit any bottom in it. It was mud all the way..

Q. On some of the wells nearer shore, did you make any tests with a view of ascertaining the actual measurement of the depth of the mud? A. No, I don't think that would be of any help. That mud may be found to be a ~~foot~~ thousand feet deep, or even deeper; ~~and~~ you can go back into geology. The Owens River ~~flooded~~ flowed ~~over~~ thru the Owens Lake and out over Little Lake and into Indian Wells Valley; and in the long ago geological times, it ~~got through settling~~ settled in the basin of Owens Lake; and all the mud that came down settled in there. So there was no deposit of salt, solid salt, in Owens Lake until the city diverted the water into the aqueduct, thereby causing the lake to evaporate to a point where solid salts-- ~~where it~~ precipitated.

Q. There is no distinct layer of brine or liquid above the mud, but below the crystalline cake?

A. Not at any point that I know of.

Q. As far as you know?

A. No, I don't think there is any.

Q. Will you go on and describe the type of well and the operation of the well in that first system?

A. Well, the wells are different somewhat one from the other. We had two wells, No. 16 and 17, on which they put the main dependence for the supply of brine. As I said, those two wells pierced the four feet of salt at that particular point; and had a casing down into the mud, and the brine seeped in. The other wells were shallower, and had pumps located on them; but they were so shallow that in the wintertime at times the pipe lines

would crystallize or the brine would get very low in alkalinity; and then in 16 and 17 there was a very great decrease in quantity of brine available in cold weather.

Q. Did you have heaters in connection with these wells?

A. No, sir. They were all what we would call low alkalinity brine.

Q. It didn't require heating, is that it?

A. Yes, that is it.

Q. Now, they were pumped through these pipe lines, I presume, into vats? A. No, they were not.

Q. Well, then -- A. They were pumped into the plant into the receiving -- well, when I say vats -- ~~they were~~ not crystallization ~~crystalline~~ vats. They were pumped into the plant into storage; and this storage being dug out of the ground; but just for the storage of brine; and from that point, the brine was pumped out into what we call the carbonating towers.

Q. Pardon me a question: Were tests made of this brine as to temperature and concentration and so forth?

A. Oh, yes, we have records of that. The temperature of the brine, the alkalinity of the brine being pumped in there.

Q. That is what I mean. A. Yes.

Q. It was carried into what you call the carbonating towers?

A. Carbonating towers.

Q. Then what was done with it?

A. Well, at that point, ~~they were~~ it was treated with carbon dioxide gas, which was obtained by calcining dolomite limestone

in kilns. The gas from the kilns was conducted into compressors, and compressed up to about 45 pounds pressure, and then led into the bottom of these towers, where it bubbled up through the towers. Then there was a reaction, chemical reaction, between the sodium carbonates contained in the lake brine and the ~~DO_2~~ CO_2, which converted the sodium carbonate into a sodium bi- carbonate.

Q. Then that sodium carbonate was in solid form?

A. The sodium bicarbonate is less soluble in the brine than the carbonate, and was precipitated out as sodium bicarbonate in the solid form.

Q. That would be in the bottom of the tower?

A. Precipitated out through the tower. It is more or less of a continuous process. You put in brine continuously at the top of the 90 foot tower, and you drew out the sludge consisting of brine and sodium ~~carbonate~~ bicarbonate from the bottom of the tower all the time.

Q. That was conducted where?

A. That was conducted through filter presses of the Oliver type, where the solid bicarbonate was separated.

Q. Were there any impurities contained in the sodium bicarbonate? A. Yes.

Q. You have a record of the percentage of impurities from time to time? A. Yes.

Q. How did you go about removing those?

A. We did not remove them.

Q. You mean -- A. We endeavored to conduct our operations with the towers so as to avoid the formation of these impurities as much as was possible; but further than that we had no control over those impurities.

Q. There was no other step in the process of removing those impurities after they left the tower?

A. No. Only washing the cake on the filter. EAK C.O.B.

Q. And compressed in the Oliver filter? question not clear EAK C.O.B.

A. After I was there, we made quite a research into that phase of the question.

Q. I want to get this other process completed.

A. Well, it was with the idea of removing some of these impurities; but we could find no commercial practical way of accomplishing such a result.

Q. Did you get any by-products from the tower process which you used? Was there anything --

A. No. They used to make it a practice of running ~~these~~ waste liquors into vats and letting the salt evaporate; but they were never of any ~~great~~ use. We did recover some sodium chloride at a later date; but to answer your question I will say no, that there were no particular soluble by-products. EAK C.O.B.

Q. How did you go from your sodium bicarbonate to your dense ash; first, to the second-grade dense ash?

A. No, to your light ash. You take the light ash first.

Q. All right. A. The sodium bicarbonate we got from the ~~soda~~ brine was conducted and fed into what is known as the EAK C.O.B.

light ash furnace, which is a long revolving cylindrical shell heated from the outside to a temperature sufficient to drive out that part of the CO_2 from the sodium bicarbonate which you introduced in the towers; thereby converting the sodium bicarbonate back into sodium carbonate.

Q. Is that the same as ash?

A. That is soda ash. Sodium carbonate is soda ash. That product from that furnace was known as light ash wholly because of its weight per cubic feet, if you want to look at it that way. That is one way of looking at it. The CO_2 evolved from this furnace driven off by the heat as described was conducted into the same compressors, which handled the gas coming from the lime kilns.

Q. It went back into the towers and was used again?

A. It went back into the towers and was used again.

Q. Were there any water crystals in this light ash?

A. No, none.

Q. Well, in the dense ash, there was some waters in that, was there not? A. No.

Q. There was not? A. No.

Q. What makes the difference? What step in the process?

A. Well, the dense ash -- what makes the dense ash the way it was -- at the Natural Soda Product Company's plant, it may be described as starting from the filter presses, the sodium bicarbonate cakes were conducted into the dense ash furnaces. These were circular brick furnaces similar in shape to those in

which they burn fire brick. In those furnaces the bicarbonate was not only heated enough to drive off the CO_2 gas, but the heating was ~~continuous~~ continued to the point where the soda ash was actually fused into a molten liquid; and this liquid continuously ran out as it was melted and was blown with air and granulated - cooled and granulated. These pellets that resulted from this granulation were then ground in a hammer mill, and in that way the dense ash was produced, having much greater weight per cubic foot than the light ash.

Q. Were any of the soda concentrates made in the same process, or was that a separate process?

A. No, the soda concentrates are entirely a separate process, and do not originate from brine.

Q. Did you manufacture some at the time that you came in January, 1934? A. ~~We had not been operating~~ -- we were not operating -- making concentrates right at the time I came in; but we made plenty of them that summer; and we have made them ever since.

Q. Have you used the same process all the way through on those concentrates?

A. From then to now?

Q. Yes. A. Yes, we used what we would call the same process, but with this difference: That the gases from the dense ash furnace that I have described before, the gases are necessarily pretty hot coming off there; and it used to be the practice to ~~convert~~ convey or to carry those hot gases into the rotary

furnace where the soda concentrates were made, to utilize that heat; and after the carbonating plant was closed down, it became necessary to build up a fire for the concentrates; and that was done with fuel oil.

Q. Since the process that you have used after 1935 did not give off these hot gases, is that the reason for that difference?

A. Yes, that is correct. There were no hot gases available for such purposes after the carbonating plant was shut down. EAK Co.R.

Q. And were you mining trona in January, of 1934?

A. We weren't actually mining it at that time, no. We had available a considerable tonnage of it ~~at the plant~~ on the lake that had been stacked up previously; and we had considerable tonnage ~~available~~ precipitated artificially ~~originally~~ in vats near the plant, and which we recovered from time to time. EAK Co.R. EAK Co.R.

Q. You obtained that from the Natural Soda Products Company, did you? A. The trona?

Q. The precipitation from that?

A. Yes. What trona was precipitated ~~in the~~ -- artificially ~~originally~~ in the vats was all made before my time. EAK Co.R.

Q. Oh, I see. A. The other trona that we used when I first went out there was a natural trona laid down in the lake.

Q. Well, did you ever operate after you came there specifically to obtain trona, or were your activities confined to the soda ash?

A. Well, our only operation in regard to trona was to collect

the trona that was there laid down naturally, or that had been made artificially. We have never produced any trona since I have been there; nor up to now has there ever been any made naturally.

Q. Have you stated generally -- A. As far as this trona is concerned, it was the first salt to become insoluble, you know, in Owens Lake brine, due to the evaporation of Owens Lake. It was the first one precipitated out.

Q. Then in connection with the operations when you first came in January, 1934, did you keep any records with respect to the height of the waters in the lake?

A. When I first went there, there wasn't any water in the lake.

Q. None at any point near your wells?

A. No. Well, I told you we went out a distance of some nine miles from the plant.

Q. I mean prior to the time you made your 22 test wells?

A. Well, at that time, I drove all over the lake with an automobile. There was no water on the surface in our vicinity at all; ~~now,~~ no water or brine. To look at it, it looked dry. OAK The brine in that dry lake exists very close to the surface. Under conditions like that, when we drove an automobile over the surface ~~through that brine~~, brine and it would immediately flow into the depressed tracks. OAK The condition that existed out there is that after a long dry period the surface brine is all evaporated, and the salt is thrown out, and then when the brine surface recedes below the

surface of the solids, the rate of evaporation is immediately slowed down. It does not cease, but it almost ceases; and the brine ~~runs~~ remains very close to the surface. And that sort of a situation existed all the time up until enough water was put on the lake to cause surface brine to exist there. The tendency is for any surface brine to be evaporated. ~~and to drive it right back.~~ That same condition holds down at Searles Lake.

Q. Have you any records of evaporation?

A. On the lake?

Q. On the lake? A. Yes, but not previous to 1934; but we have records of evaporation that has taken place this year.

Q. Well, do you have any prior to this year?

A. What?

Q. Do you have any records of evaporation of the lake prior to this year? A. Only in a general way. We know when we were flooded before approximately how deep that was; ~~but~~ and we know when it evaporated down, and when it exposed our wells again, the first time we were flooded out.

Q. Do you have a record showing that rate?

A. Only in a general way. We know that during the spring of 1937 ~~it must have been 1936~~ -- we had some two and a half feet of water or brine on the surface; and by August 1st it had gotten evaporated down to our wells - if that is what you mean; but nothing previous to that. We have no records of our own in regard to evaporation on Owens Lake, what it was previous to time I came

there.

Q. That is what I mean. A. We know from opinions that have been expressed about it.

Q. But you have no records of your own? A. No.

Q. There are two types of evaporation we are interested in: First, of the brine or waters on the surface of the cake; and secondly, evaporation from the cake itself. Did you have any records of that? A. No. As I said -- I just got through explaining it -- that it evaporates down to the ~~cake~~ top ~~surface~~ of the brine ~~above~~ after a very long dry period there of many years, ~~when~~ ~~it~~ is right close to the surface; that is, when you go out to the main body. cake cake

(Discussion. Thereupon an adjournment was taken until 10 o'clock A. M., Tuesday, October 3rd, 1939, and by consent of counsel to be resumed at the same place.)

Room 514 Financial Center Building, San Francisco, Calif., Tuesday, October 3rd, 1939, 10:00 A. M.

(Pursuant to the foregoing adjournment, depositions in the above-entitled cause were resumed, there being the same appearances as heretofore indicated.)

C. A. KEEP,

recalled, having been previously sworn, testified as follows:

EXAMINATION BY MR. MOORE (Resumed)

MR. MOORE: Are you ready to go ahead?

MR. FERGUSON: Yes.

MR. MOORE: Q. Mr. Keep, yesterday we were discussing the first process that was used and your experience with it after you went in in January of 1934; and there are a few additional questions I would like to ask along that line. As you pumped the brine from the various wells which were in use at the time you came, were temperatures taken of brine at the wells?

A. Well, the chances are that we have records of that sort; but we didn't make it a regular practice to take temperature every morning or every hour or every day.

Q. How often would you say that you took them?

A. Well, as a matter of fact, as I told you, some of those wells are two feet; and when it got very cold at night, on some of the wells -- the small wells in this neighborhood - (indicating on Appendix "A").

Q. Pardon me just a minute. I think --

A. The brine temperature might go down to 8 or 10 degrees centigrade, and it might still be lower; and you can't speak of the brine --

Q. Excuse me. I wonder if we might make this an exhibit to the deposition. It is a recessional map of Owens Lake prepared by the Chief of the Division of State Lands of the State of California; and I believe that we can, at least, get the relative locations of the plant and the lake land and location of pipe lines on here.

THE WITNESS: Yes.

MR. MOORE: And if it is acceptable to you, Mr. Ferguson, we will have Mr. Keep draw on this map merely the relative locations, and not according to the distance or the exact size, or things of that sort.

THE WITNESS: You don't have one there which your contour lines are in it, do you?

MR. MOORE: No, I am sorry I don't. It is the only map I find that the State prepares; but the Federal Government, I think, has maps of contours.

A. The contours I speak of were put on by the City Water and Power Department.

MR. MOORE: Pardon me. Just a minute. Off the record.

(Unreported discussion.)

MR. FERGUSON: I have no objection to this map being used to indicate on it, understanding that it is to a small scale;

and that anything that is noted is purely relevant.

MR. MOORE: Purely relevant.

MR. FERGUSON: It depends upon whether the witness understands the map, too.

MR. MOORE: Q. Will you look at this map and see if you can orientate yourself.

A. Yes, I am familiar with it.

Q. You are familiar with it? A. Yes, I am familiar with those sections.

Q. I wonder if you would, before you make any further explanation, care to draw on there the position of the plant - relative position of the plant along the shore line.

(Witness does as requested.)

MR. FERGUSON: The witness is drawing this in red.

MR. MOORE: Yes.

Q. Draw the plant as it existed in January, 1934. As I understand it, then you only had two plants? That is correct, is it not, that you only had two plants?

A. You know, the plant is going to be a pretty small item on that map.

Q. All I am trying to get at is the relative location with respect to the pipe lines and wells, and so forth. I think we will indicate the plant with two rectangles. Will you indicate the plant in red with two rectangles, please?

A. If I put it in according to the approximate size, it would be just about there; about that size.

Q. Will you mark that by an arrow and a "P" in the same color, red?

(Witness does as requested.)

Q. Now, that is the plant as it existed in January, 1934?

A. Yes, sir.

Q. Will you draw in blue the lake land locations that have been referred to? A. I haven't referred to any yet.

Q. That was referred to by Mr. Pedder. You are familiar with them? A. I was not here when he referred to them; so I don't know what you are talking about.

Q. I will state Mr. Pedder testified that there was some 2500 acres of lake land location acquired from the State under contract. A. Oh. Now, I think --

Q. Draw that in in blue, please.

MR. FERGUSON: Off the record.

(Unreported discussion.)

MR. MOORE: For the purpose of the record, we will indicate that the witness prior to the time that the depositions is finally signed will fill in and indicate the lake land locations on the map, which we will refer to at this time as Appendix "A". Is that all right?

MR. FERGUSON: Yes. Off the record.

(Unreported discussion.)

MR. MOORE: Q. May I ask you if the plant marked by the letter "P" covers a part of the 200 acres which were acquired

from the old Natural Soda Products Company?

A. Yes, I believe it does. It is the fee land. It is not located as you have indicated here. First the fee comes in here, which is indicated on this map; and finally located on what was the parcel that is a part of the 200 acres that he refers to.

MR. PEDDER: 209 acres.

MR. MOORE: Yes.

Q. Would you be able to draw the pipe line and well locations as they existed in 1934? A. Yes.

Q. Will you do so in blue? A. Yes, I can.

Q. The approximate relative locations.

(Witness does as requested.)

THE WITNESS: Something like that. I think there was another one out about there.

MR. PEDDER: You had better indicate that, too.

MR. MOORE: Will you mark that?

A. I can't remember all of them. Here are the two main wells here; here were No. 17 and No. 16. I told you yesterday they were in a place where it was approximately -- the salts were approximately three and a half to four feet deep; and here it might have been only 18 inches deep. Now, these numbers, I can't remember whether they were 8, 9 or 10. That is to say, this was 8. I can remember that; and we will still call that No. 8; but these others --

Q. Mark the numbers in blue, indicating the location of the

wells in 1934 - in January, of 1934.

A. This is more or less approximate, you see, except for 16 and 17 and 8; they are very accurate as to location.

Q. Do you know the number of the well which you have indicated in blue?

150 A. No, I don't remember. I just got through telling you I remember where 8 was. I don't remember whether these were 9 or 6, or what.

Q. What was the total number of wells?

A. There were at least three, and maybe about five altogether.

Q. Five altogether? A. Yes, around in there.

Q. Were pumps located at each of the locations which you have indicated as wells? A. Yes.

Q. Will you indicate -- A. They were connected by roads so that you could drive from one to the other.

Q. And did the roads follow along the pipe line, as you have drawn in blue? A. Approximately, yes. The road was a little bit out; comes out here, and comes over there; but approximately follows the pipe line, yes.

Q. Will you draw an arrow from the pipe line and mark it "P. L.", indicating pipe line, please?

(Witness does as requested.)

Q. What was the size of that pipe line?

A. Well, the pipe line, I believe, from No. 8 in here is 8 inch.

Q. You mean into the plant? A. Yes. The line from No. 8

out to No. 17 was 6 inch. The line --. There was a line then -- I am not sure whether that was in or whether we put it in afterwards, or it came around this way; but these lines consisted of some 6, some 4 and maybe some 3 inch lines connecting in.

Q. Would you be able to say what it was from ~~16 to 8~~ 16 to 17? Question understood

A. No. They were sixes. I just got through telling you there was some 6. There was a line in here, but I am not sure that was in at that time, or whether we put it in afterwards, connecting across there. There was some 6, some 4 and some 3. Now, that is the best I can do for you. I ~~don't~~ doubt if it is a matter of great importance; but there was some 6 and some 4 and some 3 inch lines located in there.

