ORAL HISTORY INTERVIEWS

Andrew K. Dolyniuk

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STATUS OF INTERVIEWS:
OPEN FOR RESEARCH

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Interviews Conducted and Edited by:
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Table of Contents

Brief Chronology of Career

1927–Born in North Dakota, and raised in the area of Belfield

1945-1946–Served in the U.S. Navy

1946-1950–Attended North Dakota Agricultural College

Summer 1949–Worked as an engineering aide on construction of Dickinson Dam

1950–Joined Reclamation at the Devil's Lake Field Office after graduating from college in civil engineering and worked on construction of transmission lines in the field

1961–Moved to the East Bench Unit of the Pick-Sloan Missouri Basin Program to be assistant to the project construction engineer.

1962–Barney Bellport, chief engineer, decided he should move to Phoenix, Arizona, to work on the Parker-Davis transmission system there. At that time field construction staff were responsible to the chief engineer's office in Denver.

1970–Transferred to the Phoenix Development Office to prepare for construction of the Central Arizona Project. Construction of the transmission system was transferred to the office also.

1973–Upon initiation of construction of the CAP system, became construction engineer for CAP.

February 1983–Retired from Reclamation and subsequently engaged in various consulting activities with the Central Arizona Water Conservancy District and others.

STATEMENT OF DONATION
OF ORAL HISTORY INTERVIEWS OF
ANDREW DOLYNIUK

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INTERVIEWER:_____
Brit Allan Storey

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Introduction

In 1988, Reclamation began to create a history program. While headquartered in Denver, the history program was developed as a bureau-wide program.

One component of Reclamation's history program is its oral history activity. The primary objectives of Reclamation's oral history activities are: preservation of historical data not normally available through Reclamation records (supplementing already available data on the whole range of Reclamation's history); making the preserved data available to researchers inside and outside Reclamation.

The senior historian of the Bureau of Reclamation developed and directs the oral history program. Questions, comments, and suggestions may be addressed to the senior historian.

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history program see:
www.usbr.gov/history

Oral History Interviews
Andrew Dolyniuk

Storey: This is Brit Allan Storey, senior historian of the Bureau of Reclamation, interviewing Andrew "Andy" Dolyniuk, a former employee of the Bureau of Reclamation, in the Phoenix Area offices of the Bureau of Reclamation on April 24, 1996, at about 9:30 in the morning. This is tape one.

Could you tell me, please, where you were born and raised and educated and how you ended up at the Bureau of Reclamation.

Born in 1927 and Raised in Western North Dakota in the Area of Dickinson

Joined the Navy in 1945 upon Graduation from High School

Dolyniuk: Certainly. Actually, I was born and raised in western North Dakota, basically in the Dickinson area, born in 1927. I attended elementary school and high school in the next town, which is actually Belfield, North Dakota, and from there I went to the service towards the end of World War II, joined the Navy immediately upon graduation from high school. In fact, I was sworn in a little bit before graduation. Went to the service for

a year. Naturally, the war ended as soon as I entered.

Storey: So you went in in ‘44, maybe?

Dolyniuk: Actually, I went in in ‘45. The war ended September of ‘45.

Discharged from the U.S. Navy in 1946 and Studied Civil Engineering at North Dakota Agricultural College

Upon discharge, which was in the fall of ‘46, I entered North Dakota State University, which at that time was called North Dakota Agricultural College, but I went to this school because it was rated very highly in the engineering field. Also, of course, it’s my home state.

[I][1] spent my four years at this

1. A note on editorial conventions. In the text of these interviews, information in parentheses, ( ), is actually on the tape. Information in brackets, [ ], has been added to the tape either by the editor to clarify meaning or at the request of the interviewee in order to correct, enlarge, or clarify the interview as it was originally spoken. Words have sometimes been struck out by editor or interviewee in order to clarify meaning or eliminate repetition. In the case of strikeouts, that material has been printed at 50% density to aid in reading the interviews but assuring that the struckout material is readable.

The transcriber and editor also have removed some extraneous

(continued...)

particular institution. In the summertime, I'd go back to the farm, assist with the farm work.

Between His Junior and Senior Years He Worked for Reclamation as an Engineering Aide

However, between my junior and senior years, looking for summer employment I became an engineer aide with the Bureau of Reclamation, working on a dam which happened to be fifteen miles from our home at Dickinson, North Dakota. So this actually was my initiation and my becoming familiar ***with*** the Bureau of Reclamation, and it became natural that after graduation I return with the Bureau of Reclamation, working out of project headquarters in Bismarck, North Dakota.

1. (...continued)
words such as false starts and repetitions without indicating their removal. The meaning of the interview has not been changed by this editing.

In an effort to conform to standard academic rules of usage (see *The Chicago Manual of Style*), individual's titles are only capitalized in the text when they are specifically used as a title connected to a name, e.g., "Secretary of the Interior Gale Norton" as opposed to "Gale Norton, secretary of the interior;" "Commissioner John Keys" as opposed to "the commissioner, who was John Keys." Likewise formal titles of acts and offices are capitalized but abbreviated usages are not, e.g., Division of Planning as opposed to "planning;" the Reclamation Projects Authorization and Adjustment Act of 1992, as opposed to "the 1992 act."

Storey: Why did you decide to go into engineering?

Why He Chose to Go into Civil Engineering

Dolyniuk: While I was in the Navy, they tried to direct us into different fields. Actually, my interest was to join the Seabees, and there's no question or doubt that I would have probably went into the Seabees had not the war ended about that time, or the war was over with. My interest stayed with engineering and construction, and whether that was the real instrumental reason for going into engineering I'm not sure, but there wasn't any question in my mind that I was going to take engineering, although my placement test in college indicated that I should have been a chemist or something of that nature. Math always came easy for me. So I just fell in place, I think. In hindsight, whether I'd do it now again, I'm not sure.

Storey: You mentioned that your family was on a farm.

Dolyniuk: That's correct.

Storey: Was it an irrigated farm?

Raised on a Dry Farm with Livestock and Small Grains–Mixed Farming

Dolyniuk: No, it wasn't. Western North Dakota is strictly dry farming. You rely on your rainfall.

Storey: So it was a wheat farm, a winter wheat farm?

". . . small grains, as well as stock . . . At that time, just about everybody had what they called mixed farming . . . Now they usually specialize, whether it's grain farming *or* stock . . ."

Dolyniuk: They call it mixed farming. They had grains, small grains, as well as stock, which is sort of a little different nowadays. At that time, just about everybody had what they called mixed farming or combination ranching and farming. Now they usually specialize, whether it's grain farming ***or*** stock, so to speak.

Storey: What was the name of the project at Dickinson?

Worked at Construction of Dickinson Dam for Reclamation

Dolyniuk: It was the Dickinson Dam. It was part of the Heart River Project.

Storey: Do you remember who hired you?

Dolyniuk: Actually, the construction engineer was a Mr. Whipple [phonetic]. There were two dams going on at the same time, one at Glen Ullin and the one at Dickinson, and I was assigned to the Dickinson project.[2] So basically, like I say, the man in charge was a Mr. Whipple, although I suppose I was really hired out of the projects office in Bismarck, and at that time the project manager was Bruce Johnson, who later also became the regional director at what was then Region 6.

Storey: What did a student aide do? An engineering aide, excuse me.

"I was assigned to the field. Basically it was inspection and earth control and concrete control work. They kept me pretty busy. . . ."

Dolyniuk: I was assigned to the field. Basically it was inspection and earth control and concrete control work. They kept me pretty busy. In fact, too busy. Not too busy. I shouldn't say that. But I was very pleased with my summer activity. I did not have any idle time. I had very good training and probably should contribute that to the field engineer and the office engineer at the site.

2. Reclamation built Dickinson Dam in 1949 and 1950. The dam is an earthfill structure which is a feature of the Dickinson Unit of the Pick-Sloan Missouri Basin Program.

Storey: What is earth control? What does that entail?

Earth Control at Dickinson Dam

Dolyniuk: Well, in a dam such as an earth dam, which this was, the integrity of the dam is dependent on the using the proper soils and with proper moistures and proper compaction so that you have your core and the outside layers of the dam to provide you with the structure that the engineers designed. So it entailed field testing, which required density control and moisture control and all the facets of earthwork.

Storey: And you were a student, right?

Dolyniuk: I just finished my junior year in college.

Storey: How much training did they give you? This is basically construction inspection, I think.

Training for Construction Inspection

Dolyniuk: That is correct. Now, outside of the fact that I did have the early morning shift at times, you were under the guidance of the chief inspector and the engineers on the site, the field engineer.

Storey: Were you assisting one of them or were you

off on your own doing your own inspection work?

Dolyniuk: A little bit of both, inasmuch as for a while there I did what they called a early morning shift. I'd go to work at four in the morning and work until noon. So with that, I was on my own for a while, and then the field engineers would come out and review what activity went by and discuss the actions.

Storey: What kinds of tests were you doing?

Compaction Tests

Dolyniuk: Tests? Compaction tests, basically, relative densities.

Storey: How do you do that?

Dolyniuk: In the field what usually happens is, as you're placing an embankment, you level off an area of the previously placed work, and with equipment, in essence what you do is, you carefully dig a hole in the compacted embankment and you fill this up with density science. So consequently, by this you determine the exact ***volume*** of the hole that you took the material out of. Then you take the material into a lab, and by a process of testing, you determine what the dry density

was of that particular volume of the hole. Then if the specs say that you shall compact it to 95 percent of proctor, then, of course, you determine whether it, in fact, was at 95 percent or greater.

Also, of course, usually the specifications call for moisture limits. In this particular case, it was probably 2 percent dry or 2 percent wet of optimum. That was a 4 percent range in which you could place the particular material, and in that particular respect, of course with the test you had your inspections, where you had to make sure that you had the proper moisture in there and you had to disk the materials, each surface, and you had to mix it up, you had to keep blending it. It just goes on and on.

Storey: When you were testing, did you actually gather the samples and then go to the lab and test them?

Dolyniuk: At times, yes. That was part of the work. However, during most of the time they also had some lab personnel that also did this same type of work. You worked with them.

Storey: So you might ***gather*** the sample, but they might ***process*** the sample?

Dolyniuk: We had some of both, as I recall. We had some of both.

Storey: Did you ever have a situation where the moisture wasn't right or the compaction wasn't right?

"That's one thing that's great about earthwork. . . . it wasn't a situation where, if you made a mistake, you had to reject the whole thing. . . . if you did not meet the specs, you could always go back and rework it, add moisture if necessary, or dry it up if necessary and recompact it. . . ."

Dolyniuk: Oh, you always [would] run into that, and, of course, what you have to do then is go back to the area and rework the material. That's one thing that's great about earthwork. I always used to love earthwork inasmuch as it wasn't a situation where, if you made a mistake, you had to reject the whole thing. In this particular case, if you did not meet the specs, you could always go back and rework it, add moisture if necessary, or dry it up if necessary and recompact it.

"One of the big joys of that particular job was the fact that I learned a lot about equipment . . ."

One of the big joys of that particular job was the fact that I learned a lot about

equipment and all about dowsers and the hauling, what we used to call ukes [phonetic], the hauling equipment, and it really give me a good foundation right off the bat. It made me enthused to get back to school and get back out and go to work.

Storey: What about the concrete work? What were you looking for there?

Inspecting Concrete Work

Dolyniuk: Concrete work, of course, by design you have a mix that you're striving for, in other words. Somebody has already checked the material. Somebody's already known what is required, and they design a particular mix. And, of course, you make sure that the mix is as specified and you make sure that it's hauled out and placed properly. And, of course, along with that, what happens is that you make cylinders, you make cylinders which ends up being tested in a compression machine for the required compressive strength.

Storey: Did you ever have a batch that failed?

Dolyniuk: Not too often. If so, they give you a little range. They give you a little range where you can have a certain amount of samples

that did not quite meet par. That's one place where you can't afford to have too many mistakes. If you place concrete and you find out seven days later that it didn't meet the required compressive strength, you've got a problem, a problem which you want to avoid. As a rule, it's very, very seldom that you had a batch that did not meet the requirements.

Storey: Did you do any other kind of inspection that summer?

Dolyniuk: That first summer, basically it was on a dam that related to earthwork and concrete work.

Storey: Any steel, for instance?

Dolyniuk: Well, that came later. No, in that first year, it did not get involved in structural work.

Storey: Who was your supervisor?

Dolyniuk: Oh, golly. It seems to me the field engineer's name was Doolittle.

Storey: What was he like? Do you remember him?

Dolyniuk: Oh, yeah. He was truly a gentleman, so to speak, and he appreciated the fact that I was like an engineer-in-training, so to speak, and patient. He was also the type that, I think,

admired the ones that were a little bit aggressive. So a very good person to start your career with.

Storey: What about the contractors? Do you remember who was doing the work and what kind of relationships Reclamation's inspectors had to the contractors' workers?

Dolyniuk: You know, I don't remember the name of the contractor. I do remember the general superintendent's name for some reason. His name was Sharp [phonetic].

Storey: This would be the contractor's person?

Dolyniuk: Right. Actually, I haven't really got too much to say about it except he was a very qualified contractor. He wanted to do a good job. He wasn't the kind of a contractor that tried to pull any wool over your eyes. Of course, at the same time, he wanted to make money, so they pushed production and what have you. But I don't remember any incidents that were distasteful or anything of that nature.

Storey: One would think that being in an inspection position is sort of an adversarial position with the contractors. Is that true, or how does that work?

