A. In determining these rates, we applied—at the end of 1926, we had settled our tax matters with the Income Tax Department, and the rates that they had approved for tax purposes, a number of them were used in this adjustment.

364 Q. Is there a study which was prepared by your staff to determine the proper rates of depreciation for the various classes of property for 1934 on?

A. No detailed study; no, sir.

Q. How did you reach the conclusion without a detailed study?

A. It was more a—there was no detailed study made. It was more of a judgment figure.

Q. How do you account for depreciation?

A. I might explain briefly that over a period of years—over a 40-year period, it has been the practice of the company to set up annual amounts that would provide for retirements—the amount of money that we would need in the business to develop the property.

Q. Was that based upon age life studies?

A. No, sir.

Q. And the result of setting up that—that is a judgment figure, I assume?

A. Well, the whole plan was to keep enough money from revenues, from earnings, to develop the property with. There is a substantial amount of it that has been developed from money retained in the business from revenue.

Q. Do you have a study of the life expectancy of the various classes of property in the Hope Natural Gas Company?

A. No; we do not.

365 Q. Do you know the present age of the major classes of property in the Hope Natural Gas Company system?

A. No; we do not.

Q. On page 6 of Exhibit 11, you show that for production system property, you reduced the rate of depreciation for unoperated acreage, for instance, in 1929, from 10 percent to 8 percent in 1938. What is the explanation for that?

A. Beginning with 1923, we had set up 10 percent on unoperated acreage to make provisions for acreage cancelled and surrendered, and that rate was found to be accumulating too much in amortization, and it was reduced to 8 percent.

Q. And how did you reach the conclusion that it would accumulate too much?

A. Well, the amount accumulated over the period of time was too large in proportion to the amount of investment in that unoperated acreage.

Q. What is the explanation for reducing the rate of depreciation on general structures from 5 percent in 1929 to 3 percent in 1938?

A. These different rates on various classes of property were only used and adjustments made to determine the annual
366 amount—the adjustment in the annual amount that we wanted to reduce.

Q. You said that you do not have the information on the age or the average age of any of your classes of property?

A. We do not have it as such; no.

Q. In your annual report to the West Virginia Public Service Commission, don't you set out the pipe by size and average age?

A. I believe in making that report there is some computation put in there—some figure put in. However, it does not mean anything as to the actual age. It is an average.

Q. You file them as actual reports on the operations and information about your company?

A. The report called for it, but we did not have the information, and there is just some computation made there on an average basis. It is not exactly correct, but it is used as an average age.

Q. You say over the 10-year period mentioned in your Exhibit No. 11, page 6, there has been a decrease in the annual depreciation rate. You say that there is no scientific study upon which you base that decrease?

A. No; there is not.

367 Q. Well, I cannot understand how you can guess at what is a proper annual rate of depreciation without mortality data or age-life information of your property. How did you do it?

A. The plan that we followed, as I explained to you, Mr. Springer is—we take into consideration the annual amount of money that we might need. We know what our retirement losses have been over the past few years, and we know what our losses to capital account has been, and we take all of those different factors into consideration, and we aim to keep in our business a certain amount of money needed to provide for those things rather than to do new financing.

Q. What will you do under the prescription of the new Uniform System of Accounts prescribed by the Federal Power Commission effective January 1, 1940, which prescribes for the annual accruing for depreciation accounting on other than the retirement account basis that you speak of?

A. We are now installing that system and we are having our engineers and so on make a study of these depreciation matters, and we will endeavor to put that into effect.

* * *

369 A. It has no connection with these statements here, Mr. Springer. It is a separate matter. I have been trying to tell you what we have done. You will notice that we have got $10,000,000 here in these depreciation reserves. The company is 40 years old, and there has been no scientific study made of this depreciation and so on in the plant, in fact we did not operate that way, and as I have endeavored to explain to you before, it has been the company's plan and procedures and working all down through—of course, 40 years is a long time—but they have used this depreciation here just as I see it in keeping in the business and retaining from revenues and so on the money to finance themselves and to develop their property. A substantial amount of their property has been developed through this medium rather than to—in fact, you could have—if you had had the actual accrued depreciation in the plant, you could have set up a smaller amount, and if you had followed the same procedure you would have had a very large surplus, so that in the $40,000,000, quite a bit of that is excess surplus. On the other hand, with going along on that basis, if they had paid out—if they should have paid it out in dividends and then extended their plant and additions, we would have had to put
370 out new financing to do it, but they elected to go this route.

Q. You have never practiced depreciation on what is known as a straight line basis?

A. Well, we have applied different rates to various classes of properties. Those are kept more as working sheets or data like that in order to accumulate—in order to determine the annual amount, whether you wanted 1½ million dollars, whether you wanted 2 million dollars. However, the amount that is accumulated on the various features of investment in the depreciation

account really does not mean anything as to the actual depreciation of the plant.

Q. Those working papers you spoke of were the basis of your conclusions? Could those be furnished to Mr. Lyon tomorrow?

A. You have reference to this adjustment that was made in 1934?

Q. Yes; I would like to see the studies that were made. You spoke of negotiations with the Bureau of Internal Revenue. You apparently had studies to back your claim up, and if you would give Mr. Lyon access to those tomorrow, I would appreciate it.

371 A. I think we furnished to your staff the rates that the Bureau of Internal Revenue had fixed for the various classes of property on a straight line basis.

Q. The working papers behind those are available, aren't they?

A. We had no working papers.

Q. How did you substantiate you claim for certain depreciation rates at that time?

A. With the Bureau?

Q. Yes.

A. They fixed the rates.

Q. Do you have the basis of their computations?

A. No; that was done—at the time these rates were agreed upon, and so on, was just by discussion and talking the matter over and a certain rate was on transmission, and as I recall it was 3½ percent—transmission investment. A certain rate on this class of property or that class of property and certain allowance was made.

Q. Didn't you disagree with them on any of the rates of depreciation that they selected?

A. Yes; we may have argued with them on some of them.

* * *

373 Q. Mr. Chisler, will you refer to page 21 of Exhibit 11 again, the item of Depreciation and Depletion Reserve in the amount of $5,901,000. Is not that adjustment of those reserves properly an adjustment of operating earnings shown on page 20 of this exhibit?

A. I would say not. We had closed our books for these various years, and after this 1934—this adjustment was made direct from the depreciation reserve to surplus. Page 20 shows just exactly what we did on our books.

Q. But the origin of the approximately $6,000,000 is operating income, isn't it?

A. Well, of course, on your depreciation expense along there —if you would change that depreciation expense it would show a different result in the net income.

Q. That is what you are doing in effect, is it not?

A. Well, you make adjustments from time to time for prior years, dividends, and so forth. You may adjust your surplus account, but your surplus adjustments will be taken ito consideration on any study that you want to make of the year's business. We have done this just as it is reported on our books.

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880 **TESTIMONY OF HOPE WITNESS RHODES ON OBSERVED DEPRECIATION**

Transcript Pages 880–1013, 5308–5313, 5962–5965

* * *

Cross-examination by Mr. SPRINGER:

Q. Mr. Rhodes, in Exhibit 21, reproduction cost new less depreciation of company properties as of December 31, 1938, will you define depreciation as you have used it in your exhibit?

A. In brief, it is the extent to which probably has been consumed or otherwise used up in the operation of the company.

Q. Is that loss in service value or physical deteriora-
881 tion?

A. It is all the depreciation which exists, in fact, in the property.

Q. Could you list the elements that cause depreciation?

A. Corrosion, wear and tear, deterioration from the elements, exhaustion of gas wells, and to a minor extent, the obsolescence of certain parts or types of equipment in the property which are leading to retirement.

Q. Did you also consider inadequacy of equipment?

A. To the extent that it has any application; yes.

Q. You have probably described changes in the art as obsolescence; is that so?

A. Yes; changes in the art may be a cause of obsolescence.

Q. Have you considered the requirements of the public authorities?

A. To the extent that they are applicable.

Q. And the changes in demand upon the Hope Company?

A. To the extent that it is applicable.

Q. Will you define what you term as condition percent in your exhibit?

A. It is the percentage amount—it is 100 percent, less the amount of depreciation as I have defined already,
882 expressed as a percentage.

Q. Would this be in essence your test, the percent which the condition of the unit of property in question as it existed when examined, bears to that of a like unit of property of the same size, kind and description, similarly situated, but new, and new is 100 percent?

* * *

The WITNESS. That would substantially be my test. The question in my mind is as to the meaning of "like." If by "like" you mean identical, that is so.

By Mr. SPRINGER:

Q. You have used the words "percent of depreciation accumulated" in your exhibit.

A. That is right.

Q. Is that the complement of condition percent?

A. That is the difference between 100 percent and the percent condition of the property.

Q. If you added percent of depreciation accumulated and percent condition, you would get 100 percent?

A. That is correct.

Q. How can you arrive at such a thing as a percent of a condition in which property is found?

A. By taking into consideration the factors which
883 cause the property to be used up and consumed in the operations of the company.

Q. What instruction did you give the men who inspected the Hope Natural Gas Company's properties?

A. The instructions that were given to the men who inspected pipe lines were to inspect two contiguous 18 inch sections of pipe in test holes that were prepared in advance, measuring and recording in each section the twenty or thirty deepest pits that they could find in each of those sections as to depth, taking special care to clean out the rust and scale that might have accumulated when the pipe was in the ground, and to record other conditions as to surface drainage, ditch drainage, character of soil and other factors that have an effect upon the deterioration of the pipe.

The men inspecting machinery were instructed to determine the extent to which that machinery, the wearable parts of that machinery, had worn out in service. The men inspecting buildings were instructed to record the extent to which the building in its various parts had rotted or deteriorated or otherwise worn out.

As to buildings and equipment, they were also instructed to report any special conditions that to them seemed to require consideration. They were all sent in the field to ascertain
884 facts, which facts were brought into the ffice, correlated and made available for my consideration.

Q. Can two men look at the same piece of property and reach the same conclusion on the condition percent?

A. Substantially so. I have had tests made at various times in that direction and obtained results that were substantially identical.

Q. Did you give your inspectors a form sheet to fill out for the condition in which they found the property? Did you have a base assumed below which percent condition could not go?

A. No. They were asked to record the deterioration in machinery, for instance, those things which wear out in service, all of the things, and when worn out, they were done. The same thing was true of buildings, and it is well illustrated by the fact that reports came back on some buildings, with nothing but scrap value. There was no bottom.

Q. Didn't you have any classification of good condition, very good, or fair condition?

A. Yes. There were definitions under which they worked. They were asked to record as being in excellent condition, for instance, anything which they inspected which, so far as they could see, had not deteriorated at all. Another
885 common condition, they were asked to put in bad condition anything which they saw which was seriously deteriorated and in imminent need of heavy repairs.

There were intermediate conditions between those two, such as good, fair, and poor; in other words, it started out excellent, good, fair, poor, and bad.

When they found conditions that were worse than seriously deteriorated and in need of imminent repair, they reported the thing specially as worse than bad, and in connection with buildings, I noted from viewing the individual inspection sheets, that there were several degrees of badness, worse than the bad.

Q. Do I get the impression then that your men's judgment of condition percent is an estimate of deferred maintenance in the property?

A. No. Deferred maintenance is neglect. Property deteriorates and begins to decay or begins to wear out almost from the beginning, and it is not deferred maintenance until the owner

has failed to correct that depreciation when he should. They have determined the extent to which it had accumulated.

Q. Is it possible to distinguish between what you call deferred maintenance and condition percent?

886 A. Yes. As I have explained before, deferred maintenance is not deferred maintenance until the property should be repaired.

Q. But your men have classified property as badly in need of repair?

A. No. I said badly deteriorated and in imminent need of heavy repair. If a building, for instance, were neglected after that, so that it began to fall into ruin, that would be a result of deferred maintenance, but nevertheless, when the building was ruined, would be completely depreciated.

Q. How did these inspectors translate their estimate of condition percent from their minds to your mind, for the preparation of this exhibit?

* * *

Q. Will you explain now the different methods used in determining the condition percent of the major classes of

887 property so that we can start on a common base.

A. Well, take compressor engines, for instance. Those engines are inspected by a man who has been living with compressor stations and their construction and rehabilitation for a number of years.

He has erected and dismantled and repaired engines of the kinds that represent the greater part of the cost of the engines in this property. He knows just what parts of these engines do wear out and which do not wear out, and we ascertained from the manufacturers the extent to which those various parts contribute to the cost.

Now, for instance, the main frame of an engine never wears out and it is never replaced, except as the result of an accident, and it does not depreciate.

The shaft of an engine rarely if ever is replaced because it wears out, and certainly the fly-wheels do not wear out. There are certain parts such as separators between cylinders in which the crosshead runs, and very little of that ever wears out. The pistons, piston rods, parts of the cylinders, parts of the cylinder heads and valves all wear out.

Now, in an engine, roughly speaking, the parts that wear out cost 30 percent of the whole cost of the engine, and the

888 parts that are never replaced except as the result of an accident, and never retired, except as the result of an accident, cost about 70 percent. Those are in round figures.

In conditioning engines, I found that this inspector had carried out his instructions, but that his recording as bad was only for those parts of the engine which were ready to be replaced in toto, so that those parts which were called bad were rated as not quite but almost gone. The parts rated as excellent were rated not at 100 percent, but partly worn; with the overall result that on this property as a whole he found that these parts that wear out in service were not quite half worn out; in other words, the depreciation, the wear and tear in the engines, was something less than fifteen percent of the total cost of the engines.

He determined the wear and tear on the engines as a matter of fact, based on his knowledge of the parts. He took into account the condition of the engines as indicated by the service records, he consulted the chief engineer in the station as to major replacements in expensive parts in recent years. His figures finally conveyed to me the extent to which those parts that wear out had worn out, and that was the starting point with respect to compressor station equipment when I started.

889 I made an addition to the depreciation which he found, the wear and tear, to reflect reasonably the cost of dismantling those parts when they had worn out. Furthermore, I found, I think it was two engines of a type that the Company has been retiring rather than moving to new locations, over the years, which engines I marked down to I believe the figure was 50 percent. The engines are perfectly useful in their present locations, but based on the Company's practice in the past, I concluded that they probably would not be moved to a new location when the other equipment in the station was moved.

I also found that there were certain details in the auxiliary plants, for instance, rather complex methods of driving the pumps and compressors, and electric generators, and so forth, which the Company was gradually displacing with the simpler and more economical drives.

That equipment was heavily marked down to reflect the practice of the Company in the retirement of that property. I also found that there were some engines of another type that this company and its sister companies are modernizing through the retirement of some parts of the engines and the fuel supply piping to these engines, and are gradually replacing with the new

and more modern parts, and the necessary change in the
890 piping to accommodate those engines, and all of such engines were marked down to reflect very heavily the probability that these parts of the engines would be replaced fairly completely in this property, as they have been in some of the other properties.

Q. How much of the property that you have described could be seen?

A. The parts that are retired and replaced can be seen to the extent of probably 90 per cent. Of course, the actual wear, the things that wear out, are concealed, but the things that cause the replacement, for instance, of gas engine cylinders, in the long run, is the accumulation of too many body cracks in the cylinders. These engines gradually crack in service from changes of temperature, and sooner or later the parts of the cylinders are replaced. The practice of the Company in this respect was taken into consideration by this inspector in arriving at the condition.

* * *

891 With respect to the extent to which the property would be seen, I have very definitely in mind in reaching my final conclusions as to the total depreciation accumulated, in the compressor station equipment, that there are sources of depreciation other than those which can be seen, and having that in mind, I increased the depreciation which could be seen from 17 per cent by an additional two per cent which I believe adequately reflects all of the other causes of depreciation in compressor station equipment.

By Mr. SPRINGER:

Q. All causes other than wear and tear, you have given——

A. (Interrupting.) No; wear and tear and those that can be seen. You can see, for instance, that these two engines that I mentioned, that I marked down because the Company had been replacing them, you can see in your inspection of the property that they are becoming obsolescent; you can see from an inspection of the property that this complicated method of driving auxiliaries was being gradually retired and replaced with a simpler one. That is, change in the art or obsolescence.

892 We could also see, and which I failed to mention before, that there is certain compressor equipment in one station, in fact, that is not being used, and that equipment was reduced down to the warehouse value of the equipment, as though it were

carried in the warehouse stock instead of the compressor station operating equipment. All of the cost of the installation has been eliminated, and all of the parts that could not be salvaged were eliminated. Those are things which can be seen by an observation of the property.

The additional 2 per cent was to cover those things which are likely or have been causing retirement of the company's compressor stations in the past—an allowance for a continuation of that in the future, having in mind that there is a very high salvage on this type of equipment, most of which is moved bodily to a new location.

For instance, at the present time a station is being built down at Hunt, from equipment, practically all of which is taken from other stations in the company or its affiliate,—the Reserve Company, which has now been absorbed.

Q. Would you describe in a little more detail the inspection method used to determine the condition percent in compressor station equipment?

A. Each piece of equipment was examined thoroughly
893 and carefully to the extent that it can be examined without dismantling, by a man that is thoroughly familiar with the details of the construction and operating troubles of that equipment.

Q. And you said that thirty per cent of it was wearing parts and seventy percent nonwearing parts?

A. That is right.

Q. Then does it follow that a compressor engine does not depreciate below 70 percent?

A. I have depreciated two of them down to 50 percent, but in general that is so. An engine could have all of its wearing parts completely worn out, in fact moved to a new location, it may be the case, with the wearing parts all replaced, and that engine would be absolutely as good as a new engine, and it would last indefinitely, because the nonwearing parts are not replaced as a result of wear and tear. Nothing but an accident or an explosion or a fire.

The TRIAL EXAMINER. That is without consideration of obsolescence, is it not? You do not mean that that engine would be as efficient as the new engine or modern engines?

The WITNESS. It would be just as efficient as it ever was or as a modern engine of the same type would be. The greater part of

894 this company's engines are National Transit four-cycle engines or Worthington four-cycles, or Westinghouse. Those engines are very much, in fact almost identical with the engines that are built today, and when thoroughly overhauled, as they are when sent to a new location, will operate with substantially the same efficiency as an engine bought today.

Of course, the two-cycle engine, when overhauled, operates just as efficiently as the simple two-cycle engine when bought today. It can be by the replacement of certain parts, improved in efficiency considerably, and it was for that reason that I made provision for the retirement of those parts which had to be replaced in that improvement.

Now, there are other types of four-cycle engines, for instance, the old Snow engines, that they do not make any more, but those engines are just as efficient after a complete overhauling as they were when they were first built. They will never be retired because they are not quite so efficient as the type of four-cycle gas engine which is more common in the company's property. They move it to new locations as circumstances indicate.

By Mr. SPRINGER:

Q. Mr. Rhodes, in what percent condition would a compressor engine be before retirement?

A. You mean before the engine itself is junked?

895 Q. Isn't there a point where maintenance is so great and depreciation is so advanced that it is uneconomical to run an engine or compressor?

A. No; that is not so. Compressor engines never get in that condition unless they are grossly neglected by the operators. You can take an engine that has been grossly neglected by the operator and you can replace the wearing parts and tune it up and it will run just as efficiently as it ever did. The cycle of replacement of these parts that wear out is fairly short in the case of some things. There may be some things, every two or three years, like valves, in certain locations, and maybe cylinders will last twenty or thirty years on the average, but sometimes they last only a few years, but the engines, if properly maintained, do not become increasingly expensive to maintain, as a general thing.

Q. Did you determine the age of every unit of property?

A. No; I was concerned only with its physical condition, because irrespective of its age, it can be restored to perfect condition for a relatively nominal cost. Age has nothing to do with the retirement of gas engines. In the Company's experience here,

the only cause of engines that have ever been retired, as
896 nearly as I can find out, has been either as a result of an accident or of this one type of engine which would be classed as a freak type which has never proved satisfactory in operation, and they are retired only when the question of movement to some other location is involved, and it is decided that it is not worth while to do that. Those are the only engines retired, as far as I have been able to find out, and they represent possibly 1,000 horsepower out of 90,000 odd which the company owns.

Q. When you speak of freak equipment, do you refer to the $30,000 worth of equipment at the Davis station which was reconditioned and then sold for junk?

A. Those engines at the Davis station were of that type; yes. They were very expensive to repair, and very troublesome to repair when they got into trouble.