Q. Will you draw by an arrow to 8, 16 and 17, and indicate it by a "W", denoting a well?

A. What is that?

Q. Draw an arrow to 8. A. All right.

Q. (Continuing) -- 16 and 17, indicated by "W" to indicate wells. A. Yes.

Q. In connection with this plant, at that time did you have storage facilities for the brine?

A. We had a small vat.

Q. Will you draw that in green?

(Witness does as requested.)

Q. It was on the lake side of the plant? A. Yes, right near the plant.

Q. Will you mark that by "V" to show vat?

(Witness does as requested.)

Q. What was the capacity of that?

A. I don't know.

Q. I believe you mentioned yesterday that the brine which you pumped from these wells was of low alkalinity, is that correct, in January, of 1934?

A. The test was low alkalinity then in the summertime as compared with the brine which we found on our prospect was available at the same time in this area.

Q. That is, the prospect that you made after you came in?

A. I told you I started it after about two weeks after I came in; and the idea was to see if there existed in the lake brine of higher alkalinity or better brine; if so, where it was. That was the object of the prospect.

Q. Are you familiar with the allegations of the second amended complaint? Have you looked at the second amended complaint? A. No. I might have looked at it; but I doubt it.

Q. I show you on page 16 of the second amended complaint an allegation with respect to sodium carbonate content of the subsurface brine after the flooding of 1937. Will you read that portion of it?

A. Where do you want me to start?

Q. Pardon me. Pointing in here to the alkalinity.

THE WITNESS: This is off the record. I am just reading

this.

(Unreported discussion.)

MR. MOORE: Q. May I ask you, in respect to that, if you know what the relative alkalinity in percentage of sodium carbonate was in 1934 from the wells that you --

A. From these wells?

Q. (Continuing) -- the wells that you have indicated on the map? A. 8 per cent alkalinity from these wells would be regarded as a high alkalinity.

Q. That would be the maximum alkalinity from those wells?

A. I said if we got 8, it would be regarded as high alkalinity at that time from these wells, during the summertime when the alkalinity was at its best. In the wintertime, when they got cold, that alkalinity would drop. It might drop down as low as 6, or possibly lower.

Q. And sometimes in the summer months it would go higher than 8 in some of the wells? A. Not much, if any higher. 8, as I said, was regarded as high alkalinity.

Q. With respect -- A. I wouldn't say it might not have gotten up to 8.2, or something like that; but I am giving you the straight dope on the proposition.

Q. With respect to the purity of the understood carbonate ~~bicarbonate~~ of soda, which I believe is the product you obtained from your towers - carbonizing towers, is that correct?

A. No, we obtained bicarbonates from the carbonizing towers, and converted that into carbonate.

Q. What percentage of purity did you obtain?

A. What are you speaking of now?

Q. Of the carbonate. A. Well, we never express it in that form.

Q. How did you express the purity of your product; and of what product did you make those tests?

A. Well, you express the purity of soda ash by the alkalinity.

Q. In terms of Na_2O? A. Yes, that is the way it is done.

Q. And what product did you use to arrive at that?

A. What?

Q. At what stage of your process did you make that test?

A. Well, we made it after it is finished.

Q. In the form of dense or light ash? A. Yes.

Q. Do you know what percentage of purity you obtained in that process? A. Well, in this process we made an ash that was about 57 alkalinity. It might be 57.2, and it might be a little below; but I would say 57 alkalinity. For your information, I might add that ash of high purity would have an alkalinity of 58 per cent; and the impurities of such ash would be very low.

Q. It is sometimes expressed in terms of 99 centigrade - that is, in relation to 58 per cent?

A. The 58 per cent ash would be about a 99 plus per cent sodium carbonate; but the trade does not express it, as a rule, that way. They buy the soda ash on an alkalinity basis. You

can convert the alkalinity into carbonates, if you wish to, and express it in that term; but I would say it would be approximately 99 per cent.

Q. Did you break down those impurities into percentage when you made these tests?

A. We know what the impurities in the ash were. We made an analysis right along in the plant and on the shipments both.

Q. And those records would be available?

A. Yes, we have them.

Q. At the plant? A. Yes. Of course, I can tell you approximately what the impurities were.

Q. Do you mean the type of impurities? A. Yes.

Q. Will you tell us what they were?

A. Well, the main impurities in that ash were silicate, sulphates - sodium sulphates, and borax.

Q. Would there be any potash in that?

A. No. The potash would be so low that we never bothered to hunt for potash.

Q. In connection with the testimony of, I believe, 57.2 per cent for your soda na_2O content, was that the same for both dense and light ash?

A. More or less.

Q. It did vary some? A. There wasn't --. When you melted it, you didn't change the impurities any to speak of, except that there existed some organic matter in the light ash -- inveryminute quantities; and such organic matter

would be destroyed by the high heat in the dense ash furnaces; but sometimes we took light ash and instead of feeding straight bicarbonate into the ash furnaces, we actually fed the light ash and converted it into dense ash. Due to the change in the composition at the time, something omitted that destroyed these impurities, The sulphates, the silicate, and so forth, were not destroyed or removed in the dense ash furnaces.

Q. Did you mention the thickness of the crystal body at each of the wells that you have indicated on the map marked Appendix "A"?

A. I told you here in the testimony.

Q. You mentioned two feet, I believe, for one or two of the wells; but I don't remember whether you indicated the depth of each well.

A. Well, since I have been here, I told you -- I have already stated this this morning, that at 16 and 17, the depth of the salt was approximately three and a half to four feet; but that No. 8 was approximately eighteen inches to two feet.

Q. I believe you stated yesterday that at those points you didn't know the exact depth of the body beneath that crystalline cake?

A. What body do you mean?

Q. I believe you stated there was mud.

A. Yes, my opinion is that it is hundreds of feet, because right here is a well that I told you - I have been through that - that goes down 500 feet in the mud.

Q. That is near the area you have marked with the line and

"P.R."? A. Yes, it is right in here; so I presume that the depth of the mud in Owens Lake is very great; and I don't know of anyone who has determined the depth of it.

Q. Did your wells ever pump any mud?

A. No.

Q. Did you use a filter of some sort to keep it out?

A. No. I told you yesterday that these two wells had a casing; and they went down below, and the brine flowed into the bottom in those wells.

Q. Will you explain, if there is mud below the crystalline cake, whether there is any strata in which there is pure brine as distinguished from mud?

A. No, sir, not that I know of anywhere in the lake.

Q. So that the wells drew from this lake of mud - the brine flowed in without the mud following it?

A. It didn't draw from the layer of mud. It drew from the salt body.

Q. Above it? A. Lying above, yes.

Q. Lying above? A. Yes.

Q. Then your No. 8 was less than 2 feet in depth above the surface? A. Yes, and it had ditches dug out from it so that the brine would seep into those ditches and run into the well.

Q. Is that true of 16 and 17 also?

A. Not when I went there; but later on, this same spring, as I remember, I dug a long ditch out from 17 here, because

there is a strong tendency, as I testified yesterday, for these wells to deteriorate in the amount and quantity of brine that would flow into them during cold weather; and the reason for that drop in the quantity of brine available was due to the fact that when cold weather comes along, part of your sodium carbonate content is crystallized out of the brine as deka-hydrate of soda or sal soda, thereby taking out part of the alkalinity of the brine; and since dekahydrate carries ten waters of crystallization with it, it takes out a great deal of the water constituent of the brine, so it not only reduces the alkalinity, but also the quantity of the brine available; and by digging ditches out here, we helped increase that --

Q. Quantity of brine?

A. Quantity of the brine of lower alkalinity. Now, I was not satisfied with the situation as I found it out there; so that is the reason why one of the first things that I did was to ask Mr. Pedder's permission, as I have stated before, to see whether there was in Owens Lake a better supply of brine ~~during the~~ existing -- during cold weather.

Q. Now, when you went in January of 1934, in what months of the year were they pumping?

A. How is that?

Q. In what months of the year were they pumping?

A. Oh, pumping all the -- every month of the year.

Q. Including the summer months? A. Oh, yes. Pumped brine from here right to this plant, every month of the

year; practically every month of the year.

MR. PEDDER: May I say something off the record?

MR. MOORE: Yes.

(Unreported discussion.)

MR. MOORE: Q. Did you in January, 1934, or shortly thereafter, notice any springs or artesian wells in and about the well locations that you have indicated on the map?

A. No, I don't -- if there any springs coming out from the bottom of the lake, why, I don't know of them; and they don't show on the surface. If they exist in the lake, they are in the main portion of the body of the lake.

Q. And the artesian wells --

A. There are wells located - I should say it is in this section 18. That is the one I have referred to here (indicating on map).

Q. That is, in Township 17 South, Range 38 East?

A. Yes, right here.

Q. Is that the well you referred to as going down 500 feet?

A. That is what I have been told. I only know that by hearsay, as to the depth of it. It just runs all the time.

Q. That is the only one that you know of?

A. Why, if you are interested in it, I know approximately where it is.

Q. Do you know what capacity it has in second feet?

A. No, I don't. It just runs out onto the surface, and runs out into the lake. It would be about like this. I never

made any use of it.

Q. Now, you made an investigation in 1934 of these conditions of brine by putting down 22 test wells.

A. Yes.

Q. Did you not? A. Yes.

Q. Will you state what you did in that connection?

A. Well, we started from the farthest point we had out here--

Q. That is, at No. 17? A. At No. 17, yes; and we ran along a straight line in a south --

Q. Westerly direction? A. Westerly direction out to --

Q. Will you show that running by the green pencil, please?

A. Yes. Now, the reason we started to run the prospect out in this direction was that the contour map indicated that this was the lowest point in Owens Lake where there was any salt deposited therein; and, therefore, that the depth of the salt body should be greater at that point. So we headed directly for the center of that locality. Also the old soda ash plant located in the south end of the lake had some wells in this locality, too.

Q. Will you mark those wells by red pencil, please?

A. All right. I will mark it approximately.

(Witness does as requested.)

Q. Do you know the name of the plant?

A. This is the Inyo Chemical Company.

Q. Will you mark those wells by an "I. C." in red pencil, the four of them together; and will you mark in green the

prospect line "PR. L."?

(Witness does as requested.)

A. Well, after, in reaching this point, we turned this prospect line; and now I can only give it to you approximately.

Q. That will be all right.

A. Because --

Q. This is only approximate, anyway.

A. Then we turned --

Q. Due north? A. That line due north; and at some points in here, - now, I can't remember whether it is in this section or this section - but I will indicate from the line some laterals more or less like that. Now, we put a hole down starting from No. 17 every 3,000 feet -- a hole approximately three or four feet square, and dug clear down to the bottom of the lake; and we had to --

Q. When you say to the bottom, do you mean to the sand?

A. To the mud.

Q. To the mud? A. Yes, through the salt body; and we had --

Q. Do you want to draw one of those in blue, just to indicate it?

(Witness does as requested.)

A. Those are located 3,000 feet apart.

Q. Will you mark that "T. W."? A. What?

Q. Those test wells, mark them "T. W." A. Well, that is only two of them.

Q. Yes.

(Witness does as requested.)

THE WITNESS: They were all the way out to here.

MR. MOORE: Q. Well, I understand, but how far was it out to the farthest point on your southwesterly lateral, or the --

A. I would say it is about 40,000 feet.

Q. 40,000 feet? A. That is approximate.

Q. How far -- A. And you can check up my figures, if you want, by seeing how far this section goes; but, as I remember it, it is close to 40,000 feet.

Q. How far in a northerly direction?

A. I told you without having a map here, I can't remember just where we stopped it; but in a general way, this is -- of course, I have got records of all this, and we have got a record of every hole we put down, as far as that is concerned, and how much flow there was, and found out what the alkalinity there was, and what date it was put down. Naturally, I have that; but I can't remember it. I don't have it with me, because I didn't expect you were going to ask me about it.

Q. Altogether you put down 22? A. Yes.

Q. Along those two lines? A. Yes. We started in around the 1st of February, and we quit around the 1st of April, as I remember it, or sometime in March; but we put them down as fast as we could -- as fast as it was possible to do with the equipment that we had.

Q. After you made these tests, what did you do with respect

to putting down new wells for pumping purposes?

A. Well, of course, we found that when the brine was maybe five or six or seven down here, it was as high --

MR. FERGUSON: Wait a minute. When you say "down here," you mean in wells 16 or 17?

A. 16 or 17. The quantity of flow had receded -- we found out that in this vicinity -- that is, at the end of this southwestern line, that the alkalinities were up around 10, and as high as 11 to 12; and that the flow of brine was much greater. In other words, it was a superior type of brine existing out there during the cold weather.

MR. MOORE: Q. And again when you use the term "10 or 11 or 12 per cent," that is in relation to the na_2O or sodium carbonate? A. We always speak of alkalinity as na_2O. Now, I might tell you that is not exactly the percentage. It is expressed in grams per deciliter. So unless otherwise specified, when we speak of the alkalinity of liquids, we are expressing that alkalinity in terms of grams per deciliter; and you can obtain the actual per cent by weight from that by dividing by the specific gravity of the brine, which is 1.33.

Q. Was that increase in the alkalinity also true in your northerly prospect line? Did you find that same condition to exist?

A. Well, as we ran out this way, we naturally -- naturally, it got shallower.

Q. As you got further north? A. Yes; as I

told you, this is the deepest, see; so it started getting shallower again; and, as a general rule, the alkalinity started to drop. However, by the time we got through, the weather started to get warm.

Q. That would be in about what month?

A. I told you about around the 1st of April; somewhere around there is when we stopped. Now, I would have to give the approximate figure, because I haven't got my data; but as the lake gets warmer, the alkalinity goes up again; and all the time, even in here in 16 and 17, by that time probably that would be going up here, because as it warms up the dekahydrate which was thrown out goes back into solution again, and adds to the quantity of available brine in the salt body. The one thing that -- I might stop and explain here that this dekahydrate sodium carbonate carries waters of crystallization, and it melts with its own water of crystallization at about 93 degrees; so if it were just there by itself, and there wasn't any other brine at the time, it would turn into a liquid whenever it reached such a temperature; and it would turn into a solid ~~when you~~ -- at lower temperatures; so it stays in this salt body as a liquid or solid, depending upon the temperature.

Q. Will you mark the northerly prospect line as "PR. L." in the same way as the other?

A. It is all one prospect line.

Q. (Continuing) -- with this green pencil.

A. Where do you want that marked?

Q. Anywhere along the northerly prospect line. Mark it "PR. L. 2."

(Witness does as requested.)

Q. All right. Thank you. Now, subsequent to the making

168 of these test holes or wells, what wells did you put in, and at what times? A. Subsequent to this?

Q. Yes. A. You mean after we made that --

Q. As I understand you, those were purely test holes?

A. Yes.

Q. Did you ever put any wells in at any time afterwards along that same location? A. Yes, we did.

Q. When were those put in? A. They were put in in the spring, in about January or February, 1935.

Q. And how many of those were put in? A. Two.

Q. Will you indicate on the map with this orange pencil the location of those two?

(Witness does as requested.)

Q. Will you draw a line and mark those "1935 Wells"?

(Witness does as requested.)

Q. And that is shown at approximately the lowest point - near the lowest point of your southwesterly prospect line?

A. Well, that isn't clear.

MR. FERGUSON: You mean the most southerly point?

MR. MOORE: I mean the southerly point of your southwesterly prospect line.

A. It is located near there. The most southerly hole was

about there as I have indicated, approximately.

Q. Well, I believe my statement was that it was near the most southerly --

A. You said at the lowest. I didn't know what you meant by "the lowest." I presume what you did mean was at the point at which the old lake bottom was -- had its lowest point. The surface, however, of the lake from here to here is almost level; but the body underneath slopes from -- (witness indicating)

Q. That is, from well 17 to your 1935 well, the surface of it is almost level?

A. The top, yes.

Q. Which of it is on a slant?

A. The mud bottom.

Q. The mud bottom? A. Yes, that is true.

Q. Now, these two wells that you have just drawn as the 1935 wells were operated under the old process, were they?

A. Yes, they were started up about the 1st of April -- I think about the 2nd or 3rd of April - at least, one of them - if not both of them - in 1935; and just a few days -- within two or three days after that was the first time the city turned the water into the lake and ran it for a period of a week or ten days.

Q. And did it flood those two wells?

A. No, sir, it didn't; but it flooded these wells, and it washed out --

Q. When you refer to "these," you mean 16 and 17?

A. Yes; and if we had not had these wells in service, then we would have had to shut down; but luckily we just started these up, so it did not interfere with the operation of the old plant, because it did not reach up here; but it flooded in here; and we had started to construct a road out here --

Q. Do you mean along the southwesterly --

A. Yes.

Q. (Continuing) -- prospect line?

A. Yes. We spent some time in putting a road up there, which was made by piling up of salt. When this flooding came on here, of course, it reached up into here, and very rapidly dissolved away that road, so we gave up all idea of trying to put a road across the lake in that place again with salt.

Q. Did the pipe line from the 1935 wells follow generally the southwesterly prospect line?

A. Yes, generally it follows right along this line. We went down the shortest distance here. As a matter of fact, I started to follow out to here, and then later after I got out this far, then I changed my mind and swung it down this way a little bit.

Q. A little more southerly of the prospect line?

A. Yes, because we didn't have any exact survey of this. That is, we hadn't gone over it with an instrument; but we knew approximately where we were; and I was trying to center this here in the center of the low area here in the deepest part of the lake.