Dolyniuk: Interesting. I imagine you could look at it from two different point of views. If you're working with a contractor that's truly dedicated to his job, it's no problem. I mean, it's part of the role, and you understand each other. Some contractors–I wouldn't probably refer to it as a contractor as much as I would a particular superintendent. Some superintendents are a little, probably, bullheaded, a little too aggressive. So, yeah, you have to deal with these types, and in that case it would be an adversary type of a situation.

Storey: How long did you work that summer, do you happen to remember?

Dolyniuk: That was from the end of May until the first of September.

Storey: Then you went back to school.

Dolyniuk: That's correct.

Storey: Did that work experience in any way affect your schooling?

Dolyniuk: Basically, from the standpoint of being more knowledgeable in any specific course or something like that, no, but it affected my schooling from the standpoint that I wanted

to get with it.

Storey: Did you choose any courses–

Dolyniuk: As a result of this?

Storey: Yeah.

Dolyniuk: No. At that time, there weren't too many electives that we could take.

Storey: That's exactly what Cliff Pugh said yesterday. When you left at the end of the summer–let's see, this would have been about the summer of '49 or so?

Dolyniuk: '49, right.

Storey: Did you understand that you could go back to Reclamation as an engineer once you graduated?

Dolyniuk: It wasn't guaranteed, but I was under the impression that, yes, I could go back.

Storey: And so what was the process that you went through when you were hired by Reclamation as an engineer?

"It was almost automatic to go back after graduation. I might add that jobs were pretty

scarce that particular year. They were very scarce, and I was very pleased that I had a place to go . . ."

Dolyniuk: It was almost automatic to go back after graduation. I might add that jobs were pretty scarce that particular year. They were very scarce, and I was very pleased that I had a place to go, although I guess I could have went to Iowa State Highway Department or North Dakota State Highway Department. But I selected the Bureau because I was familiar with them, and I guess maybe because it was in my home state at that time.

Storey: This would have been '50?

Dolyniuk: Right.

Storey: And you went to Bismarck?

Went to the Devils Lake Field Office to Work in the Transmission Division

Dolyniuk: To Bismarck, although they sent me to Devils Lake field office.

Storey: Where is that?

Dolyniuk: That was in pretty much the northeast part of the state.

Storey: What were they doing up there?

". . . from dam work, I went into transmission line of work, which involved the whole aspect from surveying to construction. . . ."

Dolyniuk: Okay. I was assigned to the Transmission Division, the Transmission Division being the division that was constructing power facilities throughout the Upper Missouri Basin. So from dam work, I went into transmission line of work, which involved the whole aspect from surveying to construction.

Storey: What do you inspect for when you're looking at a transmission line?

Inspecting Transmission Line Construction

Dolyniuk: Transmission line? Well, basically you still have your–this was steel towers and wood poles. You have to inspect your structure locations. If they're towers, you have to make sure that they're assembled and erected properly, that the bolts are tight. Stringing the conductors, you have to make sure that the tensions are proper and your sags are correct, and, of course, basically you have to be ***very concerned*** about handling the conductors, make sure you don't damage it or

nick it.

Storey: Sag, tell me about that.

Dolyniuk: The sag?

Storey: Yeah.

Dolyniuk: When you string the conductors–you know, we're talking about some larger-sized conductors. When you're stringing conductors, you have to make sure the tension is correct. You've got to make sure that the tension and the line itself is within a range of–you might want to call whether it's the ultimate strain or whatever. But if you go by a transmission line, you'll notice that your conductors form a parabola or something of that nature, and the degree of this is from the tension that you put on a conductor when you're stringing it. [Tape interruption.]

Storey: We were talking about the sag in transmission lines, I believe.

Dolyniuk: That is correct. Actually, you have to make sure that the conductor sags properly so that it performs properly. [It's] especially important if you're in some areas where it's windy, where you've got a freeze and thawing, ice loads. These all enter into the

particular situation, and contrary to what a lot of people believe, we don't just put the wire up there and hang it. We are very careful with how it's handled and pretty precise about it, at what elevation we have the bottom of the sag.

Storey: How did you know what the sag was supposed to be?

Dolyniuk: You'd have charts, depending on the type of your conductor, your temperature, the weather temperatures and all that. You'd have charts, and with an instrument you determine where the bottom of the sag would be, and you sight it in. At that time, which is different than now, we actually used to take an instrument up the pole or the tower and fasten it onto the tower and have a target on another one, and we'd have a line of sight. If I would have known that you were going to get into this, I would have brought an old, old picture I had to show you some of this.

Storey: Okay, you know, I'm an historian. I see a transmission line and I see a tower or a pole, I see another tower or a pole, and I see another tower or pole, does this mean that Reclamation was out there for every single sag, checking it? How did that work?

Dolyniuk: No. You'd put the conductors in a shiv, a shiv being a support with a wheel, grooved wheel, where your conductor was in. You'd probably sag a mile or up to two or maybe even as high as–no, not quite three miles. But you'd have these long lengths of conductors, and you'd sag a whole group of them at one time, probably on the average of two miles at a time.

Storey: Well, am I hearing they aren't actually connected, they aren't fastened to the pole?

Dolyniuk: They are after it's sagged, after it's sagged in and you know that you've got the proper tension. The whole thing relates back to tension of your conductor. Once you know that you've got this fixed, then you go back in and you take the shiv and its support out, and you replace it with a fixed connection.

Storey: And is that connection the insulators?

Dolyniuk: That connection is the bottom of the insulators, or in some cases on top of the insulators. There's quite a difference of yesterday and today and how you do some of this. But nevertheless, it is at the end of the insulators where the conductor is fastened.

Storey: But, for instance, if I'm understanding what

you're saying, putting a transmission line at Devils Lake might have different sag and different tension than a transmission line here in Phoenix or a transmission line in Denver.

Dolyniuk: No, that's not true. If you use exactly the same conductor, the sag would then depend on the temperature, because temperature, of course, and tensions are related. See, because different conductors are manufactured differently. They've got a steel core and then they've got your conductor on a steel core, and the relationship of the steel core as compared to the outside core strands, which usually is aluminum, will depend on the ultimate strength of your conductor, and which then governs what tension that you're looking for when you string it in a transmission line.

See, some of the conductors, while they vary, but when I'm speaking of the lines we were working on, they were high-voltage lines, the bigger ones you see with steel towers, as compared to some of the tertiary lines. So anyway, some of those conductors, the biggest ones are probably that big around.

Storey: Two and a half inches or so in diameter.

Dolyniuk: Well, that's making it a little big.

Storey: Maybe a couple of inches?

Dolyniuk: Well, an inch and a half, probably. Inch and a half conductor is a pretty big conductor. There are some of them that are bigger than that, but normally not used for your long lines.

Storey: And then are they insulated on the outside?

Dolyniuk: No.

Storey: It's just bare wire?

Dolyniuk: Bare wire.

Storey: And that's why you need an insulator.

Dolyniuk: Well, that's true. The reason you need an insulator between the structure and the support is, if you're too close to the steel tower, it will ground out. It will immediately ground out. You have to have it isolated from any type of ground.

Storey: You mentioned earlier being careful about chips and things on insulators, I believe it was.

Dolyniuk: On a conductor itself, or insulators.

Storey: Why is that?

Dolyniuk: They'll develop a corona, and then once you get corona, you have a deterioration. In other words, anything that's electrical, you want it to be smooth because a current travels on the outside. Just like anything else, you want it to be smooth and undamaged or in good condition. If it has a nick in it or a cut in it, then you have to remove it.

Storey: And replace it?

Dolyniuk: Or you put a sleeve in it. By a sleeve, is what you put when you connect two ends together. But there's only a limited number of sleeves that you can actually put in a segment of transmission lines.

Storey: That's by spec or what?

Dolyniuk: By spec and, in some cases, electrical code. For example, you're not supposed to put a sleeve over a railroad or an adjacent span over a railroad. You;ll have restrictions like that, because a sleeve itself does not develop quite–it's supposed to develop up to 95 percent of the strength of the conductor itself.

Storey: How long were you doing work with transmission lines up out of Devils Lake

Field Office?

". . . I was in North Dakota for eleven years working on transmission lines. . . all new construction. . . ."

Dolyniuk: Actually, in North Dakota, I was in North Dakota for eleven years working on transmission lines.

Storey: Was this new construction? Was this rehabilitation?

Dolyniuk: No, this was all new construction. It was part of the Pick-Sloan Plan up in the Upper Missouri Basin.

Storey: Do you remember any of the specific lines you worked on?

Dolyniuk: I remember all of them, practically. You become very familiar with these features.

Storey: What were the names of them?

Dolyniuk: The names of them? Well, you've got the Bismarck-Fargo line. You've got Bismarck-Fargo Number 2, the Garrison-Bismarck. You've got the Minot-Rugby line.

Storey: When they were constructing these lines, did

they work one shift a day, two shifts a day, round the clock? How did that work?

Dolyniuk: You usually worked one shift a day. Very seldom would they work nights on something of this nature.

Storey: Was it a long shift?

Dolyniuk: Well, that could vary. In other words, I was discussing sags, for example.

END SIDE 1, TAPE 1. APRIL 24, 1996.
BEGIN SIDE 2, TAPE 1. APRIL 24, 1996.

Storey: You had just started talking about sags again in relation to part of the work.

Dolyniuk: We were talking about the workday, as such. Consequently, sometimes your workday was governed by the condition or what you were doing at the time. Some time constraints– like I was mentioning that you get your sag. Once you get your sag in place, there's a limited amount of time that you have to do the clipping in. By clipping in is when you permanently fix the conductor to the end of the insulators. So you do have some time constraints, and sometimes you'd probably have to work a long day to accomplish what was within a time constraint.

Storey: Where were you headquartered when you were doing this work?

Headquartered ". . . throughout North Dakota. Basically, I was at Devils Lake for a while. Then moved to Bismarck, North Dakota, for a few years. And then I ended up in Fargo, North Dakota, with our field office . . ."

Dolyniuk: Well, throughout North Dakota. Basically, I was at Devils Lake for a while. Then moved to Bismarck, North Dakota, for a few years. And then I ended up in Fargo, North Dakota, with our field office for seven years on transmission line activities.

Storey: So you would live in Bismarck or Devils Lake or Fargo?

". . . a lot of times you were out on the road, because these projects went for a 100-mile line or something like that, you might end up at the other end of the line. . . ."

Dolyniuk: Or Fargo. And a lot of times you were out on the road, because these projects went for a 100-mile line or something like that, you might end up at the other end of the line.

Storey: Was this a situation where maybe you'd work a twelve-hour day but you were just

getting paid a fixed salary, or how did that work?

"When I first started with the Bureau of Reclamation, overtime was almost a no-no. . . . there was times when you took comp time. You know, you worked overtime but you didn't get paid, but somebody let you take additional vacation time . . ."

Dolyniuk: That varied. When I first started with the Bureau of Reclamation, overtime was almost a no-no. Basically, you were on a fixed salary, and things change. I've been in construction now for forty-eight years, and things historically have changed quite a bit in those forty-eight years. But there was times when you took comp time. You know, you worked overtime but you didn't get paid, but somebody let you take additional vacation time, if you want to call it that. Then eventually, of course, they got into overtime, and eventually, of course, you got paid for travel time. Things have been changing over the years.

Storey: Well, that was my next question. When did you start work and where did you start work when you were out doing this transmission line work?

Dolyniuk: After college, I was sent to Devils Lake.

Storey: Yeah. But from Devils Lake you were doing transmission lines, and they're all over the country, right?

Dolyniuk: Well, except they were by segments. The contracts were by segments. The first geographic area was about a 150-mile spread from Devils Lake to the west.

"So what we did, I was assigned to survey. First you had to survey them in, and then you had your contracts . . . during the week, you probably were out in some other town, staying overnight . . ."

So what we did, I was assigned to survey. First you had to survey them in, and then you had your contracts, of course, for transmission lines. So during the week, you probably were out in some other town, staying overnight and working out of town.

Storey: On travel?

Dolyniuk: On travel status.

Storey: How did they reimburse you for travel in those days?

When on travel we ". . . got a whopping $6.00 a

day, which covered your room and board . . ."

Dolyniuk: Oh, we got a whopping $6.00 a day, which covered your room and board the first year I was out of college.

Storey: Where did you stay, specifically?

Dolyniuk: You usually stayed in a hotel or motel. Like, for example, I used to stay in Rugby, North Dakota; Leeds, North Dakota; Velva, North Dakota. We used to cover the area, and that eventually kept growing. Eventually, I worked in almost every area of North Dakota.

". . . this not only involved the transmission lines. It involved the power projects. . . . a lot of substations. . . . radio towers on the radio system. . . ."

You know, this not only involved the transmission lines. It involved the power projects. With this, of course, we constructed substations, a lot of substations. Golly, I don't even know how many. I guess I could count them. But radio towers on the radio system. This is all part of the whole package.

Storey: What do we need radio towers for?

Dolyniuk: To transmit radio communications for the power project. You know, we not only built the transmission line, you built the whole project–substations, control centers, the whole thing. And, of course, part of your control system was your radio system, where you actually could communicate mobile to mobile from your vehicles or whatever.

Storey: They were doing that clear back in the fifties?

Dolyniuk: We sure were. Yes, we were.

Storey: How many people would be on an inspection team, typically, to inspect transmission lines or stations and so on?