Q. Will you describe other methods of inspection to determine the condition per cent of compressor station equipment?

A. That covers compressor station equipment in general. Of course, buried pipe lines, for instance, in compressor station yards, are taken to be in substantially the same physical condition as the other pipe lines. The buried pipes, valves and fittings that connect the yard lines to the engines, were placed in
897 the same condition as the engines. They consist of parts that do not wear out, in fact, the only parts that do wear out are the rings and the packings in the valves, but they were placed in the same condition as the engines, and so was the other property which was buried, in connection with the engines, such as the foundations.

Q. Will you please turn to page 19 and 20 of Exhibit 21 and describe the methods of inspection you used in determining the percent condition by the accounts as they are described there, and if you do not have a separate method of inspection, then please describe the ones you did employ.

* * *

The WITNESS. There were only three basic methods of inspection. All equipment, whether it be engines, compressor cylinders, valves, fittings, regulators, meters, drilling and cleaning equipment or whatnot, all of that type of equipment was inspected by the use of the principles that I have just outlined. The differences between them are really minor differences in that a more thorough inspection would be given of an expensive piece
898 of machinery than of a cheaper piece of machinery.

The second method of inspection relates to structures, and a third method of inspection relates to underground pipe lines.

The gas wells were depleted not by inspection but in proportion to the reduction in useful working pressure.

As to buildings, and buildings at compressor stations, they were inspected at the same time the equipment was inspected, by a man who was a building designer and constructor and who was living with the design and construction and repair of structures for a great many years. He has built structures for me and he has designed structures for me, and he has torn down structures for me. His instructions were, as I have already stated, to record excellent, good, fair, poor and bad, and he reported 45 degrees worse than bad.

I found myself in discussion with him of what his intent was, and again we found that an excellent part of a structure—and he inspected the structures in their various parts—not just looking at a structure, but he inspected the foundations and the framework and the walls and the roof and the floors of the structures—I found that these parts that he had rated as excellent had deteriorated on the average not over 5 percent, and the
899 worst degree of bad was down to junk, so we weighted it—he had about ten degrees of condition—and we weighted those conditions of the various parts of the buildings, or rather, he did, in the proportion as they contributed to the cost of the building, and got a rating for the building.

The building might have had a rating of poor or fair that he arrived at by that method. Then he put together in a similar manner the ratings of all of the buildings in a group, like at a compressor station, and gave me that rating which he translated into a percent deterioration, in other words, it was his opinion as a result of that calculation, that the buildings in that group had deteriorated so many per cent.

Q. Could you tell me the inspection method employed to determine the percent condition of the drilling and cleaning equipment?

Mr. Milde. Are you through with your explanation of the buildings?

The Witness. No; I am not.

The Trial Examiner. Before you go any further, I would like to ask one question. How did he average the grades of his good, bad, and so forth, in order to arrive at a classification
900 of the whole building?

The WITNESS. In buildings, for the purpose of weighting, he just used consecutive numbers. That is all that is necessary, but the effect of it was to rate as excellent, five per cent depreciation, and each one of his successively poorer conditions was ten per cent worse.

The TRIAL EXAMINER. He inspected the foundations, for instance, and he rated that, we will say, as excellent?

The WITNESS. Yes.

The TRIAL EXAMINER. Then he rated the walls, we will say, and he rated them good.

The WITNESS. Yes.

The TRIAL EXAMINER. And the roof he rated fair, or something like that?

The WITNESS. Yes.

The TRIAL EXAMINER. Then how did he get the average for the whole building? Did he reduce it to percentages?

The WITNESS. He did not do that, although he could have done that and he would have had the same answer. If he had carried out his weightings, for instance, by calling the excellent foundation 95 per cent, the good frame 85 percent, and say the fair roof 75 percent, and so forth, he would weight those percentages in proportion as these various parts contributed to the cost,
901 and he would end up then with a weighted average percent.

It is easier to work with index numbers, which will give you the exact result—exactly the same result, but in effect that is what was done.

When this man's work was finished, and he had assistants with one or two other men, I spot checked their inspections, and without know what their figures were, or their results were, and those checks came, as I say, substantially to the same answer.

These figures were totaled for all of the buildings in an account, and I was given a statement as to the percent of deterioration he had found in that account. I adjusted that to fairly reflect the cost of abandoning that building or tearing it down or tearing down parts. I adjusted that to reflect buildings, the usefulness of which had ceased.

For instance, in that Davis station that was just mentioned were five engines that had been junked, and I reduced that portion of the building which was of no use, to the scrap that could be obtained from tearing it down.

Incidentally, that building will later be used, or soon will be used, for auxiliary equipment to release a present auxiliary building for storage purposes. But there are other buildings,
like the Lemley station, for instance. That station is a
902 station in which the equipment had been reduced to its
warehouse value. That building has no use except to shelter that equipment which is remaining there pending its need in some other location. That building was reduced to salvage value.

In other cases, wherever we found that there were buildings that we had the reproduction cost new, we reduced those buildings down to salvage value.

In the case of some types of buildings, like small buildings, housing field meters and those buildings can be picked up bodily and moved to a new location when they cease to be used for that particular location—the same is true of meter boxes, but when you are dealing with large buildings of the type most commonly used by the Company, they are torn down, various parts of them are salvaged, and used over again for other structures, in various accounts.

Having thus determined all of the depreciation which could be seen, namely the deterioration of the buildings and the fact that they were not used, I then, realizing that there was depreciation from other causes, more or less intangibly, which could not be seen, I increased the depreciation.

For instance, the gas well structures, the observed depreciation
was 40 percent when I corrected it, but I added 4 percent
903 more, and generally throughout these structures, I have
decreased the depreciation observed by, in round numbers, one-tenth, to reflect that depreciation which cannot be seen but which is leading and has led in the past to the retirement of the structure from service. That method was applied to all of the structural accounts.

Gas well structures, field measuring and regulating station structures, other production system structures, compressing station structures, transmission system measuring and regulating structures, and other transmission structures and general structures. In every case it started with observation of deterioration on the part of a man skilled in the art of designing, constructing, and taking care of buildings.

Q. Is it fair to state then that in every case where condition percent of units of property was estimated, that the physical deterioration was the major factor?

A. That is correct.

Q. Will you please describe the method of inspecting drilling and cleaning equipment?

A. The drilling and cleaning equipment was inspected by the men who are using that equipment and not by our men. I rated the equipment at its usefulness to them and then
904 later, after consultation with me rated it down to the extent that it had worn out, reflecting what they had been able to get on the average as salvage. Equipment for which there was no use was reduced to what they were currently obtaining and selling such equipment in salvage value, for partly worn out equipment.

I took that into consideration by some calculations made from a portion of the equipment, for instance, such as bits for drilling. Those bits are six feet long when they are bought, and there is about three feet to wear, or thereabouts, and we had the measurements of a great many of the bits, and I found out what proportion of the useful wearing portion of the bits had been consumed and used that as the test of the reasonableness of the company's inspection of the equipment which they were using.

In the matter of cordage, for instance, like cables, which wear out fairly rapidly, I saw to it that the condition of those things was marked down substantially to half way between new and junk value, because they exist in all conditions, from new cables that have never been used, to cables which will never be used again after they come off the present job. But, as related to the equipment, its wear and tear of the equipment that is being and can be used, and the salvage value of that material which
905 they can and are disposing of as fast as it can be absorbed.

Q. Is there any difference in durability or efficiency of drilling and cleaning equipment? Have there been any advances in the art of manufacturing drilling and cleaning equipment?

A. Yes; but the equipment which the Company now has that might be in that class is practically all of the new type. The particular advances in the drilling and cleaning equipment have been in the use of portable outfits, which the company has thirty or forty of—I forget the exact number—which make it unnecessary to move in and erect a derrick and set up the house for the engine and the belt house, etc. That is required with the old

type of drilling and cleaning equipment, but with the new type, they move a portable outfit up there, and it is in, everything is there that is required to do the job. There have been no particular improvements other than that, and for the purpose of repairs and deepening of wells, which is the company's use for it, the bits that they have are just as effective as though they were made of the more modern steels, which perhaps would be more desirable, if the company itself were going into a heavy drilling program, but for the purposes of repairs, there is nothing better than that which the company now owns.

906 Q. Does the company drill its own wells?

A. Not now. It deepens wells at times, after they have been cleaned out.

Q. Does it have use for what you estimate to be more than a million dollars worth of drilling and cleaning equipment?

A. Well, I examined the principal operations carried on by the company for the past fifteen or twenty years that required the use of drilling and cleaning equipment, and found out the maximum needed at any one time that was likely to be needed, and the company could not get along with less than sixty of such outfits, and probably should have seventy or eighty of such outfits.

Well now, the outfit required to clean a well costs just about the same amount as the outfit required to drill a well—somewhere between $12,000 and $15,000, depending upon its type. Eighty of such outfits would cost approximately $1,200,000 and sixty almost $1,000,000. That relates only to those things which they use immediately in cleaning the wells. The company, in addition to that which is actually being used, has different stocks of spare parts and spare material, special tools, and so forth, so I reached the conclusion by that independent study, that the total amount of drilling and cleaning equipment of

907 $1,000,0000 was by no means excessive, and its depreciation to $751,000 fairly represents the extent to which that has worn out, and the extent to which salvage can be had of the equipment that they cease to use.

Q. Did you take into consideration in your condition percent estimate for drilling equipment, the proportion of the cost of such property which has already been charged to the drilling of the wells?

A. I considered only the equipment as it exists, and what it would cost to replace that equipment.

Q. Will you please describe the method of inspection used to determine the condition percent of transportation equipment?

A. We studied the record of automobiles for the last ten or fifteen years, that were retired, to find out when they were bought, when they were retired, how much was paid for them, how much was received for them, how many miles they had traveled before they were finally turned in. We studied the record and found that the company was getting an increasing mileage of its automobiles and trucks before they were turned in, in fact there was a considerable increase, particularly in trucks.

We found out from that trend in increasing mileage, what the mileage fairly was as of December 31, 1938, and
908 the passenger automobiles, for instance—we depreciated them, rather, in the proportion of the mileage that they had had run on the average, at December 31, 1938, which that bore to the total mileage to be expected from the automobiles as of that date, reflecting of course as a minimum the average turn-in-value of the cars.

Q. Didn't you consider the year on the Blue Book rating?

A. We gave no consideration to that. It was based wholly on the company's experience in the retirement of cars and the increase in mileage that they had been getting from cars and trucks, and the actual mileage of the cars and trucks, as of the date taken. In other words, they were depreciated in the proportion as they had used up their mileage possibilities.

Q. Then you did not inspect them in the manner in which you inspected the compressor station equipment?

A. No; they were not inspected. It is a relatively unimportant account. This method of arriving at the depreciation we considered to be a complete determination.

Q. Will you please describe the method of inspection for determining the condition percent of office furniture and equipment?

909 A. That is another minor account. That equipment was all inspected. Each piece of equipment was inspected and rated from the standpoint of physical deterioration. That which was left up in Pittsburgh was conditioned in the condition that the People's Company were willing to take it over, except certain portions, which were described and were considered as junk.

We found that that equipment, by that method of inspecting it, had depreciated 27 percent, which I increased to 30 percent,

to make sure that the amount was adequate to cover all of the depreciation which existed in that furniture. That is a $200,000 account.

Q. Can you tell the percent condition of a table by looking at it?

A. One can estimate the extent to which it has deteriorated; yes. As related to any individual piece of furniture, the estimate is rather rough, but as related to hundreds of pieces of furniture, these roughnesses iron themselves out, so that the over-all figure is reasonably accurate.

Q. You did not determine the age of any of them?

A. It makes no difference, because some of the oldest furniture in the world is the most expensive. Age has
910 nothing to do with it.

Q. Didn't you consider performance ability?

A. Performance has nothing to do with a desk which is physically perfect.

Q. You mean that you would put your feet on an antique desk?

A. No. There are no antique desks in this property.

Q. You just stated that sometimes it increases in value with age, but for utility purposes, useful purposes, that is not so, is it?

A. For useful purposes, a desk is just as useful fifty years old as when it is new, if it has been kept in repair and all of the parts are there, all of the drawers will operate satisfactorily, and it can be kept in that condition, and an inspector can tell from the appearances of furniture and an examination of it, how much of it has depreciated for practical purposes.

Q. Will you please describe the method of inspection to determine the condition percent of the tools and working equipment?

A. Frankly, we did not spend a lot of time on the depreciation of $5,000 worth of tools and work equipment. Some of that is equipment in the nature of special instruments, that are
911 useful for an indefinite length of time, in fact, if they deteriorate much they cannot be used. That $5,000 account, I have depreciated 15 percent.

Q. Will you please describe your method of inspection for determining the condition percent of the communication equipment?

A. The condition percent of the communication equipment was determined from an inspection of about five percent of all of the poles by a telephone man. The condition rating of the

poles, as excellent, good and bad, was rated down to a bad pole being ready for replacement and almost completely depreciated. The wire rated as bad was conditioned as to its approximate salvage value as copper, which is about 40 percent. The fixtures were rated the same as the poles, down to practically zero. The central station equipment, which does not represent a very large proportion, was rated by inspection, having in mind that in non-commercial service, telephone equipment has a long life.

I found, as a result of analyzing those conditions, that physically it was 27 percent depreciated. Realizing that there are some other causes of depreciation than the pure physical, it was increased by me to 32 percent. Following the determina-
912 tion of that depreciation of the equipment, I consulted with engineers of the West Virginia & Potomac Telephone Company, who agreed with me that it was a very reasonable amount of depreciation to find in a property such as would be owned and operated by a natural gas company, where style and commercial sales consideration do not enter into it. It is purely a service equipment.

Q. Did you employ the same man to determine the percent condition of communication equipment as you retained to inventory that equipment?

A. No; it was another man.

Q. Was there an inspection of rights of way?

A. We walked hundreds of miles of right-of-way in determining construction conditions and saw something over 2,000 miles of rights-of-way. The right-of-way itself does not depreciate.

Q. And that is true of natural gas producing lands?

A. In general; yes.

Q. In determining condition percent, did you instruct your men to consider the size of the unit of property?

A. There was no occcasion to consider the size of the unit of property.

Q. Did you instruct them to consider strength of the unit of property?

A. Strength of a property does not deteriorate. The
913 strength of a pole at the butt is the dominant feature as to whether or not it is worn out or decayed to the point of almost complete depreciation, but the strength of a pipe does not deteriorate. The strength of a gas engine does not deteriorate. Strength does not enter into it except as it weakens the

thing through deterioration, which is reflected automatically in the physical figures which were brought in to me by the inspectors.

Q. Does the strength of a boiler make any difference in its condition per cent?

A. The strength of a boiler that has been for years passed by the insurance inspector as in perfect condition is not changed. That 'oiler has not depreciated from deterioration.

Q. Do you know what the average life of a boiler is?

A. The average life of a boiler might be from five years to a hundred years, depending entirely on how it is taken care of. I know that in the common run of boilers, that the insurance companies think of thirty years, but they will insure a boiler forty years old and take the full responsibility for all damage that can occur due to the failure of that boiler, if the boiler is kept up to their requirements on inspection.

Q. Did your inspection of boilers embrace a hydraulic
914 test?

A. No.

Q. Did you consider the elements of the dollars required to restore the item to condition as new?

A. No.

Q. Did you consider its age?

A. In connection with boilers, we did take into account the age of the boilers, in this way—I found that these boilers had various ages, up to fifteen years or so, and which comprised most of them, and that they had been running for years without any evidence of deterioration, as indicated by the reports of the Hartford Boiler Insurance Company inspectors, which is the company which insures those boilers. The inspector for the insurance company makes whatever inspections are necessary to protect his company. He reports defects, and there were no defects reported, and so I reached the conclusion that those boilers had, in spite of their age, only lived half the life, or rather, had only depreciated to half the extent that boilers do on the average, and so I took the figure as used by the insurance company of thirty years, and depreciated that one half to fifteen years.

Q. Did you consider the element of age in determining the condition per cent of the pipe lines?

915 A. Not directly.

Q. Did you consider the element of age in determining the condition percent of the compressor station equipment other than boilers?

A. I did not.

Q. Did you consider the element of age in determining the condition per cent of buildings and structures?

A. No, I considered only the defects of age.

Q. Did you determine the life expectancy of the units of property which you inspected?

A. No; we determined, however, the average extent to which the life expectancy of various retirement units and replaceable parts had been exhausted.

Q. How did you determine that?

A. The same way that you tell whether half of the gasoline in your automobile tank is gone or not. You know whether it is half gone or not without knowing how much the tank holds. I did it in just the same way.

Q. Could you illustrate that with a structure?

A. You cannot illustrate it perfectly. I explained that this inspector of structures rated the parts all the way from substantially perfect to ready to junk, and it was necessary to depend upon his judgment and skill as an expert on buildings,
916 which was done. You cannot measure it as related to a building.

Q. And you could not relate it to a gas engine either, could you?

A. Not readily.

Q. That would be true of all of the property, wouldn't it?

A. No.

Q. What are the exceptions?

A. You can measure it directly as related to pipe lines.

Q. Their life expectancy?

A. No; the ratio to which the various parts of that pipe line have lived their life expectancy without going through the age or the life expectancy, and you can determine the ratio.

Q. I shall read the definition from page 5 of Exhibit 13, which is the Uniform System of Accounts for Gas Utilities prescribed by the Public Service Commission of West Virginia in 1939: "Service value means the difference between the original cost and the net salvage value of the utility plant." Did you give that any consideration in determining the condition per cent of the units of the property?

A. Only to the extent of substituting reproduction cost for original cost, and substituting for the words "net
917 salvage value" the words "net salvage recoverable."

Q. Did you consider the capacity to do the work assigned to the unit, either as compared to a new unit of like type or a new unit of some better type?

A. The capacity of these units to do the work assigned to them has remained unimpaired.

Q. Do you mean that the art of manufacturing natural gas property is stagnant, with no improvements?

A. The improvements in the art of natural gas properties, which have led to these long distance transmission lines, mean nothing as related to a property such as Hope, with its thousands of points of receiving gas, its fifty-odd compressor stations, scattered all over the system, and its 4,000 separate pipe lines. The improvements in the art mean nothing there and will not lead to the retirement of any of the parts of the Hope's property.

Q. The new pipe lines being installed in the United States are so-called high pressure transmission pipe lines, aren't they?

A. Yes.

Q. And Hope's transmission lines from Cornwell station to Hastings, which is 92 miles of 12-inch pipe, capable of operating at a pressure of 1,200 pounds, is a high-pressure line?

918 A. That is right.

Q. Do you believe that the trend in natural gas transmission is to high-pressure lines?

A. Where the gas is to be transported in large volumes for long distances, yes; but it has not and will not lead to the retirement of any of the Hope's property.

Q. Did you consider the element of safety in determining the condition per cent of property?

A. Safety does not enter into it except in boilers, and the boiler inspector of the insurance company will cease to insure the boiler when it is no longer safe, but the boiler is perfectly safe as long as he will insure it. A gas engine thirty years old is just as safe as a gas engine bought yesterday, in fact I am not so sure that it is not safer for a year or two of operation. The pipe lines of this company are just as safe today as they were when they were built. The corrosion of pipe lines does not weaken them.

Q. Do they ever have joint trouble?

A. Surely; joints leak from time to time, and the leaks are fixed and they do not leak any more.

Q. There have never been any fires or explosions due to leakage?

A. Most inconsequential.

919 Q. Then really, your condition percent was based upon observed physical deterioration in the Hope properties, was it?

A. We started with observed physical deterioration. There was added to that all of the effects of obsolescence and things of similar nature which have been and are leading to the retirement of Hope's property, and on top of all of that, there was added an allowance which I deemed sufficient to cover all depreciation of all other kinds, existing in the property. Wells, of course you understand, we are treating purely on the pressure decline basis, to a net salvage value of equipment.

Q. Is your condition percent theory one which finds the Hope Natural Gas Company property, that is, the compressor station equipment, to be in 81 per cent condition on a depreciated reproduction cost of 19 percent throughout the life of that plant, and then indulges in an hypothesis of suffering a final loss to zero during the last stages of service, possibly within a year?

* * *

920 The WITNESS. No.

By Mr. SPRINGER:

Q. Exactly what happens when, as of December 31, 1938, you find compressor station equipment in 81 percent condition and next year the unit of that property is retired. Does it fall from 81 percent to zero within that period?