Q. Did the pipe line from the 1935 wells connect up with the pipe line already in existence at well 17?

A. Yes, and these wells were still hooked on the line and pumping.

Q. On 16 and 17? A. Yes.

Q. Did you use any heaters in the old process there in connection with these wells? A. Not that spring.

Q. Not the spring of 1935? A. No.

Q. But at any time -- A. It was not necessary to use heaters at that time.

Q. Well, did you have heaters there for use at that time?

A. Not when we first constructed the wells. We simply put the wells down there. It was in the spring of the year, and there was no reason to. It wasn't cold enough to require any heaters.

Q. But prior to the adoption of the new process, did you use heaters at any time in those new wells?

A. I will have to find out to be sure whether we put the heaters in before we shut down the old plant or afterwards. I don't remember that. I will have to search around and see if I can find the date. I have some records here. Two brine heaters were installed on No. 1 and 2 lake wells; and a third pump was also installed during the fall of 1935.

Q. You say a third pump. At what location was the third ~~6013~~ pump located? A. No. 3 pump was one from old No. ~~17~~ 16 well, and after remodeling the pump, adding additional stages to it,

it was installed near No. 1 and 2 wells as a part of the regular lake pumping system.

Q. Let me see. Does this indicate another well?

A. No. 3, I just told you we put the pump here, and added two more stages to it, and installed it here as the No. 3.

Q. That was during what time?

A. You have that in the record there. That same fall, why, we insulated this pipe line.

Q. Will you indicate the two orange wells by putting in the numbers "1" and "2," please; and the other one by "No. 3," the one in green?

(Witness does as requested.)

Q. Thank you. These are all of the wells that you installed prior to the adoption of the new process - the three that you have just indicated? A. We had two more, but I will have to check up and see just when they were --. I am trying to find out when the old plant --. Have you got a record there of when the old plant was shut down? Has that been given to you?

(Unreported discussion.)

THE WITNESS: Then you know now whether we had brine heaters before we shut down the old plant. You asked that a little while ago.

(Unreported discussion.)

THE WITNESS: Well, then, I would say during the winter of-- part of the winter of 1936, in January and February, and so

forth, we operated the brine heaters to heat the brine, and brought it into the old plant.

Q. In 1936? A. That would be my opinion.

Q. Wouldn't you say that with relation to April of 1936, you put in the two other wells you referred to? You have indicated there wells No. 1, 2 and 3. Now, I understood you to say that you also installed two more wells before you finished your operations under the old plant. Is that correct?

A. No, I didn't say that. I said we have installed two additional wells to supply the new plant; but I didn't know when they were installed.

174 Q. Oh, well, I misunderstood you.

A. We had plenty already to supply the old plant.

(Unreported discussion.)

Q. Do you rate these wells by capacity of the pumping of the brine? A. No, they all have the same capacity.

Q. What is that? A. Well, the wells there -- all the lake wells located here and known as 1, 2, 3, 4 and 5 are Layne Bowler 8 stage deep well type pumps, driven with 25 horsepower General Electric motors, with automatic starters, which take care of starting the pumps and shutting them off in case the power goes off. They are also equipped with one gallon automatic oiling devices, which shut the oil off when the power goes off, and turns the oil on when the powers goes on. The capacity of such a pump varies, as it does with all similar pumps, with the pressure against which it is operating;

and that is generally by what is known as the characteristic curve of the pump. In this case, we not only have the characteristic curve furnished by the manufacturer, but after these 1 and 2 wells were put in, we asked the manufacturer to come out to our plant and bring a man with him, because we wanted him with us to make an actual characteristic curve of these pumps pumping through the line from the lake to the plant, which was done, by having a receiving tank placed here, and checking the pump as against various pressures out of the lake; and it was found that the pumping capacity was somewhat greater than the manufacturer's guarantee. I tell you that so that if you want to get in touch with the manufacturer, why, you can do that. He can give you all that.

Q. The wells 4 and 5 that you referred to, you have not indicated on the map, is that correct?

A. Yes. I am telling you all the pumps are the same.

Q. Do you have any records there which would show the gallons per minute that they pumped under various combinations, or do you have such records?

A. Yes. This is something that you will have to get a little later when you get to the new plant, as to how much our pumping capacity is. However, I have a -- this is taken from ~~upon~~ the characteristic curve, and expresses it in gauge pressure of pounds per square inch, and the gallons per minute of brine pumped with those pumps. And so with two pumps operating -- I haven't it indicated here -- but I will say that the capacity

is at least 500 gallons; 250 gallons apiece out of them.

Q. I will look at that for a minute, please. Off the record.

(Unreported discussion.)

A. Here is one copy of the characteristic curve of those pumps.

MR. FERGUSON: Off the record.

(Unreported discussion.)

MR. MOORE: Q. What was the normal operating capacity of the old plant with the wells 1, 2 and 3, as well as the wells 16, 17 and 8? A. About 90 tons a day. You mentioned 16. We took the pump out of 16 and put it on 3, and used it there; and that was no longer pumped; but we did maintain this No. 17 for some time to come - until after we shut down the old plant.

Q. And this amount of 90 tons a day was subject to the demands of the market? A. Yes.

Q. And other factors of that type? A. Yes.

Q. Were the changes in the wells and pipe lines or additions that you have indicated on the map the only ones that were made prior to the introduction of the new process and the building of the new plant?

A. Well, I can't answer that as you probably would like to have me, because the development of the new process and the building of the eventual final plant covered a period of two or three years. As a matter of fact, you might say that at least part of it dates from all of ~~1936~~ 1935 after we completed this

line and we ran some of this brine in the fall, during October and November, into the same old vats that were down west of the plant, and made some 12,000 or 15,000 tons of dekahydrate, to a depth of some two or three feet there, as a demonstration of our actual ability to make dekahydrate crystals from the lake brine, as a demonstration to the people who had put up money for such a thing, having to be convinced that you could do what you think you could do; so it really dates from that time on. But if you want me to stop here and go into the development of the new process, we can do it; but it is going to cover the proposition of having to do the work on a laboratory scale, and then on a test scale, and then on more or less of a small pilot scale, demonstrating the adaptability of the equipment, the capacity of the equipment; and then on the 50 ton scale, and then finally increasing it, after we were absolutely certain of everything, to a 100 ton scale. Now, that took time; and I can't just answer your question right offhand on it, see; because, I say, with these three pumps still in operation in the fall of ~~1936~~ 1935, we actually started the demonstration of the fundamental principle of making dekahydrate in vats to supply that new process.

Q. Well, I don't think you understood my question. My question was whether prior to the commencement of these various activities you have just mentioned, did you make any other changes in your pipe lines and wells than those that you have already indicated on the map? As I understand, you used the

same wells and pipe lines that you have indicated on the map, and started your demonstration of the dekahydrate process.

A. Yes, in the fall of ~~1936~~ 1935.

Q. Prior to the fall of 1936, did you make any other additions to or changes in your pipe line and wells other than those indicated on the map?

A. Well, I mentioned one thing, and I think you will find it in the record, but I doubt if you heard it; and that was that we insulated this line.

Q. Well, I didn't hear that. A. No.

Q. When was that? A. This gentleman has it in the record.

Q. Would you mind repeating for me when you insulated the pipe line, and what portions of it you insulated?

A. Well, I had better check on some of this. The pipe line was insulated in the fall of 1935.

Q. Was that entire portion used, that was insulated?

A. The insulation of the pipe line was completed December 28th, 1935; and the part insulated was approximately -- I will say 45,000 feet, and included all of the pipe line from the old No. 17 well out to No. 1 well; and a portion of the pipe line between No. 17 well and No. 8 well. Now, one thing you have neglected to ask me is the size of this pipe line out here.

Q. Well, we are interested in that. Will you give that to us? A. Yes. It ~~is 8 or~~ 10 inch -- I think it is 10-5/8 inches inside diameter. I don't remember the specifica-

tions exactly; but about 10-1/2 inch inside diameter.

Q. What form of insulation was used in 1935?

A. ~~Rudgeod~~ Redwood special -- it is made by the Plant Rubber & Asbestos Company. It is magnesia~~,~~ oxide, ~~and~~ a cement pipe covering.

Q. When were the wells No. 4 and 5 put in?

A. Well, as near as I can recollect, the two additional wells were put in during 1936; the summer and fall of 1936; and they were ready for operation late in the fall of 1936.

Q. Would you mark -- A. And the additional heaters were put in.

Q. Would you indicate those with this purple pencil on the map?

(Witness does as requested.)

THE WITNESS: A. Now, No. --. This continued when you flooded us here the last time.

MR. MOORE: Q. You refer to what period?

A. Well, I don't know. Take this off the record.

(Unreported discussion.)

Q. After you put in wells 4 and 5, were there any wells put in prior to February of 1937? A. Wells?

Q. Wells. Are these all of the wells?

A. That is all of the wells there were; but there was an additional pump.

Q. When was that put in? A. That was put in the same fall of 1936.

Q. At the location of wells 4 and 5?

A. No, sir. Near the location of old No. 8.

Q. Is that what you referred to before as the booster pump?

A. Yes. Do you want the details of that?

Q. No, I don't think so. Off the record.

(Unreported discussion.)

Q. State as generally as possible the development of the new process which was in use in 1937, at the time of the flooding.

A. All right. As previously explained, the old process, we started with the brine containing sodium carbonate. We went to the expense of burning limestone and producing carbon dioxide gas in order to have this gas available for conversion of the carbonate into bicarbonate; and subsequently spending additional money either in dense ash furnaces or in light ash furnaces, in driving off this CO_2 that we had just finished putting in; so even a layman would think of the idea that if you could avoid a step that was apparently so useless as that, and produce the carbonate directly from the brine without the necessity of dealing with carbon dioxide gas, you would be making a step forward, and probably would be lowering the cost of production; and that is the thought that occurred to us, and led us to seek ways and means of accomplishing such a result. So I would say that along about the middle part of 1934, we started to experiment along the lines above mentioned; and we early discovered that if you took lake brine, particularly lake brine of good alka-

linity, and cooled it, a crystallization of dekahydrate took place. As a matter of fact, this crystallization of dekahydrate is something that had been observed taking place in the wells that we put down; and, as I have indicated heretofore in this record, it takes place in the whole lake body during the winter-time. It is a well known and common practice to purify any particular salt by crystallization. In other words, when you cause crystallization of a particular compound to take place out of the solution it tends to exclude impurities. That holds true not only of sodium carbonate, but nearly everything. So it appeared that not only could you make an improvement as far as cost was concerned; but when you caused this crystallization to take place, you would be eliminating most of the impurity in the mother liquor obtained from that crystallization. Then the problem was to take the dekahydrate so obtained and convert it into soda ash having the desired chemical and physical characteristics. So all of these things which I have mentioned were investigated, you might say, on a beaker scale in the laboratory with encouraging results.

Q. All right. What was your next step?

A. As I have stated before, we had observed dekahydrate forming out in the lake. As a matter of fact, when we dug these prospecting wells, we discovered in places very large dekahydrate ~~deposits~~ crystals existing in the salt body that had crystallized through the salt body. The next step then was to build a small test plant.

Q. When was that commenced?

A. I think it was commenced in the fall of 1934; because at Christmas time, during quite a cold spell we had there, we pumped quite a good deal of brine into wooden tanks that we had in this test plant, and allowed it to cool there to make dekahydrate crystals in considerable quantities. I mean hundreds of pounds of it. And we took this dekahydrate crystal, and we had made certain apparatus for processing it over into ~~soda~~ soda ash; and we tried it out on a small scale there, and all of which continued to look encouraging.

Q. How long did you operate your test plant?

A. Well, I don't remember. Off and on we did work there. Maybe for a period of two or three or four months, or so. And then later we went in there, and one of the pieces of machinery which we built was such that we could build a unit of commercial size to try it out; and we made demonstrations of that sort from time to time; and it actually stayed there for a couple of years before it was finally torn down to make way for a new plant.

Q. Well, this demonstration plant then went from, say, the fall of '34 to the fall of '36 before you actually started the construction of the commercial plant?

A. No, I didn't say that.

Q. You said approximately two years?

A. I say it stood there around that time. As I stated before, the results obtained there were still encouraging; so it

was determined to try that out on a still larger scale; and we had an old plant standing there. It wasn't, anyway, connected with the old soda ash plant; but it did have some equipment in it. One of the things it had in it was a rotary drier and a couple of steam boilers, and a pretty good sized building. The first step necessary in the process was to find some practical means of taking this solid dekahydrate and heating it up to a point where it would melt in its ~~waters of crystals;~~ water of crystallization and that required heating -- it required a supply of heat. So we carried on some experiments in this rotary drier that existed in this plant, the old plant; ~~the building of a place for it, and~~ equipping the interior with suitable arrangements ~~such as~~ for handling ~~it;~~ dekahydrate ~~and~~ In the meantime we -- as I told you before, we had previously made quite a tonnage of crystal dekahydrate in what we called vat No. 12 west of the plant; so using some of that, we carried on experiments on that phase of the process of melting this dekahydrate in a rotary furnace.

Q. That was located in the old plant you referred to?

A. Yes. And we installed other equipment in that plant, including a precipitator for precipitating a monohydrate and a centrifugal for separating the crystals.

Q. When you say "separate the crystals," you mean from both -- A. The monohydrates. At this point, the process developed in two ways: One possible way of operating was to take this melted dekahydrate solution at a temperature of around 80 or 90 degrees and to add sodium chloride in the

proper piece of equipment called the precipitator, which causes the precipitation of sodium monohydrate. Instead of having ten waters of ~~crystals~~ crystallization, it only has one water of ~~crystal~~ crystallization; thereby eliminating nine waters of ~~crystals~~ crystallization, and getting monohydrate in definite crystal form. Then, with this monohydrate obtained -- separated from its mother liquor, was centrifuged and put through a rotary calciner at relatively low temperature to drive off this one water of crystals.

Q. What happened to the mother liquor?

A. The mother liquor in that case was thrown back in the lake.

Q. Now, you got it down to one water driven off. Now, what is -- A. When you drive off that one water crystals in the calcining, you have soda ash.

Q. Is that in the light or dense form?

A. That is in the dense form. That is another advantage, of course.

Q. You did not make any light ash under the new process, then? A. No, not what would be generally known as light ash.

Q. Now, you said that was the second thing that happened.

A. I said that was one alternative. Now, the other alternative of converting this melted dekahydrate into monohydrate is to cause the evaporation of a certain portion of the water to take place; and that can be done in this so-called rotary brine heater by simply slowing up the flow and applying more heat,

which comes to the salt as liquid. eak Corr

Q. NaCl that you referred to? A. Yes, because the discharge coming from the rotary is the mother liquor containing monohydrate crystals, which can then be separated and calcined the same as the previous mono crystals, and a soda ash of the dense variety produced.

Q. You used the word centrifuged in the separation of the crystals from the mother liquor.

A. Yes. Now, in case you are operating this second method, then the mother liquor is turned back. Instead of being thrown away, is turned back to the brine heater; and if we have a good grade of dekahydrate to begin with, the only mother liquor that is lost is that portion which is discharged from the centrifugal, and which is relatively a small part; and that is sufficient to carry away any impurities occurring in the dekahydrate. On the other hand, if the dekahydrate happens to be too high in sulphates, then it is necessary to discard a part of this mother liquor without returning it to the brine heaters; and which means, of course, that you would use more tons of deka to produce one ton of ash than you would if this sulphate content is at a desirable point.

Q. How long did you use this old plant in this manner?

A. Well, as a matter of fact, I say we started out here as I described it to you; and then we decided that we would try it out on a continuous 50 ton a day scale.

Q. The same old plant?

A. Well, with certain additions.

Q. Now, when were those additions started?

A. Well, I will have to check up on that. What we decided to do was -- in the first place, to shut down the old carbonating plant as a means of demonstrating this new process to the satisfaction of everybody, and that we would put in this new plant what machinery was necessary at that point; and then we would utilize in the shut-down old plant what machinery was available over there that could be used in this 50 ton demon-
191 stration, which machinery was the light ash furnace, which could be used as a calciner and the screen that was installed there for screening the ash after it had been produced, and the bagging equipment and shipping equipment, and so forth, which was there; the plan being to produce the crystals in this new plant up to the point where they were in the form of monohydrates.

Q. Now, again I ask you whether in this 50 ton plant that you are talking about now you used the first or second process? The first one you had --

A. Well, we used --

Q. With the addition of the old --

A. We used the first process, but we still carried the other -- we carried on the other second procedure to demonstrate its feasibility on a big scale as well ~~as~~ - most of the production, however, was made with the use of salt. Now, I started to tell you -- I want to get this clear before you ask me a question: We carried on this new operation in this new

plant up to the point where it was monohydrate crystals. Then we put the monohydrate crystals in tram cars and trammed them over to the old plant, where we calcined them and shipped the material from there.

Q. You have used the words "old plant," I think, in two different connections.

A. Yes.

MR. MOORE: Let us take this off the record.

(Unreported discussion.)

MR. MOORE: Let the record show that in red pencil the witness has indicated to the north of the old process plant marked with the letter "P", another old building, which he has referred to also as an old plant, and which he will mark --

A. And that is part of the new plant now.

Q. Which you have marked -- will you mark it with an "N. P.," the new plant?

(Witness does as requested.)

Q. Will you check your records and see how long you operated on this 50 tons a day?

A. I don't know as I have got it marked here as to how long we operated that.

(Unreported discussion.)

Q. What is the temperature of the salt precipitator?

A. Between 80 and 90 degrees centigrade.

Q. Do you have a record somewhere as to the length of time?

A. I don't think I have.

Q. Of the 50 ton operation?

A. I will see what I have got with me down there. I don't remember of that. If you gave me a list of all these questions that you wanted a week or two ago, then I could have dug all these answers up for you; but to expect me to have them right at my fingertips, all the answers, it is impossible. I haven't got it.