"You'd probably have a couple inspectors for each construction contractor on transmission lines when it came to wood pole work and stringing of the conductors. But when it came to steel towers, that got a little more involved because you'd have your concrete foundations, you had your steel assembly, you had your steel erection. Then you'd come behind and have your conductor stringing. . . ."

Dolyniuk: Not too many. You'd probably have a couple inspectors for each construction contractor on transmission lines when it came

to wood pole work and stringing of the conductors. But when it came to steel towers, that got a little more involved because you'd have your concrete foundations, you had your steel assembly, you had your steel erection. Then you'd come behind and have your conductor stringing. So you probably have four or five inspectors on a feature of that type, but they would be spread out over your 100 miles or whatever.

Storey: So you wouldn't be going out with the other inspector to do the transmission line?

Dolyniuk: Sometimes. Sometimes you worked in pairs, but normally you had your own assignment or your own job. It all depends. It all depended on the size of the job. We had some minor contracts, to the other extreme where you had probably a 150-mile steel tower line that was a multimillion-dollar contract. The Bureau of Reclamation, of course, is no longer involved in this type of work, as you are probably aware, but we were very much so at that time.

Storey: Yeah. After '77, we quit doing transmission lines, I think. Do you recall any ***incidents*** that occurred that would be unusual while you were doing transmission lines and

substations and so on?

Dolyniuk: Well, outside of the fact that a tornado probably came along and ripped out a couple miles of line. That would be a little bit unusual, naturally. A very interesting aspect of it right now is, sometimes we build a steel tower in the middle of a lake, so you'd have to build a road out to your tower site. Then you have to build a little island, then you put your foundation in. Those are kind of unusual situations.

"Contrary to what a lot of people believe, it's not a matter of just going along and putting up a pole and stringing a wire. It gets to be quite a science. . . ."

In Minnesota, we went through an area where we had to drive piling underneath all of our transmission towers so that they would be supported because of the soil conditions. We ran just about into a little bit of everything when it came to transmission line work. Contrary to what a lot of people believe, it's not a matter of just going along and putting up a pole and stringing a wire. It gets to be quite a science.

Storey: What about turning corners with transmission lines? Anything special there?

Turning Corners with a Transmission Line

Dolyniuk: Well, you have to install or construct a structure which could withstand what they call dead-end pressures. In other words, if you have a right-angle corner, that structure has to be able to withstand all the tension that you put on the conductors going both directions, and also, of course, you have to consider all the wind load, ice loads, and anything else that ***might*** be involved. Something that doesn't meet a person right off the bat is, you have to design a structure in case something happened to one of the conductors. If one of the conductors break, that's just like providing a sudden twist or something like that. So all of these elements are considered into your structure design.

Storey: And who designed it?

Dolyniuk: Basically what we were working with at that time was designed by a division in your Denver office, which no longer exists, really. We used to work with them quite closely. With our design data, we'd have to locate the line. We'd provide them the information. They would spot the structures.

Storey: Did they come out to the field?

Dolyniuk: Sometimes. Not too often.

Storey: Do you remember anybody in particular?

Dolyniuk: One of the engineers that I used to work with was Dick Saliman,[3] who was one of the structural designers in Denver.

Storey: This is Saliman or Sullivan?

Dolyniuk: Saliman.

Storey: Saliman. Okay. No V in there?

Dolyniuk: No V.

Storey: What was he like?

Dolyniuk: He was a very talented person, very respectable, knowledgeable, good to work with.

Storey: How did people out in the field think of the Denver office in those days?

Working with the Denver Office

Dolyniuk: Well, I always was under the impression that these are the people that you have to work with and they're the ones that provide us with

3. Apparently this is Richard S. Saliman who worked in the Structural and Architectural Branch of the Design Division.

appropriate designs, and if we felt that there was something not quite right, we'd go back and work with them. As far as I was concerned, it was always a great mutual relationship.

Storey: Did they give you any special training to inspect transmission line work?

"My work was a little more than basically inspection. From the engineering standpoint, we got involved into working with the designers and working with the geologists. You had to work with the geologists for foundation design. . . ."

Dolyniuk: Basically you just went out with somebody that's been there before. My work was a little more than basically inspection. From the engineering standpoint, we got involved into working with the designers and working with the geologists. You had to work with the geologists for foundation design. And understanding what the whole picture was about, really.

Storey: Do you remember any particular incidents that became problems while you were doing the inspection? This work, I should say.

"Probably the most interesting aspect is . . . towers, which consisted of concrete foundations, and with these foundations, we had to drive piling

because of the fact that the soil stability just didn't exist. We were driving piling . . . one time, we put a sixty-five-foot piling into the leads on the pile driver machine, and . . . hit it once and it disappeared (cheuuu), just gone. . . ."

Dolyniuk: Probably the most interesting aspect is when, like I mentioned, we had these towers, which consisted of concrete foundations, and with these foundations, we had to drive piling because of the fact that the soil stability ~~was~~ just didn't exist. We were driving piling, and you try to determine what length of piling you really needed, until it either hit refusal or picked up enough resistance, friction resistance, so basically you know you were adequate in your particular designs.

What happened this one time, we put a sixty-five-foot piling into the leads on the pile driver machine, and as I recall, I hit it once and it disappeared (cheuuu), just gone.

Storey: Not much soil structure there.

Dolyniuk: No, this was boggy area. This was in wet, boggy areas.

Storey: So how did you deal–I presume that you might have seen that as a problem?

Dolyniuk: Actually, normally if you hit something like

that, it's an isolated situation, so you probably have to move the structure a little bit, or in some cases you'd probably get a longer piling, depending on the situation. In this particular case, it was a case where we had to move probably fifteen feet over.

Storey: Now, when you moved, did that require redesign?

Dolyniuk: To a point. You know, if you're on a straight tangent, they determine what you call a "ruling span," which is your average span. You could move it within a few feet of either direction as long as you were on that tangent and as long as you knew that your tower height was so that you'd end up with plenty of ground clearance. According to code, you have to have your conductors at least up so high off the road or the ground or whatever.

Storey: Now, let's see, I think you said you were eleven years in North Dakota.

Dolyniuk: That's correct.

Storey: Doing this kind of work?

Dolyniuk: Basically.

Storey: Did you change supervisors in that time?

". . . it was sort of a growth thing. I went basically from a new engineer to a field engineer during this period. . . ."

Dolyniuk: Well actually, it was sort of a growth thing. I went basically from a new engineer to a field engineer during this period.

Storey: What was your grade when you started or your pay or whatever?

Dolyniuk: GS-5 was what it was when I started.

Storey: And by the time you left North Dakota?

Dolyniuk: Probably a 12.

Storey: Field engineer for what?

The Transmission System Field Office Moved as the Jobs Moved Around North Dakota

Dolyniuk: For the transmission systems office.

Storey: Which was an office headquartered in Bismarck?

Dolyniuk: Actually, the projects office was in Bismarck, but our field office, towards the end, was in Fargo, North Dakota. In other words, I went from Devils Lake to Bismarck to Fargo.

Storey: Did the office go with you or was it that you were moved around through offices?

Dolyniuk: No, that was the office. The office was actually moved.

Storey: And that was because the project, the construction was moving across the state or what?

Dolyniuk: Right. You'd probably say that the mass or the central activity was in that direction.

Storey: Fargo is to the east, is that right?

Dolyniuk: The eastern border of North Dakota.

Storey: So were you sort of moving from the west to the east?

Dolyniuk: In essence. We also did quite bit of work in Minnesota at that same time.

Storey: What does the field engineer do?

Field engineers are ". . . basically the liaison between the designs or contract administration and the inspection and the surveying. . . ."

Dolyniuk: Well, he's basically the liaison between the designs or contract administration and the inspection and the surveying.

Storey: Now, did you have a construction engineer for the transmission line system?

Dolyniuk: That we did. That we did.

Storey: And who was that?

Dolyniuk: That was Madison, Mr. Madison.

Storey: You don't remember his first name?

Dolyniuk: Alan, Alan Madison [phonetic].

Storey: Was he, through that entire eleven-year period, the construction engineer?

Dolyniuk: That he was. Well, no, he was not, I should say. He retired probably a year before I left.

Storey: And you would have left about '61?

Dolyniuk: That is correct.

Storey: Why did you choose to leave North Dakota?

Transferred Briefly to the East Bench Unit of the Pick-Sloan Missouri Basin Program in Montana

Dolyniuk: Why? Basically, two reasons. First of all, the transmission feature was nearly completed; and secondly, it was time to move on. I don't know whether I had a choice of

where to go or not. We were just about in a position where the Garrison Project was almost ready to start in North Dakota, but also someplace along the line the regional people decided I should go to Montana on the East Bench Project.[4] Don't bother writing that down, because I wasn't there long enough to get settled.

Storey: East Bench?

Dolyniuk: Right.

Storey: As I recall, that was a pretty small project, maybe a few thousand acres at the most.

Dolyniuk: They had the Clark Canyon Dam and they had some diversion structures. Yes, it was a small project, but an interesting project.

Storey: Who was it that you knew in the regional office that probably caused this to happen?

Dolyniuk: At that time? Well, actually I think that–who was the regional director at that time?

Storey: '61? In Billings. Bruce Johnson, '60 to '64.

Dolyniuk: Okay, Bruce Johnson was, and, of course, he was the project manager at Bismarck prior to being the regional director. And the assistant

4. East Bench Unit of the Pick-Sloan Missouri Basin Program.

regional director was a person we talked about earlier when I was telling you about the inspection and painting the rocks.

Storey: Oh, Harold Arthur.

Dolyniuk: Harold Arthur was up there at that time, also. So anyway, they decided that it's about time I left transmission line work and went and did something else.

Storey: And what was it they had planned for you at East Bench?

Dolyniuk: To be assistant to the construction engineer.

Storey: But you indicated you didn't stay very long. What happened?

Transferred to Region 3 to Start up a Transmission Construction Division for the Parker-Davis Project

Dolyniuk: No. All of a sudden-like in Region 3, which is now this region–

Storey: Which is now Lower Colorado.

Dolyniuk: The Lower Colorado, Mr. Bellport. They were getting read to start a transmission division down here, and they had nobody down here. They had no construction offices

at all, and Mr. Bellport decided that I was to come down here.

Storey: Barney Bellport, as the chief engineer?

Dolyniuk: Right.

Storey: Let's see, would he have been–yeah, he would have been chief engineer at that time.

Dolyniuk: Actually, this was '62.

Storey: Why did they think they needed–well, first of all, what did you do on the East Bench Project?

Dolyniuk: Nothing. I mean, I wasn't there long enough. I got to the point where I got to know the work, I got to know the people, and I was just barely getting settled.

Storey: So when you came down in '62, did you come to Boulder City or Phoenix?

Dolyniuk: I came to Phoenix for a two-year assignment.

Storey: What were they thinking was going to happen?

Worked on Parker-Davis and Glen Canyon Dam Transmission Lines

Dolyniuk: We were in the process of building transmission lines out of Glen Canyon Dam, along with the intertie project.

Storey: Which intertie is that?

Dolyniuk: The transmission line. It was the beginning of the system, the transmission line between Boulder City and Phoenix, all the lines from Glen Canyon plus. You know, they were just getting in a position to expanding the electrical system, which was called the Parker-Davis Project.

Storey: And so were you brought down here to run it or what?

Brought to Phoenix to Organize and Run the Transmission Construction Program in the Region

Dolyniuk: To organize it and get it going and to run it, yeah.

Storey: What title did they give you?

Dolyniuk: I was a construction engineer.

Storey: For the transmission line system?

Dolyniuk: Right.

Storey: For C-A-P?

Dolyniuk: No, C-A-P wasn't a construction organization at that time.

Storey: So this would have been out of, let's see, I think they called the Phoenix Development Office.

Dolyniuk: No, no. I was out of the Parker-Davis Office. We had two offices. You had the Phoenix Development Office, and I was with the Parker-Davis Project Office.

Storey: Which was headquartered here in Phoenix?

Dolyniuk: That is correct.

Storey: Gee, I would have thought Parker was closer, maybe, to Boulder than to here. That's interesting.

Dolyniuk: Well, you know, the Parker-Davis Project had an ongoing existing Power Division.

Storey: Who was the head of that office when you came down?

Dolyniuk: Parker-Davis?

Storey: Yes.

Dolyniuk: Otto Mangum.

Storey: M-A-N-G-U-M, is that what I'm hearing?

Dolyniuk: Right. Not Magnum, but Mangum.

Storey: What was Mr. Mangum like?

Dolyniuk: He was a very easygoing type of a person.

Storey: Now, why is it I don't have the impression of many engineers in Reclamation as being very easygoing? I sort of have a hard-nosed, you know, you-do-it-my-way sort of image, and I'm not getting that from you.

Dolyniuk: It all depends, I guess. I guess it all depends on ***your*** nature, to start with. Arleigh West is the one that communicated with Barney Bellport. He's the one that got me to come down here, of course. Now, he wasn't easygoing . . . at all.

Storey: He was a hard-rider, huh?

Dolyniuk: Well, I don't know how hard of a rider he was, but I didn't think he was too understanding.

Storey: Well, tell me more about Mr. Mangum.

". . . he was the project manager of a maintenance

organization, and I came in to run the construction, even though he was the project manager, we really didn't have too much to do with each other, except for the fact that his staff provided all the administrative services . . ."