A. I know of no unit that is likely to be retired next year or for some years to come.

Q. If it comes within two years, does the condition percent go from 81 percent to zero within two years?

A. No. I said merely that the depreciation existing in the property as a whole is 19 percent—not that the condition of any one piece of property is any percent, but the property as a whole has deteriorated 19 percent from all costs. I do not attempt and it is fruitless to attempt to arrive at an exact condition of depreciation from all causes on any one piece of equipment. It can be applicable to a group of equipment, but not to one piece of it.

Q. You see, Mr. Rhodes, what I cannot see is how you find a piece of property at 81 percent condition this year, and within two or three years it might be replaced, and in that short period of time it goes from 81 percent condition to zero.

921 A. I have not found a piece of property is in 81 percent condition. I found $10,000,000. worth of property, con-

sisting of hundreds and hundreds of items that in the aggregate were in 81 percent condition. That $10,000,000 worth of property is not going to get down to zero percent condition tomorrow or the next day or deteriorate very rapidly at any time.

The TRIAL EXAMINER. That is the average condition?

The WITNESS. That is the average. Some of the compressor stations there, I have made adjustments that would reflect some of them as merely warehouse value of the equipment that is in those stations. Other engines, as I told you, I have marked down to fifty percent, because I thought that they would be retired before they were really worn out.

I made an inclusion in my depreciation to reflect that fact, but I have not set a percent condition, and am not setting a percent condition on anything other than the entire compressor station equipment account.

Q. Pardon me. Didn't you say that you found some property which you considered to be in fifty percent condition?

A. I said I included in my depreciation an amount which was fifty percent of the cost of reproducing that property for the purpose of making the depreciation, which I found
922 sufficiently large to include all of the depreciation from all causes.

Q. Under your theory, the condition percent of the Hope Natural Gas system cannot vary throughout its lifetime from say an average per cent condition of 50 and above, is that so?

A. Oh, probably it will never get as low as 70.

Q. And yet, when one of those units of property which make up the composition of the system is retired, that must be in zero condition?

A. No. It will be retired from one location and installed in another location, and that is what has happened to this equipment in these stations that were no longer useful in the present location.

Q. But if it wears out?

A. But they do not wear out. There are a few units, which I explained, have been junked, because they were of a type which has proved to be an unsatisfactory type, and I marked those down, although they will continue to be used in their present location, for years to come, they are standby or spare equipment that are used under the conditions of extreme peak loads.

This company has not retired compressor station equipment except of the parts that cannot be salvaged when they

923 move the equipment in one station to another location. Some of the underground pipe and some of the small valves and fittings, the foundations, and things of that nature.

Q. Mr. Rhodes, isn't there some unit of property in the Hope system that wears out after it has been used for a period of time and has to be replaced? Which is junked? Doesn't that happen in a natural gas system?

A. The cylinders of the gas engines; yes.

Q. Now, that gas engine you appraise today as being say 50 per cent condition——

A. All right.

The TRIAL EXAMINER. Did he not say it could not depreciate below 70?

The WITNESS. I have stated that I allowed in my total depreciation, 50 percent of the cost of reproducing, I think it was two engines, which were of a type which have not proved satisfactory. I think that is what he is referring to.

The TRIAL EXAMINER. There you are taking into consideration, perhaps, the retirement policy of the company, in addition to the condition of the equipment, are you not?

The WITNESS. That is right, and I also took that into ac-
924 count in conditioning this complicated drive of the compressor station auxilliaries, which I mentioned in conditioning or making allowance in the conditions of the two-cycle gas engines, which the affiliated companies, at least, are modernizing. I am taking into account all of these things which are determinable, and then making an additional allowance to cover the more or less indeterminate things, that cannot be measured or visualized.

Mr. MILDE. I think, Mr. Rhodes, you did say, in connection with some engines, that there were wearable parts involving thirty per cent on them to depreciate?

The WITNESS. Oh, yes. But, on the other hand, an engine of an unsatisfactory type, which would soon be junked, that 70 percent disappears, and that is a move in the direction that I think Mr. Springer is trying to bring out.

Those are the only cases that I found in the whole property where serious consideration needs to be given to the fact that the equipment is likely to actually be retired in part. The equipment is not retired when it is moved from one station to another.

By Mr. SPRINGER:

Q. I am still disturbed about the theory that finds property in a certain per cent condition today, and maybe in two years a unit of that property will be replaced and you drop from a high
925 percentage today to zero in a short period of time.

A. You could scrap any unit of property of this company, and eliminate it from the whole depreciated reproduction cost, and it would not have any material effect on the answer.

Q. Do bed plates for engines depreciate?

A. No; bedplates for engines are never replaced because they are worn out. Occasionally, they may be in an accident, or like a fire—having the same effect as a fire. Things do not depreciate because they may burn up sometime, and for the same reason bed plates do not wear out because sometime you have an accident and have to replace them. As a matter of fact, I do not think the company has ever replaced an engine bed plate in all of its history.

Q. Do you know whether or not it has replaced three engine bed plates at Cox's mill?

A. No; I do not know.

The TRIAL EXAMINER. Your theory of depreciation does not make any allowance for such contingencies as that, does it?

The WITNESS. Except as I am increasing the amount which I concede to cover depreciation from hidden causes. There may be flaws develop in the bed plate of an engine, there may
926 be flaws in fly wheels—fly wheels burst once in a while, but it is just a snare and a delusion to try to place any depreciation on a fly wheel because sometimes fly wheels burst, and bedplates and main shafts are in the same category.

By Mr. SPRINGER:

Q. Will you please turn to page 2 of Exhibit 21. You state that depreciation accumulated in the gas wells was determined from the proportionate decline of the useful rock pressure from the time the well was drilled, to a lower pressure, at which the well may be considered to be exhausted. By what conception of depreciation have you determined that the decline in pressure in a gas well is a measure of accumulated depreciation?

A. That is the exhaustion of the gas well in the operation of the Company, and it is measured proportionately by the decline in rock pressure from the initial pressure to the abandonment pressure.

Q. Why is a decline in the rock pressure the measure of accumulated depreciation in a gas well?

A. Because it is the measure of the extent to which the gas well has been exhausted in service.

Q. Did you consider the amount of gas exhausted or the reduction in the pressure?

A. The two are approximately synonymous, and it is a method of depreciating gas wells which has come into
927 common use and is accepted by the courts as well as by the operators, in the case of many companies.

Q. Do you say that pressure and volume are synonymous?

A. No.

Q. You used decline in rock pressure for your basis here.

A. That is right.

And decline in rock pressure is practically synonymous with the decline in the recoverable quantity of gas in the well.

* * *

928 By Mr. SPRINGER:

Q. Have you adjusted the rock pressure figures based upon the pressure gauges taken in the Fall of 1938 to the date of December 1, 1938, of your exhibit?

A. I conditioned the well to the rock pressure gauges
929 taken in the Fall of 1938, as being fairly reflective of the condition of the wells on December 31, 1938. Any further reduction is not measurable.

Q. There was no appreciable decline in rock pressure between your study date and the date of your exhibit?

A. There is no way to measure it.

* * *

Q. Do you know whether there was withdrawal of gas during those periods?

A. Certainly there was withdrawal of gas.

Q. Then there was a decrease in the gas supply?

A. Yes; if you want to split hairs, there was a decrease in the pressure at the end of December, December 31, 1938, as compared with September.

Q. Your study would not be perfectly accurate for today, would it?

930 A. Well, quite a bit of time had elapsed to today. If I wanted the condition today, I would take the latest rock pressure readings that were available, and determine it on the basis of those readings.

Q. Do you make a distinction between rock pressure decline and decrease of volume of gas supply?

A. They are practically synonymous.

Q. Where a natural gas property is retired, due to the exhaustion of the supply of gas, is the principal cause of the retirement the exhaustion of the pressure of the gas supply or the exhaustion of the volume of the gas supply?

A. The cause of the retirement of a gas well is generally the result of an accident. Gas wells as they approach the average abandonment pressure may have a cave-in or some other accident of that kind, and at the first opportunity a drilling and cleaning outfit goes out to the well and cleans the well out and tests the well. If, after they have cleaned out the well, that well has a satisfactory volume of production, it is restored to service, whether the pressure is above or below the average abandonment pressure. The actual abandonment is determined by whether or not the well can be restored to a useful well. If the well cannot be restored to a useful well by repair, the well is plugged up and abandoned, whether the rock pressure be higher or lower than the abandonment pressure.

931

This matter of abandonment pressure is an average, and individual wells are not properly conditioned by the decline from their initial rock pressure to an average abandonment pressure, but the condition of a group of wells is properly determined by depreciating them from their initial pressure to their average abandonment pressure.

* * *

934 By Mr. SPRINGER:

Q. Mr. Rhodes, did you secure the initial rock pressures and abandonment pressures and the 1938 rock pressure from the Hope Company's geologists for use in your exhibit?

A. That is correct.

Q. If there are any errors in those pressures furnished to you, those would be perpetuated in your exhibit, would they not?

A. They would be reflected in the exhibit; yes.

Q. Will you please refer to your working papers and read into the record your determination of the percent condition of a gas well producing gas from one horizon?

A. It is explained in the text rather completely. We do not specifically determine a percent which I consider to be the percent condition of any one well. We determined percentages that when added together and averaged fairly reflect the percent con-

935 dition of the groups of wells.

Q. Mr. Rhodes, would you please in your example name the well and the sand and the date of drilling and the rock pressure?

A. I will take, for example, well No. 1270, which was drilled in 1909 into the 30-foot sand. The well had an original rock pressure of 860 pounds. The abandoning pressure for that 30 foot sand is 30 pounds, leaving 830 pounds as the useful or workable pressure in the well.

The annual tests of the well made in the Fall of 1938 where the well had been closed in long enough to develop the rock pressure showed that the rock pressure at that date was 230 pounds.

Subtracting 30 pounds abandoning pressure leaves 200 pounds as the remaining workable pressure. The ratio of those 200 pounds remaining workable pressure to the 830 pounds initial or original workable pressure gives 24.10 percent as the percentage condition of that well, or the percentage decline of that well down to the abandonment pressure. If the well happened to be abandoned at the abandoning pressure, then it would represent the exact condition of that well.

Q. Now, will you please give us an example of how you
936 determined the percent condition of a gas well producing gas from two horizons?

A. Well No. 1380 was drilled in 1910 into the fifth sand—please strike that; that is not a good example.

Well No. 2263 was drilled into the Indian sand and into the fifth and Bayard, which are produced as one sand in that well.

The abandoning pressure of both of those sands is 30 pounds per square inch. The initial rock pressure in the Indian sand was 350 pounds, leaving a workable pressure of 320 pounds. The initial pressure of the fifth and Bayard sands was 815 pounds, leaving a workable rock pressure of 785 pounds. In the annual tests in 1938, the Indian sand showed a work pressure of 97 pounds, leaving a remaining workable pressure of 67 pounds.

The fifth and Bayard sands were at 95 pounds pressure, leaving a 65 pound abandonment pressure. The percent decline in workable rock pressure in the Indian sand was the ratio of the 67 pounds to the 320 pounds, namely, 20.94 percent. The ratio of the 65 pounds remaining workable pressure to the 785 pounds original workable pressure of the fifth and Bayard sands
937 shows a decline to 8.28 percent of the workable pressure. The average of these two percentages is 14.61 percent,

which we have taken as the remaining percent of the workable pressure in the well.

Q. Will you please give an example of how you determined the condition percent of a gas well producing from three separate horizons?

A. Well No. 3570 was drilled in 1914. It passed through a number of sands, but these sands were grouped and have been produced as three horizons. The higher group comprised the Indian, the Gantz and the 50-foot sands. The middle horizon comprised the Gordon and the fifth sands. The lowest horizon was the Speechley sand.

The upper horizon, producing from sands with a 30-pound abandonment pressure had a 205 pounds original pressure, a 175-pound workable pressure, a 48-pound 1938 annual test, with an 18-pound workable pressure still to go. There was 10.28 percent of the original workable pressure remaining in that particular group of sands.

Similarly, the middle horizon has 30 pounds abandonment pressure, it had 530 pounds original rock pressure, with a 500-pound workable pressure, and it had an 86-pound 1938 test pressure, with a 56-pound remaining workable pressure. There was 11.20 percent of the original workable pressure still remaining.

938 The lowest horizon, the Speechley sand, has a 100-pound abandonment pressure. The initial pressure was 1,090 pounds, leaving 990 pounds as the original workable pressure.

The rock pressure in the 1938 annual test was 161 pounds, leaving a 61-pound remaining workable pressure. This gave 6.16 percent as the remaining portion of the original workable pressure. The average of these three percentages was 9.22 percent, which is the average of the remaining workable pressures in that well.

Q. Now, will you please read into the record an example of how you determined the condition percent of a gas well presently producing from one horizon, but which has in the past produced from another additional horizon, which has been depleted.

A. Well No. 1425 was drilled in 1909. It produced from two horizons, the upper horizon being the Indian and 30-foot sands, which have been exhausted and are taken in 1938 as being in zero condition, there being no more working pressure.

The fifth sand, which is the lower horizon, with a 30-pound abandonment pressure showed an original rock pressure of 855 pounds, with a workable pressure of 825 pounds.

939 The 1938 test showed 300 pounds of work pressure, with a remaining workable pressure of 270 pounds. This remaining workable pressure was 32.73 percent of the original workable pressure. The average of the zero and the 32.73 percent, namely 16.37 percent was taken as the percentage of the remaining workable work pressure in that well.

Q. Mr. Rhodes, are the pressures to which you have referred gauge pressures above atmospheric or absolute pressure?

A. They are gauge pressures above atmospheric measured by the ordinary pressure gauge.

Q. Now, if you will please turn to page 3 of your Exhibit 21, you state that the percent condition of each well was determined as the numerical average of the percent conditions of the sands in that well. Does such a measure give any consideration to the proportionate amounts of gas in the various producing sands?

A. It gives no consideration, but it is practically an impossibility to determine how much gas was actually contained in any of the sands that feed in the well. We found in some instances that wells with many sands, that a sand came in as a producing sand, but blew out very quickly, that sand being one of
940–941 little or no gas in it. That was ignored in the computation, so to that extent we took no account of sands which had so little gas behind them that they blew out quickly.

Q. Let us assume that a gas well has 80 per cent of its gas in one producing sand, and 20 per cent of its gas in another producing sand. If all of the gas containing the 20 per cent has been exhausted, the condition of the well under your method would be in 50 per cent condition, isn't that correct?

* * *

The WITNESS. The premises are not sufficiently complete to enable me to answer it. How much gas is in the sand that contained the 80 per cent of the gas?

Mr. SPRINGER. I think that is in the question.

By Mr. SPRINGER:

Q. All of the gas is in the 80 per cent producing sand.

A. Under those circumstances, which are impossible to exist in practice except in a well which has been exhausted in one sand and then drilled deeper to another sand, our figures would show fifty per cent for that well, and that is one of the reasons why I say that these per cent conditions which we referred
942 to as individual well per cent conditions, are really not that, but that when you take an average of a lot of wells,

3,300 wells, you will find just as many wells running one way as the other, some with the big sand fairly well exhausted and the small sand with the high pressure, and vice versa, so that, as related to the wells of the whole, this ratio of the rock pressure gives an accurate and the best available information as to the condition of the Company's wells.

Q. If we assume the reverse to be true, and the sand containing the 80 per cent of the gas has been exhausted and 20 per cent still remains in the other sand, then again, under your numerical method, you would find that well in 50 per cent condition?

A. That is right. There would be as many of the one kind of wells as of the other kind.

Q. Now, will you please turn to page 4 of your exhibit. You indicate that you studied 512 wells retired during a ten-year period. What check did you make to determine typical wells and geographical areas of existing wells?

A. I merely took all of the wells that the Company had retired in a ten-year period, and based my figures wholly on the records contained in the Company's books as to the salvage from those wells.

943 Q. But did you relate them to see whether they were typical to existing wells?

A. That is practically an impossibility. 500 wells represents about 200 miles of casing and tubing, and I think that 500 being about one-sixth or thereabouts of the total wells, may reasonably be considered as typical of the present wells. If I had gone back more years than ten years and added more wells than 500, I would have had a larger salvage value.

Q. Did you make that study?

A. Yes.

Q. Why didn't you use it in this exhibit?

A. Because I wanted to use a salvage value which was typical of the most recent of the wells abandoned.

Q. Do you know whether or not the abandoned wells were in one area of the Hope system?

A. I did not check specifically where they were. I know that abandonments currently are taking place pretty much all over the system.

Q. You state that during a ten-year period ending 1938, the Hope Company retired the 512 wells and recoveries amounted to 61.6 per cent of the total book cost. Do you know what the average age of those 512 wells was that they retired?

A. No.

944 Q. Do you know what the physical condition was of the casing and tubing in those wells?

A. No; only some of them. We know the physical condition of most of the seventy wells that were retired—that seventy wells of which we know the physical condition were retired in 1939. I do not know the physical condition of the casings retired from the 512 wells. I considered the condition of the casing retired from the 1939 wells as typical of those of the 500.

Q. Did you determine the physical condition of the tubing and casing that was originally installed in those 500 wells, to ascertain whether it was new or used?

A. There is no way of ascertaining that in practice.

Q. You mean the Company does not know whether it installs new tubing and casing or uses used tubing and casing?

A. Yes; the Company knows at the time, but records are not kept whereby it could conveniently be determined, and as I saw it, it had no part in the picture whatsoever.

Q. You do not know the relationship between the amount of new tubing and casing and used tubing and casing that went into the 512 wells originally?

A. No; except that the company's casing and tubing which it puts into the wells, in most cases, was originally purchased

945 by it as new tubing and casing. It might have been in another well before it went into this well, the exception being where the wells themselves have been purchased from some other company.

Q. Do you know the average age of the Company's casing and tubing in the Company's existing wells?

A. I do not.

Q. Do you know that the Company's wells in the aggregate have an average age of about 25 years?

A. I think that is approximately correct.

Q. Have you made a study of the Company's records with regard to the average price per ton that they have received for well equipment sold as junk or otherwise?

A. No. I was concerned with their records merely with the amount of money that they received from the sale of all materials that they recovered from wells, that they did not think was suitable to use again.

Q. Do you know that at the time that a well is abandoned by the Hope Company, that the casing and tubing that is recovered

for sale as junk has a price placed on it of one half a cent per pound or $10.00 a ton, pending the sale of that pipe?

A. I do not recall how they do it. I merely know that the records show year by year that they received from salvaged material, junked, a certain amount of money. Corrections
946 are made from time to time for any discrepancies as between what might have been accrued and what might have been received, so that over a period of years, any over or under accruals as to the price on junk is entirely wiped out for all practical purposes.

Q. Do you know what price per ton the Company received for casing and tubing sold as junk?

A. No.

Q. Do you know what became of the equipment that you described as being sold otherwise, on page 4?

A. No.

Q. On page 4 you state that 38.4 per cent of the original cost of well equipment was either left in the wells or sold for junk. Can you state the percent of original cost that was abandoned or left in the well?

A. I don't know it.

Q. You don't know whether it was 5 per cent or 10 per cent?

A. I do not.

Q. What per cent of the total book cost of the casing and tubing recovered was sold as junk?

A. I don't know.

Q. Could you give us the book cost per ton for the casing and tubing when it was installed in those 512 wells
947 that you analyzed?

A. I don't know it now. The books will doubtless disclose it.

Q. Is it about $70.00 a ton?

A. I don't know. I have given no thought to it.

Q. In connection with your study of the salvaging of these 512 wells, did you determine whether the book cost for casing and tubing equipment approximated the original cost for new materials, or whether they represented a depreciated cost when used materials were installed in the wells?

A. I made no investigation. I concerned myself merely with the company's records as related to the 512 wells most recently abandoned.

Q. You further state on page 4 that the Company was able to recoup 11 percent of the total book cost of all of the equipment by selling tubing and casing as junk, isn't that so?

A. No; I say "or otherwise." In some cases, tubing and casing is sold that other people use rather than sold as junk.

Q. On page 4, you state that 38.4 percent of well equipment was either abandoned in wells or sold as junk?

A. No; I say "or otherwise."

Q. And from that 38.4 percent, your study indicated
948 that 11 percent of the total book cost of all equipment originally in the well was recovered?

A. Of that part; yes.

Q. If no casing and tubing were left in the hole, but it was all recovered and sold, what is the indicated percent of gross salvage value for this material, according to your figures?