(Unreported discussion.)

MR. MOORE: Q. Please give the date of the commencement of the work of installing the monohydrate pilot plant?

A. Starting ~~the next~~ with changes in the old carbonating plant, and utilizing the old light ash burners ~~and the heavy~~ as rotary calciners, the old screen plant located in the old carbonating plant --

Q. That was done in February, of 1937?

A. No, wait a minute. And the loading bin and minor equipment located in the mono-pilot plant. Work on this construction was started February 28th, 1936; and was ready for operation in June, 1936. Does that make it clear?

Q. I think that gives it a little bit better. There was some work on the mono-pilot plant prior to February, 1936?

A. Yes, I have described all that to you already. It is awfully hard for you to follow this.

Q. Naturally, it would be, because I am not familiar with the plants.

A. Take this off the record.

(Unreported discussion. Record read by reporter.)

MR. MOORE: Q. What work was done with respect to the new process starting in June, 1936?

A. Well, we operated about three months - part of June, July, August and part of September, at the rate of approximately 50 tons per day, using ~~that~~ oak concentrated brine as a feed to oak the brine heater in the mono test plant, or pilot plant -- mono-pilot plant. This brine heater, however, that has just been mentioned is not the same rotary drier previously mentioned; but is a new rotary brine heater installed just outside of the pilot plant building.

Q. And when was that installed?

A. And the purpose --

Q. Pardon me? A. For the purpose of heating brine.

Q. When was that installed? A. Well, I believe it was installed as a part of that February 28th program, when we were fixing this whole thing up. That is my recollection.

MR. MOORE: Shall we leave off at this time, and come back at 2 o'clock?

MR. FERGUSON: All right.

(Thereupon an adjournment was taken until 2 o'clock P. M., Tuesday, October 3rd, 1939, and by consent of counsel to be resumed at the same place.)

Room 514 Financial Center Building, San Francisco, Calif., Tuesday, October 3rd, 1939, 2:00 P. M.

(Pursuant to the foregoing adjournment, depositions in the above-entitled cause were resumed, there being the same appearances as heretofore indicated.)

G. A. KEEP,

recalled, having been previously sworn, testified as follows:

EXAMINATION BY MR. MOORE (Resumed)

MR. MOORE: Q. Mr. Keep, when did you start the production of soda ash under the new process on the 100 tons a day basis?

MR. FERGUSON: Well, I think --

A. The new mono plant designed for production of 100 tons a day was started about the middle of January, 1938. That is, the wheels were first turned over in it.

MR. MOORE: Q. So that except for such interruptions as might take place because of flooding or anything of that sort, you ran your 50 ton plant up until January, of 1938?

A. We ran it at times.

Q. That is what I said: Subject to interruptions --

A. Not all the time.

Q. (Continuing) -- for various causes? A. Yes.

Q. Upon what do you base your estimate of the capacity of the plant - or perhaps I had better say: On what facts do you base your statement that it has a 100 tons per day capacity?

A. Well, in the 50 ton plant we had set up commercial apparatus for each step in the process, and had determined the capacity of such equipment. For instance, if we take the brine heaters, we had operated with one six foot brine heater, and we knew that we were able to put through a certain tonnage. As a matter of fact, when we designed the 100 ton plant, I was asked to provide sufficient brine heater capacity for ~~a 100 ton and 25~~ 125 tons capacity, which was the basis for the design of that part of the plant. So we installed two new brine heaters; ~~the heaters being a six foot heater in diameter, and two~~ which were nine feet in diameter. When we operated the new mono plant using dekahydrate crystals to feed it, we only operated two of these three brine heaters; the original six foot diameter one, and one nine foot diameter; and under those conditions, we put through and produced 75 tons a day of ash without using the additional nine foot one. It was not desirable for us to start that one up. As a matter of fact, I was only asked to produce 50 tons a day; but we wanted to find out what the plant was capable of; and on that basis, why, it appeared that we had ample capacity there for 125 tons a day. We put in an additional centrifugal, knowing from previous experience what the capacity of the first one was. We could put through 100 tons a day on those two without any difficulty. I think we could have averaged better than 100 tons a day.

Q. Do I understand that you are referring to a process whereby you added the sodium chloride?

A. No, no, we did not use sodium chloride.

Q. On the 100 ton basis?

A. We are using, you might say, the evaporative process where we use no sodium chloride.

Q. Since January of 1938, that was true - that you used no sodium chloride? A. No, we didn't. The brine heating capacity of that other process would be very much higher than 125 tons a day; we decided to operate on the evaporative type rather than the salt type that I described this morning to you.

Q. These brine heaters were at the wells themselves?

A. Oh, no, they are right in the plant.

Q. Right in the plant. But you do have heaters also in connection with the wells?

A. Well, that is a different sort of a thing.

Q. That is a different thing?

A. That is not in connection with the process at all. The brine heaters that I described at the wells is simply in the cold weather to raise the temperature a couple of degrees so that crystallization does not take place in the pipe line. It does not have anything to do with the operation of the plant.

Q. Do you know how much tonnage you produced during this time that you operated the plant on the so-called 50 ton basis?

A. No, I don't know.

MR. FERGUSON: Would Mr. Eckland have those figures?

A. Yes, he should have the production. We would not have it.

I can just give you a rough guess at it; but he would have the figures, because he would know them. I can't remember that.

MR. MOORE: Q. That same thing would be true with respect to the number of tons capacity under your 100 tons a day --

A. Yes.

Q. (Continuing) -- capacity since January, of 1938?

A. Yes.

Q. Has the plaintiff at any time during the period subsequent to January, 1938, operated at the full capacity of the plant? A. You mean up to 100 tons?

Q. Yes. A. No. The maximum production was two brine heaters, 75 tons. You must remember that the reason we did not try to put the plant up to 100 tons capacity was that the previous fall you had flooded the lake and stopped our production of dekahydrate so there was no object in us pushing the plant up to 100 tons a day, other than to just demonstrate that the plant could make 100 tons a day; and some of our executives were present, and asked that we push it up to 75 just to feel sure that we had the capacity there. Some other influences in regard to that might have come into it, because they were furnishing customers here -- had been furnishing customers with ash which had been ~~produced~~ purchased; and all the arrangements had been made with regard to furnishing customers; so we had one brine heater there that was fully installed and ready to operate that we never turned over at all.

MR. GOODCELL: Will you read that last answer, Mr. Reporter?

(Answer read by reporter.)

THE WITNESS: In other words, before we started the 100 ton plant, we knew that we only had enough dekahydrate to operate the plant, we will say, for approximately three months at about 50 tons a day.

MR. MOORE: Q. There was a flooding of the properties of the plaintiff corporation in February, 1937, was there not?

A. Yes; and there had been previous floodings, too.

Q. Well, I will get to those in a few minutes; but with respect to the flooding in February, of 1937, will you state generally what the effect of that flooding was with respect to the operations of the plaintiff?

A. The Owens River was diverted onto the lake around about February 4th, 1937, and continued to flow onto the lake in a large volume until about the middle of March. The river was again diverted onto the lake about April 14th, 1937; and continued to flow until about the middle of May. Also Cottonwood Creek was diverted into the lake in the early spring, and continued to flow into the lake in a large volume until about June 1st, 1937. This brought the water up on the surface of the lake.

MR. GOODCELL: Pardon me.

(Private discussion between Mr. Goodcell and Mr. Moore.)

THE WITNESS: (Continuing) -- to a level that had not heretofore been reached, or one that we had never contemplated would be reached.

MR. MOORE: Q. Do you know as of June 1st, 1937, what that level was? Do your records show?

A. I haven't any particular --. We never did have a level -- a record referring to the bench marks there.

Q. Can you approximate the rise in feet?

A. I can tell you that it was around our wells along the pipe line to about a depth of three feet.

Q. Which wells do you refer to, with reference to the map?

A. I mean these wells out here. (Witness indicating on map.) Somewhere around two and a half to three feet. These wells were all surrounded.

Q. 1, 2, 3, 4 and 5? A. Yes; and the pipe line was broken.

Q. Which portion of the pipe line? A. I will describe it to you in a minute. The pipe line was broken, and considerable portions of it were floated away out of position.

Q. Is that the portion adjacent to well 17?

A. Yes, this portion in here (indicating on Appendix "A"). There was two lengths, as I remember it, of 2400 feet each that were floated away off of position here. All of the line was -- all the way out to the pumps was undermined; and, of course, the insulation that covered that was ruined. We have a roadway extending out here, which was washed away; and all the road in between the pumps was washed out; and a number of the power line poles were damaged.

Q. Now, the roadway that you refer to was around the wells

1, 2, 3, 4 and 5? A. Yes; and there is a connecting road to all of those wells; and there is a road that runs out this way, and connects in the line that was not flooded; and then we have a road that comes around that way.

Q. You have indicated this road by going in a southeasterly direction from about well 2?

A. Yes.

Q. Out to the corner of Section 3? A. Yes.

Q. Southeast corner of Section 3; and then it swings around, so to speak, around the edge of the lake?

A. Up to this point.

Q. Up to the point you have marked "P.L.", approximately?

A. Well, this way here; and then follows this line up. I will draw that on there, if you want.

Q. All right. A. This is only approximate, you understand.

Q. Yes, surely. A. This road comes out here, and goes out here to the booster pump.

Q. The booster pump on the position marked No. 8?

A. Yes.

MR. MOORE: He is writing in pencil the words "booster pump." A. Now, I am just drawing this roughly to give you an idea. It might be on another section.

Q. Surely. A. Of course, we have a map where it is located more accurately than that; but that is very close. And then the road runs out here, and out here, and out here (wit-

ness indicating).

Q. To the various wells? A. To all the various wells, yes.

Q. Now, the power lines that you refer to started at what point? A. They --. We have a transformer station located here; centered there.

Q. Between wells 2 and 5? A. Right at well No. 2; right close to well No. 2; right in the center. The power line followed the pipe line in here.

Q. On into the plant along the pipe line?

A. Yes, and to the transformer station at the plant.

Q. In that connection, you refer to blocking and bents, in the second amended complaint. What were they used for?

A. What is that?

Q. The blocking and bents? A. Well, at this time there were no bents under the pipe line. The pipe line had been supported off the surface of the lake at a height of about 18 inches on blocks.

Q. Wooden blocks? A. Wooden blocks. We will say 12 by 12, and supported at an interval of, we will say, every 15 or 20 feet. Of course, they were all washed away, and the pipe line dropped down, so that you had a condition there of the lake level covering all of this equipment. And as soon as we could, we undertook -- in fact, it was the latter part of June we started to re-cover this pipe line and get it back into position so that it could be in a position to pump that

coming season. And actually when we started here, the water was south of the old pipe line, and we had to cut this pipe into sections; and in some cases we laid it on sort of a large raft and towed it back into position; and the lake in the mean time was evaporating, and later we had to roll it back. Then we had to dig out this part of the line which had been covered more or less in the salts ~~that were evaporating~~ resulting from evaporation -- that was Oak precipitated by the evaporation in the concentrated brine. We then decided in this reconstruction to place this pipe line at a height where it would never be damaged again, even if the water would come up that high again, because we did not think it would happen again. So we put the pipe line up four feet above the surface of the lake, and supported it on bents at say every 15 or 20 feet, - I don't know the exact distance - the bottom of those bents were a foot under the surface of the salt; and it became necessary, of course, to lift this pipe line up -- I mean with a number of chain blocks, and place it on top of these bents; and, of course, to weld it all together again. Then after that was done, it had to be re-insulated. This time we insulated it with glass wool, and covered it with light sheet iron.

Q. When you state you raised it four feet above the surface of the lake, you mean the crystal body?

A. Yes, I mean the surface of the salt.

Q. The crystalline cake? A. Yes. Of course, when we started here, this was all wet; and it was all covered around

our wells; and it was along about August 5th before it got evaporated down to our wells here.

Q. When it is stated in the second amended complaint that you did not get access to a portion of your plant, you are referring to the plant out in the lake as distinguished from your plant along the shore?

A. I am not familiar with that, so I don't know.

MR. FERGUSON: I will so stipulate, if you want that.

MR. MOORE: All right.

Q. During this period up until August 5th, were you continuing your manufacture of the soda ash from any supply of dekahydrate which you might already have from a previous period?

A. No, we had discontinued the old plant, as I remember, in April - April 18th, 1936; and it has never operated again.

Q. But my understanding is that you were operating on a 50 ton basis in your new plant?

A. Yes.

Q. Did you operate it during that period?

A. Well, I can't remember just what date that was in operation. You mean in 1937?

Q. 1937, yes. A. I might have something here in regard to it. Yes, we were operating in the early months of 1937, and produced quite a tonnage. I haven't those dates; but I think Charlie could give them to you if you want the dates. Neither have I the tonnage.

Q. The main thing is -- A. But we were operating then

with the salt -- using the salt as a means of precipitating the mono crystals.

Q. When you say the salt, you mean dekahydrate?

A. No, I mean sodium chloride. I haven't here any --. I don't see any tonnage here. I have the note here that the operations were continued in the early months of 1937 using the dekahydrate in the new vats which had been constructed.

Q. Then you have a record of when you started in 1937 to pump dekahydrates or pump brine for the production of dekahydrate?

A. In 1937?

Q. Yes. A. Yes.

Q. Can you state when that was? A. I would say that we started these -- or one or two of these pumps along about the 1st of August.

Q. Indicating on the map 1 to 5? A. Yes; and we pumped into some vats here and carried on some experiments; evaporating the brine there by a solar evaporation, thus bringing the alkalinity to a higher point. Then in the latter part of September, 1937, we started to take some of that solar evaporated brine and pumped it into the dekahydrate vats ~~there, which was sprayed, and We did that so that they were running the experiment there~~, because that brine was a much higher alkalinity than was the brine from the lake; and then it was along about the 4th or 5th of October - and I could probably look that up definitely - but that is approximately it, the 4th or 5th, or along there - that may have been the 2nd or 3rd - we started to pump brine

direct from the lake here, operating all five wells; and that was used for the manufacture of dekahydrate, using sprays in these vats; the sprays that we had recently put in, because we saw that we were not going to have brine from these lake wells of normal alkalinity as we had years before.

Q. Did you make tests that showed that?

A. Oh, yes, we made plenty of them.

Q. You are now using the evaporation process?

A. Yes. The brine from these wells was about 11.3 alkalinity when we started to pump into the vats, whereas it should have been in the neighborhood of 13-1/2 to 14 had the lake not been flooded.

Q. You had been obtaining 13-1/2 to 14 brines prior to this flooding of 1937? A. Yes.

Q. And you are now using the evaporation process as distinguished from that salt process?

A. In the spring of 1938, when we started to use the dekahydrate produced in the fall of 1937, we used the evaporative method.

Q. Now, does the record that you have show when you were flooded again, if at all?

A. In 1937.

Q. After you started your operations in October?

A. I can remember without looking up the record. It was approximately December 12th to 14th that the Owens River was turned into the lake.

Q. What was the effect of that flooding on your plant and properties?

MR. FERGUSON: Objection on the ground it is not an issue in this case.

MR. MOORE: Well, may I ask if you will stipulate that the items of damage contained in paragraph IX with respect to pipe lines, roadways, power lines, insulation, blocking and bents was due entirely to the February flood - February through April?

MR. FERGUSON: Yes, due to the water on the lake from the February to April flood, which, I understand, remained until September; that is correct.

MR. MOORE: You will stipulate that that was --

MR. FERGUSON: Yes, the first flooding, which started in December of 1937, is not an issue in this case; and is the subject matter, as you know, of another suit on file.

MR. MOORE: Well, that is fine.

MR. FERGUSON: Yes.

(Unreported discussion.)

MR. MOORE: Q. Will you please state, Mr. Keep, the reasons why it was more costly to produce the dekahydrate with the lake in the flooded condition?

A. Well, it is not only more costly, but it wasn't possible to get at a normal production because of the low alkalinity of the brine.

Q. Was the dekahydrate that was produced of that alkalinity

inferior to that which you previously had produced?

A. Yes. And there was another thing that came in that - it had more sulphates.

Q. Do you have any figures to show the difference in the na_2O content; or is your purity of dekahydrate based on that?

A. I have some figures here that show -- well, they don't show just exactly what you ask for here.

MR. FERGUSON: Q. Mr. Keep, the question was this: You said the dekahydrate produced from the diluted brine was not as good as the dekahydrate produced from the undiluted brine, because it had, among other things, a greater sodium sulphate content? A. Yes.

Q. Now, his question is: Have you any figures showing the respective degrees of soda ash - the quality of soda ash produced from the two different types of brine?

MR. MOORE: The first question was to the deka itself, and then --

MR. FERGUSON: He said the deka wasn't the same. Now, you are saying the soda ash produced - or is it the deka?

MR. MOORE: As to the deka I am first asking.

A. As a matter of fact, the deka actually produced was, as I stated before, higher in sulphate, owing to the fact that the brine -- that the starting brine was of low alkalinity; and we forced it down to a quite low alkalinity by cooling as we could without getting too great a percentage of sulphate in the deka. By that I mean we cooled it very often down to seven degrees,

whereas it would have been wise with such a low alkalinity probably to not have gone below 8-1/2 alkalinity when and the mother liquor was discarded from the deka crystals, so that the deka produced and put through the plant -- well, there might have been some of the best of it as low as 1-1/2, and perhaps a little lower than that; but the average of it was 2-1/2 up to 3; and sometimes a much higher per cent in sulphates. As a matter of fact, there is 12,000 tons of it that we never used at all. It is still there in some of the vats, because the sulphate content was so high it was not a practical thing to use it in such a condition as that.