Dolyniuk: Well, you know, being as he was the project manager of a maintenance organization, and I came in to run the construction, even though he was the project manager, we really didn't have too much to do with each other, except for the fact that his staff provided all the administrative services, personnel services and all that. But he didn't exercise any direction over my activity.

Storey: Who did?

". . . at that time, basically as construction engineer, I took my technical direction from Denver. At that time, *all* your technical direction came from Denver. . . ."

Dolyniuk: Well, at that time, basically as construction engineer, I took my technical direction from Denver. At that time, ***all*** your technical direction came from Denver.

Storey: Are we talking about the chief engineer or are we talking about a division or something?

Dolyniuk: We're talking about the construction

division, the chief engineer and his construction division. The chief engineer at that time was what we call the contracting officer, and you worked as his authorized representative.

Storey: So how many people did it take to construct the transmission system, from Reclamation's point of view, I mean?

". . . we probably ended up with a staff of close to fifty people, which when I came down it was just me, and we had to organize and develop this group. . . ."

Dolyniuk: Well, actually I imagine that we probably ended up with a staff of close to fifty people, which when I came down it was just me, and we had to organize and develop this group.

Storey: What are the major components of work for that group?

We had "Line location, construction, design data. And, of course, we had all these substations, the transmission lines and substations, your contract administration, your drafting group, your whole ball of wax, so to speak. . . ."

Dolyniuk: Line location, construction, design data. And, of course, we had all these substations, the transmission lines and substations, your

contract administration, your drafting group, your whole ball of wax, so to speak.

Storey: Were these functions where you moved people around through them or were they specialties?

". . . survey crews . . . inspection group . . . contract administration . . ."

Dolyniuk: Actually, we had our survey crews, for example, so they were specialties. You had your inspection group that there were specialties, and you had your electrical engineers and your civil engineers, which were a little broader in their particular roles. Then you had your contract administration group, which administrated the contracts.

Storey: So you wouldn't pick up somebody and move them from the inspection to the drafting tables and so on very often?

Dolyniuk: Not in that direction, but normally your surveyors ended up in inspection. You had your training route in that direction. And you had your materials people, who served as inspectors and materials people at the same time during construction.

Storey: Where did you do most of your work as the construction engineer?

Dolyniuk: In the office, in the vehicle, or whatever. Made the rounds.

Storey: So you still went out on the projects?

Dolyniuk: Oh, yeah, visited the project, visited the people.

Storey: How had what you did out on the projects changed between the time when you were doing the inspection and the time when you were the construction engineer?

Dolyniuk: How had the times changed?

Storey: How had how you spent your time changed?

Now Spent More Time in the Office than Previously

Dolyniuk: Well, yeah, I spent more time in the offices when I got down here, because the fact that we did have our design data and your contract administration, and all of these particular activities kept you closer to the office. But I made a point to get out to the field.

Storey: But when you went out there, you did different things than you did when you were an inspector, I'll bet.

". . . we did the line location work, which like up in North Dakota, that was mostly done by others. . . ."

Dolyniuk: Oh, very true. I mean, one of the things that we did here, we did the line location work, which like up in North Dakota, that was mostly done by others. Here we did that, and I kept a pretty close ear to the ground in that particular aspect because that's where your economics usually develops.

Storey: You know, we didn't talk about–it occurs to me that I need to pin you down. Were you a civil engineer?

Dolyniuk: That I was, yes.

Storey: That was what your training was?

Dolyniuk: Right.

Storey: One of the things I'm particularly interested in is, as people move up in the organization, their responsibility changes; therefore, the way they, if you will, ***invest*** their time changes. How had that ***changed***? Obviously, you spent more time in the office. You have responsibility for maybe fifty people. How would you describe the way that had changed?

"Basically, you get away from repetition is what you do, and you broaden the whole scope. . . ."

Dolyniuk: Well, it changed from the standpoint that you deviated from repetition to a broader field, where you spent less time on each individual item, so to speak. Basically, you get away from repetition is what you do, and you broaden the whole scope.

Storey: Now, how long were you construction engineer for the transmission systems?

In 1970 Transferred over to the CAP to Begin Construction Preparation

Dolyniuk: Until they went over to the C-A-P, which was eight years.

Storey: In about '70?

Dolyniuk: Right.

Storey: Do you remember the transmission systems that you built at that time in those eight years?

Dolyniuk: I could sit down and route or list every transmission line I worked on and substation, which is several of them. Mileage-wise, it adds up to a pretty high number.

Storey: What about the ones that you were supervising construction of down here? Do you remember the names of some of them?

Dolyniuk: Oh, sure. I mean, like the Flagstaff-Pinnacle Peak lines Number 1 and Number 2, Mead-Liberty lines, Mead-Parker line, the Parker-Davis line, Parker to Blythe.

Storey: Did you have any unusual problems on any of these lines?

". . . the most interesting aspect . . . was building the line from Mead to the Phoenix area here, and we had to go across the Colorado River and about six miles through the Park Service, which also went across the Colorado River, which is supposed to be sort of a pristine location and what have you. We had to do unusual things. We painted the towers. We painted our roads as we got finished . . ."

Dolyniuk: Probably the most interesting aspect, if it was called unusual, was building the line from Mead to the Phoenix area here, and we had to go across the Colorado River and about six miles through the Park Service, which also went across the Colorado River, which is supposed to be sort of a pristine location and what have you. We had to do unusual things. We painted the towers. We painted our roads as we got finished to try to restore

everything. It got quite involved.

Storey: Painted the roads? Did I hear that correctly?

END SIDE 2, TAPE 1. APRIL 24, 1996.
BEGIN SIDE 1, TAPE 2. APRIL 24, 1996.

Storey: This is tape two of an interview by Brit Storey with Andrew "Andy" Dolyniuk, D-O-L-Y-N-I-U-K, on April the 24th, 1996.

You were talking about ortho-mulching, I think.

Dolyniuk: When we constructed this particular transmission line across the Colorado River and through the breaks and everything, which was the boundaries of the Park Service, this particular area was basaltic in nature and the natural terrain is pretty dark. One of the concerns of the Park Service was damaging the particular aesthetics of the landscape and everything of that nature, and one of the things they hated the worst was the roads. You know, if we were doing that today, we probably would have used big helicopters and did all the required work and probably wouldn't have constructed these roads. But nevertheless, we had to build these roads, and it left an ugly scar.

We had agreed priorly to some way

darken the roads, and what we used is an ortho mulch, which was a product basically to sort of help seal the ground, and it's actually also used as sort of a water preservation base, ***I think***. It's kind of used in a desert area. Anyway, what it lent to is that you could spray it, and actually we took the undersides of these rocks and the road itself, we sprayed the roads, and it darkened them up. It sort of obliterated them to a point, enough to make the Park Service happy anyway. We did this by force account,[5] and along with that we painted the towers so that they would be kind of hidden and wouldn't glisten in amongst the dark terrain. And what happened is, the superintendent of the Park Service went to Washington and got a big award for doing all this stuff.

Storey: (Laughing) That we paid for.

Dolyniuk: That we did.

Storey: Were they anticipating using this power down here for Reclamation purposes?

Dolyniuk: This was a Reclamation line, so it tied in with–supplying power to the Parker-Davis system. So, yes, it was definitely part of the

5. "Force account" is a term meaning that Reclamation used its own staff to do the work–as opposed to contracting the work out.

project.

Storey: But I was thinking more in terms of power for pumping plants and that sort of thing, for instance.

Dolyniuk: No, that system was basically designed for commercial . . .

Storey: Distribution.

Dolyniuk: Right.

Storey: Okay. And you worked at that for eight years?

Dolyniuk: With that project, yes.

Storey: Tell me why you decided to change positions. What happened?

". . . here again, it really wasn't my decision. Actually, the regional director instructed me to move over to the Central Arizona Project. . . ."

Dolyniuk: Well, here again, it really wasn't my decision. Actually, the regional director instructed me to move over to the Central Arizona Project.

Storey: Who was that then?

Ed Lundberg

Dolyniuk: Ed Lundberg.

Storey: And what was the new position he put you into?

Initially Was on Detail to the Phoenix Development Office

Dolyniuk: Well actually, to start with, this was on detail to the Central Arizona Project, or at that time called the Phoenix Development Office.

"It was to get ready for [CAP] construction, get the design data going . . . finalizing the locations of the system, locations of the pumping plants, getting the data in, making sure designs were completed so we could start awarding some contracts. . . ."

It was to get ready for construction, get the design data going and get ready for construction, and that entailed finalizing the locations of the system, locations of the pumping plants, getting the data in, making sure designs were completed so we could start awarding some contracts.

Storey: So we're not talking about the transmission system for C-A-P?

Dolyniuk: Not now, no. We're talking about ***the*** project.

Storey: Canals, the tunnels, the siphons, the pumping plants.

Dolyniuk: Everything.

Storey: The dams.

". . . it also included the transmission lines for C-A-P. . . ."

Dolyniuk: Right. However, it also included the transmission lines for C-A-P.

Storey: Now, were you construction engineer for C-A-P?

"As soon as we started construction, then I was the construction engineer. . . ."

Dolyniuk: Yes. As soon as we started construction, then I was the construction engineer.

Storey: Did that include some right-of-way people and some acquisitions folks and all that?

Dolyniuk: The right-of-way people actually worked with them, but they worked for the project manager.

Storey: Um-hmm. Did we begin to acquire property for, say, for instance, I think it was Charleston Dam, for Orme Dam? How did that work? How did we approach the planning and then the acquisition and so on?

". . . we did not acquire any property for Charleston Dam and Orme Dam, as such, because they weren't funded . . . But we did start acquiring right-of-way for *the other* features . . ."

Dolyniuk: Actually, of course, we did not acquire any property for Charleston Dam and Orme Dam, as such, because they weren't funded, so to speak. But we did start acquiring right-of-way for ***the other*** features, as such.

"One of the first things when I moved over was not only to get the design data rolling, but we were working on environmental statements and all the preliminary hydrology and everything that goes into pre-construction activities. . . ."

One of the first things when I moved over was not only to get the design data rolling, but we were working on environmental statements and all the preliminary hydrology and everything that goes into pre-construction activities.

Storey: So you had a staff doing the environmental statements, also, under NEPA?

Dolyniuk: Well actually, here again, they were under the project manager, but that was part of our activity. The environmental people were under the project manager. Well, so was I, as far as that goes, under the administrative direction of Cliff Pugh.

Storey: Had Cliff chosen you for this or had the regional director chosen you, or how did this work?

Dolyniuk: Actually, the regional director made the selection, and he was the one that directed me to go to work for Cliff.

Storey: What was Ed Lundberg like?

Ed Lundberg

Dolyniuk: I thought he was one of the greatest myself. Why did I think he was the greatest? Because he was from a construction background and he understood construction from one end to the other.

Storey: What sorts of people were under you as construction engineer for the C-A-P?

". . . we had design groups . . . contract administration groups . . . field engineering groups, . . . I should say divisions . . ."

Dolyniuk: Basically, we had design groups, we had the contract administration groups, and we had the field engineering groups, which included–I should say divisions instead of groups.

Storey: So you had an office engineer who took care of the contract stuff and the design stuff?

Dolyniuk: We had a Contract Administration Division, we had the Design Division.

Storey: Would those have been under the office engineer?

Dolyniuk: No, these were under the construction engineer.

Storey: OK. Did you have an office engineer?

Dolyniuk: We had it divided into Design and Contract Administration.

Storey: Oh, I see. Okay. And then you had a field engineer?

Dolyniuk: A field engineer.

Storey: And who would that have been?

Dolyniuk: Actually, eventually we had more than one field engineer. We had resident engineers,

like we had a construction office in Parker, who was a resident engineer, and we had the construction group here, who had its own resident engineer. And, of course, the resident engineers had their inspectors and surveyors and whatever else they needed for the field work.

Storey: So when you were transferred there in ‘70, it was an office of one, and then it grew. What did it grow to?

Dolyniuk: When I was transferred to C-A-P in ‘70, I was out on detail. They sent me on detail, which is almost like a transfer, but they didn’t make it official. Basically, I acquired some of the office people, the locations people and some of the engineers, some of the hydrologist type, the survey group. I acquired them. I did not develop them. But as we got in more and more into it, it grew into a larger and larger organization, including the resident engineers and the construction groups.

See, at first we didn’t have any construction types, so to speak, when I transferred over. We concentrated on design data and getting ready to go on. Unfortunately, right quick-like we had an appropriation problem. The funding for a certain year didn’t develop like it was

[expected to], so we sort of were delayed for about a year.

Storey: How many people eventually?

Eventually the Project Construction Staff Reached about 500 People

Dolyniuk: Five hundred. I don't know. I don't remember right now.

Storey: C-A-P, of course, had a lot of political interest. Did you ever feel any of that?

Dolyniuk: Yes, unfortunately. I tried to stay away from the political end of it, but you got involved. I got involved probably more indirectly than directly.

Storey: I would think that's more the project manager's area.

Dolyniuk: That is correct.

Storey: What manifestations did you see?

Dolyniuk: Well, when it came to appropriations, when it came to, oh golly, a certain amount of power struggles, of course, between the people that played the political game. A lot of issues regarding the different water users. I used to attend a lot of the particular community

meetings and what have you, and you could see some of the problems going on. Of course, I never did get involved in the state-to-state arguments and some of that, naturally I didn't.

Storey: The environmental statement process had begun the year before you became project engineer. Did we have any growing pains in dealing with that? How did that work out?