A. About 25 percent.

Q. Do you know how much per ton?

A. No.

Q. Then you said, following your method of determining salvage value of casing and tubing, if only 11 percent of the well equipment out of the 38.4 percent was recovered for sale as junk, the effect would be realizing 100 percent of the book cost on property sold as junk?

A. That is mere arithmetic and apparently correct.

Q. Well, errors are not made in arithmetic?

A. No; but some of the equipment recovered from the wells is sold for purposes other than junk.

Q. Do you know how much, and for what purpose?

A. No; I have no records in detail.

Q. Mr. Rhodes, will you please assume that 38.4 percent of the equipment was recovered and sold for junk or other-
949 wise, and assume that you would receive 11 percent of the book value for this junk, how much would this be per ton?

* * *

The WITNESS. Nobody can answer that question.

By Mr. SPRINGER:

Q. If we change the last word "junk" to "material" it is possible to determine that, is it not?

A. No.

Q. Would it not be possible to determine the price per ton received for the material sold?

A. If you knew the book cost, but I do not know the book cost.

Q. I gave you the book cost at $70.00 a ton.

A. I don't know whether that is right or not, because this junk, so-called, that you assume to be junk, which is not junk,
950 includes valves and fittings, which cost very much more per ton than casing and tubing.

Q. Are valves and fittings a large portion of the total of material?

A. Not a very large portion, but nevertheless they enter into the question, and when those things are sold they can be sold at a higher price per ton than junk casing and tubing.

Q. Is it customary to throw that, the valves and fittings in the same pile with casing and tubing when sold as junk?

A. Sometimes. I say the sales are made otherwise than for junk.

Q. Is it not true, Mr. Rhodes, that your junk credit here to well equipment, if excessive, would be in effect placing this property in an artifically higher percent condition?

A. That is purely an assumption. I think if the Company's records of the most recent 500 wells abandoned is the best evidence in the world of the salvage to be taken. I might have gone back and taken 1,500 wells which might be considered as better evidence, and then I would have had a higher salvage value, but it still would be a correct record of the 1,500 wells. I tried to show and to use the lowest salvage value justified by the Company's records, without attempting to theorize as
951 to about how much this junk might weigh and what it might be, but I don't know what it might be and how much I might get for it.

I am basing this absolutely on the records of the Company for the period which gives the lowest salvage value, and then I inspected the material recovered to find out whether or not the material went into the warehouse at a value equal to its book cost or some other value.

Q. Do you mean to give the impression that in future the salvage value of abandoned wells will be less?

A. I think it might reasonably be expected to continue at the level of the most recent period.

Q. On page 4, you state that you inspected equipment recovered from 70 wells abandoned during 1939, to determine the condition of the casing and tubing at retirement. What percentage of book cost was recovered from these wells?

A. I did not investigate.

Q. Do you know how much was junked?

A. No; I was concerned only with that material that went back to the warehouse as useful material.

Q. And you do not know the average age of the casing and tubing of those 70 wells either?

A. No; it could not be determined.

Q. It could not be determined?

952 A. No; because the Company uses its casing and tubing over and over again. Sometimes in the cleaning out of a well the casing and tubing is removed, and parts of it are put in new, parts of it may be put in with used casing and tubing, and there are any number of conditions that exist so that it is practically an impossibility to determine the actual age of the material removed from any well.

Q. Is that because of the lack of records?

A. Presumably so, yes; but the Company is not concerned with matters of that kind in its operations. It does not need to know, and there may be records existing, but I rather doubt it.

The TRIAL EXAMINER. Why would they put in new casing or tubing in a case like that?

The WITNESS. I don't know that they do, but they might, under certain circumstances. If they had a well which they pulled, in which most of the casing and tubing is in very excellent condition, and some parts of it are badly corroded out, they might well feel that in those locations where corrosion is very severe, they might want to put in a new casing and tubing when they put in the new equipment in the well.

The TRIAL EXAMINER. They would not save that, then, and and put it in somewhere else? The casing and tubing

953 that they had taken out?

The WITNESS. In general, they put back the casing and tubing that they take out of a well, but parts of it they do not put back because it is corroded or otherwise damaged in getting it out of the well. I merely pointed out in reply to your question that they might put in new material in places where the corrosion was very bad and in other cases it would be perfectly satisfactory to replace the damaged casing with casing out of the used casing stock.

By Mr. SPRINGER:

Q. Would the age of the casing and tubing have a direct bearing on the amount of the depreciation?

A. A rather indirect bearing as related to the casing and tubing restored to the warehouse.

Q. I mean, in the determination of the condition percent of the casing and tubing in existing wells, does the age of that bearing on the amount of the depreciation?

A. I would not say that it had, but there would be no way of finding out what the condition of the casing and tubing is in any well without pulling it out at a cost of $1,000 or so. It is a thing that cannot be determined; therefore, as I say, it is hypothetical.

954 Q. That you would say that physical deterioration which is visible from the casing or tubing that has been removed from the wells is your test of condition percent, regardless of the age of that casing or tubing or casing and tubing in existing wells?

A. It is my determination that the percent condition of that part of the casing and tubing removed which they put back into the warehouse.

Q. You do not give any consideration as to age?

A. It does not enter into the problem at all. A piece of casing that is practically as good as new, it does not make any difference whether it is two years old or forty years old. It is a perfectly good piece of casing or tubing. Age does not make any difference.

Q. You have taken the condition obtaining from an inspection of the equipment taken from 70 wells and have extended this to 3,300 wells now owned by the Company, is that correct?

A. That is correct.

Q. Have you prepared an estimate of how old these 3,300 wells will be when they are abandoned?

A. No; I have made no attempt to do that.

955 Q. On page 4 you state that the recovered casing and tubing from 70 wells was depreciated by corrosion not more than ten percent, and that an additional 2 percent of depreciation covers the loss through damage to threads, and so forth. Is that a determination of 88 percent condition for well equipment?

A. No.

Q. How do you reconcile those figures?

A. That is the determination of an 88 percent condition for that part of the well equipment which went back into the warehouse for re-use by the Company.

Q. Have you used that 88 percent condition for recovered well equipment throughout your exhibit 21?

A. I have applied it to the 61.6 percent recovery that went to the warehouse for re-use and determined the depreciated cost of the wells on that basis.

Q. Do you say that the recoverable equipment from wells will be in 88 percent condition, regardless of age?

A. Yes.

Q. On page 4, you explain in detail your method of placing salvaged casing and tubing conditioning on this equipment of 90 percent.

A. That was determined in exactly the same way that the condition percent on the underground pipe was determined. The explanation, if it is to be made in detail, should be made for all pipe as given, and equally applicable to all pipe.

956 Q. Do you have those working papers in convenient form?

A. The working papers are here and they are not in such form as would be reasonably possible to read into the record the method of determining the percent condition.

Q. Would it be possible to have them prepared as a supplementary exhibit? They are not relatively voluminous, are they?

A. To place them into condition so that they could be understood by the layman would be a rather difficult task, because they involve the use of mathematical equations which are quite complex in determining the ratio of elapsed age to the age expectancy of that particular material. To calculate the thing practically, involves the use of logarithms and X potential equations, and I do not know how to write that so that it could be understood by the nonmathematical layman.

Q. We would like to have that put in as a supplementary exhibit, and we will work it out.

A. I don't think it can be done so that it will be at all understandable to the Commission or to anybody else.

Mr. SPRINGER. I believe that the Commission is entitled to know the computations behind the conclusions in this exhibit and

957 the supporting detail, and I am sure that the Commission has experts on its staff who can fathom the working papers, and it is vitally important that we have that information so that the statements in this exhibit will have meaning.

* * *

962 Q. Will you please state, Mr. Rhodes, whether or not your method of determining depreciation of property is by major pit depths on the outside?

A. Basically; yes.

Q. Did you consider the pitting on the interior of casing and tubing in making your estimate?

A. No. It is not an important factor in the depreciation of casing and tubing.

Q. Is there not a water condition present in casings and tubings?

A. The casing is to keep the water out. It is exposed on the outside.

Q. There is not any water that gets inside, either casing or tubing?

A. By accident; yes.

Q. Have you taken into account the probability of deeper pits occurring in a joint of pipe beyond those tabulated by your inspectors?

A. I have taken into account the probability of deeper pits in various lengths of pipe.

Q. Between the points of inspection?

A. Yes.

963 Q. How did you make that adjustment?

A. I made the adjustment by the use of a form of equation that has been promulgated by the United States Bureau of Standards.

Q. And you employed that in your working papers?

A. One form of those equations was used in this determination.

Q. Could you give us the official designation of that Bureau of Standards work?

A. It was contained in the United States Department of Commerce National Bureau of Standards Research, paper No. R. P. 1171, entitled "Engineering Significance of National Bureau of Standards Soil Corrosion Data, by Kirk H. Logan."

Q. Do you know, Mr. Rhodes, that some of the tubing and casing which you mentioned here, and which was inspected by your men at the Federal Power Commission's engineers' request, that there were holes entirely through the pipe?

A. I do not doubt it.

Q. On page 4, have you used your gross salvage figure of 65.2 per cent on all of the wells now owned by the company?

A. I have used it to the aggregate cost of all of the equipment in all of the wells in the total, not individually.

Q. Now, will you please turn to page 5 of your Exhibit.
964 You state that in arriving at the cost of abandoned wells, you have studied the cost of 286 wells. Why didn't you use the 512 wells on which you made the study of equipment recovered?

A. Because of the amount of work required to extract from the company's records, the information, and the variations in this cost from year to year is very small, and the three or four years record which we have, I deemed to be adequate as the measure of the cost of abandoning the wells.

Q. Are these 286 wells typical of the present existing wells owned by the Company?

A. I considered them so to be.

Q. What kind of check did you make to determine that?

A. The fact that the cost of abandoning wells varies very little from year to year, and the kind of well has comparatively little to do with it. The costs are largely fixed by the fact that you have to move in there. A large part of the money is spent in getting in there to do the work, and the actual work itself does not represent so much.

Q. You did not check the location and depth and characteristics of those wells?

A. No; I merely took the Company's most recent experience in the abondonment of wells.

Q. Could you state the conditions which were considered
965 as to the abandonment of wells?

A. Wells are abandoned almost entirely by following a program which I will now outline. The well, because of its operation, gets into trouble and needs repair. The need of repair may be due to caving rock or water or leak in the casing or what not, but commonly the indicated need of repair is the failure of the well to produce gas notwithstanding the fact that it has a considerable rock pressure.

When a well gets into that condition, as some two or three hundred do per year, the company moves in generally with a portable well-cleaning outfit and goes to work on the well and cleans it out.

It has to pull the casing and tubing, and it has to break up and remove all of the debris in the bottom of the well. It cleans it out.

Sometimes they even shoot with dynamite or nitroglycerin in an attempt to clean it out.

If the well is successfully cleaned out so that it will continue to produce gas in the future, the well is restored to service. If the well, after being cleaned out and repaired, is not a successful producer any more, it may be abandoned or it may be drilled deeper to a new sand, but the cause of abandonment in any case is the final determination that the well will not produce any more gas.

966 Q. Could you state the conditions which tend to increase the abandonment costs?

A. Accidents in operation are the most prolific cause of higher costs, and the fair proportion of which is represented in these two hundred and eighty-six wells.

Q. The depth of the well would contribute to the abandonment cost?

A. Comparatively little.

Q. The geographical location?

A. As it affects the difficulty in getting in, only.

Q. On page 5 you have determined that the average cost of abandonment of the 286 wells was $898. You have also stated that this amounts to 27.2 per cent of the reproduction cost new of the well equipment. Is that 27.2 per cent on a per well basis, regardless of quantity and value of the equipment in the well?

A. That 27.2 per cent is the ratio of $898 to the average reproduction cost new of the well equipment per well.

Q. This cost of abandonment is expressed as a per cent of the reproduction cost new of the well equipment?

A. That is correct.

Q. This 27.2 per cent of the reproduction cost new of well equipment is then deducted from 65.2 per cent of the
967 book cost to produce the 38 per cent which you have used as the net salvage value of well equipment?

A. No; it is not.

Q. Will you explain how you made that computation?

A. The 27.2 per cent is subtracted from 65.2 per cent to get the 38 per cent. We are talking in terms of reproduction cost, not of book cost.

Q. That is just what I said, Mr. Rhodes.

A. I thought you said book cost.

Q. You have used 27.2 per cent based on reproduction cost and 65.2 per cent of book cost?

A. The 65.2 per cent was arrived at by a study of book costs, but in determining the net salvage, I subtracted the 27.2 per cent abandonment cost in terms of reproduction cost from 65.2 per cent salvage in terms of reproduction cost.

With the percentages of book cost in the numerators and the denominator of the fraction, it wipes out.

Q. You have not used original cost percentages and original cost new percentages in this calculation?

A. The percentage of 65.2 per cent was arrived at by a study of book costs but dollars salvage was in book cost in the numerator and the dollars of book cost of all of the equipment is in the denominator, and when you divide one by the other, the
968 book costs disappear. If the dollar salvage had been expressed in reproduction cost and if the total cost had been expressed in reproduction cost, it had exactly the same salvage percentage.

Q. Will you please divide the $898 which appears on page 5 of your exhibit, into the book cost instead of the reproduction cost and give us the per cent?

A. I do not have the book cost of these wells.

Q. Do you think that the answer would be 27.2 per cent?

A. I don't know what it would be, but the $898 is the current cost of abandoning wells, and the reproduction cost new is the current cost of equipping the wells. The ratio of those two is properly made. Some other ratio may or may not be applicable.

Q. Have you been consistent in using reproduction new percentages and original cost percentages?

A. I have consistently used the percentages set forth in this exhibit in determining the condition of the wells.

Q. And if this 27.2 per cent is increased to say 40 per cent, the total depreciation would be correspondingly greater, would it not?

A. Yes; the salvage value being less, the total amount of depreciation arrived at through depletion would be greater.

Q. You state that when a well is fully depleted, the loss in equipment is only 62 per cent of the total equipment
969 cost. Is that the maximum depreciation?

A. That is the whole depreciation that takes place in the well equipment itself on the average as related to all of the Company's wells. Individual wells may have quite different ratios.

Q. Could you explain how you arrived at the 57.4 per cent condition for the gas well equipment?

A. The result is most easily and simply explained as follows:

The total depreciation in gas well construction, which is the labor of installing the equipment and drilling the well, is the depreciation down to zero—68.7 per cent.

The gas well equipment, however, only depreciates 62 per cent down to the time when it is removed, and therefore the total percentage depreciation in gas well equipment is 62 per cent of the total depreciation in gas well construction. This gives 42.6 per cent as the aggregate percentage of depreciation in the gas well equipment due to depletion. The corresponding condition is 100 per cent less this figure, or 57.4 per cent.

Q. Mr. Rhodes, you have determined the accumulated depreciation in gas well equipment as being in the same proportion and determinable upon the same basis as well construction.

970 A. It is determined on the same basis, yes; but it recognizes 38 percent net salvage as compared to the zero salvage in the determination of the drilling of the well.

Q. Does your determination of accumulation of depreciation of gas well equipment give any consideration to the age of the gas well equipment?

A. No.

Q. Mr. Rhodes, did you give any consideration to service capacity in determining the present condition of the Hope property, especially pipe lines and compressor stations?

A. What do you mean by "service capacity"? That has no real meaning to an engineer.

Q. Service capacity is defined as "the total output of the utility plant realizable during its service life, measured in uniform units of measure, either in number of years of service, number of working operations performed or other production factors, as appropriate. A unit of property may possess more than one capacity for service, and the capacities may be reflected in more than one unit measure. The evaluated composite of those abilities controlling the service life of the property then reflect its total service capacity."

You did not consider that, did you?

* * *

971 By Mr. SPRINGER:

Q. If a pipe line originally carried 15 wells and now carries 3—the same size—has it experienced any loss of service capacity?

A. No.

Q. Why?

A. Because it is still needed to carry the output of the three wells, and in the production of gas, particularly in fields where the field pressure is low, large pipes are very desirable.

Q. Did you use the group plan in computing percent conditions?

A. I computed percent condition from a practical engineering standpoint and not from the standpoint of the accountant, which is nothing more or less than amortization.

Q. I believe that you did in your study group pipe lines in your determination of condition percent?

A. Yes, I did. But the term "group plan" as used by accountants, is a plan for amortizing investments. Naturally I determined the condition of these wells as a group—not individ-
972 ually. The condition of the pipe lines as a group; the condition of the equipment as a group; and I used the group plan to that extent, but not in amortization.

Q. Mr. Rhodes, to inquire about the percent condition of certain property, will you please refer to Exhibit 16, Part C, page 9. In your inventory of tubing and casing by districts, you have listed line pipe. What is the function of the three-inch pipe which is listed as the line pipe, and can you from your working papers tell what price was applied to this particular pipe?

* * *

The WITNESS. As to the first question, I have not investigated the specific function of the large list of sizes of tubing and casing and line pipe. Out of several millions of feet of casing and tubing, there is 7,665 feet of three-inch line pipe scattered over the property. As to the pricing of it——

By Mr. SPRINGER:

Q. (Interrupting.) That is junked, isn't it, Mr. Rhodes?

A. No. It may be a drip or a separator or a drain to
973 get water away from the well, or a cistern in cases where the oil is being produced.

Q. Will you refer to the operating districts, and is it not true that thirty to fifty percent of the Hope Company's wells are cased with 6⅝th and 5$\frac{3}{16}$th-inch casing?

A. There are so many pages of this, that I would not want to express any opinion as to what proportions are cased with one or the other, but page 9 shows the exact footage of all of the different sizes, showing that 6⅝ casing is the predominant size.

Q. Why is it necessary to have both of these casings, 6⅝ and 5$\frac{3}{16}$ inch, in these wells?

A. In some cases, there is production between the two. In some cases the 6⅝ inch may extend down to a certain depth as necessary in drilling that well, and it had to be left there, and after drilling by there, the 5$^{3}/_{16}$th inch would be continued to the bottom. There are so many different possible causes of there being two lines of casing in a well that it would be futile to attempt, with respect to any well, to say what it was in there for, without an investigation and consultation with the operating department.

Q. Mr. Rhodes is it practical to produce gas through the space between a 6⅝ and 5$^{3}/_{16}$ inch casing?

974 A. It could be, but——

Q. (Interrupting.) What is the clearance?

A. It does not take much clearance to pass small amounts of gas produced by wells in this country.

Q. The clearance of about an eighth or a quarter of an inch would not be practical?

A. It could produce gas; yes. It is not a considerable area, but it is not necessarily installed for that purpose, as I explained before. Wells are drilled and cased with a large casing down to a certain stratum, and then a smaller casing continues down.

Q. Are there other reasons, such as that the 5$^{3}/_{16}$-inch casing is sometimes used as liner pipe for the 6⅝ inch casing which has deteriorated to the extent that its usefulness as a producing string has vanished?

A. Yes. In those cases, however, we have not included the string that is useless.

Q. This dual casing arrangement occurs mostly in the older wells, does it not?

A. Yes; it is more likely to occur in the older wells.

Q. Now, Mr. Rhodes, will you please turn to page 5 of your exhibit 21 at the topic of the depreciation accumulated in pipe lines. Did you use the inspection reports on pipe corrosion

975 made for the 1931 East Ohio-Cleveland case?

A. No.

Q. You did not rely on that at all?

A. No.

Q. On page 6, is it true that the geographic spacing of points of inspection of the new pipe lines constructed since 1931 were chosen at reproduction cost new, $20,000 intervals corresponding to those used in the 1931 inspection. That is correct, is it not?

A. These intercals of a given size were the same as the intervals of cost of $20,000. in the earlier locations.

Q. Is it true that the geographic spacing of points of inspection of the old pipe lines constructed before 1931, were cgosen as reproduction cost new dollar intervals corresponding to about three or four times those used in the 1931 inspections?

A. Along the long, large lines in which we were most interested, every third one of the 1931 locations was taken, so that in general they were separated at $60,000. intervals in terms of the old approximate figures.

Q. And does not your sampling method r4sult in inspection density on the new pipe lines three to four times that of the old pipe lines?

976 A. That is correct, but in determining the overall picture of relative density of inspections, that is properly allowed for by weighting.

Q. How did you weight them?

A. We weighted them in proportion to the spacing, in other words, those inspections that represented four spaces were given a weight of four, those that represented three spaces were given a weight of three, and those that represented one space were given a weight of one.

Q. That is in your working papers also, isn't it?

A. Yes; that is the working papers.

Q. And you gave no consideration to the age of the pipe?

A. Consideration of the age of the pipe in the principal trunk lines where the age was definitely known was given in determining certain of the factors that enter into these equations which I have previously mentioned.