Q. In terms of na_2O, how was it reduced from the normal dekahydrate produced with the high alkalinity brines?

A. Well, the sulphate isn't crystallized out with the deka until you get down to a fairly low temperature; that is, in any quantity; we will say temperatures of 6 to 9 degrees. If you are operating with a brine - normal brine for the month of October and there is a 13-1/2 alkalinity that is coming in, and we were cooling that brine down to 10 alkalinity, I would expect the dekahydrate to contain in the neighborhood of one to one and three-tenths per cent.

Q. Sulphate? A. Sulphate. Now, if we took that down to 8, it might go up to one and a half. Now, if we start a brine that has got a 11 alkalinity, and start to take it down smaller, then you are going to have a higher sulphate content than if you had started with the 13 and took it down

14

no further.

Q. Can you express it in the reverse, though? You have expressed it in terms of increase of sulphate content. Can you express it in terms of degrees in na_2O?

A. I do not believe I see what you are getting at.

Q. Well, perhaps I don't know what units you use in determining its value for the production of soda ash. As I understood, in the sodium carbonate, you determined its alkalinity in terms of na_2O.

A. The alkalinity of the dekahydrate?

Q. Yes. A. That we determine the same way.

Q. Now, then, when you say you have reduced it from 14 or 13-1/2 to 11.3, that is expressing it in na_2O?

A. Yes. And then when we pumped in a certain tonnage of brine with an alkalinity -- a given alkalinity, we cool that and obtain the mother liquor discard with the lower alkalinity; and then it is possible to tell you how much dekahydrate was taken out of that tonnage of brine by reducing it by 2 per cent alkalinity or 3 per cent alkalinity or 4 per cent alkalinity or 1 per cent alkalinity. The amount recovered is almost in proportion to the amount that you take out, as you would anticipate; although it isn't quite, but it is almost; so that if you cut the alkalinity of the brine from, we will say, 13-1/2 to 14 down to only 11.3 right off the bat before we ever pump anything, then we would have removed our chances of recovering a big part of the tonnage that we ought to get, because then we

only have an opportunity to obtain dekahydrate from 11 down to whatever point we are able to cool that; and, as I have already pointed out, there is very good chance that dekahydrate so obtained will contain more sulphate as well.

Q. Now, when you used your process to reduce that to the monohydrate, how does that affect the type of product of monohydrate you get?

A. Well, it would throw --. We have a control of that situation in the operation of the plant whereby we can discard that excess sulphate in the form of mother liquor, and keep it out of the product, and thereby maintaining a good grade of soda ash as far as the alkalinity is concerned; but when we have to do that, it means that we have to use more tons of deka per ton of ash produced than we would from an ash that contained a lesser amount of sulphate. Off the record.

(Unreported discussion.)

THE WITNESS: Now, what I was going to tell you along the lines that I have just finished, I say that with a dekahydrate containing 1 per cent sulphate we would expect to use 3.9 tons of deka to make a ton of ash. If the sulphate content were 1-1/2 per cent sulphate, we would expect to use 4-1/2. If that sulphate content was 2 per cent sulphate, we would expect to use 5.2 deka to make a ton of ash. If that sulphate content were 3 per cent, we would expect to use 8 tons, which would be an awful lot; and you get to a point there where it isn't practical to use it.

Q. At any time did the sulphate go higher?

A. Some of it --

Q. During that period of October to December, that will be, in 1937? A. Yes, some of it is higher than that. I told you, we got 12,000 tons; and during a large part of the run, we had to discard mother liquor in order to try to keep the grade of the product up; and that, naturally, runs up the tonnage required -- the tonnage of deka required to make ash.

Q. In other words, under normal conditions, you can use the mother liquor to precipitate the deka?

A. The normal operation is to return the mother liquor from the ~~calciner~~ centrifugals to the brine heaters in closed circuit.

Q. Which was diverted from the salt process, in that you lost the mother liquor?

A. We turned all that away, yes. Now, if your sulphate gets too high, you see, then you have to discard that portion with this other liquor that you otherwise would not turn away in order to keep the sulphate from building up in the liquor to the point where it would be precipitated out along with your mono crystals. That is the operating control that I spoke of.

Q. Now, then, your increased cost of operation were of two types: You had to pump more brine in order to get a given quantity of deka; and then because the deka was high in sulphate, you had to process more of it in order to get a given quantity of soda ash, is that right?

A. That is true; but the worst hurt was that you couldn't

possibly produce sufficient deka from such low-grade brine as to make a tonnage to keep the plant in the operation. You had that to face; and I have estimated that the loss of deka from that source alone is about 105,000 tons.

Q. During that period?

A. Last fall.

Q. The fall of 1937? A. Yes.

Q. Of course, I was referring to the two types of increase in operating cost as distinguished from the loss of plant capacity. A. We actually produced that fall 40,000 tons from the low alkalinity brine.

Q. Soda ash? A. 40,000 tons of deka.

Q. And do your records show how much soda ash you produced from that? A. Yes.

Q. Mr. Eckland has that? A. Yes. Of course, of that 40,000 tons, there is some 12,000 tons we did not try to put through at all, because the sulphate was too high.

Q. You mentioned in describing the injuries resulting from the February to April flooding, of 1937, that there had been a previous flooding which affected your pipe lines and roads. When did those floodings occur? A. Well, the first flooding occurred along about April 5th, in 1935.

Q. And how long did that flooding continue?

A. Why, a short time. I would say --. I mean, the flow of the river onto the lake continued a short time. About --. I would say ten days. You have a record of that; and I don't.

I only have to go by what I see from the river; and I don't know when they turnedit in or when they shut it off.

Q. What portion, if any, of your pipe lines and wells did that affect?

A. Well, at that time, as I explained this morning, we had two wells here --

Q. No. 1 and No. 2? A. Yes; and we had just got them completed; and we had been depending -- we were operating the old plant at that time, and depending upon these wells. We had strong winds here which blew this surface brine coming in at that time up around these wells 16 and 17, and flooded those; but did not affect the operation of the old plant, because we had just started these two wells away out here, and which were not flooded; ~~and~~ so we ~~had~~ just ~~dropped~~ stopped operating these wells, and started the old plant ~~and operated~~ operating on these new wells. I explained this this morning.

Q. I was going into this question --

A. And so that we didn't suffer any particular damage as far as operations of the plant were concerned from that. It did, however --. We had started a road out here, which had been made by simply taking the shovel, power shovel, and piling up the salt on the surface of the lake; and we made a road by piling it up out there; and we saw the results of this more or less fresh water hitting that same road; it just went through there as if it wasn't there; it just dissolved it right out, and we just dropped that idea entirely; and so that was the

effect of that particular flooding, was to dissolve out this road that we had started, and for the time being flooding these wells; but there was no effect upon the operation, because we simply replaced it with the two new wells which had just been completed.

Q. It wasn't until summer that you had built the road which you have marked in pencil?

A. No. It was very evident that we were foolish to try to keep a road up here, because it was so easily dissolved out; so we never again attempted to build a road of that nature.

Q. Did you take any steps at that time to put in protection around wells 16 and 17 against wind and wave action or flooding?

MR. FERGUSON: Just a minute. What is the purpose of all this questioning? This is two years before the time --

MR. MOORE: Yes. Off the record.

(Unreported discussion.)

MR. FERGUSON: I am going to object on the ground it has nothing to do with the issues in the action. If you want to ask if any precautions were taken before the '36 or '37 flooding I won't object -- I mean just before the 1937 flooding. If you want to ask about before the 1937 flooding, I won't object; but I am going to object to anything not having anything to do with the issues in the case.

(Unreported discussion.)

MR. MOORE: May we make an offer of proof by this witness to show what acts, if any, taken by the plaintiff corporation

to protect the pipe line, wells, and other portions of the plant from future flooding; the purpose of it being to show no reliance upon a continuation of the dry condition of the lake at the time that the 1936-1937 betterments and additions to plant were made?

MR. FERGUSON: Well, now, just a minute. That is not my objection at all. I object to your inquiring into the 1935 flooding and the 1936 flooding as having nothing to do with the case; and I distinctly stated that if you want to inquire into what precautions had been taken prior to the 1937 flooding, I had no objection.

MR. MOORE: Isn't this prior to the 1937 flooding?

MR. FERGUSON: You are talking about 1935, and the 1935 flooding?

MR. MOORE: Yes, but they are all steps: The 1935 and 1936 floods.

MR. FERGUSON: I am going to object to the 1935 and 1936 flooding.

MR. MOORE: I am just stating for the record --

MR. FERGUSON: I know, but you stated your offer, and you tied it in with 1937. I am making no objection to your inquiring what precautions we took prior to the 1937 flood.

MR. MOORE: The only thing about 1937 is that in 1936 and 1937 you made certain distinct improvements in your plant. This is off the record.

(Unreported discussion.)

MR. MOORE: Q. Well, Mr. Keep, what precautions were taken prior to February, 1937, to protect the pipe line, wells, brine heaters and other equipment of the plaintiff corporation from flooding and/or wind and wave action?

A. That pertains to all the lake wells?

Q. Yes. A. Well, after the new wells were put in condition, our dependence for brine was almost immediately on them (witness indicating).

Q. Referring to wells 1 to 5?

A. 1 to 5, yes. We from the very first surrounded 1 and 2 wells with a circle of sand at a distance of, I would say, approximately 60 or 70 feet from the well on all sides - of each well; and that sand was, oh, several feet wide; the purpose of that was that in case water came around there, it couldn't flow directly into the well. When we originally put in the pipe line out to these wells, we set it up on bents -- I don't mean bents -- blocks. There is a confusion in here between bents and blocks.

Q. I believe you have explained that.

A. I tried to explain that. We first set it up on blocks about 18 inches. We thought at that time that there would never be any surface brine on the lake to -- that would reach up that high. That was our opinion from previous observations, and from what the old-timers had noted had been the condition on the lake for a great many years. We knew, however, that in the spring of the year when the rain came, that there was more

or less water came in on the surface of the lake here; and that sometimes the heavy winds would shift it down here; and it might be here for a day or so, and then go back. Usually any surface brine laid over on the part of the lake about opposite the Pacific Alkali's plant; down in that vicinity. We knew that such an amount would never do us any harm, and would never reach this pipe line; so those were the first precautions against it. Then we found that the lake was flooded to a depth of some two and a half to three feet, floating away the line, breaking it and destroying the insulation, as was already described.

Q. This was prior to February, 1937?

A. Yes. Then, as already described, when we replaced that, we took further precaution in -- this time in placing the pipe line at a height of four feet above the surface of the lake, supported on bents, also as previously described. We had to reconstruct a road from -- through Section 3 out south to the wells again, and rebuild the road between the wells; and this time we surrounded the wells again with sand, filling it somewhat higher to make all the roads somewhat higher than we did the first time; and made the width of the sand wider so that you could drive a truck right around it. That is the way we did. We put the sand in there, in fact; again thinking that we would never see the brine level come anywhere near that. We thought that would be safe enough, even if we had a flooding equivalent to the one we had just before we made this last re-

insulation of the pipe line; but we did have another flood, and which brought the level of the lake much higher than it had ever been before, so it reached a depth of nearly eight feet at our wells; so that the precautions that we did take -- we took some further precautions at the last flooding at the time of -- around December -- the latter part of December, 1937, when --

MR. FERGUSON: Well, that is not involved in this case, Mr. Keep.

MR. MOORE: No, that is not involved in the question.

MR. FERGUSON: He asked prior to 1937.

MR. MOORE: Q. Prior to 1937.

A. Prior to February, 1937?

Q. Yes. A. Well, that was December, 1937.

Q. Yes. That wouldn't be in that question.

A. All right.

(Unreported discussion.)

MR. MOORE: Q. Were there any further floodings in 1935?

MR. FERGUSON: Object on the ground that it is irrelevant and immaterial; and instruct the witness not to answer.

MR. MOORE: Would you make the same ruling as to 1936?

MR. FERGUSON: Yes. I think, as a matter of fact, that it has already been testified to in some detail. It is a matter of procedure within your own knowledge. Off the record.

(Unreported discussion.)

MR. MOORE: Q. Mr. Keep, it is alleged in the second amend-

ed complaint that the flooding in 1937 interfered with the usual and normal cyclic changes which annually occur in the composition of the subsurface brine of the lake; and that the solar heat was a material factor in such a normal and cyclic change. Will you explain that in connection with your operations, in this new process?

A. Yes. Owens Lake, when it has a dry surface, consists of solid salt in crystalline form of one sort or another; and the resulting mother liquor which occurs in between the crystals of salt mentioned above; so what you have there is certain solid salts, of which the most important was sodium chloride, sodium sulphate and sodium carbonate, lying in contact with their mother liquor. The composition of mother liquor of this description in contact with its own salts will depend upon the temperature of the mother liquor; and if the temperature of the mother liquor varies, then so will the composition of the mother liquor brine vary. You have all the conditions here necessary to create what is known as equilibrium solution in chemistry except agitation, ~~and principally the mother liquor in contact with the various crystals that are present.~~ Agitation That is not there, as you can see. Generally speaking, there is no way in chemical theory to tell what an equilibrium solution - this particular one, or any other one - is going to be, except by actual demonstration. It happens in Owens Lake, which is a shallow deposit of salt and mother liquor, with a probable maximum depth of about seven feet, with our wells only going

down to six feet, ~~is~~ that there is a change in the temperature of this salt body between summer and winter; and hence there is a corresponding change in the composition of the brine. The above providing that the surface of the lake is dry ~~and~~ so as to allow the sun's heat to be absorbed and conducted down toward the bottom of the lake. The point of highest alkalinity occurs about the end of September and the first of October under these conditions, referring to the subsurface brines which we endeavored to pump.

Q. And that change --

A. This is not, however, the hottest time of the year. There seems to be a lag, you see, in the mother liquor brine reaching an equilibrium, probably due to the fact that there isn't agitation there, you see. It gets up to a temperature, but it does not reach the point of highest alkalinity, because there isn't any agitation present. If you had it in a beaker or a tank and were agitating it with that temperature, it would get to the equilibrium point soon - relatively soon; but down in the body located where the brine don't move around much, there is a lag; so, as stated above, the brine reaches its highest alkalinity around the end of September and during October, - the month of October, at which time it frequently gets up to 14 alkalinity.

Q. I think that gives us an idea of what takes place.

A. Now, the rise --

MR. FERGUSON: Your question was what effect a body of water

has on top of the lake? Was that your question?

MR. MOORE: Yes.

MR. FERGUSON: Suppose you put a body of water on top of the lake, - on top of the crystalline cake, what is the effect of that?

MR. MOORE: I was going to say that gives me the idea of the effect of solar heat and cyclic changes. Now, the effect of water, a body of water, on top of your crystalline cake, would be what?

MR. FERGUSON: This is off the record.

(Unreported discussion.)

THE WITNESS: Well, having reached this maximum alkalinity in the latter part of September and October, the alkalinity starts to slowly decrease again, due to the cold weather--atmospheric conditions. The effect of this cold weather is quickly noted at the surface of the lake; and dekahydrate soda is precipitated out at the surface as soon as the first cold night comes; but it takes considerable cold weather to have this effect down at the subsurface brine; so that the alkalinity may be 14 during October; and maybe we will say 11-1/2 or 12 during November; and by the end of December, it might drop down to 10-1/2. It might be higher than that some years; but not a -- as a rule, it drops down to around 10 or 10-1/2 and stays there until along about March or April; and it then again starts to warm up; and it slowly picks up each month in alkalinity, until the cycle is again completed in the

next fall, when you have a subsurface brine of high alkalinity existing again. Now, of course, what we endeavor to do is to pump brine from the subsurface of high alkalinity during the cold weather, heating it to prevent crystallization in the pipe line, and put it into vats, and where it is cooled one night or two nights, whatever is necessary to cause the proper dekahydrate to be crystallized out at a point where we can separate it and obtain it.

MR. MOORE: Q. Now, does that --

A. That is the cyclic change.

Q. That is the cyclic change. Will you explain the effect of a body of water on the crystalline cake?

A. The effect of a body of water on the surface is, of course, first to dissolve certain salts off the surface; and it no longer stays as a fresh water, but immediately becomes a brine of some sort or description, with a certain amount of sodium carbonate and salt and so forth in it, so it is really a weak surface brine right away. That covers all the area around the vicinity of our wells, or over the lake, and the heat from the sun is absorbed in the evaporation of that water instead of being converted and carried down into the subsurface brine. Of course, as you know, evaporation is really a cooling process in itself. The action of evaporation on the surface of the brine is to cool the brine, only the brine gets very warm when the sun is shining on it, but nevertheless, for every ton of water evaporated, you do cut the temperature down by so much

within the surface brine; and, of course, the brine that is down at the subsurface isn't affected at all. It just stays at the temperature under those conditions I have told you. There is no change. You can go out there then, and there is very little change. For instance, I can show you data here concerning what it was in the brine in 1935 and 1936; and in the year under discussion, where the brine was only 11.3 in October and November, the lake had been flooded all around our wells, and right up to the wells themselves until sometime about the first part of August; and the lake never did get up to its normal alkalinity. I couldn't say --

MR. FERGUSON: That is, the mother liquor brine never did?

A. Yes, the subsurface brines never got anywhere near the alkalinity it had always been.

MR. MOORE: Q. Did you take the temperature during the fall period you mentioned? You said you tested the alkalinity in 1935 and in 1936, and then again in 1937, finding that it had dropped. Did you take temperatures of the subsurface or mother liquor brine during those same periods?

A. Well, we may have. I don't know. I could tell you, though, that the subsurface brines in a normal year ~~sometimes~~ go up to ~~26~~ 24 to 26 to ~~28~~ degrees centigrade, which is ~~very~~ quite warm ~~hot~~ to your hand; ~~and the subsurface brines, I know they don't get anywhere near that.~~

Q. In 1937? Brine reached 24° to 26° only short time in August 1937 A. ~~Yes.~~

MR. MOORE: Can we have a recess for a few minutes?