Dolyniuk: Basically, that was when environmental concerns were really getting a foothold, and we developed a volume which was a complete C-A-P environmental statement, and all of a sudden we found that that wasn't adequate, so we had to go feature by feature and what have you. It became sort of a not really a detriment, but it became a concern as far as really getting the project moving as quick as we wanted to get it moving, and it got involved and it took quite a bit of the talent of the office to get the book together.

"I always felt that we spent 5 percent of the time getting the first 95 percent of the environmental statement and then 95 percent of the time getting the final 5 percent. . . ."

I always felt that we spent 5 percent of the time getting the first 95 percent of the environmental statement and then 95 percent

of the time getting the final 5 percent. The fine tuning got to be the part that everybody was looking at.

Storey: What about the Commissioners at that time? Did you ever see much of them out here?

Ellis Armstrong and Floyd Dominy

Dolyniuk: I remember Armstrong being out here several times. He was really beating the drums, you know, looking at C-A-P as something that was kind of his baby in a way at that time. Of course, Dominy was here to start with.

Storey: What kind of impressions did they leave with people?

Dolyniuk: Well, Dominy left an impression wherever he went. I mean, he was well liked by all the water users and all the Bureau staff, and everybody really. Armstrong just sort of left sort of a empty feeling with everybody, so to speak, I thought, although I got along with him fine.

Storey: You mentioned that you had design people. Now, I think when we were talking earlier, you said the design was done in Denver pretty much.

Dolyniuk: The final design was done.

Storey: Had the way the process of design was taking place changed?

". . . this particular project, you had to have a concept of design in order to provide a good design data publication. . . ."

Dolyniuk: It was changing to the point where this particular project, you had to have a concept of design in order to provide a good design data publication. What we did is, we compiled a volume which was called design data, which, in essence, provided Denver with the base of what they should do to finalize the designs. In other words, we drew up the concept, and they finalized it. They went through and did all the nuts-and-bolts type of things. We drew the parameters, and we called it a design function. It got to the point where some of the real minor stuff we designed locally, yes.

Storey: But, for instance, you might locate the canal?

Dolyniuk: We did all that, did the location of the pumping plants, the location of the transmission facilities, the check structures.

Storey: And then you would send the necessary data to Denver.

Dolyniuk: Right.

Storey: And they would do the actual detail design.

Dolyniuk: That's right, and put it into a specification.

Storey: Were there any communications problems between Denver and Phoenix, any issues that came up?

Dolyniuk: There was always some issues, but I never looked at them as problems. I used to go to Denver probably once a month on these particular items, both design and construction.

Storey: And, what would you talk about when you went to Denver? What was the purpose of your visits?

Dolyniuk: Probably design concepts, for one, like you mentioned, though we'd probably have some other people go with me, naturally. Or if we got into construction, of course it also involved construction items. They may have been specific items for a specific trip, but consequently it covered the whole job, so to speak.

Storey: You mentioned state-to-state discussions. What kind of things were involved there? I remember you weren't personally involved.

Dolyniuk: Yeah. Actually, there was a continuation of

interest between the states as to who's going to use how much water and all that stuff. Actually, this is just a carryover of authorization of the project. As you probably know, as I'm sure you're well aware of, and probably more than anybody, that prior to authorizing a project, the whole water right issue went to the Supreme Court and what have you, the battle of *California versus Arizona*. And it really never did stop, and it's still going on.

Storey: Could you describe for me the way you approached the planning of the C-A-P? You had to make strategic decisions about how to time it, what to build first, when to start construction, all that kind of thing. Tell me about your thought processes as you looked at the project and said, "This is the way I'm going to do the project."

"That was one of the most interesting things about the whole project is really planning it, sequencing it, and how it involved the political attitude. . . ."

Dolyniuk: Very interesting, very interesting. That was one of the most interesting things about the whole project is really planning it, sequencing it, and how it involved the political attitude.

Environmentally, there were a lot of factions that were against C-A-P to start with. Some people thought it was very critical, and you had to be very careful just exactly how you approached the whole construction program. And with C-A-P, there were some other things involved. In other words, in Maricopa County, for example, the Maricopa County Flood District, the city of Scottsdale, the city of Phoenix, MAG,[6] and the county engineer group, they were all very interested and concerned and really had a big role in C-A-P. It was just immense.

". . . when I first came aboard, what I did is, I envisioned the whole project, or tried to, and using a simple bar chart and about a ten-year program, I divided the whole project up into segments, with approximate time schedules, not that it ever held completely true . . ."

So anyway, when I first came aboard, what I did is, I envisioned the whole project, or tried to, and using a simple bar chart and about a ten-year program, I divided the whole project up into segments, with approximate time schedules, not that it ever held completely true because there were so many other influencing factors, but traditionally what people do with a project of this nature,

6. Maricopa Association of Governments (MAG).

they say, "We'll start at the beginning. In other words, you had your Havasu Pumping Plant. We're going to build that and just go right down the line."

Now, that's fine for some smaller project, but that wasn't the thing to do here at all because we were talking about a multi-year program. So we had to start with about eight or nine major pumping plants. We had 300 miles of canal to construct, with each canal containing its own interest, like check structures. We had the tunnels. We had a lot of siphons to construct. And really an overwhelming type of project, some people thought. We had power lines to construct to the proper pumping stations and the whole thing.

How Features of CAP Were Chosen for Immediate Construction and Delayed Construction

We got to looking at this. Well, you know, you can't build all the canals in one time.

Canal Construction

This is a program where you're going to have to start building some canals now and schedule them so that you're constructing the canals throughout the entire construction

period.

Pumping Plant Construction

Pumping plants, do you want to start building them right away? Maybe not. Maybe you want to wait a while and see what the latest technology might help you with with the pumping plants. So we took that into consideration.

Tunnel Construction

Then we got to looking at tunnels. Well, you know, we can build our tunnels early, and we can sort of board them up, where they won't require any maintenance like you would if you had something with a bunch of machinery.

Siphon Construction

Then we looked at our siphons, our larger siphons, and we have a lot of them. Well, you know, we can build those earlier in the game, too, because ***they*** won't require any maintenance. And back to the canals, you don't like to really leave a canal open too much, so we'll just, like I mentioned earlier, schedule that throughout the construction period.

Buckskin Mountain Tunnel

So we went ahead and concentrated, and one of the first big jobs we did was the Buckskin Mountain Tunnel, inasmuch as that was one of the features that, like I said, we could board up and just wait until we needed it. Siphons we did the same thing. And so we concentrated on these particular projects and scheduled our design data and what have you to match this kind of philosophy. So we had it pretty well laid out, and we did, in fact, pretty much stay with that philosophy, until we got to the very, very south end.

So personally, that was some of the real interesting work to start with on a project. Then we worked with Denver on scheduling. Their workload, you know, we had to schedule their workload and everything.

Storey: Did you have any trouble getting on-time products out of Denver?

Dolyniuk: Not really. Not really. Yeah, we had problems, but they're not the kind of problems that you'd go up there and call anybody names or anything like that–never, never. If you've got a problem, usually, you know, you don't want to look back. It might have been your own fault.

Storey: Now, what I think I'm hearing is, well we'll build this siphon here, and we'll connect it with canals to the tunnel ***later***.

Dolyniuk: Yeah.

Storey: But if you're ***off*** a ***little bit*** over a few miles, doesn't that cause bad problems?

Dolyniuk: Yeah. But we don't get off.

Storey: We don't get off?

Dolyniuk: No.

Storey: How do we make sure that we don't get off?

". . . Vern Powell, I mean actually Vern was one of the people that I really admired, because one thing he said, 'Andy, don't you ever worry about our surveys.' And I didn't. . . ."

Dolyniuk: Just by doing proper work. You established a base. You've got your surveys. If you talk to Vern Powell, I mean actually Vern was one of the people that I really admired, because one thing he said, "Andy, don't you ever worry about our surveys." And I didn't. I had complete faith. Of course, I knew what he was doing and I knew what control they had, so you don't go around worrying about the fact that you might do something wrong.

Storey: A more cautious person might say, "I'm going to start at the pumping plant, and when I get down to the end, I'm going to do it." Why wouldn't that approach work?

Dolyniuk: There's no advantage of doing it that way, because your delivery was way down here anyway, and like I said, it was more important to get some of the work done in different areas, and I'll get back to one particular issue, but the appropriations and amount of contracts also entered into the particular picture. It had to line all of that up.

"One of the first things we did . . . we constructed this fourteen-mile dike right northeast of us right here in Phoenix. . . . Because it, in fact, tied in with the entire Maricopa County Flood Protection Plan. . . ."

One of the first things we did, outside of groundbreaking and the inlet for the Havasu Pumping Plant, we constructed this fourteen-mile dike right northeast of us right here in Phoenix. Why did we do that? Because it, in fact, tied in with the entire Maricopa County Flood Protection Plan. It also tied in with some of Scottsdale Greenbelt Plans. There was a big fear that if we started work right in Phoenix, where a lot of adversaries were located, and then see this blemish on the horizon, that it's going to kill

the project just that quick, though some of us had the philosophy, "No, that's just exactly the wrong thing. We want to do this. We want to do it right. They'll learn to live with that, and you'll never have another problem as far as some of this work goes."

And true enough, we started–we started some of the siphons first, but then we started this dike out here, which is now twenty-one years ago or twenty-two years ago, and it never became a big local, issue like a lot of people were afraid it [would,] ~~was,~~ because of the fact that Carolina Butler or whoever didn't want the project to go, and that was a real measure of success, I thought, that we did it just like we did it.

". . . in hindsight, if we made a mistake, we should have started at Tucson. We should have done this exactly backwards. We should have started at Tucson and worked our way around. Why? We would have had a lot less later problems. . . ."

The fact that, in hindsight, if we made a mistake, we should have started at Tucson. We should have done this exactly backwards. We should have started at Tucson and worked our way around. Why? We would have had a lot less later problems.

Storey: What do you mean "later problems"?

". . . eventually everybody started changing their mind of what they wanted and it got involved into a lot of local Tucson politics, Tucson water. And if we would have done what the initial plan was, you know, once you buy a car, you drive it. But up until the time you buy that car, you might want a different car . . ."

Dolyniuk: Oh, eventually everybody started changing their mind of what they wanted and it got involved into a lot of local Tucson politics, Tucson water. And if we would have done what the initial plan was, you know, once you buy a car, you drive it. But up until the time you buy that car, you might want a different car, want something else or something like that.

Storey: So we didn't get, really, down there, what, until '92-, '93?

Dolyniuk: Till we completed it, yeah.

Storey: There was quite a bit of controversy about the C-A-P.

Dolyniuk: Still is.

Storey: How were you involved in all of that? How were you involved in the discussions? Or

were you? Was that in your office? Somewhere else? You had partial responsibility? How did that work out?

Dolyniuk: Well, the controversy, you go back to the political aspect. I am not sure that I can respond to that as how I related to some of these controversies, because in our particular work area, I took the position this is what we have to do and we're going to do it, and the people that were involved, like the project manager and the regional directors, the ones that they were involved, they took it from that point, so to speak, if we're talking about scheduling and the construction activities, as such.

Storey: But were you ever pulled into the public meetings?

Dolyniuk: Oh, we had a lot of public meetings, yeah.

Storey: What did you do when you went to those? What was your role?

Dolyniuk: Well, usually I expressed or related what's going on in the construction areas, how it affects a particular area. The project manager, Cliff Pugh, if he didn't like the assignment, he sent me out on the rubber duck circuit, like Parker (unclear) link type of contracts, and I would tell the people what's

going on, why we've got this project, how it would affect them. I did that more in the outlying areas or to some technical areas. Cliff naturally handled the sensitive ones.

Storey: OK, well, I'd like to continue, but we've been here two hours, and I promised you I wouldn't keep you longer.

Dolyniuk: Yeah, and I do have to get ready for a one o'clock meeting here.

Storey: Well, I appreciate your coming in. I'd like to ask you whether or not you're willing for researchers to use the material on these cassettes and the resulting transcripts.

Dolyniuk: Fine.

Storey: Good. That's a yes, I take it. Thank you.

END SIDE 1, TAPE 2. APRIL 24, 1996.
BEGIN SIDE 1, TAPE 1. MAY 22, 1996.

Storey: This is Brit Allan Storey, senior historian of the Bureau of Reclamation, interviewing Andrew [Andy] Dolyniuk in the Phoenix Area Office on May the 22nd, 1996, at about one o'clock in the afternoon. This is tape one.

Last time we talked, you were talking

about how when you came to Reclamation there was a lot of transmission line work and the contractors were doing okay and everything was moving along fine. And then later on, there was less work, the contractors weren't making as much money, and that kind of thing. I'm wondering if you saw a change in the way the contractors approached the work that they did or the quality of the work or anything like that as you went through that transition in the availability and profitability of work.

Dolyniuk: I'm not sure what I was alluding to to give you the impression that the contractors were in a position where they were ~~losing less money or~~ making less money. I'm at a loss to explain this question.

Storey: Okay. Well, I must have misunderstood something that we were talking about, then.

You mentioned last time that you came to the Parker-Davis Project Office and were there a couple of years, and then you became the project construction engineer for C-A-P. Am I understanding that correctly?

Dolyniuk: I came to the Parker-Davis Project in 1962, and it was eight years later that I was transferred over to the Central Arizona Project.