Q. When you summarized your calculations on pit depths in the pipe lines at the various locations, were the averages you developed for the system as a whole arithematically determined, or did you state that they were weighted?

* * *

977 The WITNESS. The averages of the pit depths were summarized by sizes of pipe first and in making that summary the relative weights of inspections as to spacing, were reflected in arriving at the average pit depths representative, let us say, of 6-inch pipe or 8-inch pipe or 10-inch pipe. Then the contribution of each of the sizes of pipe to depreciation was determined and the overall picture was determined by weighting the contributions of the different sizes of pipe proportionately to the number of inspections on that size of pipe, so the averages were determined throughout by weighting.

Q. Did you make any attempt to determine the age of the pipe which you inspected?

A. Only as previously explained.

Q. Did you make any attempt to determine whether the pipe you inspected was pipe installed originally in that line or as replacement pipe?

A. Such an investigation was made in connection with the inspections of the principal pipe lines which were used for the purposes of determining the constants or certain of the constants in the equation.

Q. Did you make any attempt to determine whether the pipe which you inspected was new pipe or whether it was used or second hand pipe when it was installed at the location which you inspected?

978 A. Only as related to the inspection on the major lines.

Q. If you will please refer to page 7 of your Exhibit 21. Will you describe how you measured the depth of the pits in the pipe inspected?

A. The pipe that was uncovered in the inspection pits was thoroughly cleaned of all rust, scale and so forth, for a distance or length of about four feet. The two center eighteen-inch sections of this cleaned section of the pipe were separately inspected. The determination of the depths of the pits was measured by a depth guage in common use for such purpose, but before the depths were measured, special care was exercised to clean the pits out thoroughly at the bottom, thus insuring a full measurement of depths. Approximately thirty pits were measured on each eighteen inch section, which were the thirty deepest pits that could be found by the inspector.

Q. Is it true that the surface of the pipe is sometimes corroded to such an extent that the original surface has vanished?

A. Very rarely.

Q. If it did occur, how did you measure the pit depths?

A. It occurs so rarely that it needs to be given no consideration. In general, the corrosion on this pipe is the result

979 of an action which in corroding the pits, protects from corrosion the surfaces that are not determining pits, so that it would be an unusual condition where the original surface of the pipe had disappeared, particularly in a case where the corrosion was bad and the pits were deep.

Q. But in such a case, would your method of measurement indicate the depth to which corrosion has penetrated below the

adjacent corroded surface, rather than the depth of the pit below the original surface which has vanished?

A. If there were no original surfaces, the measurements had to be made from such surface as there was, but the original surface was used, wherever it could be found and which is, I say, the common experience with the inspection of corroded pipe.

Q. What study did you make of soil conditions affecting pipe line corrosion?

A. We based our facts on the corrosion itself, as the best indication of the character of the soil. We made a great many observations as to conditions which might cause corrosion, which are used merely for the purpose of determining discrepancies and things of that nature, but the pipe itself, in the condition it is, is the best indication of the character of the soil as affecting corrosion.

Q. In arriving at your conclusions, did you give effect to the previous observations in the Cleveland case?

980 A. No; I paid no attention to that.

Q. Have you made any tests showing the acidity of the soil as affecting pipe lines?

A. No.

Q. What effect have you given to annual rainfall, ground temperatures and rugged topography of West Virginia, affecting depreciation of pipe lines?

A. All of the effects they had upon the pipe.

Q. Through what?

A. Corrosion.

Q. Through visual inspection?

A. No; through an extensive sampling of the five or six hundred test holes.

Q. Within a short period of time within which your inspections were made?

A. Yes. But the corrosion we inspected was of the pipe which had been subjected to the soil conditions, the weather conditions, the temperature, rainfall, and so forth.

Q. That is, assuming that your sampling method was all right?

A. The sampling method was adequate.

Q. Is it true that the presence of ground water or soil moisture contributes much to the external corrosion of pipe lines?

981 A. That is one of the things that contributes to corrosion; yes.

Q. You did not make any study of the extent that bacteria has contributed to corrosion?

A. I made no study of bacteria.

Q. Page 8 of Exhibit 21, please. You state that the rate of corrosion has been found to fall off with age?

A. Yes; that is the universal experience in corrosion.

Q. Would you say that where corrosion is being caused by electrolysis, that it increases with age?

A. We have no electrolysis as an important factor in these lines, and I doubt if it appears at all, but as a fact that is true, because even in the cities, the electric cars which cause electrolysis, have practically disappeared, so it is also true as related to electrolysis.

Q. Have you made a study to determine whether the Hope system has been subjected to electrolysis?

A. It obviously has not been subjected to electrolysis, being pipe lines out in the country, far removed from any trolleys, with the exception of a very small portion of the lines, between here and Weston.

Q. Do high-tension transmission lines affect pipe lines?

A. Not in the least.

982 Q. Is that so?

A. That is so.

Q. But assuming that electrolysis has attacked a pipe line, is it not a constant that does decrease with time?

A. That depends upon the electrolysis, but in this Company's property, the corrosion does fall off definitely with age. The inspection of the pipe line proves it beyond a shadow of a doubt.

Q. Did you take into consideration any interior corrosion in pipe lines in your determination of their condition per cent?

A. Interior corrosion is practically non-existent in pipe lines in this territory.

Q. Does sulphur-bearing gas produce interior corrosion of pipe lines?

A. Under some conditions.

Q. Do you know that sulphur-bearing gas has been produced in West Virginia?

A. It has been produced, yes; but it does not go into this company's pipe lines.

Q. But do you know that sulphur-bearing gas was transmitted in the Hope Natural Gas Company's pipe lines before its effect was detected and eliminated by treatment?

A. Oh, for a short time, but the action of sulphur
983 requires years to create any corrosion that you could even find.

Q. On page 8, when you state that the rate of corrosion decreases with time, have you used that retarding curve in arriving at your conclusion?

A. I have.

Q. On the per cent condition of the well casing and tubing and pipe line pipe?

A. I have used the same degre of retardation, which degree, as I have used it, is a lesser retardation than is actually experienced by the company, thus producing a calculated depreciation greater than would be the result if I had used exactly the company's experience.

Q. Is the development of that in convenient form in your working papers?

A. I don't recall what form that is in in the working papers. The rate of retardation which I have used here has been used by me because it is from the standpoint of depreciation the rate of retardation giving the highest depreciation which has been found on any of the soils east of the Mississippi by the Bureau of Standards in its tests. I was greatly concerned to find out whether or not this company's pipe lines retarded in corrosion more than that convenient rate which I have used. If it is not in
984 the working papers, the data is there from which it could be readily obtained.

Q. As an example, will you take 6⅝-inch casing having an original wall thickness of 250 mills; by inspection it was found that the average of the deepest pits were 125 mills, and the average of the ten deepest pits were 115 mills. Will you please give the per cent condition that you would place on this pipe?

A. That calculation cannot be made on the witness stand, and furthermore you have not given me all of the data that is required to make the calculation.

Q. What else would you require?

A. I am asking you. You are asking me to solve the problem.

Q. Under your theory of retarding curve, even if penetration is 50 per cent through the pipe wall, you will find a per cent condition much greater, possibly 80 per cent, wouldn't you?

* * *

The WITNESS. You are not giving me all of the infor-
985 mation that is required to make such a calculation, and even if I had made the calculation, that, by itself, would be only one of the things that I would take into account in arriving at the final figure as to depreciation.

By Mr. SPRINGER:

Q. What other conditions would you like us to assume? We will work with you and help you solve the problem.

A. This calculation—if you will give me all of the conditions of the calculation, I will be glad to have it made up, but it would take at least half an hour to make out simply the calculation and assemble the necessary data.

The TRIAL EXAMINER. What are the necessary elements of such a calculation?

The WITNESS. First of all, he must tell me in how long a section these pits are found. Is it two feet or eighteen inches or twenty feet or what?

By Mr. SPRINGER:

Q. Pit observation made in 18-inch lengths extrapolate to twenty feet.

A. I will be glad to have the calculation made if Mr. Smith is here, or I could make it myself, but this kind of a calculation involves the use of log tables and so forth, of which I have none available.

Mr. SPRINGER. We would be very pleased to have him
986 furnish it at his convenience this afternoon, Mr. Examiner.

The TRIAL EXAMINER. Have you all the information you need there now?

The WITNESS. Yes. I can now apply this data to this modification of the Bureau of Standards formula, and I will give you the result.

By Mr. SPRINGER:

Q. Now, Mr. Rhodes, for the purpose of tracing your conclusions as to the retarding effect of age on the rate of corrosion, could you read from your working papers the results showing

the period of time necessary to reach entire penetration, if pits have penetrated one-quarter of the wall thickness in fifteen years?

A. I will be glad to have that calculation made.

Q. What per cent condition would you place on a transmission pipe in the Hope system if you had used the straight-line extrapolation rather than your retarding curve method?

A. I would not have used it. I would not use the straight line at all, because it is contrary to facts, and I cannot state what condition I would have placed on the property if I had used that method erroneously.

Q. You made such a study, did you not, on casing?

A. I had a calculation made on casing, as a matter of curiosity, to find out what the figures were, but I could not
987 use those figures in depreciating anything.

Q. What percent condition did you reach on that calculation?

A. I did not reach a per cent condition on that calculation. I just reached a figure that would result on certain assumptions contrary to facts, as a matter of curiosity.

Q. Was it not lower than the per cent condition that you used in this exhibit?

A. It was not a per cent condition; it was a calculation under certain assumptions, contrary to the facts and the experience of the Company. The calculation was not used by me at all.

Q. If you had used the straight-line extrapolation method instead of your retarding curve method, would that have resulted in a decrease of about 20 per cent in the per cent condition which you have placed on transmission property?

A. I don't know. I would not use it, because it would not result in any figures that have any meaning as to depreciation.

Q. Would not a substantial amount of money be involved in transmission main pipes which you have given a per cent condition of 79 per cent to, if that were varied one way or the other two per cent?

A. The result would be two per cent one way or the
988 other.

Q. Of $16,500,000 worth of property?

A. Yes; 2 percent of that amount of property is about $300,000 worth of property.

Q. Did you study the causes of corrosion on well tubing?

A. The causes of corrosion on well tubing are largely the same as the causes of corrosion on pipe.

Q. Referring to the field line experience of the Hope Company, do you know that more than two thirds of the field lines that have been constructed by the company have been abandoned and taken up?

A. No.

Q. Approximately 12,000 field lines have been taken up over the life of the Hope Company; did you know that?

A. Taken up or moved to another location?

Q. Taken up and some disposition made of them.

A. I don't know how many have been moved.

Q. You have not given effect to this rate of abandonment and net salvage from that, have you?

A. A reasonable reflection of the fact that field lines are moved from place to place with changed sources of gas supply is reflected in my adjustment to the percent condition of field
989 lines. It is amply reflected. It takes into account that fact, and it also take into account the reverse fact that in conditioning the laying cost of field pipe as the same as the pipe itself, I have overdepreciated all of the pipe lines that have been moved to new locations.

Q. Mr. Rhodes, in depreciating field lines, what consideration have you given to the gradual exhaustion of the connected gas supply?

A. That is a wholly indeterminate effect. I have studied the condition of the company's wells for some years in the past and find that they reached a condition many years ago which on the average is about the same as the condition which they have now, namely, between 30 and 35 percent. There is no evidence that in the aggregate the Company's wells or gas field are declining. Wells go out and new wells are drilled a short distance away. Sometimes fed by the identical line which was fed by the well which was abandoned. You will find places upon the system with almost every conceivable combination of new and old and abandoned wells.

Taking up of lines with the abandonment of wells is a pretty indefinite thing. I have allowed, I consider, for that, amply, in adding to the depreciation that I found by consideration of corrosion, an additional depreciation of 3½ percent, which is approximation one-sixth of the depreciation from cor-
990 rosion. That I consider amply reflects all of the depreciation that exists in the field lines because of the fact that

some of them are moved from this place to that place as the wells are abandoned and new ones are drilled.

Q. Will you state your condition on well construction?

A. The percent condition on well construction which was based on reduction in rock pressure is 33.1 percent.

Q. Does that have any bearing upon the determination of the depreciation of gathering lines?

A. No determinable effect.

Q. I believe you said field and gathering lines are moved to new wells frequently, and you made some allowance for that?

A. Yes. I consider that any depreciation existing in the field lines because of that fact is amply reflected in my field line condition of 67.8 percent.

Q. When field or gathering lines are moved to new wells, the original labor and construction costs are lost because there is no salvage value other than the equipment itself, as the pipe enters its second cycle, isn't that so?

A. Yes. The labor is largely lost; yes.

Q. Those non-recoverable costs are depreciable with the pipe at the original location?

A. That is right, and I have amply reflected that fact in my adjustment.

Q. And your adjustment is a judgment figure or a
991 mathematical figure?

A. It is largely judgment, in that there is no methematical way of determining just how much depreciation exists in the lines. It is absolutely impossible with respect to most of the individual lines. It can be approximated as related to the whole system.

Q. Do you know what the ratio between labor and materials are on the gathering lines that are moved to new well locations?

A. About half and half.

Q. What do you figure would be the cost to salvage pipe lines?

A. About 15 percent of their total cost in place.

Q. In the case of pipe, other than casing and tubing, where have you given any effect to salvage *in* your exhibit on accrued depreciation?

A. In reaching my conclusions as to the percent depreciation on account of corrosion, I took into account the salvage value for re-use of the pipe. This system is essentially a continuing system which will last indefinitely, and when the pipe in a system

corrodes and has to be replaced, the pipe is re-laid in the same location. The actual cost of lifting the old pope and putting it back again, aside from the cleaning, is less than the cost
992 of laying the line in the first place, so that any pipe that is picked up and cleaned and reconditioned and re-laid, the total labor cost of that operation is the same as the total cost of originally laying the pipe, or practically so.

Q. Now, we have considered the salvage value of that pipe for reconditioning, taking into account the cost of cleaning it and the cost of welding up the deep pits, which are necessary, to make it re-usable. Those things are taken into account and arriving at the final figures which were arrived at as a matter of judgment as to what was indicated by this salvage as compared with carrying the pipe down to a complete depreciation without salvage. The percent condition of the pipe lines fully reflect salvage value of the pipe in re-use. Then you consider that the pipe line system will last through its physical life?

A. It will last indefinitely. There have been no important changes other than additions during the company's whole forty years of history, in its main pipe lines. I have further more increased the pure corrosion depreciation in transmission pipe lines by a further one percent to represent any other depreciation that might exist from other causes.

Q. Do you believe that there is an indefinite supply
993 of gas in West Virginia to prolong the life of the pipe line system?

A. There is no indication that would be a guide as to any future exhaustion of the gas supplies of the company. The company's reserves have varied up and down for a period of years, and they certainly are not indicative of a company that is on the way out.

Q. Woud it be thirty years or fifty years?

A. There is no indication of any period. In fact, the indication is that the gas available to this company from some source or other will be available for an indefinite future period.

Q. I hope so. Did you conduct a field examination of the conditions of pipe removed from Line H–5757 of the Hope system at the time the pipe was lifted?

A. Such an inspection was made, but has not been worked up and has not been used by me in reaching my conclusions.

Q. You did not use any of the information secured from that examination?

A. No. I have not even seen it.

Q. That study is available in the working papers, though?

A. No; it is not. The working papers contain the information which I used. That information, so far as I know has never been worked up.

994 Q. Is it customary to make individual studies that are not used in valuations, and then that cost to be charged in rate case expense?

A. One never succeeds in doing only that which is necessary to arrive at the results. I had the inspections made because I thought it might be needed, and I found as I progressed in my studies and regular inspections, that they were not needed and therefore they have not been used.

Q. Were they any different?

A. I have not seen them.

Q. On page 9 of your exhibit, will you explain the derivation of the 22.5 percent depreciation costs by corrosion of production system pipe lines?

A. That 22 percent figure was arrived at by the use of the equations which I have referred to above, in which there was taken into account the fact that the retardation of corrosion in the company's lines is such that doubling the age results in less than a fifty percent increase in the depth of the pits. That is one of the factors represented by the equations to which I have referred, which sometimes is called the time rule of corrosion. These equations also take into account the fact that the longer the section of pipe which is examined or taken into consideration, the greater will be the depth of the deepest pits. We

995 applied those equations covering this—you might call the length rule of corrosion and the time rule of corrosion to the observed pit depths in the field line pipes, size by size.

The TRIAL EXAMINER. Does that length rule apply only to a length of pipe or to the distance between inspection points?

The WITNESS. That applies to the length of pipe. Take, for instance, roughly speaking, we having examined pipe in sections 18 inches long—if we had found the depths of the deepest pits, we will say 100 mills, had we examined the lengths of pipe three feet long, we would have found approximately 110 and had we examined twenty foot lengths in full, we would have found possibly 135 mills. Those figures are just rough figures, for illustrative purposes.

Now, what might be found in the extremes between locations, that are a mile or more apart, we do not know. We do not purport to say that these equations can be extended to any such extent. We have merely reached the conclusion, which is concurred in by all of those who have studied this method of determining the condition of pipe, that a proper number of inspections, which is 500 or more in this case, or really a thousand individual pieces of pipe, thus give a fair average result that will very closely approximate that if you had two or three
996 or four times as many inspections, or if you inspected every foot of pipe.

There are cases of pipe where there is almost no corrosion at all between these inspection points, and there are other parts of the pipe which might generally be expected to be worse than anything we have seen. We can get only a fair sample for a reasonable cost. But to go back to my explanation now, if I may.

I had the observed results applied to the equations, and I determined the percent of progress to what I called an end point.

One end point was where, in 20 feet of pipe there would be one well-defined hole, and at the point of leaking. I had other determinations made with 40 feet as the unit, and another with 50 feet as the unit. Then, by the use of these same equations in the manner that could be mathematically worked out, I determined what the condition of the pipe would be on the average when it had reached the various end points of one well-defined leak in 20 feet, 40 feet and so forth, determining how many pits would be on the joint per average, which would need welding.

There has been a great deal of experience in welding up of pipe, and in re-laying it, and it is rather commonly accepted practice that if the pipe is welded up so that all pits greater than one third of the pipe wall are filled with material
997 the pipe can be re-laid and used over again with substantially as long a life as it had in the first place.

There is a sound technical reason for that in that the corrosion begins on the pipe in general when the metal is clean when it goes in the ground, and the rust on the surface of the metal such as is down in those pits, has a tendency to protect it, in fact it is that rust which causes the corrosion of the clean pipes.

I took into account the cost of that welding and the reuse of the pipe to the extent that it was worth while. On the small

pipe it is not worth while, and on big pipe it is a very profitable thing.

These calculations were all made, and the final results were placed before me and they clearly pointed, in my mind, to 22½ percent as the extent to which this pipe had progressed towards deterioration.

By Mr. SPRINGER:

Q. That is also contained in that volume of working papers that will be necessary to understand this exhibit?

A. Those calculations are all there.

Q. Will you please explain the derivation of the 20 percent depreciation of the transmission system pipe lines caused by corrosion?

998 A. The method was identical with that which I have just described for field lines.

Q. Where is there a difference of 2½ percent?

A. Because the transmission lines have not progressed as far towards complete depreciation as the field lines have.

Q. And how did you determine exactly that 3½ percent should be added for depreciation on production system pipe lines and that 1 percent should be added for depreciation on transmission pipe lines?

A. That is a judgment figure arrived at by a consideration of the extent to which depreciation can exist in these lines from causes other than corrosion. In the case of the transmission lines, there is little or no depreciation from other causes. In the case of the field lines there is a certain amount of depreciation that might be considered as such, because of the fact that lines are moved from location to location. The need of that adjustment being greater in the field lines than in the transmission lines is obvious.

* * *

999 By Mr. SPRINGER:

Q. Mr. Rhodes, I believe you have some computations?

A. They have been made, but I have asked to have them checked, so that there will be no question about it. I think they are right, but they are being checked.

Q. All right.

A. I have the figures now. Shall I furnish them?

Q. Will you read them into the record, with an explanation, so that it won't be necessary for me to refer to the former question?

A. The first computation that I was asked to make was in the case of 6⅝ inch casing having a 250 mill wall thickness, in which the average depth of the deepest pits in one and a half foot sections was 125 mills, and in which the average depth of the
1000 ten deepest pits in all of the eighteen inch sections was 115 mills. It was desired to determine the extent to which corrosion on this pipe had progressed to the point where there would be one well-defined leak in 20 feet. Is that the problem?