MR. FERGUSON: Yes.

(Recess. Deposition reconvenes.)

MR. MOORE: Q. Mr. Keep, Mr. Pedder testified, as I understood it, to the existence of an engineer's report prepared sometime in or before the year 1932 with relation to the condition of the lake and the chemistry of the lake around the Natural Soda Products Company's plant; and as I understood it, he thought that you had a copy of such report.

MR. FERGUSON: I don't know of any such testimony, counsel.

MR. MOORE: Yes.

MR. FERGUSON: I thought he testified he knew of no report --

MR. MOORE: If you will call Mr. Pedder in, if he is here --

MR. FERGUSON: Maybe I am wrong. Off the record.

(Unreported discussion.)

MR. MOORE: I will ask the question direct:

Q. Have you seen a report prepared on the condition and chemistry of Owens Lake in and about the Natural Soda Products Company land?

MR. FERGUSON: In about 1932?

MR. MOORE: Q. In about 1932.

A. Addressed to the Natural Soda Products Company --

MR. FERGUSON: No, Mr. Keep, the question is --

A. I have seen a report that was made to Mitchum Tully by some engineer or firm of engineers. I have seen such a report.

MR. MOORE: Q. Do you have in your possession a copy of

such report? A. I meant to say when I first came there. Whether it is there or not I don't know. It may or may not be.

Q. It wouldn't be in your files or in the files of the company? A. I told you I looked through a lot of old stuff, and I saw that report; and, as I remember, it was made to Mitchum Tully. I don't know that it covers everything that you mention, but it covers the trona that was supposed to be there, and something about the plant, and something or another. I don't remember what was in it, to tell you the truth; but I did see the report.

(Unreported discussion.)

MR. MOORE: Will you let the record show that counsel and the witness have agreed to produce the report if they still have it.

MR. FERGUSON: Without any stipulation, of course, as to its legal effect, or that it is binding on us; because it was obviously not rendered to us.

MR. MOORE: Yes, that is true.

Q. Mr. Keep, in your investigation of the records of the plaintiff corporation after you came there in January, of 1934, did you see any other reports with respect to the lake or --

A. No, that is the only report of that nature that I ever saw; and I have already told you that there was a lot of old superintendent's reports there that I did not read. I looked at a few of them; and they were not of interest to me; and they were not worth while looking over. I have never seen any other

reports other than this one; and I don't remember who wrote that.

MR. MOORE: I think, for the purpose of the record, the witness had better draw in and mark the road, the one which went around the edge of the lake to the group of wells marked 1 to 5, near point marked "P.L." in blue pencil on the map.

(Witness does as requested.)

Q. There is one question which I may have covered thoroughly, but it does not appear so to me, and that is this: In the vats which are west of the new plant, those are the sources for your storage of the brine from which you precipitated the dekahydrate, is that right?

A. No, sir, that isn't right. The vats in which we crystallized dekahydrate are located directly north of the office and slightly northeast of the new plant. Give me a colored pencil, if you want to locate it.

Q. All right. A. At the point marked -- that is the line that goes down there.

Q. Mark it with a blue pencil. And will you please spell out the word "Vats" on that, please.

(Witness does as requested.)

THE WITNESS: Nine vats.

MR. MOORE: All right. Thank you.

(Unreported discussion.)

MR. MOORE: Subject to the agreement we made before that after the accounting feature, if we would like to recall Mr.

Keep for a few questions further, we might do so, that is all that we have from him at this time.

E. A. Keep.

(Thereupon an adjournment was taken until 10 o'clock A. M., Wednesday, October 4th, 1939, and by consent of counsel to be resumed at the same place.)

Room 514 Financial Center Building, San Francisco, Calif., Wednesday, October 4th, 1939, 10:00 A. M.

(Pursuant to the foregoing adjournment, depositions in the above-entitled cause were resumed, there being the same appearances as heretofore indicated.)

CHARLES ECKLAND,

called as a witness under Section 2055 of the Code of Civil Procedure of the State of California, being first duly sworn by the Notary Public to tell the truth, the whole truth, and nothing but the truth, testified as follows:

EXAMINATION BY MR. MOORE

MR. MOORE: Q. At the present time you are associated with the Natural Soda Products Company, a Delaware corporation?

A. Yes.

Q. What is your present position? A. Treasurer.

Q. Are you also secretary? A. Yes.

Q. How long have you held the position of secretary and treasurer of the company? A. About 1936.

Q. Prior to that time, were you associated with the company in any way? A. No.

Q. What time in 1936 did you become associated?

A. I believe it was in August.

Q. Will you state in a general way your duties with respect to the books of the corporation, if any duties?

A. The full control under my charge of the general records of the corporation.

Q. And all entries in the accounts and the handling of the accounts are under your supervision and control?

A. Yes.

Q. That has been true since August 1st, 1936?

A. That is right.

Q. Will you state generally what your experience with respect to accounting has been? A. Well, I have been doing accounting work since '23. At that time I was an accountant for gravel and general merchandise, sand, chemicals, construction.

Q. And that included cost accounting? A. Oh, yes.

Q. During the period that you have been treasurer and secretary of the Natural Soda Products Company, you also have done some work for other corporations, have you not?

A. That is right.

Q. Will you state in general way what books of account the Natural Soda Products Company has had since 1936?

A. General ledger, supported by cost ledger covering the products and ~~prices~~ costs; subsidiary ledgers; accounts payable and receivable; and original books of entry; property ledger.

Q. The original books of entry would be such as cash books?

A. Cash books.

Q. Purchases? A. Purchases.

Q. Sales? A. Sales.

Q. In general, what types of supporting data or memoranda do you have for these various books of account?

A. The vouchers; checks; plant reports.

Q. Are those engineering reports or what?

A. No, they are accounting reports.

Q. Are they based upon information furnished to you by Mr. Keep or -- A. No, they are based upon the plant records, such as the payroll and warehouse distribution.

Q. Are there any other supporting documents?

A. I beg your pardon?

Q. Any other supporting documents such as contracts, bills of lading, or anything of that kind?

A. Well, yes. All sales records and purchase orders which are used normally at the plant.

Q. And what type of records of sales do you have?

A. Well, that would be the original sales register.

Q. The plant report, does that reveal the goods in process at all times? A. From them the goods in process are developed. They form the basis of the accounts. The payroll distribution and the warehouse distribution figures are the basis of those accounts.

Q. Included in the warehouse distribution would there be both the dekahydrate which you might have at any given time and also monohydrate and soda ash?

A. No, that is developed by plant reports of inventory.

Q. I believe it has been previously testified to that the

company from time to time since it started this new process in 1936 had certain contracts for soda ash and other products. Are those kept by you? A. Yes.

Q. Here under your direction and control?

A. Yes, kept here.

Q. All of these books and supporting memoranda and contracts, are they kept in the office here in the Financial Center Building? A. Yes.

Q. The plant reports, those are kept at Keeler, are they not?

A. Yes, the plant reports, of course, are the basis from which I work; and they must tie in to the general books.

Q. Do you keep copies in this office of the plant records?

A. No, not of the plant records. That would be such things as individual time cards and individual charges from the warehouse. That is space consuming, and would not be kept here.

Q. Then the matter contained in those are transferred to accounting records at the plant?

A. No, they are transferred -- made into reports, which are sent here.

Q. I see. Who makes those reports?

A. The chief clerk down there.

Q. Have all sales of products since you have been with the company been upon contract?

A. A large part of it.

Q. And others are made how? A. By normal contact sales.

Q. Just orders that are procured by salesmen?

A. By the salesmen.

Q. The sales agency? A. The sales department.

Q. And you have no system of bids in disposing of your products, do you, in the sense that you have a given quantity of product, and get the highest price from it?

A. No, not in that sense. I think the other way. We do bid occasionally on certain types of business.

Q. To procure it for yourselves?

A. To procure it for ourselves; but never --.

Q. Was that done with reference to soda ash which you acquired and attempted to fill your orders with in 1938?

A. On bids?

Q. Yes. A. No, on agreements, I would say, with our competitors.

Q. Mr. Eckland, do you have a separate sales department; one that makes a separate report from the plant report?

A. Oh, no; not in the sense of a report that would be guiding from an accounting standpoint.

Q. That is what I mean. A. Because our accounting records are based directly upon each individual ~~department~~ shipment. The sales reports are so based.

Q. Do you divide your profit, or rather your operating costs and other costs up into groups, like administrative costs and fixed charges and operating costs?

A. Let us put it this way: Broadly speaking, your expenses are divided finally to book cost of goods sold, sales expense

and administrative expense.

Q. Those three? A. Those are the main ones.

Q. And your cost of goods sold cover every item that goes into the product available for sale?

A. Absolutely.

Q. Administrative expenses would cover the general office expense, salary, and matters of that sort; and your sales expense covers what? A. Sales expenses cover the sales department; two men who are on sales, and their expenses.

Q. Since you have been with the company, have you prepared from time to time balance sheets and profit and loss statements?

A. I have.

Q. And are the audits of the books made by you or under your control? Have they been made?

A. Both. That is, by myself; and they have been checked afterwards by a certified public accountant.

Q. Have you made more than one type of audit? I understand that there is more than one type, and using it for various properties, and determining certain conditions of the company, or to supply to the stockholders?

A. Well, my type is only one; and that is a full audit; full and complete.

Q. No partial audits? A. No, I go into every phase of it. In fact, I handle a great deal of the actual work myself.

Q. Are balance sheets and profit and loss statements avail-

able for the years 1936, '37 and '38?

A. Yes.

Q. How often do you have those made up?

A. Once a month.

MR. MOORE: Off the record.

(Unreported discussion.)

44 MR. MOORE: I might ask you the general question: If you have reserves in your accounts for depreciation and matters of that sort?

A. Yes, as approved by the Internal Revenue Department and the certified public accountant.

Q. Do you use all of the reserves, or do you yourself choose those which would be adaptable to your particular operations?

A. That is a question that would take an awfully long time to answer. I would have to go into a lot of detail on that.

Q. Such reserves as you have considered a part of the operating costs, you have included in the study that you have made? A. All except the reserve on inactive property; property which amounts to about something less than ten per cent, I believe.

Q. Do you have any item similar to a reserve for contingencies? A. No.

Q. In connection with the claim which was filed with the City of Los Angeles and the Department of Water and Power relative to the alleged damages in 1937 on Owens Lake, to the properties of the plaintiff corporation, did you make some

studies of the operating costs and questions of profit and loss, and matters of that type?

A. I did.

Q. (Continuing) -- in making that claim? A. Yes.

Q. Subsequent to the date of the filing of the claim, which was sometime in December of 1937, did you make additional studies that gave actual rather than estimated operating figures and studies of profit and loss?

MR. PEDDER: May I interrupt?

(Unreported discussion.)

(Record read by reporter.)

A. Well, that can be answered in the affirmative.

MR. MOORE: Q. And this last study was in addition to a preliminary study made before the filing of the claim?

A. No, the preliminary estimate, I should call it, rather than a study.

Q. Preliminary estimate? A. Yes.

Q. I direct your attention to the item of physical property damage occasioned by the spring flooding of 1937: You have your figures there with respect to it?

A. I have a copy of the claim.

Q. Will you take the item of $2,054.89, representing apparently destruction of several miles of roadway, and state how you arrived at that figure? A. The repairs to the lake road necessitated by the washout actually cost $2,652.23. This is arrived at by taking the actual labor, truck expense, shovel

expense, month by month, and adding them together; and this schedule, which I have here for the purpose of convenience, I have numbered these items 1 to 8; and I call that item No. 1.

Q. The labor on this item was supplied by employees of the plaintiff corporation? A. That is right.

Q. And were the materials used acquired elsewhere, or were they available on the properties of the plaintiff company?

A. No, there seems to be very little -- no material in that. Merely labor, truck expense and shovel expense.

Q. And the full item of $2,652.23 represents these actual costs of labor -- A. Yes.

Q. (Continuing) -- and material. Did you take anything else into consideration in the way of the former condition of the roads in arriving at this question of loss? Did you take a given road -- might it not have been in a state of disrepair? A. No, because we had been using it right along up to the time of the flooding.

Q. And you had maintained it?

A. And it is always maintained.

Q. Do you have any figures as to the number of miles that were repaired? A. No, I do not.

Q. Do your records show as to the materials, and what type of materials so used?

A. There was no material used in that. In other words, not chargeable material, anyway. The shovels merely dug it out of the hills, and put it on the trucks, and trucked it from there;

and it was the labor and truck expense and so forth.

Q. Then your laborers packed the road. Did you use any sort of roller, or anything of the sort? A. No.

MR. PEDDER: Off the record.

(Unreported discussion.)

MR. MOORE: Q. Take the item which you probably have numbered 2. A. Yes.

Q. Which are the power lines maintained by the plaintiff corporation: Will you state how you arrived at the figure of $235.49 set forth in that claim?

A. Due to a minor correction of an insurance - compensation insurance correction, the correct figure is $235.09.

Q. And that represents what?

A. Well, all of it except $1.65 represents the labor, compensation insurance and Social Security tax. When I say "labor," I mean the labor cost. That is, labor, compensation insurance and Social Security tax.

Q. No materials? A. No.

Q. Then with respect to item No. 3 of pipe line, has the figure of $6,725.69 been changed?

A. $6,725.69, yes. That has been corrected to $6,721.14.

Q. What does that figure represent?

A. Labor, truck charges, materials and supplies.

Q. In the materials and supplies, do you have any breakdown on that as to what they were? A. No, I do not. I think they were what we termed warehouse charges -- charges from the

warehouse. Everything --

Q. What supporting data -- A. Everything purchased is put into the warehouse, taken out on warehouse requisitions; and the thing that we have here to check that is the inventory at the beginning, plus the purchases, less our requisitions, and the inventory that was sent up at the end of the month.

Q. Would your warehouse requisitions show what portion was actual pipe, and what portion was the insulation?

MR. FERGUSON: There is a separate item for insulation.

THE WITNESS: This is strictly repairs.

MR. MOORE: Oh, yes.

MR. FERGUSON: It is for the pipe line.

MR. MOORE: Repairs and replacements?

THE WITNESS: No, just repairs. This particular item of $6,725.69 is just straight repairs.

MR. MOORE: Q. With respect to item No. 4, which is the insulation of the pipe line, has the figure of $12,688.68 been modified? A. In that particular instance, the -- that item 4 and 5 -- 5 is in the amount of $333.30 - has been consolidated; and the actual loss has been $25,563.53.

Q. And you have a breakdown of that as to the various items of the insulation and the blocking and bents?

A. Yes. I have that as the cost less -- that is, that result is arrived at by cost less depreciation.

Q. I also refer to the fact, and I believe it has been testified to, that when new insulation was put on, it consisted

of some sort of an insulating material, plus corrugated iron covering.

MR. FERGUSON: Sheet iron, I believe.

MR. MOORE: Sheet iron.

Q. Do you have any breakdown to show the separate cost of those two items? A. No. What this is based upon is the insulation that was lost; actually lost.

Q. Were there any repairs in this also? A. No.

MR. MOORE: Off the record.

(Unreported discussion.)

MR. MOORE: Q. Do the figures that you have with you show the period of time for which depreciation was taken in determining the loss of the old insulation? A. No. That is easily determined from the property ledger.

Q. The item of $330.30, I believe you stated was included in the $25,000.00? A. That is right.

Q. And was depreciation taken on those items also?

A. Yes, it was.

Q. And this additional amount over and above the original figure of $12,688.68 is determined upon the same insulation that was taken into consideration originally?

A. Yes.

Q. Your property ledger would show if any of the items that you have testified to were repaired or replaced prior to '37?

A. The property ledger would show the date that it was actually put in -- actually purchased and put into operation.

It wouldn't show any repairs, no. That is an expense item.

Q. Would any repairs that were made be taken into consideration in determining your depreciation?

A. What repairs are you speaking of?

Q. Any that may have taken place prior to 1937?

A. No. Repairs are not a capital item; therefore, they do not enter into depreciation.

Q. With respect to what you probably have as item No. 6, of $18,250.00, which in the second amended complaint is stated to be increase over normal - the normal cost of pumping brine and precipitating dekahydrate for sodium carbonate in the cold fall and winter months of 1937: Have you ~~charged~~ charged that item in your computations?

A. Yes, under the heading of "increased cost of pumping dekahydrate due to brine dilution;" and we have an increased cost of $15,116.36.

Q. For what period of time did you cover in making these computations? A. The pumping of what we call the '37 crop.

Q. Do you have the actual dates which you took into consideration? A. No, that would be -- the ~~profit~~ process account would show that. I believe it was around August into January.

Q. August of 1937? A. August, '37, to January of '38; because there was a preparatory season in there when things are being prepared for pumping.

Q. In arriving at this figure that you have just mentioned, you took all of the period in which any pumping of dekahydrate

was done at that particular season?

A. All cost pertaining to pumping for that season, yes.

Q. Will you state how you arrived at your figures of $15,116.36, which, I understand, represents an increased cost?

A. Right. The actual cost of producing was $30,634.08, from which we produced only 74,965 tons of dekahydrate.

Q. In connection with that, for accounting purposes, did you take into consideration the quality and purity of the dekahydrate? A. From an accounting standpoint, we are only interested in the actual results obtained.

Q. In terms of money? A. Of dekahydrate. Dekahydrate actually obtained under a certain given condition, and the actual amount of money. Then the cost per ton of that should have been, basing it upon the normal alkalinity, twenty cents and seven mills.