Storey: Now, at the time you were transferred, there was, I would presume, sort of a fundamental change going on in the Arizona Projects Office, and that was, it was going from being the Phoenix Development Office to the Arizona Projects Office. It was going from being basically a planning office to being a construction and O&M office, and you were brought in right as that transition was taking place. What kinds of things were going on in the office?

Went to the Phoenix Development Office as it Transitioned from a Planning Office to the Construction Office

Dolyniuk: Actually, at the time when the regional director transferred me to the C-A-P office, it was, as you say, basically a planning office, where they were developing initial plans to get the project going. So that was truly the transition period, where you went from planning to submitting design data and getting into the design and also laying out the construction program. That was quite a interesting transition because it did change some of the philosophies within the office itself.

Storey: What was going on? What were the details of this? You had to staff up. You had to deal with the staff you already had. You had to

begin design, I presume, or at least a portion of design, in cooperation with Denver.

"It took a little over two years to make that transition from initiating design data and getting into design to actual construction . . . most of the personnel that were in the planning office were capable and fit into the design data program and also into the final design submittal program. . . . when we got into construction is when we started importing the true construction field types . . ."

Dolyniuk: It took a little over two years to make that transition from initiating design data and getting into design to actual construction, so basically most of the personnel that were in the planning office were capable and fit into the design data program and also into the final design submittal program. So actually, when we got into construction is when we started importing the true construction field types, where we went into the actual nuts and bolts of the construction.

Storey: And when would that have been?

Construction on CAP Began in 1973

Dolyniuk: 1973.

Storey: So in '73, we began construction. But up until that time, we were involved in design?

Dolyniuk: Design data and gathering field data and what we call getting the final design data.

Storey: Were we doing it for the whole project, for parts of the project? How did that work?

Building the Reach 11 Dike and Tying the Work into the Planning of Local Governmental Organizations

Dolyniuk: Well, one of the first things we had to do, of course, is to develop a overall construction program, or what we thought would fit into the whole project, and consequently, normally you would think that we'd go from the front end and work on down, but that wasn't exactly the case. Outside of the excavation for the pumping plant, which was basically a political thing more than anything in a way, although it was required, we started most of our work right in the Phoenix area, the Phoenix area being politically active, and it tied in with the Maricopa County overall Flood Protection Plan. Our construction blended in with some of Scottsdale's plans, some of Phoenix's plan, Maricopa County plan. So for a while there, the organization, which some people now call MAG, which is management by all the governing bodies, were all involved in the overall plan. So we coordinated with these various entities.

So, one of the first things we did is, we started by constructing what we call the Reach 11 Dike, which is northeast of the city of Phoenix. A lot of people thought we were going to blow the project out of the water by starting there, because there were a lot of environmental groups that were against the project, and the thinking was, "Holy Moses, you're going to go out there and you're going to start moving the dirt, you're going to scar the valley, and the project is going to go by the wayside pretty quick." Needless to say, this didn't happen. Everything worked out great. So our project did not necessarily follow from the beginning of the project to the end, but we incorporated various works into the project that sort of required or blended with the other plans.

Storey: You mentioned flood control, I think. What does our work of conveyance of water to the Phoenix and Tucson areas have to do with flood control?

". . . when we construct a canal, one of the things we have to do is protect the canal from floodwaters, or runoff, if you please. Canals basically are perpendicular to the pattern of the flood flows. . . ."

Dolyniuk: Very interesting. Good point. Actually, when we construct a canal, one of the things

we have to do is protect the canal from floodwaters, or runoff, if you please. Canals basically are perpendicular to the pattern of the flood flows. In other words, we would basically follow the same contour line, and consequently the floodwaters tend to impinge on the canal. For this reason, we have to protect the canal, and you do this by either building some particular dikes and directing the flows to overshoots or culverts underneath of a canal or whatever the case may be.

But now in this particular case, we had about twelve miles of area above Phoenix, and along with this, Scottsdale had some very public thoughts, if you want to call it that, where they wanted to develop green belts and they wanted to develop recreational areas, and also the county had some certain plans, and all of this entailed, to a point anyway, to retain some of the floodwaters so that they would have protection against any erosion of their particular projects or plans. So on this Reach 11, rather than just simplifying it and protecting the canal itself, we built flood retention–not detention dikes, but retention dikes–so where it would capture the floodwaters for a given area, and we would contain this water behind the dikes and systematically release the water into the

canal system. So to this extent, we participated in the flood plan.

Storey: Oh, okay.

Dolyniuk: It was a very interesting period in the planning stage, which was actually the planning stage, but yet it was done right at the pre-construction stage. It involved a lot of people, very interesting, and I got the blessing of everybody, except some of the environmentalists, but they eventually thought it was a good program.

Storey: How did you conceptualize the sequence of the construction program?

Sequencing the Project

Dolyniuk: Based on the various aspects. One, of course, that we must always consider is guessing on appropriations. But besides that, what was considered is, what are you building. Okay, we had 300 miles of canal to build. You can't build them in the first six months or first five years or the last five years, so that was one phase of it that you strung out through the life of that construction period. So in that respect, we scheduled some canal reaches almost immediately.

But the things that we thought of was, what projects can we build that won't require any maintenance prior to putting into construction? So we looked at it. Obviously, when you build a tunnel, supposedly those are maintenance free. When you build some of the siphons, they're supposedly maintenance free. So we scheduled those pretty early in the game, and some of them were pretty heavy-money projects–in other words, like the Buckskin Mountain Tunnel, which was one of our first major tunnels. Well, that was almost a $60 million-dollar contract right off the bat. Then three of the first siphons that we scheduled early in the game, they were demanding a larger budget, and that contract was about $35 million dollars. So this worked reasonably well where we scheduled these particular things and got in an early construction start on those items, and, true, like Buckskin Mountain Tunnel, we haven't touched it since. I mean, it doesn't require any maintenance.

The pumping plants, which we sort of held back on, and the reason we sort of held back on them is, we figured we could capture the latest update, knowledge, or whatever you want to call it, techniques on pumping plants, we might gain something there. So we held them back a little bit, and likewise you have this equipment that you need to test

and you really can't test it until you have water. So, anyway, we sort of held those back a little bit.

". . . sometimes our changes in appropriations sort of made us deviate from some of our initial plans. . . ."

So between the appropriations and some of the considerations of what you're building went into the programming of the construction phases. Unfortunately, sometimes our changes in appropriations sort of made us deviate from some of our initial plans.

Storey: One of the things that would make me nervous would be that if I built Reach 11, and I built the Buckskin Tunnel, and I built this piece and that piece, I want to make sure my puzzle fits together properly.

Making Sure the Various Pieces Fit Together Properly When Connected to One Another

Dolyniuk: Well, we discussed this earlier, and you talked to Vernon Powell. We just made sure that wouldn't happen. You have controls nowadays that, barring any unforgiven events, this is not really a worry.

For an example, to be able to pinpoint

a survey–and this is what you were talking about–one of our first contracts was the Buckskin Mountain Tunnel. The Buckskin Mountain Tunnel is seven miles and being one of the first water conveyance elements out of Lake Havasu. Okay, so what the contract required or the procedure was that you started at one end with a mole, and the idea was to get to the other end and come out where you want it to come out, and you're underground during this seven miles, so to speak. With the survey methods and everything, there was no concern that this can't be done.

So, when we finished–I used to give a lot of presentations on the construction of the Buckskin Mountain Tunnel, and they'd always ask, "Well, where did you come out?" and I'd tell them, "Well, we missed it by a quarter inch, but we weren't sure which direction," which was almost true. So there's ways of directing your particular surveys, and it's not as big of a problem as it would have been a hundred years ago, that's for sure.

Storey: Does this mean that the whole project was designed before you started any construction?

"We designed it piecemeal, designed it according

to our program, according to your budgets. So actually, in 1971, when the first design data started going in, there were no designs. That's when we started our designs, and two years later we went into construction. . . ."

Dolyniuk: No. We designed it piecemeal, designed it according to your program, according to your budgets. So actually, in 1971, when the first design data started going in, there were no designs. That's when we started our designs, and two years later we went into construction. So the siphons were not designed when we started our first construction. Some of the designs were ongoing. The Buckskin Mountain Tunnel was one of the first ongoing design projects, and naturally canal designs for certain areas weren't even looked at.

Storey: Yet you were relying upon the fact that you were going to be able to put it at certain locations.

Dolyniuk: True. By your contour maps and by the preliminary studies, you had a feel as to what you could do and what you could not do. I mean, refinement of the specific locations was a requirement, but not all that difficult. You have certain flexibility when you build a pumping plant. You come into the pumping plant. You've got flexibility of how high

you're going to lift the water. So you've got some flexibility into this.

Storey: So there's some ways of moving it around a little bit and jiggling it and wiggling it.

Dolyniuk: It's all part of the engineering program. Yes, that is true.

Storey: Oh, okay. How many folks were determined necessary for the design process?

Dolyniuk: Actually, when the program and appropriations were known and when you submitted your design data to Denver– they're the ones, of course, that took on the responsibility of putting the specs together and putting the final designs together–they would budget and provide the particular manpower needed to accomplish whatever program was approved.

Storey: ***On your end***, to provide design ***data***, what kind of staff did it take?

Coordinating the Work

Dolyniuk: It varied. It varied up to the point where I think we had something like 500 people here before I left. But you would also schedule your demands. You'd find out what kind of survey requirements you needed. You

would, of course, find out what type of design data staff you'd need. And then, of course, when we went into construction, you would determine what field manpower was required.

"I guess it sounds kind of difficult in a way and kind of overwhelming . . . Once you know what you're doing, you do it. . . ."

I guess it sounds kind of difficult in a way and kind of overwhelming in many senses, but if you work with it, it's just like everything else. Once you know what you're doing, you do it.

Storey: What are the things that influence what you do in order to determine how many people you need and what data you need and all that kind of stuff?

Dolyniuk: Well, that's experience. Basically, it's experience, and probably to a certain extent you have to be a little gutsy and just go forward.

Storey: What did you start out with when you came to the office in terms of staff?

Dolyniuk: To the C-A-P office?

Storey: Uh-huh..

". . . Phoenix Development Office . . . had several engineers there that were very capable of carrying on the hydrology studies, very capable of doing the survey work, very capable of doing some of the required preliminary computations. So we didn't have to start out from scratch in that particular respect. We did from the construction viewpoint, but not from the pre-construction efforts. . . ."

Dolyniuk: Actually, I came over by myself, and I can't quite relate the numbers that was in the Phoenix Development Office. But we had several engineers there that were very capable of carrying on the hydrology studies, very capable of doing the survey work, very capable of doing some of the required preliminary computations. So we didn't have to start out from scratch in that particular respect. We did from the construction viewpoint, but not from the pre-construction efforts.

Thinks There Had Been Some Delays in Submitting Design Data to the Designers in Denver Before He Was Moved to the CAP Office

But there was a little bit lack of initiating the submittal of the design data and items of that nature, and I guess that's why they sent me over there is to get that moving. I was glad that I was assigned [the] a

particular job. They could have certainly acquired a lot of different people from someplace.

Storey: You didn't apply for it, then?

Dolyniuk: No. The regional director made the move.

Storey: He contacted you and asked you to move?

Dolyniuk: No, he didn't even contact me. He just said, "Go."

Storey: You were already in Phoenix, however.

Dolyniuk: I was in Phoenix at the Parker-Davis Project as the construction engineer.

Storey: What were you constructing there?

Dolyniuk: Power lines, basically transmission lines and power-related facilities. It may not have exactly been all electrical stuff, because we worked on the dams, the existing dams, but it was basically transmission line work, the 345 kV lines and 230 kV lines of network, like from Glen Canyon Dam to Phoenix and from here to Boulder, Colorado, tying in all the dams. We had quite a program going on.

Storey: Now, if I understood what you said, you came in, you started out with a fairly small

staff, and eventually the construction staff reached about 500. Is that what I understood?

Dolyniuk: No, total project staff at the Phoenix construction office.

Storey: Would have been up around 500. What are the different steps you would have to do, to go through, to design and construct one of the major features of the project? Let's do a pumping plant, because I think it's a little more complex.

Designing a Pumping Plant

Dolyniuk: That's certainly more complex. In essence, it's more complex. The design element is much more complex than the design data, where like a canal, the design data is a lot more complex and takes more work than the design feature is, so there's sort of a flip-flop as to what you're building.

As far as a pumping plant is concerned, naturally in the field we had to decide where were we were going to build a pumping plant, and we had to decide at what elevation the water is going to come in and we had to decide at what elevation the water was going to leave the pumping plant. So from the topography standpoint, sometimes

this is pretty well fixed, because like I mentioned, your canals usually follow a contour line and you're dropping–in this particular case, our canal dropped not quite a half a foot a mile. That's the slope of the canal. You'd work your way–or I shouldn't say you'd work your way, but pretty soon you've ran out of the gravity benefit and you'd have to pump the water up or lift it, so you get another start so you could keep continuing on with this particular drop.

For example, if you'd want to take, let's pick Havasu Pumping Plant, there was no problem there at all, because we started right at the lake and you knew how much water you have to pump up to the top of Buckskin Mountain Tunnel before you dropped it into the tunnel. And you're at the lake, so you knew how many cubic feet per second you wanted to pump. So from the field standpoint, that was simple.