Q. Yes.

A. This casing, corroded in the manner indicated here, is decidedly unusual. Nevertheless, applying the formulas to these conditions indicates that the corrosion on this pipe has progressed 36 percent towards the end point.

The second computation that I was asked to make was in the case of the pipe in which the corrosion had progressed to the point where it had penetrated the wall to a quarter of its thickness in fifteen years, and how long would it take this corrosion to penerate the wall of the pipe. The answer to that is 160 years, plus.

Q. That is the total time? Not additional to the 15 years?

A. That is the total time; yes.

Q. Mr. Rhodes, do you have two summary sheets in your working papers, upon which this exhibit is based, entitled "Summary by accounts of observed depreciation adjusted for net salvage, special observations and adjustments by G. I. Rhodes?"

A. That which I have was that, and it is adjustments to include all other depreciations, I adjusted it so that it would
1001 correspond with the text.

* * *

1002 Q. Referring to Exhibit 22 for identification, Mr. Rhodes, will you please classify each type of the adjustments you have made to observed physical depreciation, and indicate the total amount of that class of adjustments?

A. The observed physical depreciation amounts to $30,991,039.

Mr. COCKLEY. That is on the basis of reproduction cost new? All of those figures?

The WITNESS. That is correct.

1003 Out of that total, approximately $22,000,000 was in wells. I am bringing out this difference because we made no adjustment to the condition of the wells.

The first adjustment made was to allow for the cost of salvage. In other words, adjusting observed physical depreciation where it reflected no cost of abandonment to the physical depreciation adjusted to reflect the net salvage value rather than gross salvage. This adjustment amounted to $247,043.

The second adjustment was to reflect special observed conditions, such as nonuse and company practice in retiring certain types of equipment already described by me, the total amount of which was $141,883. The last adjustment was made to reflect all other depreciation than that which could be seen, and amounted to $1,251,624. This brings the total amount of depreciation found in the property up to $32,653,183.

By Mr. SPRINGER:

Q. Now, Mr. Rhodes, will you please refer to Exhibit 21 for just a few more questions on pipe lines? It has been computed that you inspected 903 feet of transmission system pipe lines in arriving at the condition percent of the entire transmission system pipe line, which totals more than 5,000,000 feet, is that correct?

1004 A. That is right, approximately.

Q. Did you make a survey of the leaks in the pipe line system?

A. No; but I made an investigation and was informed that there were practically none.

Q. I believe there is an exhibit here that shows leakage in the system of about 4,000,000,000 cubic feet annually?

A. Perhaps there is.

Q. And is not leakage in a pipe line one of the factors which must be considered in determining the condition percent of pipe?

A. No.

Q. Why not?

A. Because leakage of a pipe line is not one of the things that causes retirement. When leaks occur, they are repaired. The leakage that you are referring to is the combined result of many, many things, and of which physical leakage is one. The word "leakage" being used in a broad sense to reflect the difference between the input and the output from the system. Every joint in a pipe leaks, to some extent. Even gas leaks through the pores

of the pipe. Meter readings are measured on the different pressure bases, and under different measuring conditions, so that the so-called leakage of 4 billion cubic feet is by no means all
1005 represented by actual physical movement of the gas through the pipe walls.

Q. I did not mean to infer that that was a physical loss, but you say there is some physical loss of gas?

A. Oh, yes. Unavoidable physical loss of gas. When leaks occur from corrosion, they are found by the regular inspection of the line, and every summer a special effort is made to find all that have developed, including leaks in couplings and those leaks all are repaired, so that in the normal operation there are very few leaks that are leaks as such, to the extent that they could be found and remedied.

Q. Then you made no study to correlate the leakage of pipe lines to percent condition in this case?

A. No.

Q. Are you familiar with the properties of the Eureka Oil Pipe Line Company?

A. No.

Q. Do you know that they have a system of pipe lines in the territory which is served by the Hope Natural Gas Company?

A. By hearsay only.

Q. Do you know that the Bureau of Valuation of the Interstate Commerce Commission and the Eureka Pipe Line Company have agreed on a service life of 50 years for all of the pipe
1006 in that system?

A. No.

Q. Is not the ascertainment of condition percent about 99 percent judgment?

A. No; 99 percent experience in the study of pipe lines.

Q. Are you familiar with the Columbus rate case of the Ohio Fuel Gas Company, in which a pipe line inspection was made in the customary manner, and in 1929 the company engineers testified that the distribution pipe lines were in 83 percent condition. Five years later, in another rate case, the same engineers testified that the percent condition of the same pipe lines was 91, that it had not depreciated, in fact it had appreciated when it was five years later?

A. I am not familiar with the case

* * *

1007 Q. When you determined the condition per cent of compressor station equipment by inspection, I believe you have based it upon relative conditions of excellent, good, fair, and poor, isn't that right?

A. And bad.

Q. Were those judgment standards, based upon a comparison of the conditions existing in the Hope system, or by a comparison with like equipment new?

A. They were based upon Hope's own practice with respect to the retirement of those wearing parts in service, and their replacement, a bad condition indicating that that particular wearing part was soon to be replaced. An excellent condition indicated that physically it was in the same condition or substantially the same condition that it would have been if it had just
1008 been replaced with a brand new part. The intermediate conditions or rating reflected intermediate conditions that were based on observations and on the judgment of the inspector in consultation with the operators of the equipment, and their replacement records, the length of the engine hours per year, and things of that nature.

Q. What condition per cent did you give to exposed foundations?

A. I gave all foundations the same per cent condition as the units upon which they rested.

Q. In the case of the Bee Compressor Station where there are only two units and four foundations, what treatment did you give to the two foundations that are not used?

A. The same as to the others. There was no equipment on them, and being in zero condition, so were the foundations.

Q. How do you know that the arbitrary per cent condition which you placed on the buried equipment in the compressor stations reveals the actual depreciation?

A. It fairly and reasonably reveals that depreciation, in my judgment. The cost of exposing it and making an inspection was so great as not to justify the trouble involved, it representing a small per centage of the total cost on the investment.

Q. And you did not ascertain the age of that buried
1009 equipment?

A. No.

Q. Are you familiar with the Uniform System of Accounts of the West Virginia Public Service Commission for Gas Utilities, 1939?

A. Only in a general way.

Q. Especially its provision for the treatment of maintenance and depreciation charges?

A. Only in a general way.

Q. And have you considered maintenance in determining condition per cent of compressor station equipment?

A. To that extent, that a well-maintained engine is always in better condition than a neglected engine.

Q. Do you know that the replacement of a bearing or a piston of an engine is a maintenance item?

A. It generally is.

Q. Did you depreciate those items?

A. We depreciated everything that wears on the engine, to determine the extent to which it had depreciated.

Q. And your determination of the condition per cent was influenced by the condition of the parts of an engine, the cost of replacement of which is a maintenance item?

A. Those small parts to which you refer do not contribute very much to the cost of an engine. The big parts
1010 that affect the cost, like the cylinders, and things of that nature, are of relative long life, and what the policy might be with respect to making those changes, I do not know—for replacing those parts, but we have depreciated all engines to reflect all the wear and tear that exists in those engines, and then adjusted the total depreciation, as already explained.

Q. I believe you mentioned that thirty per cent of the engines were wearing parts?

A. As a rough figure; yes.

Q. And over the system, would that amount to a substantial sum of money?

A. Thirty per cent of the whole cost.

Q. And of course the replacement of those parts are maintenance items?

A. They may not be.

The TRIAL EXAMINER. Do you mean of the entire thirty per cent?

By Mr. SPRINGER:

Q. Do you know whether they are, Mr. Rhodes?

A. That is purely a matter of accounting policy over which I have no control. The greater part of the 30 per cent are large items, which should be handled through depreciation. They represent such large sums of money.

1011 The TRIAL EXAMINER. What parts, would you judge?

The WITNESS. As a matter of maintenance—purely of maintenance?

The TRIAL EXAMINER. The portion of it which should be handled through the reserve?

The WITNESS. I think probably four-fifths of it.

By Mr. SPRINGER:

Q. Mr. Rhodes, are you familiar with the list of retirement units in the uniform system of accounts for gas utilities of the West Virginia Public Service Commission for 1939?

A. In general.

Q. Can you find on that list of retirement units any of the items that you say are thirty per cent of the engines that are wearing parts?

A. No. This retirement list includes the whole engine itself as a unit of retirement, which considering some of the $50,000 engines which the company has, seems absurd, as compared with the 20 feet of two-inch pipe on the other hand.

Q. Or a bearing?

A. I consider as the proper retirement units the big things that enter into the construction of these lar*he* operating units.

1012 Q. Will you please turn to page 13 of Exhibit 21. How did you determine the condition percent of the meters and gauges, when the wearing parts are not visible?

A. The wearing parts, meters and gauges that have to be replaced, are of relatively short life. They represent a small portion of the total cost. Again, something in the order of thirty percent. In a system as old as this, it may reasonably expected that those wearing parts range all the way from brand new parts to parts that are just about ready to go, and I had in mind in using these figures as to physical depreciation that on the average we might expect to find those wearing parts about half gone.

Q. You did not ascertain the age of the meters and gauges?

A. It makes no difference how old they are. The wearing parts are old and replaced, and the meter is a new one, as the rest of the meter has not depreciated or worn out.

Q. Does the Hope Company have a large number of Tobey meters?

A. I don't recall the number, but a considerable number.

Q. Are such meters the most modern type of meters?

A. They are generally older than the meters—older than the other meters. They have been priced at a lower price
1013 than the meter that is now used, and they perform substantially as well as the newer types of meters.

Q. The Hope Company is not currently purchasing Tobey meters, is it?

A. No; they are not being made.

Q. Because of improvements that have been made in the manufacture of meters?

A. I don't know why they quit making them. Presumably there are better meters made which are cheaper to make. That in itself would account for the discontinuance of that type of meter.

Q. Will you please refer to page 16 of Exhibit 21. You say "It was agreed in both cases that those undistributed constriction costs to the extent of 11.51 percent depreciated with the company's property, and the Ohio Commission so found in the 1932 Akron and the 1937 East Ohio-Cleveland cases." By this, do you mean that 11.51 percent of the undistributed overheads are depreciable?

A. 11.51 percent out of the total of 17 and a fraction depreciated.

Q. How did you determine the depreciation of the depreciable portions of the overheads?

A. By applying 11.53 percent to the total depreciation of the property carried in the respective accounts.

* * *

5308 Cross-examination by Mr. SPRINGER:

Q. And your physical observation was of the poles in the communication system?

A. The physical observation was of the parts of the operating units of the property, poles and wire and everything relating to the communication system.

Q. Now, will you refer to the topic, Compressor Station Equipment, Line (g)? Do you know the company's experience with the Davis Station?

A. I don't recall specifically. Perhaps you will describe it more completely and let me know to what you are referring.

Q. Do you know that a study of the observed conditions of the Davis Station was made in the early 1930's?

A. No; at least I had nothing to do with it.

Q. It was made by your firm, but you had nothing to do with it?

A. Oh yes, the condition of the property was determined 10 years ago by my firm, but I had nothing at all to do with it.

Q. Do you know that the Davis Station was found in 75 percent condition by your firm?

A. No.

Q. Well, will you accept that and check me if I am
5309 wrong; and do you know that after that station was found in 75 percent condition, that it wasn't used, and that certain engines in that station were later abandoned, and that the salvage or junk value was $250 realized by the company, and it cost $600 to remove it?

A. I have been informed to the contrary, that the net salvage value obtained from junking those engines was about 8 percent of the original cost of them.

Q. Will you check that and bring in any proof that you can get and show the retirement work order on that?

A. I will endeavor to do so. May I explain this——

Q. (Interposing.) Well, there is no explanation necessary now.

A. Yes, there is this explanation necessary, because whatever may have been the percent condition found in the property at that time, was found in terms of depreciation as it was practiced at that time. I found it in terms of depreciation as determined and defined by the Commission at this time.

Q. It isn't strange to you that equipment in compressor stations would be found in 75 percent condition, and then within a few years go immediately to zero condition without any operation whatsoever?

A. Yes; I may be perfectly healthy today and dead tomorrow, and a station this year may be in perfect condition and as far as anybody can see will be used indefinitely, and something will happen during this coming summer which would shut that
5310 station down forever—and you can't tell that.

As related to specific pieces of property, you can't tell a thing, and you will note that I have placed a percent condition on the account, not on the individual pieces of property in the account.

Q. How do you figure a condition percent of an account?

A. In the same way that you figure any average. You take the——

Q. (Interposing.) You consider the components, of course?

A. I consider the composite result of everything in the account,

in the same way Mr. French did in determining the composite service lives.

Q. Is it your testimony that retirements of $926,000 represent property retired from gas service and junked or abandoned in connection with compressor stations?

A. No; I have merely stated that Mr. Dunn's figures show that so much property was retired and the losses were so much in the retirement of that property.

Q. Do you know that some of that was re-used?

A. Oh, yes.

Q. Then it becomes apparent that your figures aren't comparable with regard to salvage here?

Mr. COCKLEY. Comparable with what? I object to the question as not complete.

Mr. SPRINGER. Will you read my question, please?

5311 (The question was read by the reporter.)

By Mr. SPRINGER:

Q. By that I mean that you studied retirements of property which you admit had some units which were re-used, and you talked about salvage?

A. Yes.

Q. And Mr. French studied salvage only from retirements of property which was actually never used again. So your salvage figures aren't comparable with his?

A. Well, I have already explained that this surviving property involving a number of millions of dollars in my opinion will not, in the number of years Mr. French has said, go down to zero salvage. I can't conceive of the sudden drop from 45 percent in the past to zero in the future.

Q. But you can conceive of a sudden drop in condition percent from 75 percent to zero overnight?

A. As related to individual pieces of properties, yes, but not as related to a large group of properties costing many millions of dollars.

Q. Of course a group is the sum of the individual units of property?

A. Oh, yes; but the whole theory of depreciation as applied by the Commission applies to averages and ignores the individual items.

Q. Of course, that is not a very logical statement, is

5312 it?

A. Well, it is a fact.

Q. You mean that you can get a composite group rate by ignoring the individual?

A. You ignore the individual as an individual, but of course you take into account the effect of the thousands of individuals going to make up the whole population.

Q. Do you know what the percent condition was which you found for four gas engines in the Hastings compressor station?

A. I don't recall. The figure we found as related to those engines was found as a contribution to the composite over-all depreciation picture. I do remember that I took into account the use to which those engines were put, and the extremely low cost per horsepower of that station as a standby station.

Q. Will you furnish the condition percent of those four gas engines tomorrow?

A. I cannot do that because I did not find what I call the condition percent of those engines. I can find for you and produce the results of the physical examination of the men who studied the engines.

Q. We will present a photostat of your papers where you did make such a determination, to you tomorrow.

A. No; my determinations of condition percent, as I have
5313 testified more than once, were intended to apply to the account as a whole. As related to any individual part of the account, they are what you could see, and represent the extent to which that contributes, and you will also recall that after having added up and determined the composite, I made an over-all adjustment of the whole thing, not to any one particular station, and accordingly the figures as they relate to one station are not final figures, they are just a step to the final answer.

Q. Do you remember that your condition percent of the four gas engines was about 88 percent in your working papers?

A. No; I don't recall the figure.

Q. Do you know what the present age of those four gas engines is?

A. About 35 years.

Q. Mr. Rhodes, do you remember discussing the other day[5962] [5963] the percent condition of the four gas engines located at Hastings station, which I told you appeared in your working papers?

A. I remember your asking me about them.

Q. Well, I have photostatic copies of your inspection sheets, and will you identify them and tell us what condition you have shown on each one?

First, may these be marked for identification as Exhibits 123–A, 123–B, 123–C and 123–D?

TRIAL EXAMINER. They may be so marked.

(The documents referred to were marked Exhibits Nos. 123–A, 123–B, 123–C and 123–D for identification.)

The WITNESS. These are the field reports of my assistant who inspected these engines, and the figures shown on these as representing the purely physical condition of the engines are, with respect to No. 1–A, 85.6 percent——

TRIAL EXAMINER (Interposing). What exhibit is that?

Mr. SPRINGER. That is Exhibit 123–D.

The WITNESS. Engine 1–B, 85.8 percent.

Mr. SPRINGER. That is Exhibit 123–C.

The WITNESS. Engine 2–C, 88.3 percent.

Mr. SPRINGER. That is Exhibit 123–B.

The WITNESS. And engine 2–D, 88.8 percent.

Mr. SPRINGER. That is Exhibit 123–A.

The WITNESS. These being the physical percent condition
5964 representing the extent to which the engines have worn out in service.

By Mr. SPRINGER:

Q. You added 2 percent, I believe, to that physical condition percent, did you not?

A. Not to each station, I determined the physical percent condition, or my assistants did, with respect to all of the stations; I adjusted them downward to reflect the cost of abandoning; I then made specific further reductions on account of causes which are self-evident in some of the stations; and then the whole overall resultant percent was again reduced 2 percent without reference to any particular station.

Q. Then your physical condition percent, shown by Exhibits 123–A, 123–B, 123–C and 123–D for these four gas engines located at Hastings, is about 88 percent?

A. I think it would average about that; yes.

Q. And I believe you testified that those engines are about 35 years old?

A. Yes; they are rather old now.

Q. Do you know what percent of the time those engines are used?

A. Not specifically. I do know that they are used solely for peak load purposes, and I would expect it might average about 1 to 2 percent of the time.

Mr. SPRINGER. I offer in evidence Exhibits 123–A, 123–B, 123–C and 123–D as part of Mr. Rhodes' cross-examination.

5965

Mr. COCKLEY. May I see them?

(Exhibits handed to Mr. Cockley.)

Mr. COCKLEY. No objection.

TRIAL EXAMINER. Does the City of Cleveland or the State of West Virginia have any objection?

Mr. REEDER. No objection.

Mr. KOONTZ. No objection.

TRIAL EXAMINER: Exhibits 123–A, 123–B, 123–C and 123–D are admitted in evidence.

(Exhibits Nos. 123–A, 123–B, 123–C and 123–D were received in evidence.)

2993 **TESTIMONY OF F. P. C. WITNESS DUNN ON DEPLETION AND DEPRECIATION RESERVE REQUIREMENT**

Transcript Pages 2993–3010, 3052–3124, 3621–3699

* * *

Cross-examination by Mr. MILDE:

Q. Is it correct to say, Mr. Dunn, that your summary sheet in this exhibit is Schedule No. 1 on page 23?

A. Yes; that is the summary sheet of all figures.

Q. Now I want to deal this morning only with the depletion figures, as you have worked them out.

Now generally, in your work as you said, you applied this information which was submitted to you to certain costs, did you not, to arrive at your figures for depletion and depreciation and depreciation reserves?

A. Yes, we have segregated the company's costs into two general classes, depreciable and depletable.

Q. Now I notice in your first heading on Schedule No. 1
2994 that you say, "Cost subject to depletion and depreciation", and your next line is "Original Charges per Books", which, for the total plant in column (b), is $73,500,000?

A. That is right.

Q. Just what is that figure?

A. That figure is not actually used in any of these calculations, but in order to present the total amount that we have considered over this period of approximately 40 years,—that is, it is the total dollars, but it wasn't used in any method as such, and has no significance other than as a check for adjusted book costs at December 31, 1938; but it was not used in any calculations.

Q. That is just for general informative purposes?

A. That is right.

Q. And when you said before that you wanted to show the total dollars you were dealing with, does that mean the dollars that the company happened to capitalize on its books, is that what that figure means?

A. Yes, sir; the total investment in plant accounts.

Q. That is, it is whatever part of the cost of the company's properties it had capitalized?

A. That is correct.

Q. And that is all that figure represents?

A. That is all.

TRIAL EXAMINER. During its entire history?

2995 The WITNESS. Through its entire history.

By Mr. MILDE:

Q. Now what does line 2, "Adjustments by Examiners," represent?

A. That is an amount of $1,043,329.44, and I believe in the written statement there is an explanation of that amount, exactly what it is composed of and what it means, and you will find that on page 8.

Q. All I am trying to find out, Mr. Dunn, is what that represents, because page 8 merely says that the examiners made certain adjustments and lists the amount; and I just wanted some further indication of what the figures are, that was all.