Q. Mills? A. Dollars.

Q. Dollars? A. Therefore --

Q. You did say twenty cents and seven mills?

A. Yes. $.207. It is the same thing, yes. Now --

Q. That would be - pardon me - the normal unit cost of producing 74,965 tons? A. No, that would be the normal cost of producing it had the alkalinity been normal.

Q. Yes, but -- A. Because alkalinity --

MR. FERGUSON: Yes, but his question is: Is that normal alkalinity for the same tonnage?

A. No, the tonnage would then be 147,930.

MR. FERGUSON: In other words, I take it, Mr. Moore is interested in knowing if the normal would be on the whole crop of normal alkalinity. Is that right?

A. That is right.

MR. MOORE: Q. May I ask this question: Did you take the figure of 147,930 tons, which you would have produced at normal alkalinity, and divide it into that figure, $30,634.08?

A. That is right.

Q. And arrived at the figure at $.207?

A. Yes. Therefore, the 74,965 tons should have cost at $.207 per ton, $15,517.76; the difference being the increased cost of producing the 74,965 tons.

Q. Does that give a difference of 36 cents there?

A. $30,634.08, less $15,517.76, should give a difference of $15,116.36, unless --

Q. There is a slight error in computation there, I believe.

A. Oh, 32. Pardon me. Change that figure to 32.

Q. So that the figure would read $15,116.32?

A. That is right.

Q. How did you get your figure of $30,634.08?

A. The actual pumping for the season.

Q. Do you have any breakdown on that?

A. Yes, in my ledger.

Q. Can you state generally what items would go into your pumping costs? A. Labor, fuel, power, depreciation, overhead, taxes, insurance, amortization of leases, land costs,

supplies. I think that is all.

Q. Does the overhead you refer to cover simply the plant overhead, or is it a general overhead?

A. A plant overhead.

Q. In arriving at your estimate at normal alkalinity of the number of tons you could have produced, you are assuming a given quantity of brine, are you not?

A. Yes.

Q. Do you have the figures showing what the quantity of brine was? A. I was under the impression Mr. Keep had put that all into the record.

MR. FERGUSON: Off the record.

(Unreported discussion.)

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MR. MOORE: Q. With respect to item No. 7 of $54,750.00, have you changed that item? A. The increased cost of producing merchandise at 50 per cent capacity would be $59,993.87.

Q. Do I understand that that is a figure connected with the reduction of dekahydrate to soda ash?

A. Everything depends upon that, the dekahydrate crop.

Q. But I mean this figure, $59,993.87, takes in no part of the item of $30,634.08? Let me put it this way: For what period does this $59,993.87 cover?

A. The year 1938.

Q. From January 1st to December 31st? A. Right.

Q. But it does not include any cost of pumping, does it?

A. Well, all costs contain that, yes.

MR. MOORE: Not for the record.

(Unreported discussion.)

MR. MOORE: Let me ask my question again:

Q. Does the sum of $59,993.87 represent the cost of taking dekahydrate produced in the cold fall and winter months of 1937 and carrying it through to the final product of soda ash?

A. Yes.

Q. Then it would not include any pumping costs, would it; or let us put it this way: You tell us what costs are included in that item.

MR. PEDDER: May I say something off the record?

(Unreported discussion.)

MR. MOORE: Q. Well, then, the question is: Would you state the items of account which are contained in the $59,993.87?

A. It covers the F. O. B. plant cost, plus royalties, plus overhead unabsorbed, to obtain the total cost of dekahydrate of various products, finished products, produced from a crop -- a 50 per cent crop of dekahydrate to start with; from which we develop, not from that, but from any schedule which is developed, the cost per ton of the same products had a full dekahydrate crop been laid down.

Q. Now, you say you have two schedules on those two things?

A. Well, there are a series of schedules ~~of~~ tying in from the final schedule. Now, then, the tons produced from the 50 per cent production are extended at the full production costs,

which, of course, would not have been the cost had we had a full crop from which to obtain the cost, as it should have been; and the deduction and the difference between those two is the gross cost of producing merchandise at 50 per cent capacity. In other words, what I developed is what would it have cost us at 100 per cent; what would it cost at 50 per cent productive capacity -- not at productive capacity, because we did not get that full crop; but a 50 per cent crop; and then take in the difference; and that, of course, would be the increased cost.

Q. Didn't you have actual figures?

A. These are all based upon actual figures; estimates made from actual figures.

Q. As I understand, you produced 74,965 tons of dekahydrate?

A. That would be on 50 per cent -- the estimated 50 per cent dekahydrate crop.

Q. And is that the actual production or estimated production?

A. There again we get to that point again. Off the record.

(Unreported discussion.)

MR. MOORE: Q. Did you arrive at a unit cost per ton of processing the 74,965 tons to a final product?

A. I did not arrive at a unit price, no. I arrived at a total cost.

Q. And that total cost was what?

A. $246,606.03.

Q. Are those based on actual costs which you did have?

A. That is right. All of the figures are based on actual

cost.

Q. On book entries? A. Right.

Q. Did you arrive at a total cost figure of reducing your 147,930 tons? A. I did.

Q. And what was that? A. $347,389.00.

Q. And what did you use to get that figure of $347,389.00?

A. Now you have to go back into a lot of detail there. That is about the only way that you can get at that figure, would be through Mr. Bailey, I believe.

Q. Can you state generally what you did?

A. I developed the costs from studies in both instances, basing them upon the actual production in '38, and using comparable figures.

Q. Having arrived at a cost of producing the 147,930 tons and the actual costs from your books of the 74,965 tons, what were the steps that you took from that point to arrive at your increased operating cost?

A. Merely taking the 50 per cent production content, since various products are made out of it, and extending it at the full production cost, would give you what that particular tonnage should have cost us.

Q. If I understand you correctly, you divided $347,389.00 by 147,930 tons, and got a unit, is that right?

A. No, no, that is not possible, because of the varying costs throughout each particular unit process or processes.

Q. By what figure did you multiply your 74,965 to actually

find out what it should have cost you?

A. That again breaks down into unit costs into various units, in order to get the correct cost applicable.

Q. May I see the sheet for a moment, please?

A. Surely. Probably --

Q. Referring to your schedule here, I notice in your first column and in the first group of items under "Cost of Production based upon 50 per cent dekahydrate crop of 74,965 tons," there are several items like soda ash-bulk, soda ash-burlap bags, soda ash-paper bags, bicarbonate of soda and concentrates. Are these actual figures of tons produced from the dekahydrate?

A. As far as the soda ash is concerned, it is what would have been produced from the 50 per cent crop. As far as bicarbonate of soda and concentrates, the actual figures.

MR. MOORE: Off the record.

(Unreported discussion.)

MR. MOORE: Q. You speak of your F. O. B. plant costs in connection with your cost of production based upon a 50 per cent dekahydrate crop. State generally what the nature of the studies were that you made in arriving at the figure of $106,444.87 for soda ash bulk?

A. Cost studies from the dekahydrate inventory down to the shipping expense; taking it step by step through the process.

Q. Where did you get the figures that you used in making those studies? A. From the actual production costs of '38.

Q. Would that same answer hold as to the soda ash burlap bags? A. It would hold as to all of them, yes.

Q. A moment ago you spoke of bicarbonate of soda and concentrates as being actual, and the soda ash as being estimated.

A. As to tonnage. If you will look there, you will see that the bicarbonate and concentrates changed very little; but that is due to the flexibility of the fixed charges on various tons.

Q. So as to all five items set forth there, including soda ash and paper bags and bicarbonate of soda, and concentrates, these are all studies based upon 1938 production costs?

A. Right.

Q. And do you have schedules in your possession that show how you arrived at those? A. I have.

MR. MOORE: Off the record.

(Unreported discussion.)

MR. MOORE: Q. You have another column under this cost of production based upon 50 per cent dekahydrate crop entitled "Royalties." How were they arrived at?

A. By computing the actual amount of royalty which would have accrued on that amount of tonnage, and we would become liable for had we shipped that amount of tonnage.

Q. That was based on what?

A. On our lease with the State.

Q. In connection with your lease with the State, I believe that you divided your reports into two tonnages: One, bicar-

bonate of soda, and the other, other minerals, I believe you call it, is that correct?

A. That is right.

Q. So that in your report of actual royalties paid, you would include under other minerals, soda ash bulk, soda ash burlap bags, soda ash paper ~~boxes~~ bags and concentrates?

A. That is right. And bicarbonate would be the sodium bicarbonate.

Q. Would be a separate item? A. Right.

Q. With respect to overhead unabsorbed: What do those figures represent? A. They represent the difference between the actual overhead and the overheard absorbed into the manufacturing statement which was necessitated by inactive equipment, and things of that type.

Q. And from what source were the figures obtained for those computations? A. Well, that is all through schedule studies.

Q. But based upon figures that you had from the 1938 books?

A. 1938 book figures.

Q. With respect to the cost of production based upon full dekahydrate crop of 145,930 tons, which you have modified to 147,930 tons? A. Yes, that is correct.

Q. (Continuing) -- would your answers be the same as to the F. O. B. plant costs, that you used the same studies and derived the material from the same sources?

A. Exactly. The answer is exactly the same.

Q. Might I ask you this: Apparently if you divide the F. O. B. plant cost of soda ash bulk under a 50 per cent deka-hydrate crop - that is, the item of $106,444.87 by 9,377, you would be able to get a unit cost of that particular item, would you not? A. You could.

Q. Would that unit cost be the same in connection with full production? A. You mean as to dollars and cents?

Q. Dollars and cents. A. Oh, no. Of course not.

Q. No. A. Because --

Q. In other words, just as a matter of mathematics, if you divide in the case of full production the $129,725.98 by the 15,922 tons, you get a different figure from the one under the 50 per cent production? A. Surely, yes.

Q. Is it possible for you to explain without reference to your schedule of studies as to what different application you made of your actual book entries?

A. In general, yes. The main result comes from the fact that your fixed charges are always the same as to dollars and cents; and there is a certain increase of efficiency with full operation as against 50 per cent operation. That constitutes the difference.

Q. But if you had not operated in 1938 with a full crop, how is that you have figures that will enable you to determine what your efficiency would have been for the full crop?

A. That is a matter of taking the actual figures, and projecting them ~~in~~ as a matter of judgment from known -- you have

a certain known condition, and you have a certain assumed condition.

Q. In making your assumption - in projecting the figures, the actual figures of 1938, to an estimate in the eventuality of having full production, do you use any figures or experiences prior to 1938? A. No, because that was the first year in which there was 50 per cent operation; and any cost figures prior to that time would not be available.

Q. Then to ask it directly: You did not take into consideration in any of the statements, figures, experiences and accounting entries prior to the year 1938?

A. No.

Q. And with respect to the item of royalties and overhead unabsorbed in connection with the full production, you made your projections and assumptions in a similar manner?

A. In a similar manner.

Q. But based upon actual costs and accounting entries in the year 1938? A. That is right.

Q. Then in your third schedule, you apparently have taken the full production cost which appears in your last column under "Full production cost," and have divided into that your --

A. Multiplied.

Q. (Continuing) -- tonnage. A. Multiplied by the tonnage, of the 50 per cent tonnage.

Q. No. I beg your pardon. What I mean is this --

A. Oh, I see.

Q. You have under your second column --

A. Yes.

Q. In your third schedule an item 8.5773 in connection with soda ash bulk. A. Yes.

Q. Now, that is arrived at, is it not, by dividing $136,567.24 by 15,922? A. That is right.

Q. And that same thing is true in connection with soda ash burlap bags and soda ash paper bags?

A. That is right.

Q. Then the unit so derived is multiplied by the tonnage of each of those items at 50 per cent --

A. Production.

Q. Production. A. That is right.

Q. And your estimated cost of producing the tonnage at full production cost? A. That is right.

Q. And the difference between the sum total of those items and the total estimated costs on a 50 per cent basis is your estimated increased operating costs? A. That is right.

Q. Now, I notice that you don't have a unit with respect to bicarbonate and concentrates. Why is that?

A. Because that -- you can pick them up directly. You see, the tonnage never changes on them on any of the three schedules.

Q. There is a slight difference between the 50 per cent and -- A. Not in the tonnage.

Q. And the 100 per cent. Oh, I beg your pardon.

A. It is a matter of tonnage. The tonnage don't change. It merely changes a little bit as to the cost; and the cost can be picked up directly from the statements.

Q. In those cases, the difference in cost is very slight?

A. Yes. You see here, the total cost is included here; then you merely pick up the total cost here, for the purpose of this, see (witness indicating). There is no point of going through a computation when you can take a straight figure.

Q. No, that is quite true. Off the record.

(Unreported discussion.)

MR. MOORE: Q. With respect to item, I believe, No. 7, - or is it No. 8? A. No. 8. I skipped No. 5, you see, because --

Q. That was the $330.00? A. Yes. It was combined.

Q. With respect to this item No. 8, which is the item of $63,875.00 in your claim, representing a reasonable profit which plaintiff would have realized in the normal and usual course of plaintiff's business in the sale of soda ash and kindred merchandise, has that figure been changed?

A. Yes, under the caption of loss of profits on merchandise not produced, $79,009.34.

Q. And with respect to that item, the same is true, that you are basing that starting with the dekahydrate inventory as you actually obtained it?

A. As far as the cost element is concerned, yes.

Q. Will you state generally the method of arriving at that

figure of $79,009.34?

A. By taking the loss tonnage.

Q. Will you elucidate that? You mean the difference between 74,965 and 147,930? A. No, by taking -- in this particular case, the lost tonnage would only refer to the soda ash tonnage. By taking the full dekahydrate crop tonnage of soda ash, from which we deducted the 50 per cent dekahydrate crop of soda ash, gives a certain number of lost tons.

Q. Do you have the figures of those?

A. Yes. In tonnage, 16,214 tons lost.

Q. Before we go any further, may I look at this just a moment. Sometimes by looking at the figures, I can --.

A. Yes.

(Unreported discussion.)

MR. MOORE: Q. Referring back to your schedule No. 7, you have set forth certain tonnages of soda ash in three separate groups: That is, bulk, burlap bags and paper bags, which would have been produced from the 50 per cent crop of 74,965 tons; and then there are some items set forth under estimated 100 per cent production of certain tonnages for those same items; and in your schedule No. 8, you have taken the difference between the 100 per cent tonnage and the 50 per cent production in the case of each of the three items mentioned, and added them together to arrive at the figure of 16,214 tons lost, is that correct? A. Yes, that is right.

Q. Having gotten the figure of the lost tonnage, will you

state how you arrived at the loss of profit on that tonnage?

A. By making studies of the sales to be derived from each one of those tonnages.

Q. From each of the lost tonnages?

A. No, from each possible production tonnage, deducting the smaller from the greater, which gives you the sales loss.

Q. In dollars and cents? A. In dollars and cents.

Q. Before you go any further, will you state the basis of those studies generally?

A. The basis of those studies are based on the 1938 sales.

Q. Actual sales? A. Based upon the actual sales, yes.

Q. But in the case of estimated sales on 50 per cent production, you again projected or made certain assumptions?

A. Very little projection in that case, because we actually sold more than that.

Q. Sold more than the tonnage produced or estimated to be produced from the 74,965 tons?

A. That is right.

Q. Is that a carry-over from other years?

A. No, that is to satisfy the requirements of our trade. We bought it from our competitors.

Q. All right. And in the case of estimated sales through production, what sort of a study did you make?

A. That study is based also upon 1938 and as against sales - probable sales -- let me put it possible -- yes, possible and

probable sales.

Q. Now, in connection with those possible and probable sales, what contracts or orders did you take into consideration? A. Took into effect contracts and their -- and the consuming possibilities of those customers; and took into consideration business which we probably could have gotten had we gone after it; because we went after no business in 1938, and did not get it.

Q. In assuming that you could have gotten the business, did you take into consideration business you had done with those same organizations in previous years?

A. To a large extent, yes.

Q. For how many years back did you go?

A. Well, I started my studies -- I covered in my studies ~~in~~ 1936, 1937 and 1938.

Q. I think there has been testimony to the effect that after commencing the new process, you ran a pilot plant, and then ran the plant on a 50 per cent basis; and finally in January, of 1938, put it on a commercial basis. Was it production produced by your pilot plant and your 50 ton plant as well as other production that you used in making those studies? A. No, it was based on the main plant. In 1938 -- the only production in 1938 was from the finished plant.

Q. Yes; but you said you took into consideration sales to your customers starting in 1936. A. Yes.

Q. From what source did the production come to you?

A. Well, it came from the old process, from the pilot plant to a certain extent, and purchases from our competitors.

Q. You made purchases from your competitors even in 1936 and 1937? A. No, in 1937 we did. I believe in 1936.

68 Yes, some in 1936; we bought ash from the East to meet our demand.

Q. Do you have copies of the contracts available? Are they in your offices here? A. Yes.

Q. And you took them into consideration? A. Yes.

Q. Did you have any unfilled orders during 1938 which you took into consideration? A. That was taken into consideration in 1938.

Q. I mean, you did have some? A. Not so much unfilled orders; but orders turned down by the sales department.

Q. How was that information supplied to you?

A. Given to me.

Q. (Continuing) -- that an order had been turned down?

A. Given to me by the sales department.

Q. Do you have any reports in your file in the form of letters or something of the sort?

A. In the form of a schedule, yes.

Q. Well, I mean the supporting data. Did the salesman make a report to you -- A. He didn't --

Q. Well, did he report that a company had asked for a certain amount of soda ash,"and I turned it down because we were

not able to supply him" -- would he give you a sales memorandum or letter, or what, to back that up?

A. No.

Q. After you made your study based on your 1938 sales, plus your estimate of sales that you would otherwise have had had you been able to operate on full production, what steps did you take to then determine the loss on these lost sales?