Now, when you got into design, ***they*** had to determine how many pumps you'd use, what's the most efficient size of these pumps, what kind of flexibility was required in your pumping, and all these elements. Then, of course, once you made those determinations, then you went into the physical design of the building and the plumbing. Like mentioning Havasu. That

was cut and dried, once we decided what part of the lake we were going to take the water out of, although there were a few alternate choices, but consequently after reviewing the ~~very alternate~~ alternates, it's not too difficult to pick the best one, so to speak.

Like, for example, Hassayampa Pumping Plant. This particular pumping plant is on the Phoenix side of the Hassayampa River. Well, there's a continental divide, interstate continental divide between Phoenix and the Colorado River. It happens that it's west of Phoenix. And by saying a continental divide, it's not a pronounced one, but it is topographically you've got a little divide that you have to get across one way or the other. So when we got up to the Hassayampa River, we knew we'd have to have a pumping plant someplace along the Hassayampa River. We evaluated, oh, a couple miles' stretch, and there's where would be the best place to cross the river and build the pumping plant.

Here again, we knew what the water surface was going to be coming into the plant, and we knew how high we'd have to lift the water to continue it flowing for the next fifty miles, until we got to the next pumping plant by studying our topography and by doing your land surveys, which we

had the survey crews actually doing some aerial photography and put them on a plotter, so we could pinpoint these locations. So again, the pumping plants, once we pinpointed the location and provided the data to Denver people, who physically–or not physically, but put the nuts and the bolts together, so to speak. Then we proceeded with the construction. It takes a little more time than it does to explain it, naturally, and it's not the easiest thing, but it's not difficult. It's fun.

Storey: What happens after you've built it?

". . . once you build it, well, then the next exciting thing, of course, is to test them out. . . ."

Dolyniuk: What happens after you build it? You hope it sticks together. Actually, once you build it, well, then the next exciting thing, of course, is to test them out.

Storey: Tell me about that. What happens?

Dolyniuk: What happens? Well, gee, you get somebody, the governor or somebody to poke a button, and the gates open up and the motors and the pumps start working and the water starts flowing. That's about the way it works to the public.

". . . the mechanicals and electrical types, they have to go through a tremendous amount of testing, especially the electrical types, because you've got all the control boards, all the control mechanism . . ."

But, yes, the mechanicals and electrical types, they have to go through a tremendous amount of testing, especially the electrical types, because you've got all the control boards, all the control mechanism, and they, of course, have means of testing this. In the meantime, of course, you've got to bring your power lines into your pumping plants to provide power or the energy for the pumps and the motors. There's a testing period that probably goes on for–pretesting, I would call it–that goes on for several months, maybe up to six months, where you check everything out, all the controls, and naturally you're not 100 percent sure how the turbines are going to work or the pumps are going to work, because you haven't energized them or you haven't put them under load. But the tests at the plants indicate that you're on the right track, hopefully anyway.

So once you get the motors and the pumps, then you test the motors out. You test them out for heat runs and all these items, which I personally don't quite understand fully, because that is the

mechanical types that run all those particular tests. And you make sure that the motor is properly installed and make sure that it functions properly under load before you actually put it in load or put it in service with the water.

Anyway, when the big day comes, you get the water into the plant itself, and hopefully the motors work right, the pumps work right, the water goes up the discharge line and starts flowing into the canal.

Storey: Did everything work correctly?

Dolyniuk: I don't know if I should say that we were awful lucky on this project or whether it was just done right, but I think our success ratio was great.

Storey: Did we have any problems?

Dolyniuk: Oh, yes. Most of the energization or pumping actually started after I left, although I was around when this all happened. But on some of these pumping plants, especially the smaller ones down towards Tucson, we did have pump problems. We had motor problems, where pumps wouldn't balance right, they weren't quite fabricated correctly. We had some motors that the temperature rise was too high on them. So we were never

really problem-free. Just like a warranty, I guess, on some cars. You can't expect to buy a car and run around for ten years without ever taking it back in. So, yes, there have been some problems, and they still have some problems.

Storey: So you weren't actually here when water started flowing?

Dolyniuk: I was here, but I was no longer with the Bureau at that time.

Storey: How long were you with us on this project? Seventy till–

Dolyniuk: Till February of '83.

Storey: A couple years before we made our first water delivery, then.

Dolyniuk: Water delivery, I'm not sure when it was. You probably have it on record.

Storey: I think '85, but I wouldn't guarantee it.

Dolyniuk: '85 is probably when we got water to Harquahala. I believe that's probably right. But I was there when it happened.

Storey: Thirteen years on a ***big*** construction project. It must have been exciting.

". . . it was exciting, especially when you got a chance to start it and you were instrumental in laying the whole thing out. That's what was great. It was fun from the day go. Of course, I've had fun on all the construction projects. . . ."

Dolyniuk: Well, it was exciting, especially when you got a chance to start it and you were instrumental in laying the whole thing out. That's what was great. It was fun from the day go. Of course, I've had fun on all the construction projects. I'm having fun today doing what I'm doing.

Storey: Who was the project manager in '70 when you came in?

Cliff Pugh

Dolyniuk: Cliff Pugh.

Storey: What was Cliff like?

Dolyniuk: Cliff was quite a man. Of course, you know him very well. I enjoyed working with him from the standpoint that he pretty much let you do [your] ~~his~~ thing. He had his thing, and he felt that you had your thing to do. Basically, to wrap it up, I enjoyed being with him. We really didn't have all that much to do with each other once we got into construction. Yeah, we let him play the

political role. We let him push the switches, so to speak. And that's . . .

Storey: Did the political stuff ever affect ***your*** job as construction engineer?

Dolyniuk: Did it affect my job? Not really. Not really. Actually, I stayed away from the political end, unless I had to participate in something or the other. From the viewpoint of different project managers, they had their ego, naturally, they had their interests. During Cliff Pugh's era, I had no particular problem with what he expected out of the construction types.

Storey: And after him came Dick Shunick, was it?

Dick Shunick

Dolyniuk: Dick Shunick, right.

Storey: How about him? How was he as a Project Manager, in terms of construction?

Dolyniuk: I didn't have any problem with any of the project managers . . .

END SIDE 1, TAPE 1. MAY 22, 1996.
BEGIN SIDE 2, TAPE 1. MAY 22, 1996.

Storey: You were just beginning to talk about Dick

Shunick and something he was interested in.

Dolyniuk: Dick Shunick was interested, being an ex-Washington employee, he was interested in activities out here. I think that he came out here for personal reasons rather than project reasons, and with that, he did a good job. He accomplished what he wanted to do quite well. In other words, politically he handled himself very, very well. He was a little bit more prestige, probably, concerned than he should have been. During his particular period and era, we were involved in the splitting up of the Denver office, so to speak.

Did Not like it When Contracting Delegations and Supervision of Construction Transferred to the Regions in 1979

By that, that's when the contracting officer delegations[7] were taken away from the Denver office and went to the regional offices, and Dick was, I think, in favor of that

7. Referring to the transfer of construction contracting responsibilities from the "chief engineer's" office to the regional offices. This occurred during the Jimmy Carter Administration and after the failure of Teton Dam. The evolution of the title of chief engineer began in 1948 when Reclamation designated Leslie McClellan "assistant commissioner and chief engineer." In September of 1970 the title became "director of the Office of Design and Construction, and On February 1, 1978, the title changed to "assistant commissioner for engineering and research." Unofficially and colloquially the position was titled "chief engineer" within Reclamation until the early 1990s.

particular move. Unfortunately, some of us didn't share his particular opinion.

Storey: Do you remember which commissioner would have done that?

Dolyniuk: Armstrong had a lot to do with it.

Storey: It was under Ellis Armstrong? Why did you not think that was a good idea?

". . . in my opinion it was a catastrophe, and I still think it is. . . ."

Dolyniuk: It fractionated the Bureau right quick-like. It fractionated the Bureau and started delving into different philosophies, and it sort of separated the Bureau from other agencies in certain respects. Well, in my opinion it was a catastrophe, and I still think it is. So anyway, you worked years and years to develop a good rapport with the construction world, and we were in good graces with the whole world, so to speak, and then pretty soon with the division of construction management, so to speak, like I mentioned earlier, we just started getting fractionated, and we had all kinds of different contracting officers, different opinions, different solicitors providing the legal support.

Storey: Because it came to the region instead of

staying in Denver?

Dolyniuk: Right. We reported to so many different heads, so to speak.

Storey: Traditionally, all of that was handled out of Denver.

Dolyniuk: Up til ‘79, yes.

Storey: Up until ‘79. And then it came to the regions, and I don’t quite understand the fractionation you’re talking about. What was happening there?

Dolyniuk: Control of construction was transferred from the Denver personnel to the regional offices.

Storey: Right. And so what you’re saying is that each region was handling it a little bit differently or something?

Dolyniuk: Yes, a little different, some different philosophies, different thoughts. We lost our consistency, I guess, if that’s the word we want to use.

Storey: And did that affect the Central Arizona Project and your work on it?

Dolyniuk: Well, yes. It probably didn’t affect the finished product too great, but it certainly

affected the management. It affected the contract relationship. It affected the effective administration.

Storey: There's been a ***long*** movement to take power away from Denver and move it out into the field.

". . . Dick Shunick . . . was one of the people that was on a so-called goon squad . . . They wanted to break up the 'Bellport empire,' is what they wanted to do, and that was the mistake. . . ."

Dolyniuk: Very much so. And then, of course, we all started out talking about Dick Shunick, and bless his soul, I love the man, I still talk to him occasionally and get along very fine, but he was one of the people that was on a so-called goon squad, if you want to use that. They wanted to break up the "Bellport[8] empire," is what they wanted to do, and that was the mistake. Of course, when Dominy was in office, that would have never happened. As other commissioners came into the office, some of the regional directors decided, "Well, hey, we want that in our offices."

Storey: What other kinds of things would have affected the effectiveness of the construction

8. Bernard (Barney) P. Bellport served as director of the Office of Design and Construction from February 1963 until April of 1972.

program from a Reclamation perspective?

Dolyniuk: Well actually, of course, the loss of new projects, the loss of new fields, dipped into the Bureau's, well, capability eventually. Mostly it demoralized a lot of the personnel, and it kept on decreasing as time went by.

Storey: For instance, budget fluctuations, how did those affect you?

Budget Fluctuations Affected the Project

Dolyniuk: It threw us for a loop several times. Along with the budget and the money appropriations, we had [President Jimmy] Carter that came in that wanted to kill the project, and that dipped everything for awhile. We had a lot of these fluctuations, which resulted in about a five-year delay in completing the project, is what that amounted to.

Storey: Did it mean that you had to go through RIFs[9] and things?

Dolyniuk: Not to any great extent. I think attrition took care of all of our dips. And, of course, we were kind of lean and mean to start with, so we never did have a big RIF problem.

9. Reduction in force.

Storey: Did you ever have a situation where you had X million dollars for construction of something, and you came back to spend it and found it wasn't there anymore?

Dolyniuk: We gave it away once.

Storey: Tell me about it. Why did you give it away? I know people hate to give money away.

". . . we had a X number of dollars appropriated for the Buckskin Mountain Tunnel . . . a mole got stuck in a tunnel for a large number of months . . . there was a concern by upper management that, 'Hey, we're not going to spend our money. So, what should we do?' With, supposedly, the promise that we could get it back as soon as we needed it, they took the funds and basically sort of assigned them to other projects . . . of course, we got the mole free, got it moving again, and lo and behold, we needed the money, but we didn't get it back right away like some people thought that we were going to get it back. It took a *year and a half* to get that money back . . ."

Dolyniuk: Actually, it was given away by certain people, given away to be good guys. What happened is that we had a X number of dollars appropriated for the Buckskin Mountain Tunnel, and it was apparent, because a mole got stuck in a tunnel for a large number of months, the earnings didn't

develop. So there was a concern by upper management that, "Hey, we're not going to spend our money. So, what should we do?" With, supposedly, the promise that we could get it back as soon as we needed it, they took the funds and basically sort of assigned them to other projects or other agencies, as such.

Well, about that time, of course, we got the mole free, got it moving again, and lo and behold, we needed the money, but we didn't get it back right away like some people thought that we were going to get it back. It took a ***year and a half*** to get that money back, so to speak. So we had all kinds of bumps along the road in that particular area.

Storey: But it didn't affect our personnel much?

Dolyniuk: Not that particular. See, digging a tunnel is a quick money-earning project. In other words, that involves about earnings of over $20 million a year for just that one contract. But a six-month delay, of course, impacted their earnings quite a bit, but yet it didn't impact personnel because inspection on a tunnel, that wasn't that instrumental.

Storey: What kind of special problems did we face in constructing the Central Arizona Project, engineering problems, physical problems, that sort of thing? Or issues, if you wish.

". . . the biggest upsetting situations . . . were probably appropriations and the do-gooders that wanted to do away with the project. You know, when it comes to engineering, yes, we had engineering problems, but they were not the kind of problems that really threw us for a loop or got our stomachs churning or anything of that nature. It was the political problems that bothered us. . . ."

Dolyniuk: Problems, the biggest upsetting situations, again, were probably appropriations and the do-gooders that wanted to do away with the project. You know, when it comes to engineering, yes, we had engineering problems, but they were not the kind of problems that really threw us for a loop or got our stomachs churning or anything of that nature. It was the political problems that bothered us.

President Jimmy Carter Proposal to Cancel CAP

Like I remember when Carter wanted to dump the project. I don't remember who recommended it. One of his staff recommended it to him, some twenty-nine-year-old person that was on his staff figuring we didn't need C-A-P.