A. Well, if you will look on the summary schedule of the original cost exhibit, you will find every examiner's adjustment listed there, made to the original cost, referenced by entry numbers which serve to identify each adjustment, and this amount is $2,099,171.81.

Q. Are these some items that were on the books which were capitalized, which you deducted in the course of the examiners' adjustments?

A. If you will notice, this is the result of the original cost study made by the company, the result of the examiners' check of it, and most of these adjustments are adjustments prepared as a result of the company's original cost study, but not

2996 put on the books, and in the main represent unrecorded retirements at December 31, 1938, but many other adjustments are included in there, too.

Q. But mainly unrecorded retirements?

A. In dollars, that is the largest amount.

Q. Well, I was curious, Mr. Dunn, as to why you deducted that figure from your line 1 to show an adjusted total cost subject to depletion and depreciation in line 3 of Schedule No. 1?

A. Well, we are going to bring that adjusted total cost down to the adjusted cost at December 31, 1938, and obviously we are going to take out of there the property that we took out in original cost in order to come to that figure.

Q. Well, that doesn't mean that the company doesn't have that property capitalized on its books at one time, does it?

A. Oh, no; by no means. I am just going down to the balance at December 31, 1938, and as I explained before, this $1,043,000, having been included in the total of $73,000,000, has received its share of depletion expense and accrued reserve, and it is charged off against the reserve by our entries.

Q. Well, we will come to that a little later. But what you say in your line 3, as I understand it, is that you had deducted from the amount of cost the company had capitalized on its books over the course of these years, $1,000,000, which consisted largely of unrecorded retirements, and you come to
2997 $72,500,000 which you say is the adjusted total cost subject to depletion and depreciation. You don't mean to say that depreciation and depletion should not have been taken on the $1,000,000?

A. No; I didn't have that in mind at all.

Q. Wouldn't it have been a little more accurate to include that in your line 4, if you were just wanting to come down to your adjusted book cost?

A. Yes, possibly having two sections of line 4 would show company retirements as recorded, and then these additional unrecorded retirements. That would have been perfectly all right.

Q. Well, actually you don't use any of these figures on Schedule No. 1, do you, Mr. Dunn, except line 5; adjusted book costs; that is, that is what you are dealing with here?

A. I use them all in this way—that this is just a grand total of them, I use them annually, year by year; they are all used, of course, and they finally work out to the $51,207,000 which was the adjusted original cost at December 31, 1938, and I put that in there to provide a complete tie-in to the original cost statement.

Q. Well, but the annual depreciation and depletion rates which you are developing, and the adjusted depreciation reserve which was developed, are applicable solely, are they not, to your
2998 adjusted book cost as of December 31, 1938, or adjusted book cost as of 1937 or 1939?

A. Well, yes; as of December 31, 1938, they are applicable as to the cost as of that year; and as of any other year, to the cost at the end of that year. You must understand that Mr. Antonelli, in his original cost study, didn't attempt to make his costs retroactive. He merely took the property that he found at

the end of 1938 and adjusted that property without making any retroactive adjustments.

Q. I just want to clarify, Mr. Dunn, what you say on pages 1 and 2, where you say that plant costs have been depreciated and depleted, respectively. Now what do you mean by "plant costs?"

A. I mean the cost is recorded in what is ordinarily known as fixed capital accounts, which we have considered as being gas plant in service. There are several ways of describing plant costs. We have had several accounting systems in the past, so they fall into different account numbers, but in general it is what is known as fixed capital items.

Q. Well, isn't this true, Mr. Dunn, that what you mean in this exhibit by "plant costs" is that portion of the cost of the plant that the company capitalized on its books?

A. That is right.

Q. And as of December 31, 1938, as shown in your line 5 on Schedule No. 1, your plant costs show precisely the same figure as adjusted book costs of $51,200,000, isn't that so?

2999 A. That is right.

Q. Now going a little further down your Schedule No. 1, Mr. Dunn, I notice that you have this same adjusted book cost figure, or plant cost figure, repeated in line 55 under column (b) for total plant?

A. Yes.

Q. Isn't that so?

A. Yes.

Q. And there you call it "adjusted original book cost." There is no particular significance to your various terminology, I assume; it is the same figure, is it not?

A. The same figure and same meaning.

Q. And that is the adjusted book cost in line 55 just as it is in line 5?

A. Yes.

Q. And your next item there is adjusted depreciation reserves, in line 56, of $23,500,000 for total plant. Now that is the figure you are attempting to arrive at in this exhibit, is it not? I mean, that is the result of your calculations in this exhibit, and your supporting papers?

A. That is one result; yes.

Q. And the other result is your annual allowance?

A. Yes; that is correct.

Q. Now in line 57 you show a figure of $27,700,000 as net book cost. That is deducting from your adjusted book
3000 cost the adjusted depreciation reserve as you have determined it, isn't that so?

A. That is right.

Q. And is that net book cost the net book cost of the company's total plant as defined in the Commission's Uniform System of Accounts?

A. To what definition do you refer in the System of Accounts?

Q. Do you have your code with you?

A. Yes.

Q. Well, I have noticed, Mr. Dunn, that in the definitions on page 4 of the Commission's Classification of Accounts, Exhibit No. 58, there is a definition for net book cost, item 24, which reads:

"'Net Book Cost', when applied to gas plant means the book cost less related depreciation, amortization and depletion reserves. When applied to other property, it means book cost less related reserves for loss in value."

A. That is exactly the same.

Q. And that is what you have in this exhibit?

A. That is right.

Q. And by that you mean you have the net book cost in accordance with the Commission's Classification of Accounts if its books were completely re-set as you and Mr. Pace and other members of the accounting staff have reset them in
3001 these exhibits?

* * *

3002 The WITNESS. The purpose of this study was not particularly directed with any thought in mind of resetting the books, and I believe I would have arrived at the same results as I did here, regardless of any System of Accounts. If I hadn't had this System of Accounts at all, I would still have gotten this same answer.

But I believe what you have in mind by your question is that if all of our adjustments were recorded, then the books of the company would reflect this amount of money. That is
3003 the way I believe you meant it.

By Mr. MILDE:

Q. And this is not the net book cost as shown by the company's books, or anything like that?

A. No, sir; that figure does not appear on the company's books.

Q. And this is simply a figure you arrive at by applying your own adjustments and determinations of depreciation reserves, and so on?

A. Applying both ours and certain adjustments proposed by the company itself.

Q. That is right. Now in arriving at your adjusted depreciation reserve, Mr. Dunn, as you show it for total plant, of $23,500,000, you say on page 7 of your text that all plant costs from the inception of the company have been considered in the depreciation and depletion calculations. Do you find that statement on page 7 under your heading, "Costs Subject to Depreciation and Depletion"?

A. That is correct.

Q. Now what you really mean there, don't you, Mr. Dunn, is that it is the plant cost which the company capitalized in the past?

A. That is right; I did not attempt to compute depletion on items charged to expense.

3004 Q. Well, you didn't mean by "all plant costs," the amount of money actually paid by the company for the plant, did you?

A. The amount actually paid has been very carefully distinguished by Mr. Smith in his testimony, that you can pay for two types of costs, expense costs and plant costs. I charged the plant costs, the amount charged for plant, in this depletion study.

Q. We are perfectly clear, aren't we, that what we mean is that portion of whatever was paid to construct the property which the company capitalized, and no other portion of the moneys that were paid out to build the property?

A. That is right.

Q. And that is all you meant by this statement on page 7?

A. That is correct.

Q. Now isn't it a fact that this adjusted depreciation reserve we are talking about here, as shown in Schedule 1, can be used only in connection with your adjusted book cost, as you show it in line 5?

A. That is correct, it is directly related to that book cost, and has no relation to any other figure whatsoever.

Q. And this might be called an adjusted depreciation reserve applicable to adjusted book cost?

A. That is right.

3005 Q. Now this same schedule No. 1 shows, does it not, Mr. Dunn, that of the total plant of $51,200,000, or rather the adjusted book cost of total plant in that amount, you have treated, by depletion methods or depreciation calculations, about $10,000,000, as shown in column (c)?

A. That is correct.

Q. Now isn't it a fact that the supporting schedule for the figures you show in column (c) to which I just referred, is Schedule No. 2 on page 25?

A. That is correct.

Q. And here in column (b) under "Total," and in line 5, we again find this approximately $10,000,000 adjusted book cost of depletable property which you show in Schedule No. 1?

A. It is exactly the same figure.

Q. Now this shows, does it not, that you treat by depletion methods, "Operated Acreage," "Field Line Right-of-way and Construction Cost," "Gas Well Construction," and "Cost of Abandoning Gas Wells"?

A. That is the various subdivisions of this depletion calculation.

Q. Now you don't show anywhere in this exhibit, do you, Mr. Dunn, the details, or rather the methods by which you arrive at these figures on Schedule No. 2?

A. There is a little further break-down of Schedule No. 2 shown as Schedules 2–A, 2–B, 2–C, and 2–D.

3006 Q. Well, that is merely a break-down under your general classifications of the figures you show in total on Schedule No. 2?

A. Yes.

Q. But doesn't explain how you did it?

A. No; that does not show the detailed calculations; just a summary again.

Q. And the text of your exhibit merely says that you applied the depletion rates which we have just discussed?

A. Yes.

Q. And that information?

A. Yes.

Q. But you have supplied to us your working papers?

A. Yes; my working papers are voluminous and I have given you all the underlying calculations to check.

Q. Now in view of the absence of an explanation of just what you did here, Mr. Dunn, I want to go over some of these items so that we all have an understanding of how you proceeded, and how you arrived at your final result. Now I notice under column (e) in Schedule No. 2, Gas Well Construction, you show your first figure for the year 1923; isn't that right?

A. That is right.

Q. And no depletion figures for any year prior to that?

A. That is correct.

3007 Q. Just why is that?

A. That is because all gas well construction was charged to some other account than plant accounts prior to 1923. In other words, there is no depletion expense because the entire cost of the plant represented by gas well construction has been charged to expense direct.

Q. Well, what it means, does it not, is that you are dealing in your study only with the wells whose construction costs have been capitalized since 1923?

A. Dealing only with those wells.

Q. And how many wells is that?

A. I believe somewhere in the neighborhood—I believe in the plant account we show a total of slightly over 700 wells.

Q. 772 is the figure; do you recall that?

A. I believe that is it.

Q. So what you are working out in column (e) of the Gas Well Construction, is a depletion allowance for 772 wells out of the company's 3,300?

A. I believe I will have to correct that a little bit. We also considered all the wells in which cost was capitalized and then the well was retired, we considered those wells in this annual allowance, also.

Q. I see.

A. There are not very many of those, however.

3008 Q. We will get to that in a moment. But what you finally arrive at for your adjusted depletion reserve in column (e) as shown in line 41, of $1,100,000, is a depletion reserve computed only for 772 out of the company's 3,300 wells?

A. That is applicable to those 772 wells.

Q. And that is all it is applicable to?

A. That is all; yes.

Q. And your depletion allowance, as you show it, say, for 1937 and 1938, is for those wells only?

A. No; it is for any wells that the company might have had at that particular date.

Q. Plus any other wells that may have been in existence at 1937 and 1938 which the company happened to capitalize?

A. That is right.

Q. And which hadn't gone out of service in 1937 and 1938?

A. Yes, sir.

Q. Now you say on page 9 of your text that your method or basis of depletion in connection with gas well construction is annual production, do you not?

A. Yes; I do say so.

Q. Now did you actually use the annual production from these 772 wells, or other wells capitalized since 1923, in determining your figures?

3009 A. I might say that we didn't separate the annual production by individual wells, we separated it by these production areas, and also about 75 or 80 individual wells. So therefore, I must answer that by referring to one particular pool, and then I can give you a more direct answer.

Q. Well, I think you can tell me generally what I want to know now, Mr. Dunn. You have considered, haven't you, the production and the reserves for all of the company's wells in your figures; you haven't merely confined your depletion rates on the basis of the production and reserves of 772 wells?

A. Well, I would like to give you an illustration. Production Area No. 1–1 had no well construction costs capitalized whatsoever in it, and I did not include any production figures from Production Area 1–1 in my calculations for depletion.

Q. No; but suppose, Mr. Dunn, that you refer to Production Area 6–1—what did you do there?

A. I used the production from that particular pool from 1923 on; nothing prior to that.

Q. Well, I think I ought to have a direct statement, Mr. Dunn. You know what I mean when I say, "Did you use only the production from these 772 wells for which you have costs in your book account, or did you use production for all of the company's wells"?

A. Oh, I said I used the total production from that pool
3010 area, which would be every well in there that produced gas from 1923 on.

* * *

3052 Q. Now I want to go back for just a minute, Mr. Dunn, to page 9 of your exhibit, where you say that the basis of depreciation and depletion as appearing on your table at the bottom of page 9 for gas well construction is annual production.

A. Yes.

Q. Now, suppose you applied whatever you meant by the words "annual production" to a single well, how would you determine the depletion and depletion reserve?

A. I would take the original cost of the well when it was first placed in service and would determine the rate based on the remaining gas reserve, the total in this case, and the annual production, and applying that rate to the cost of the well would produce an amount of expense, and that expense accumulates to build up a reserve. Any retirements from this well are charged to the accumulated reserve, less whatever salvage is recovered.

* * *

3053 Q. Getting back to our well, Mr. Dunn, do I understand if you had one well you would ascertain from somebody probably a geologist, the probable total recovery in m. c. f. from that well?

A. That is correct.

Q. Then you would get from an operating man the
3054 amount of production, either metered or estimated by whatever you could do, and determine what percentage that was each year?

A. Yes.

Q. And that is the percentage of production and the remaining reserve after deducting plant depletion?

A. Yes.

Q. Then you apply that to your original cost to set up a reserve in dollars?

A. The way it actually operates is you use the remaining gas and remaining book cost. That automatically corrects any slight error that might occur in the estimate of the reserve.

Q. If one-half of the gas has gone from the well, as a physical matter, what is the ratio of your depletion reserve to the original book cost, or to the original cost?

A. On a unit basis, one well would probably be 50 percent.

Q. Fifty percent?

A. Yes.

Q. Would you say that accurately measured the amount of depletion in that particular well as of that particular day?

A. Yes; that would be a very good measure.

3055 Q. It would be an exact measure, would it not?

A. Well, to the extent that the estimate was correct it would be exact. The estimate may be incorrect. Of course, it is absolutely impossible to get it exactly.

Q. Of course, it would depend on if you had the right reserve.

A. We are dealing in this case with estimates.

Q. So we have found out. Now, if you had 772 wells and obtained the correct recoverable reserve for those 772 wells, or as nearly correct as geologists could estimate them, and then treated the 772 wells as a group and following the same method you apply to an individual well, what would be the ratio of your depletion reserve to the original cost of those 772 wells when half of the gas was gone?

A. Well, it might be 50 percent or it might be less. It could not very well be over 50 percent.

Q. If it were to be an accurate measure, it would have to be 50 percent, would it not?

A. Of course you are assuming there are no retirements and no well out of these has been abandoned.

Q. We are talking about the 772 wells which are now in existence.

A. And all came in the same day and went into production the same day?

Q. That would not make any difference, would it?

3056 A. Oh, yes.

Q. Well, Mr. Dunn, whether they came in on one day or the next day, if you are dealing with 772 wells, you could total up your figures across and get the same result.

A. Some of them are drilled deeper, which would increase the cost, while the reserve may be either more or less than the well originally had. There are many problems involved in that.

Q. As a practical matter, if you had a total reserve of these 772 wells and applied the method which you have used for one well, your reserve should be about 50 percent when half the gas is gone, should it not?

A. Provided that we make the assumption complete and you never drill any well deeper or do not change your gas reserve in any way or do not bring in more gas reserves, and they all went into production the same day and were retired the same day, then I suppose that would be 50 percent.

Q. I am coming to that in a moment, Mr. Dunn. Now, that is not what you did in this case, is it?

A. No; it is not.

Q. Now, as a matter of fact, you did not use in working out your figures, the remaining recoverable reserves for these 772 wells at all, did you?

3057 A. I believe I identified the reserves I used and the geologist's report, and did not relate it to any particular well as such.

Q. Did you know precisely what was included in the recoverable reserve figures which you got from the engineering department or the geological department when you made your figures?

A. I relied on their description, which said present drilled wells as of December 31, 1938. That is the figure that I was using. I believe I did use the amount shown under that heading.

Q. Is it not a fact that what you did was to take these reserve figures that somebody gave you and which spread out the company's gas reserves and production, and so forth, by 76 pool areas and use the figure finally for total ultimate recovery of m. c. f. as your starting point?

A. I think the starting point was the amount of recoverable gas from present drilled wells as of December 31, 1938. That was the starting point.

Q. Then what did you do?

A. I took the annual production figures, not just production from present drilled wells, but all wells, and computed the amount of reserves at the beginning of each prior year.

3058 Q. And you worked out in that method the remaining reserve all of the way back to 1923; is that it?

A. Yes, sir.

Q. And that was worked out by your application of a correction factor that was supplied to you, was it not?

A. The correction factor, of course, was to convert production.

Q. You are not vouching for the accuracy of these reserve estimates at the end of each year back to 1923, are you?

A. Obviously they are correct. They are only just as far wrong as the last preceding one is wrong.

Q. And if the correction factor, for example, were inaccurate or could not be applied to each pool area, your calculations would carry through those errors, would they not?

A. To that extent there would be an error in each calculation.

Q. That is right. You took me rather far afield from my notes, Mr. Dunn, and I want to get back to them again. Now, in these reserve figures we have just been talking about, it is a fact, is it

not, that you included in them nothing for deeper drilling of these present wells?

3059 A. That is the figure shown directly underneath the estimated production from present wells, is it not? Is that the figure to which you refer?

Q. I just want to know what you used.

A. As I stated before, I used only the reserve from the present drilled wells as of December 31, 1938.

Q. As they were then drilled?

A. Yes.

Q. If those wells were drilled deeper, you did not take account of any such additional production?

A. That would automatically follow. If you spend more money, you get more gas, and it goes into the rate automatically when that occurs. Of course, we do not take account of it before it happens.

Q. Is it not a fact, Mr. Dunn, your geologist estimated what the recoverable reserves would be from deeper drilling of present wells?

A. Yes.

Q. And you just discarded that figure, did you?

A. No.

Q. You did not use it, did you?

A. It does not apply yet. It applies when deeper drilling occurs.

Q. You did not use it at all?

A. No.

3060 Q. It is your theory if you drill a well down to 1,000 feet you just use the reserves that you get then for that well and all of the other wells in the vicinity and work out a depletion rate, and then you drill it down about 1,000 feet and you add your additional reserve at that time?

A. Obviously you add some cost for that expense, but you also get more gas and you add the gas and it therefore keeps in relationship. It is a very simple matter.

Q. That is not what you actually did for past years?

A. It was not necessary in past years. In fact, I did not have the figure broken down and it would be necessary to go back and separate all of those years out and go through all of them.

Q. You just did not do it in the past and you say that is the way to do it in the future?

A. As a practical method, rather than recompute the whole thing every year, you just add to it year by year. Why compute the whole schedule when it is unnecessary?

Q. Mr. Dunn, do you recall that Mr. Ross put in an additional gas reserve exhibit giving some figures for December 31, 1939?

A. Yes; I have seen his exhibit for 1939.

3061 Q. You are aware, are you not, that in that exhibit he made some changes in his previous estimate of recoverable reserves, drilled wells, pool areas, and what not?

A. I could not tell whether he made changes in his reserves or whether the figures were incorrectly computed, mistakes of addition. I did find many of them and he advised me there were many changes in addition. I could not tell whether it was a change in estimate or a change in addition, but they were very minor.

Q. That is your opinion?

A. I heard testimony by Mr. Ross that three or four percent of the total was a minor matter, and this could not be one-half of one percent; so it must be minor.

Q. Well, is it not a fact that on your method of calculating depletion on wells and on the other properties we are going to come to in a moment, you have just assumed that the reserve figures as of December 31, 1938, are accurate?

A. Yes, indeed.

Q. And to the extent that additional developments of the gas territory indicate, for example, in 1939, inaccuracies in those estimates, you have not taken them into account?