A. Determined the sales in each case; deducted the 50 per cent sales from the 100 per cent, which gave me the total sales in dollars and cents lost.

Q. In arriving at the dollar and cents value of these sales, how did you arrive at the sales price which you took into consideration? A. Your sales price was very well fixed a greater part of 1938; the market was very steady.

Q. Does the market vary according to the quality of product?

A. Oh, you are getting beyond my information.

Q. If I understand you correctly, you made certain sales, actual sales, during 1938 of the main product.

A. That is right.

Q. Now, in getting the particular sales price for it at so much per ton, that would depend, would it not upon the particular purity and quality of that product?

A. It would have to meet the satisfaction of the customer. I can answer it in that way.

Q. Let me put it to you another way, then: If you sold a given quantity of soda ash in bulk -- A. Yes.

Q. In 1938, and you received for that a sales price of so much per ton: Did you use that same sales price as to the estimated tonnage you would have sold had your capacity not been reduced? A. Yes, that and the established price in 1938.

Q. Yes, but I mean you assumed the quality of the product would be the same? A. Well, we had definite control of that in the operations of the plant, as far as I know.

MR. MOORE: Off the record.

(Unreported discussion.)

MR. MOORE: In order to be sure that our understanding is the same as yours on this schedule 8, may I review it very briefly: You arrived at a figure of tons lost, to-wit, 16,214 tons, as we have already gone over?

A. Yes.

Q. And then you arrived at a sales price for each of three types of soda ash, by multiplying in the case of the full dekahydrate crop the tonnage by the sales price which you received during 1938, and which you said was pretty well established? A. Yes. Each customer was taken separately.

Q. Then in connection with the three items of soda ash at a 50 per cent dekahydrate crop, you multiplied the respective tonnages by the same sales price per ton for each of those three items? A. Each was based upon a different study, however. There would be a few cents difference per ton involved.

Q. In other words, would there be a slightly less sales price per ton for the soda ash produced on the 50 per cent crop? A. Slightly less on the larger, if my memory serves me right.

Q. That would be more logical? A. Yes, surely; you would have to go after the larger consuming customers at a lower price.

Q. Then the difference between your sales price of your three soda ash products at full deka crop and the full sales price of your 50 per cent deka crop would represent in dollars and cents your estimated lost sales in dollars and cents?

A. Correct.

Q. From which I note that you have deducted certain sales discounts and allowances. Are those estimated also?

A. Projected from the actual 1938 figures in proportion.

Q. When you say in proportion, you mean that you took the sales discounts and allowances for a given amount of sales, and took a percentage, and multiplied that by the estimated amount of lost sales? A. Yes.

Q. So that you noted lost sales of $239,187.03?

A. That is right.

Q. Then to get your cost of your lost sales, you have in the case of each of the three items of soda ash taken that unit at full production cost that you set forth in schedule 7 and multiplied it by the tons lost to arrive at the cost of lost sales? A. Right.

Q. Which in this instance is totaled $160,177.69?

A. Correct.

Q. And the difference between your net lost sales and your total cost of lost sales is your figure in loss of profits upon merchandise not produced of $79,009.34. And as in the case of schedule 7, in respect to schedule 8, you do have studies upon which you based these figures?

A. Absolutely.

MR. MOORE: Off the record.

(Unreported discussion.)

MR. MOORE: Well, now, there are two questions further that I would like to ask you. I don't know that they are based upon any of these schedules; but I believe you have already stated that in '36 and '37 and '38 you did acquire a certain tonnage of products from some of your competitors?

A. Yes.

Q. Which you resold? A. And from the East, yes.

Q. And from the East. Do you have figures available which would show the total tonnage so purchased, and the price at which you purchased it; and then any comparative figures showing what you resold the same product for?

MR. FERGUSON: I am going to object to any testimony in that regard as not affecting the issues here, save one question to demonstrate sales ability. Off the record.

(Unreported discussion.)

(Record read by reporter.)

MR. FERGUSON: I am going to object to that question, because I do not think you are entitled to the sales price; but you can inquire as to whether that was included in the estimate.

(Unreported discussion.)

MR. MOORE: Q. I will ask the question this way, as Mr. Ferguson suggests: In arriving at your figures and your computations of loss of profits, did you take into consideration purchases made from your competitors and from the East and elsewhere of those products?

A. I took them into consideration as far as the tonnage was concerned. As far as any profit derived from them, no.

Q. And your records that you have made up would show that tonnage? A. That is right. Basically, of course.

Q. With respect to the actual sales during 1938, do you have the figures available of actual costs per ton of producing the products sold and the actual sales price for each ton?

A. Well, I based my figures of cost upon them, yes, I have. Both of them are - well, part and parcel of the studies.

Q. Would you be able to state with respect to the actual sales made and actual operating costs during 1938, whether you made a profit or a loss?

MR. FERGUSON: No, I object to that. That is incompetent, irrelevant and immaterial, and outside the issues of the case.

MR. MOORE: Off the record.

(Unreported discussion.)

MR. MOORE: Let me rephrase my question: In connection with the 74,965 tons of dekahydrate produced in the cold fall and winter months of 1937 --

MR. FERGUSON: Wait a minute. I am going to object to that, because we did not produce any 74,000 tons.

MR. PEDDER: We produced a lesser figure than that.

MR. MOORE: I will rephrase the question.

MR. FERGUSON: I did not want you to go on needlessly here.

MR. MOORE: Q. With respect to dekahydrate actually produced in the cold fall and winter months of 1937 and actually reduced to soda ash during the year 1938 and actually sold on the market, did you make a profit or a loss?

MR. FERGUSON: Are you divorcing that from any other element of carrying the overhead charges, or anything else, or are you including those in the question?

(Unreported discussion. Record read by reporter.)

A. Well, at the present time, I don't know.

MR. MOORE: Q. You have made no computation along that line? A. No, I haven't, no.

MR. MOORE: Off the record.

(Unreported discussion.)

MR. MOORE: It is five minutes to twelve. There may be a few more questions of Mr. Eckland. I would like to think it over during the noon hour, and take an adjournment now. I do not think we will be much longer. Shall we adjourn until 2?

MR. FERGUSON: Yes.

(Thereupon an adjournment was taken until 2:00 P. M., Wednesday, October 4th, 1939, and by consent of counsel to be resumed at the same place.)

Room 514 Financial Center Building, San Francisco, Calif., Wednesday, October 4th, 1939, 2:00 P. M.

(Pursuant to the foregoing adjournment, depositions in the above-entitled cause were resumed, there being the same appearances as heretofore indicated.)

(Unreported discussion.)

MR. MOORE: You might put down for the record, then, it is stipulated that Mr. Pedder will supply the quantity of brine pumped during the fall and winter months of 1937.

MR. FERGUSON: With the understanding that we have that figure, which we believe we have.

MR. MOORE: Yes; and secondly, I wonder if we might put in in the form of a stipulation our previous discussion that Appendix "A", which is a photostatic copy of the State map of Owens Lake, to the effect that the original as marked by the witness G. A. Keep, might be kept in the possession of the defendants until the time of the trial, and might be introduced at that time as part of the deposition as though it had been included therein?

MR. FERGUSON: Provided the deposition is admissible, so stipulated.

MR. MOORE: And in that connection, we will have our engineers draw an exact duplicate as near as possible, and send it to you for your files.

MR. FERGUSON: That is my understanding, yes.

(Further unreported discussion.)

MR. MOORE: Then the only other stipulation we have is that you will furnish us with a statement of the products purchased during the year 1938 to meet your sales requirements, the price at which it was purchased, and the sale price.

MR. FERGUSON: We will give you the total purchase price and the total sales price, indicating the profit.

MR. MOORE: And the total tonnage.

MR. FERGUSON: And the total tonnage.

MR. MOORE: But you do not care to break it down into the different products?

MR. FERGUSON: For the purpose of the schedule, we prefer not to break it down; but we have no objection to Mr. Bailey checking our books to ascertain that our schedules are right. In other words, we also consider the prices at which we purchased and the persons from whom we purchased something of a trade secret. You understand that.

MR. MOORE: All right. That is satisfactory, with that understanding.

MR. FERGUSON: We will give sufficient information to you of the profits, if any, we made from that auxiliary operation.

MR. MOORE: Off the record.

(Unreported discussion.)

MR. MOORE: That is all that I have to ask.

Chas. Eckland

October 11, 1939

The following corrections were made in the deposition of Stanley Pedder:

Page	Line	
14	3	Strike out "or as much as I was concerned."
19	2	After "the" add "receiver of the".
19	15	Strike out "is still -- oh". Add "was" after "who"
19	16	Strike out "yes".
23	24	Change "deepest" to "deeper".
28	14	Change "the" to "a".
30	3	Add "on the Pacific Coast" after "extent."
30	20	Add "&" after "Potash".
34	5	Strike out "the".
43	2	Change "low" to "lake".
46	2	Change "haven't" to "have".
46	3	Change "and I couldn't estimate that" to "but I couldn't estimate the height".
47	21	Change "to acquire" to "acquired".
48	25	Change "precipitated" to "precipitates".
49	8 & 9	Change "would have to pump out a precipitate as well as a fluid of some other liquid" to "have to pump in such manner that after precipitation of the dekahydrate the mother liquor can be removed".
49	13	Strike out "the temperature of".
49	14	Change "dekahydrate free" to "dekahydrate more freely".
49	14 & 15	Strike out "of the various forms of sulphate".
51	12	Change "that" to "heat".
52	15	Strike out "for instance".
52	26	Change "low" to "lake".
53	11	Strike out "the".

Page	Line	
55	25	Add "no" after "had".
57	15	Strike out second "tell us".
58	7	Strike out "but"
59	22	Strike out "for a water softener".

The following corrections were made in the deposition of G. A. Keep:

Page	Line	
63	23	Change "pocket pyrites" to "pacos pyrite".
63	26	Change "pocket" to "pacos".
64	19	Strike out "huge".
64	23	change "extraction of soda, and so is" to "manufacture of dekahydrate, which is sold as".
64	25	Change "sodium" to "trisodium".
65	12	Change "They" to "Others".
65	13	Change "Dupont" to "Grasselli".
66	21	Strike out "these"
67	13	Change "density" to "content".
67	15	Change "cake" to "mud".
67	16	Change "filled" to "drained".
67	21	Add "the salt layer" after "through".
68	4	Change "foot" to "thousand feet".
68	5	Change semicolon to period; strike out "and".
68	6	Change "flooded over" to "flowed thru".
68	8	Change "got through settling" to "settled".
68	12	Strike out "where it." Change "salt" to "salts"

Page	Line	
69	12	Change "vats" to "vat"; strike out "they were".
69	13	Change "crystalline" to "crystallization".
69	25	Change "they were" to "it was".
70-71	6	Change "DO_2" to "CO_2".
70-71	16	Change "carbonate" to "bicarbonate".
72	7	Add "only washing the cake on the filter".
72	8	Add comment: "Question not clear."
72	17	Change "those" to "waste".
72	19	Strike out "great."
72	21	Add "salable" after "particular".
72	26	Change "soda" to "brine".
73	2	" "dry" to "drive out".
73	3	Change "into" to "from the"; strike out comma.
73	8	Strike out "because".
73	12	Change "some" to "the same". Strike out comma.
73	16	Add "water" after "any".
73	25	Change "were" to "was". "Cakes" to "cake".
74	3	Change "continuous" to "continued".
74	15	Strike out "We had not been operating".
74	26	Change "convert" to "convey".
75	8	Add "after the carbonating plant was shut down".
75	11	Change "at the plant" to "on the lake".
75	13	Change "available originally" to "precipitated artificially".
75	18	Strike "in the"; change "originally" to "artificially".
76	20	Strike out "now".
76	23	Strike out ",and it".
76	22	Add "when" after first "that". Change "through that" to "over the surface".

Page	Line	
77	3	Change "runs" to "remains".
77	6 & 7	Strike out "and to drive it right back."
77	18	Change "but" to "and".
77	22	Add "1937" after "of"; strike out "it must have been 1936."
77	24	Add "wells" after "our".
78	10	Change "surface" to "top".
78	11	Strike out "above" and "why".
78	12	Strike out "it".
85	6	Witness has put in "Question understood" "16 to 17" instead of "16 to 8".
85	11	Change "don't" to "doubt".
87	22	Witness has put in "understood "carbonate" instead of "bicarbonate".
89	1	Change "vonert" to "convert".
89	26	Strike out "to".
90	5	Witness has added "something omitted" after "time".
90	6	Change "the" to "The"; add "were not destroyed or removed in the dense ash furnaces."
92	18 & 19	Strike out "during the".
98	20	Strike out "when you".
102	25	Change "16" to "17".
105	22	Change "upon" to "from"
106	26	Change "1936" to "1935"
107	19	" " " "
108	3	" " " "
108	25	Strike out "8 or".

Page	Line	
109	3	Change "Rudgood" to "Redwood".
109	4	Change "magnesia, oxide and" to "magnesia oxide, a".
111	24	Change "deposits" to "crystals".
112	9	Add "small" after "a".
113	8	Change "waters' crystals" to "water of crystallization".
113	11	Strike balance of line after the semicolon.
113	12	Add "with suitable" after "interior"; add "s" to "arrangement"; strike out "such as"; add "dekahydrate" after "handling"; strike out "it; and".
113	13	Change "in" to "In"; change "previous" to "previously made".
114	3 & 4	Change "crystals" to "crystallization" (3 times)
114	26	Change comma to period.
115	1	Strike all of line 1.
116	23	Change "as well as --" to "as well."
118	11	Change "the next change" to "with changes".
118	12	Change "and the heavy calciners" to "as rotary calciner".
119	5	Change "that" to "vat".
121	7 & 8	Change "a 100 ton and 25 ton" to "125 tons".
121	10 & 11	Add "which" after "heaters"; strike out balance of line 10 and "two" in line 11.
122	8	Change "day; so we" to "day. We".
123	22	Change "produced" to "purchased".
128	7	Change "that were evaporating" to "resulting from evaporation".
130	17	Change "spray" to "solar"
130	19	Add "solar evaporated" after "that".
130	20	Change "in" to "into"; period after "vats"

Page	Line	
130	20	and strike out balance of line 20.
130	21	Make it read "We did that", and strike out balance of line 21.
130	23	Change "on" to "from".
130	24	Change "February" to "October".
133	2 & 3	Period at end of line 2. "It" line 3.
134	2	Change "and" to "when"; strike out comma.
134	3	Change "liquor discarded" to "liquor was discarded from"; change "so that" to "of".
137	12	Change "calciner" to "centrifugals"; and "close" to "closed".
139	14	Change "and we had just dropped" to "so we just stopped".
139	15	Change "and operated these wells" to "operating on these new wells."
145	19& 20	Put period after "agitation". Strike out balance of line 19 and 20. Add "Agitation" at end of line 20.
146	1	Strike out first "is".
146	4	Strike out "and"
148	3	Add "brine" after "pump".
148	4	Change "to" to "heating it"; change "of" to "in".
148	23	Change "chemistry" to "action"
149	22	Change "26 to 28" to "24 to 26"; change "very hot" to "quite warm"
149	23 & 24	Strike out everything after "hand".
149	25	Strike out "Yes". Add "Brine reached 24° to 26° only short time in August, 1937."

The following corrections were made in the deposition of Charles Eckland:

Page	Line	
155	11	Add comma after "sand".
155	21	Change "prices" to "costs".
158	20	Change "department" to "shipment".
164	3	Add "is" after "purchased".
166	12	Change "charged" to "changed".
166	20	Change "profit" to "process".
170	24	Strike out second "of".
175	6	Change "boxes" to "bags".
176	26	Change "in" to "as".
182	14	Add "in" after "covered"; strike out "in".

STATE OF CALIFORNIA,)
) ss.
COUNTY OF INYO.)

I, Chester O. Bear, a Notary Public in and for the County of Inyo, State of California, duly commissioned and qualified to administer oaths, do hereby certify that I received the deposition of G. A. KEEP by registered mail from Mary D. F. ~~Hudson~~Hudson, a Notary Public in and for the City and County of San Francisco, State of California, before whom the same was taken; that the witness, G. A. KEEP, appeared before me on the 16th and 17th days of October, 1939, and that said deposition was submitted to the said witness for reading, correcting and signing, and being by him read and corrected in all particulars desired and such corrections being initialed by me, was by him subscribed in my presence; and that thereafter I returned said deposition by registered mail to the said Mary D. F. Hudson.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, this 18th day of October, 1939.

Chester O. Bear
NOTARY PUBLIC
In and for the County of Inyo, State of California.

My Commission Expires September 2, 1941

STATE OF CALIFORNIA,)
) ss.
City and County of San Francisco.)

I, MARY D. F. HUDSON, a Notary Public in and for the City and County of San Francisco, State of California, do hereby certify:

That the witnesses in the foregoing depositions named, STANLEY PEDDER, G. A. KEEP and CHARLES ECKLAND, were by me duly sworn to testify the truth, the whole truth, and nothing but the truth, in the within-entitled cause; that said depositions were taken at the times and place therein named; that the testimony of said witnesses was taken down in shorthand by HAROLD H. HART, a competent official shorthand reporter and a disinterested person, and by him thereafter reduced to longhand typewriting, under my supervision, and when completed, the testimony of said STANLEY PEDDER and CHARLES ECKLAND was carefully read by, or to, the said STANLEY PEDDER and CHARLES ECKLAND, and, being corrected by them in every particular they desired, was by said STANLEY PEDDER and CHARLES ECKLAND thereafter duly subscribed.

And I further certify that I am not of counsel or attorney for either of the parties to said deposition, nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office, this 16th day of October, one thousand nine hundred and thirty-nine.

Mary D. F. Hudson
NOTARY PUBLIC
In and for the City and County of San Francisco, State of California.