A. Well, I would take them in account when they develop.

3062 Q. You did not make any revised figures as of 1938 on account of Mr. Ross' changed figures in 1939, did you?

A. I do not know what the changes are yet.

Q. And you have not investigated that?

A. What?

Q. You did not investigate that?

A. Mr. Ross informed me there were some, and he has not given me the absolute amount as yet that I know of.

Q. Now, getting back finally to the first question I asked you when we started off, Mr. Dunn, is it not a fact that so far as working out the depletion allowance and reserve for these 772 well is concerned, you have actually considered the production and the recoverable reserves from all of the company's 3,300 wells, with the exception of such of the company's 3,300 wells as

are in pool areas where none of the well drilling costs happen to be capitalized?

A. And the further exception that no production goes back prior to 1923.

Q. That is right?

A. That is correct.

Q. Do you know how many of your pool areas have wells in them for which you have no construction costs
3063 whatsoever?

A. I would have to go through each one and see. I do not think there are many of them.

Q. You do not think there are many?

A. No.

Q. So, with these exceptions that we have made, is the general statement you have used the 3,300 wells, and that those exceptions are very minor?

A. Yes; in fact, it is all very minor.

Q. Now, turning to your schedule No. 1—first, referring back to your schedule No. 2 on page 25, your column "D" shows your computations for field line rights-of-way and construction costs, does it not?

A That is correct.

Q. Now, did you group these particular properties into pool areas the way you did your wells?

A. Yes; in a similar manner to the wells.

Q. You did that personally?

A. No; not personally. Several examiners of accounts did that, and they did it from the data furnished by the engineering division as to the location, by production areas, of the physical property.

Q. That is what I want to be sure about. Is it the engineering division, Mr. French or Mr. Brown or whoever it is—
3064 is it the engineering division grouped these properties, with you doing the mathematical work, or accounting?

A. It is the engineers who have designated the items of property by the various production areas.

Q. I see. Did they tell you to group these properties into pool areas, or did you tell them to give you the figures by pool areas?

A. I do not believe I know. It was probably decided in a conference in some way to arrange these 73 pools and this depletion, and I do not know who was primarily responsible for the first suggestion, if it might be called that. It certainly was not me because I was not here when these 73 areas were arranged.

Q. You are a recent arrival on these fields, are you not, Mr. Dunn?

A. October 21, 1940.

Q. So I judge from what you have said you are not taking responsibility for this general process of segregating the company's properties into areas, production areas; is that right?

A. I would not want to disclaim that or say I do not believe in it. I believe it is perfectly proper.

Q. Proper for what?

A. As a method of depletion and determining the amount of accrued reserve.

3065 Q. Is it an application of what you call the group method?

A. Yes.

A. I see. Would it not be an application of the group method just to group all of the company's properties into one series of depletion and depreciation calculations?

A. Yes; that would be a larger group.

Q. A larger group?

A. Yes.

Q. Do you think it necessary that the company's properties be split up into these particular pool areas in order to apply your group method?

A. It is not absolutely necessary. I would say that this is a refinement, because we wanted to know whether or not there would be any material difference, and I do not think now that there would be. But this is a refinement of a problem, for added accuracy.

Q. Well, this is something intermediate between the group method and the unit method; is that is?

A. I do not believe you could relate it in any way to the unit method. It is a refinement of the group method, I would say.

Q. Are you taking responsibility for this particular method of grouping these properties?

A. No; I do not know enough about the underlying
3066 geology to take full responsibility, but assuming the geologists are correct, I would take full responsibility for any computation of cost by reason of this grouping.

Q. All right. Now, what geological assumption has to be correct in order to have these pool areas segregated?

* * *

3070 Q. I think the question, Mr. Dunn, which we were discussing, is that your assumption was that it was not necessary that the production and reserves of pool areas and individual

wells, as you have classified them, be accurate, so long as the over-all production and reserves were accurate; is that right?

A. Maximum accuracy is desirable, but not absolutely necessary.

Q. And it is your testimony, is it, that if there are errors as to the production and reserves of any one or more of your individual pool areas, or individual wells, that that is imamterial?

A. Errors in estimates of gas applicable to the gas reserves?

3071 Q. That is right.

A. I believe it would be rather immaterial, it might play some part in the final answer.

Q. Now on what do you base that belief?

A. Largely because we have not taken out or eliminated any part of the total, it is all in there, and if the division is wrong, it means that one is too high and one is too low, there would tend to be an offsetting error.

Q. You don't know whether those errors will offset each other or not, do you, Mr. Dunn?

A. Not exactly.

Q. Do you know at all?

A. Yes, sir; that is exactly what it would be, an offsetting error.

Q. Now, Mr. Dunn, offsetting errors, you know, do you not, as an accountant, could never balance each other if you are dealing with segregations of property into unequal units?

A. That is right. I testified that they might not exactly offset, but they would tend to offset.

Q. And isn't it a fact that the pool areas shown on Exhibit No. 41, and the property in those various pool areas as they appear in the original cost exhibit, 57, are very unequal?

A. Yes; they are very unequal.

Q. In some places you have got very little property,

3072 and in some places you have got a great deal of property?

A. Yes; that is right.

Q. Now as I recall it, you said that that was the only assumption, that is, the accuracy of an over-all estimate of production and gas reserves was the only assumption that you needed to consider as being accurate in order for you to say that you thought this division into pool areas, and so on, was proper; is that right?

A. I would prefer to let the geologists testify as to the division into pool areas. That is just my opinion, but the accuracy of these pool areas is up to the geologists, not up to me.

Q. But you have expressed an opinion, Mr. Dunn, and I want to know whether that is the only thing, the accuracy of that over-all estimate is the only thing that you think needs to be accurate, in order to support your view, as you have expressed it, that this division into pool areas is proper for the purposes for which you used it?

A. No; my view is that accuracy should extend down to the ultimate refinement if possible, but it may not be possible, and it may not happen that way. The most desirable and the most important accuracy is desired in the total. I would like to have it as accurate as possible, that is my position.

Q. Well, I am asking you if all that you think is necessary in order to support these pool areas, applied as you
3073 applied them, is an accurate over-all estimate of production and reserves?

A. No; I needed what I got, and that is a break-down of those reserves by production areas. I needed that in order to make my computations, and a reasonable break-down, particularly.

Q. Well, Mr. Dunn, when you assume that this pool area method, let us call it that, is proper—or rather, you have expressed your opinion that it is proper—do you not have to assume something as to the operation of the companay's properties?

A. Well, I think the operation of their properties up to 1938 is a fact, and it doesn't require any assumption.

Q. Well, that is just what I want to go into and inquire about, Mr. Dunn. Don't you have to assume that the properties which you have segregated into pool areas are operated in a particular way?

A. The method in which I have considered them as being operated is all reflected in the amount of gas withdrawn.

Q. Well, precisely what did you assume, then, either in expressing your opinion that this was proper, or in using these figures, as to the operations of the company by pool areas?

A. I didn't assume anything further than is shown in these depletion schedules.

3074 Q. And what is shown in your depletion schedules as to the operations of the company by pool areas?

A. The amount of gas withdrawn and the amount of gas remaining at December 31, 1938.

Q. That is the only thing that is shown in your exhibit?

A. Well, from the operating side. Of course, from the plant side there is the investment in the pool areas, which changes year by year—wells are added and wells are retired, or field lines are

added and field lines are retired, and it is continually changing.

Q. And the only thing you have assumed is that gas is produced from these 76 pool areas and 100-and-some individual wells, is that right, so far as an operating fact is concerned?

A. I don't think I have even assumed that; I think that that is what actually happened; that gas was withdrawn from these areas.

TRIAL EXAMINER. The use of that word "assumed" has certainly got me confused. I don't know whether it has the witness, or not.

MR. MILDE. I will see if I can't clear that up.

By MR. MILDE:

Q. On your own theories and computations, don't you have to assume that these properties which you have segregated into pool areas are used solely and exclusively to produce gas from that pool area?

3075 A. In the case of wells, I would say yes; but in the case of field lines, it could well happen that a field line in one or two instances might extend over into another production area.

Q. Well, isn't it a fact, Mr. Dunn, that you deplete field line construction by pool areas on the assumption that when the gas is gone, as other members of the Commission's staff gave it to you, that that line will be completely out of service; the lines in that pool area will be completely out of service?

A. On the theory or assumption that the construction costs will have no further value.

Q. That is right, and you make that assumption that when these gas reserves you have worked with by pool areas are gone, that the construction costs of the lines which you have assigned to that pool area, will have no further value?

A. Yes; that is right.

Q. And that assumes, does it not, that the lines in each of these pool areas will carry no gas other than that which you used in your computation for each particular pool area?

A. No; I wouldn't go that far, because in each case, if there is any doubt as to it—and this is what the engineers have told

3076 me—if there is any doubt as to the length of life as between various production areas through which a field line might operate, they have assigned that field line to the production area having the longest life that they can possibly determine.

Q. Mr. Dunn, that isn't responsive to my question at all. You are talking about lines outside of pool areas.

A. No.

Q. We haven't come to that yet. Now what I want to know is this: Isn't it a fact that you have assumed that when these gas reserves which somebody gave you, by pool areas, or which you converted into actual reserves by this 70 percent factor, is gone for each pool area, that the construction costs capitalized of field lines and rights-of-way of the lines in that pool area, will never serve any other purpose?

A. I think that that is generally true.

Q. That is a necessary assumption in your calculations, is it not?

A. Yes; that is right.

Q. Now are you taking responsibility for the accuracy of that assumption which is inherent in your calculations, or is somebody in the engineering staff doing that?

A. Well, I suppose the responsibility is on anybody making use of those figures; partly on me, partly on them. I would be
3077 glad to assume responsibility for the fact that when gas is gone, the field lines won't transport any more.

Q. That is all you know about it, however, isn't it?

A. That is all.

Q. You have made no investigation of the actual operations of the Hope Company, have you?

A. No; I have not gone out and looked at them.

Q. And if I went to any particular pool area on Exhibit No. 41, which you say you are not familiar with, and asked you how the lines of the company in that pool area were actually operated, you wouldn't be able to tell me, would you?

A. No; I wouldn't be able to tell you that.

Q. Now, if it is a fact that some of the property which you list in any one of your pool areas, and deplete by your method, actually carries gas produced in one or more pool areas, your results are not accurate for that particular property, are they?

A. Yes; I think so, because that factor has been given consideration by the engineers, and I am informed——

Q. (Interposing.) Well, you think it has been given consideration by the engineers; isn't that what you are saying, Mr. Dunn?

* * *

3085 Q. Now isn't it also true, Mr. Dunn, that your method of calculation assumes that the existing lines which you
3086 have assigned to these pool areas would not help carry any gas from any additional wells drilled on operated acreage other than the wells drilled at December 31, 1938?

A. I think my method contemplates that there will be additional wells drilled.

Q. Well, did you——

A. (Interposing.) I fully expected that.

Q. Well, it is perfectly clear, is it not, Mr. Dunn, that in the total recoverable gas reserves that you used for a pool area, you did not include in that total any reserves from any additional wells that would be drilled on operated acreage after the end of 1938?

A. That is correct.

Q. Isn't it also true, Mr. Dunn, that your calculation assumes that these lines, which I described in the preceding question, will not help carry gas from any of these wells existing at December 31, when they are drilled deeper?

A. It certainly does not assume that.

Q. Well, Mr. Dunn, did you include in the total recoverable m. c. f. to which you applied your withdrawals, any gas at all for additional or deeper drilling of wells?

A. No; I explained this morning that when the wells are drilled deeper, those reserves, if any, will be added to the total recoverable gas at the time they are actually obtained.

3087 Q. We are not talking about wells, Mr. Dunn, we are talking about field lines.

A. I have used exactly the same rates on field lines, operated acreage, and leases, they are all in the same rates, and the recoverable reserves are determined by the wells themselves.

Q. And the fact is that the ratio of withdrawals by pool areas or depletion rates that you figured out for 1938, for example, assumes that that rate of withdrawal is a definite percentage of total recoverable reserves from the area, which do not include any reserves for additional drilling or deeper drilling; isn't that so?

A. That is so. There is very good reason for not including them.

Q. Well, the fact of the matter is that you also have not included, in your total recoverable reserves which you have used in your calculation, any of the gas which will be found in any of these pool areas by additional wells drilled on unoperated acreage; isn't that so?

A. Yes, sir; I have testified all the way through that the only gas reserves that I have used are the present existing wells as of December 31, 1938.

Q. And you also haven't included in your base figure, let us call it, your total recoverable reserves for pool areas, any gas that
3088 will be found in those areas in the future, or obtained in the future by additional wells that the company may purchase; isn't that also true?

A. Yes; that is absolutely true. I might add that it is highly desirable, in my theory and opinion, that such additional reserves not be added at this time.

Q. Well, the fact is that you have used a figure for total recoverable reserves from a pool area, and applied to that figure over the years the production, have you not?

A. I believe I explained that once before, that I used the recoverable reserves from the present existing wells as of December 31, 1938, and I have used the total production to date in connection with that reserve.

Q. And the figure for probable total recovery in m. c. f. by pool areas, which you used in your calculations, isn't the probable total recovery for that pool area at all, is it, as a matter of fact?

A. It is the probable total recovery of the present wells. As additional wells are purchased, if they are purchased, that additional reserve would be brought in, as it has been in the past, and the cost will be added in the year in which it was incurred, as it has been in the past; and depletion would be directly related then; the expense would be directly related to the cost in the year in which it was incurred.

Q. In other words, to apply your method, you have got to do something else than what you have done here, is that it,
3089 in the future?

A. No; I have just got to continue what I have done here.

Q. Well, Mr. Dunn, you have one of your pool areas in which you have fully depleted your line construction and rights-of-way, haven't you?

A. I believe there is one pool area where all the gas that was estimated has been withdrawn.

Q. And on your method there may be others, isn't that right?

A. Eventually there will be others.

Q. And that method assumes that the rights-of-way and lines in your one fully depleted pool area, which is Area 2–2, I believe, that assumes that they have no value, doesn't it?

A. That assumes merely this, that all the cost that has been capitalized has now been charged to operating expenses at the same time that all the gas was recovered from that pool area.

Q. Well, now, Mr. Dunn, that hasn't actually been charged to operating expenses, has it?

A. I am afraid that a great deal more than that has been charged to operating expenses.

Q. Well, now, what happens to Pool Area 2–2—where at least you have no value for that property—when an additional well is drilled in that pool area?

A. I am assuming that the additional well would find
3090 some gas?

Q. Oh, yes; surely.

A. Then the cost of that additional well would be written off over the gas that is obtained from it.

Q. And the fact of the matter is that if these present lines are used to help carry the gas from that additional well, you have overstated there the reserve they ought to have at the end of 1938, haven't you?

A. Possibly a little bit overstated it in the interests of conservative accounting.

Q. Now in that same pool area 2–2, Mr. Dunn, I think your work sheets show that although you had depreciated or depleted the rights-of-way and field lines down to zero, there was actually some additional production from the capitalized wells in that area during 1939; isn't that right?

A. If so, it would result in only a minor error in the total amount of gas recoverable; it might happen in any case.

Q. Well, the fact is that your 100-percent depletion reserve as of December 31, 1938, was not accurate; isn't that so?

A. I have never pretended that this depletion reserve is absolutely accurate, because it is based on an estimate, and to the extent that an estimate is slightly off in the final analysis, may throw the reserve off a little bit.

3091 Q. Well, isn't that just the point, Mr. Dunn, that you have used, for determining field lines and rights-of-way, probable total recoveries in m. c. f. for pool areas which do not take into consideration any additional gas that will be discovered, or anything of that sort, additional purchases, and so on?

A. Yes; my method contemplates writing off present existing property over present existing gas reserves, and if additional gas reserves are added, additional costs naturally are incurred, and they will be considered at their proper time, not before then.

Q. Well, Mr. Dunn, isn't that also another point in your assump-

tion—you have just assumed that the present existing property—and when I say "you" I mean nothing personal, I mean that your calculations assume—that the present existing property, as you set it up, will not help carry or produce any of the additional gas supplies which the company will develop in these various production areas?

A. No; that isn't necessarily true.

Q. You don't think that that is necessarily true in your figures?

A. Why, I am sure that it isn't, because it is obvious that a great many of these pools, not being fully depleted, we have added reserves which tend to extend or lower the rate, and they continue in operation.

3092 Q. Well, you have just assumed, though, in these figures, where you are trying to arrive at a depletion reserve as of December 31, 1938, that these rights-of-way and lines that we are talking about now, will not carry any gas other than the reserves remaining in the present drilled wells as of December 31, 1938; isn't that so?

A. No; that is not so.

Q. Well, what reserves did you use in your calculations, what recoverable reserves did you include in your calculations?

A. The recoverable reserves at the beginning of each and every year, from the beginning of operation of the company to and including 1938.

Q. And excluding in your calculations any reserves that will be added by additional drilling, deeper drilling, and additional purchases after 1938; isn't that so?

A. Excluding such reserves and any such costs incurred in connection therewith.

Mr. SPRINGER. He has answered a similar question three times.

TRIAL EXAMINER. Yes; I agree with you. I think we have gone over that three or four times already, and it should be clear by this time.

By Mr. MILDE:

Q. Was it your thought, Mr. Dunn, that when the existing field lines of the company were laid, they were installed
3093 with the idea of merely carrying the gas which the company had discovered up to December 31, 1938?

Mr. SPRINGER. I object. That is really an operating question.

TRIAL EXAMINER. Well, I think as it is worded, it is. The objection is sustained.

By Mr. MILDE:

Q. Well, did you assume in making your calculations, Mr. Dunn, that that was the situation?

A. No; I assumed that they would carry gas as long as there was any gas for them to transport.

TRIAL EXAMINER. You didn't assume any conditions which might arise subsequent to that date, though, did you?

The WITNESS. Well, I let those conditions be applied in the year in which they occurred.

By Mr. MILDE:

Q. Well, you haven't given any consideration at all, have you, in your figures for December 31, 1938, to additional gas discoveries in 1939 and 1940?

Mr. SPRINGER. That is the fifth time, Mr. Examiner, the same question for the fifth time. I think half a dozen ought to be the limit.

TRIAL EXAMINER. Objection sustained.

By Mr. MILDE:

Q. Now, Mr. Dunn, suppose you were doing this job of
3094 yours as of December 31, 1940; would you then, in your figures for probable total recoveries in m. c. f. for these various pool areas, include the additional discoveries that the company made in 1939 and 1940?

A. Yes, sir.

Q. And isn't it a fact that as to any of your pool areas, where substantial additional discoveries or purchases were made, your probable total recovery in m. c. f. would necessarily be higher than as of December 31, 1938?

A. I don't believe it would change. The way I would compute 1941 is just add 1939 transactions onto it and 1940 transactions, and come to the answer at the end of 1940, just continue from 1938 on.

Q. I am just asking you, if you did this job as of December 31, 1940, just the way you did it as of December 31, 1938, then, in any of your pool areas where the company had discovered substantial additional reserves, or had purchased substantial additional reserves, you would have, as one of your figures, would you not, a larger probable total recovery for that pool area—we are clear that far, are we not?

A. I believe so.

Q. You would have a larger figure?

A. That is right.

TRIAL EXAMINER. You just assume that you would, don't you, you don't know whether you would or not?

3095 Mr. MILDE. I said if the company discovered the additional gas.

TRIAL EXAMINER. Well, that, it seems to me, is an engineering question, there might be other things that entered into it. However, if the witness thinks he can answer the question, he may go ahead.

Mr. MILDE. Well, I think he has answered it.

By Mr. MILDE:

Q. That figure would be larger than what you had for 1938 on these assumptions I have given you?

A. If you had more reserves, you would get a larger figure, that is sure.

Q. Now isn't it a fact that if you took that figure and worked this computation back over the years, just as you have actually done it for the period up to 1938, that your depletion reserve as of December 31, 1938, would be different than what you show here?

A. If I used different figures, I would get a different answer, I suppose.

Q. And isn't it a fact, and necessarily true, that if you made this calculation as we have described it, as of December 31, 1940, your depletion reserve for this pool area, this hypothetical pool area we have been talking about, would be substantially lower for December 31, 1938, than the one you show by working your figures up only to 1938?

3096 A. That is not true.

Q. You say that is not true?

A. That is not true; they would not be substantially lower.

Q. Would it be lower at all?

A. There might be some very slight difference, I couldn't say, not having computed the figures you have in mind, but there would be no substantial difference whatsoever.

Q. And your testimony is that it would not be lower?

A. Substantially lower.

Q. What do you mean by "substantially"?

A. You used the word, I mean the same thing you meant.

Q. You say it would be lower, but you are not sure it would be substantially lower; is that your testimony?