"I remember, with a few other people, spending several weeks laying out the impact of closing the project down, what contracts we were going to

stop, how much it would cost to terminate some of these contracts, what we'd have to do to obliterate what we had done. . . ."

I remember, with a few other people, spending several weeks laying out the impact of closing the project down, what contracts we were going to stop, how much it would cost to terminate some of these contracts, what we'd have to do to obliterate what we had done. I mean, those were the stumbling blocks. Those were the things that impacted us from the morale standpoint and taking some of our precious man hours, if you want to call them that.

I recall that as being the biggest problem, and personal heartaches sometimes when you have a contract that doesn't work right. I mean, we had some of those. You either had a contractor that probably wasn't as capable of performing the work as we had hoped he would [be]. So we lived through those.

Storey: Um-hmm. Well, you know, you came over with transmission and electricity as sort of your specialization prior to that time, I guess, and a major part of C-A-P was the Navajo Power Generating Plant and the construction of the transmission lines. Did you have any involvement with that?

Dolyniuk: Oh, yeah. Up to a point, yes, we did all of them. We didn't have any involvement with the Navajo station, because Salt River Project was designated as the design/build agency for that. The Bureau was involved only in participating in the funding.

". . . we continued on with the transmission line program, constructing the required transmission lines, like to the pumping plants . . . so that you'd have the proper energy system to provide the power to the pumping plants. We provided all the design and construction for the supporting transmission system until such time that . . . WAPA . . . took over the construction administration, which was probably in the mid-eighties. . . ."

The transmission lines, yes, we continued on with the transmission line program, constructing the required transmission lines, like to the pumping plants, and also bolstering up the Parker-Davis Project so that you'd have the proper energy system to provide the power to the pumping plants. We provided all the design and construction for the supporting transmission system until such time that DOE or WAPA [pronounced wah pa], Western Area Power [Administration,]

~~Authority,~~ took over the construction administration, which was probably in the mid-eighties. So up until that point, we also handled all the transmission line construction.

Storey: Did WAPA happen before you left or after you left?

"WAPA came in the picture before I left. However, they did not take over the C-A-P transmission line construction until about the time I left . . ."

Dolyniuk: WAPA came in the picture before I left. However, they did not take over the C-A-P transmission line construction until about the time I left, or a little bit after I left.

Storey: Do you lose any of your folks to WAPA?

Reclamation Staff Transfers to WAPA

Dolyniuk: Yeah. Some of the transmission line people moved over to WAPA.

Storey: Were they all just transferred, or how did that work?

Dolyniuk: It was by choice. It sort of wasn't an immediate thing. It probably was a gradual thing. As they came in, we phased out, so it overlapped quite a while.

Storey: How did people at Reclamation react to losing the transmission lines and the power sales functions to WAPA?

Dolyniuk: How did they react? Well, naturally, it depended on how you personally were involved. Some of the people that broke away from the Bureau and then went to WAPA, they naturally were very pleased. It gave them more opportunity. It seemed as if the power group with the Bureau did not have the prominence that some of the other groups did. In other words, they weren't in the flow of things as much as the civil people were, like the people building the dams or the canals and what have you. So that particular group, they were very pleased.

Some of the rest of us probably felt a little neutral about it, and I'm sure that there were a lot of them that were hurt by the move. So I look at it as having three different categories–the people that went along with WAPA, the people that stayed behind and ***could not*** go along that were unhappy, and some of us that it really didn't make too much difference.

Storey: That took a period of years, then, to accomplish, I guess.

Dolyniuk: As far as C-A-P is concerned, it was sort of a

transition thing. In some other areas, though, it was pretty abrupt, pretty abrupt. Once WAPA came into the Denver area, there was quite a change. There was quite a sharp change there.

Storey: Now, did the transmission lines that supplied our pumping plants go to WAPA?

Transmission Lines to Pumping Plants Are Operated and Maintained by WAPA, but They Belong to Reclamation

Dolyniuk: To operate and maintain, yes, but they're still under the ownership of the Bureau of Reclamation.

Storey: Did that cause us any problems?

Dolyniuk: Contracting problems with WAPA and an uncertainty as to what really was going on in fact is still a problem. Now C-A-P handles the power function, or what they are having as the Salt River Project actually is the one that sort of coordinates the power demands for C-A-P rather than WAPA. That part was transferred from WAPA to Salt River Project. As of today, WAPA still maintains the transmission lines for C-A-P, but they're thinking about maybe making some changes there, also.

Storey: Go back, if you would, to your early days, ‘70-, ‘71, at C-A-P. How did you spend your time during the day?

Dolyniuk: Busy, of course.

Storey: What were the things that occupied your attention?

Dolyniuk: Busy, of course. Basically, facility locations was one of the key things, the economic evaluation of the locations, providing design data or getting the design data documents to Denver. Those are, of course, sort of the major features, how to break them down. Programming the work, laying out the field office plans. It was quite encompassing, really.

Storey: What about in 1982 or 1983, when you left? Had the way you spent your time changed? Were there different issues that you were dealing with then?

Until the Late 1970s He Supervised All the Planning and Construction Then the Regional Director Transferred the Advanced Planning to Another Office

Dolyniuk: Oh, definitely. Up until about the late seventies, I personally pretty much had to play the role of supervising the planning, of

advanced planning, the location work, design data work, as well as the construction, so it was quite a job, if you want to put it in simple words. Later on, the regional director, as he put it to me, he said, "You've been doing a hell of a good job, but we're going to relieve you of some of the advanced planning work." So they set up a separate division in the project to finish up the final last half of the Tucson Division, and this, of course, was probably brought about because we needed to go into environmental hearings more. We were getting into this real–oh, what do you call it? We were getting into an area where you had to go through a lot more steps before you finalized a project.

Storey: It was becoming more and more complex.

Dolyniuk: Right. So consequently, under Dick Shunick they developed or set up a planning division that carried on that function. So when I left, I did not have that particular portion of the activity.

Storey: Which regional director was this?

Dolyniuk: Manny Lopez was the regional director, and Dick Shunick was the project manager at that time. So anyway, which was fine. I think they screwed it up, but that's neither here nor there.

Storey: Yeah.

". . . from 1970 to 1983, I was very, very busy, and I loved every minute of it. . . ."

Dolyniuk: But from 1970 to 1983, I was very, very busy, and I loved every minute of it.

Storey: Now, you were not the contracting officer, am I correct in this?

"For the first nine years, Denver, Bellport, was the contracting officer. He was the contracting officer, and I was his authorized representative. . . ."

Dolyniuk: It all depends. For the first nine years, Denver, Bellport,[10] was the contracting officer. He was the contracting officer, and I was his authorized representative.

Storey: You were his technical representative.

Dolyniuk: No, his authorized rep. We didn't call them technical.

10. Barney Bellport served as director of the Office of Design and Construction from February 1963 until April of 1972. Harold Arthur served in the same job from April 1972 until July of 1977. Robert B. Jansen was in that office from September 1977 until December of 1979, though the job title changed to assistant commissioner for engineering and research (ACER) on February 1, 1978. Mr. Dolyniuk is referring to the period when contracting responsibilities for major construction were in the Denver office.

Storey: That's different.

Dolyniuk: That's different than what is now–a technical representative. It was just an authorized rep. I could do just about anything I wanted to as long as it was within his blessing.

Storey: But Barney didn't choose you? He didn't hire you? Barney Bellport.

Barney Bellport Had to Approve His Appointment as Construction Engineer for the CAP

Dolyniuk: He approved it. It had to get his blessing.

Storey: Did he come down here a lot?

Dolyniuk: Once in a while.

Storey: What was he like?

Dolyniuk: Oh, I loved the man. He was very capable, truthful, and frank as all heck. He didn't beat around the bush on anything. He was not– what's the right word for a guy that doesn't play the smooth political type or anything. He just got right down to it, said what he thought, and moved on.

Storey: Who came after him?

Harold Arthur

Dolyniuk: Harold Arthur.[11]

Storey: That would have been under Ellis Armstrong in ‘71, ‘72. No, Ellis must have come in about ‘70. Floyd left in ‘69.

Dolyniuk: Some of the dates sort of topple over each other, because I know when I came to Phoenix, Bellport was there, and I know when I moved over to C-A-P, I’m sure he was still there. But it wasn’t too long after that that Harold Arthur came in the picture. Harold Arthur was, in ‘76 during the Teton failure, he was there then. So someplace between ‘70 and ‘76.

Storey: What was Harold Arthur like?

Dolyniuk: He came from the design group, and actually he had a little different personality than Bellport did, of course.

Storey: Ever have any problems with these guys in C-A-P?

Dolyniuk: I didn’t. I didn’t have any problem with any of them.

11. Harold Arthur served a director of the Office of Design and Construction from April of 1972 until July of 1977. Reclamation’s oral history program includes interviews with Harold Arthur.

Storey: What about–let's see, after Harold was Bob Johnson, I believe.

Dolyniuk: No, not Bob Johnson.

Storey: Jansen, excuse me. Jansen.

Bob Jansen

Dolyniuk: Bob Jansen, right.

Storey: Did he come down?

Dolyniuk: I don't remember him coming down and leaving any impact at all.

Rod Vissia

Storey: And after him, Rod Vissia.[12]

Rod Vissia Supported Moving Contracting out to the Regions

Dolyniuk: Rod Vissia, scratch him. I mean, I didn't have any use for him, because he was one of the people that upset the apple cart, to start with.

Storey: Which apple cart?

12. Reclamation's oral history program includes interviews with Rod Vissia.

Dolyniuk: The one where the contracting officer who controlled the construction left Denver.

Storey: Oh, okay. So he was involved in that?

Dolyniuk: I think.

Storey: Yeah. What about the commissioners? This was a ***really high-profile*** project, I presume, big project. Did the Commissioners come out?

Ellis Armstrong

Dolyniuk: Ellis Armstrong came out a lot, and he was really excited about the particular project. I recall him carrying around a construction program and being enthused about it, but I don't recall that he ever really did a hell of a lot about it. But I probably personally got to know Ellis Armstrong more than anybody else.

Storey: What was he like?

Dolyniuk: Blah. I mean, he was there, pardon my expression.

Storey: After him was Gil Stamm.

Gil Stamm

Dolyniuk: Gil Stamm, yeah.

Storey: Did he come down and visit?

Dolyniuk: He came down, but between the project managers and some of the other people, I didn't get to know him, really.

Storey: And after Gil was Keith Higginson, under Secretary [of the Interior Cecil] Andrus.

Keith Higginson

Dolyniuk: Right.

"He lost his popularity because he tried to change the name of the Bureau of Reclamation. Not only tried, he did it. . . ."

He lost his popularity because he tried to change the name of the Bureau of Reclamation. Not only tried, he did it. Actually, I didn't see too much of him myself.

Storey: Let's see, after Keith was Bob Broadbent.

Bob Broadbent

Dolyniuk: Yeah. Well, he was there when I retired.

Storey: Sort of from this area.

Dolyniuk: Right. And I liked him, because he came to my retirement party.

Storey: Oh, he did.

Dolyniuk: Side comment.

Storey: Did you see changes in the responsibilities of the project construction engineer from your early days in Reclamation to your later days in Reclamation?

Dolyniuk: I didn't see any changes until the time that I was referring to that the contracting officer delegation left Denver and went to the regions. That's when the real significant changes. It was a shock to me. I never could understand why they wanted to break up something that was working good.

Storey: Yeah. Did you ever have to go to Washington to testify?

Dolyniuk: I never did. I never did.

Storey: Did you go out to tour bigwigs around, or did you spend your time mostly doing construction management?

". . . I got to mingle a little bit with the secretaries and with commissioners, and also, of course, some of the foreigners that would come around. I

didn't find any of those acquaintances or field experiences anything to jot down as being something I wanted to really hang on to. . . ."

Dolyniuk: Oh, there were times when I got to mingle a little bit with the secretaries and with commissioners, and also, of course, some of the foreigners that would come around. I didn't find any of those acquaintances or field experiences anything to jot down as being something I wanted to really hang on to.

Storey: You mentioned earlier that you gave talks about the Buckskin Tunnel and the mole and that kind of thing. My suspicion would be that there are a set of topics that you probably talked about, and probably the reason you talked about them would be because they were of interest to the engineering community. They were innovative. They were new approaches to things. It was new techniques, maybe. Or you were just sort of briefing them on C-A-P. What were those topics that you were talking about?

Making Presentations about CAP

Dolyniuk: Early in the game, a good share of them was to try to explain to people what the project was about. Like before we ever even started construction, during that period of '70 to '73

that I mentioned here, there were a lot of opportunities, if you want to call them opportunities, where you informed the public of what you were going to do.

Then, of course, once we got into construction, there were a lot of different engineering groups, a lot of different, well, associations, a lot of different social groups, like Kiwanis or whoever it was. They were interested in what you were doing, and consequently, naturally, it's most enjoyable to talk about something that you're really familiar with. I wouldn't say it was a canned presentation, but like the Buckskin Mountain Tunnel. When we were working on the tunnel, then if you give a presentation once a month and you were out to the site and knew what was going on, it was fun, it was fun and easy, and it impressed the people you were talking to, especially if you had slides showing them the immensity of it and the fact that it's happening in their back yard. It was a good community service, and it was fun doing it, and I did quite a bit of it for a period there.

Storey: And that would be community-wide. What about the engineers? What did the engineers want to hear about?

Dolyniuk: The same thing. I mean, like, for example,

one the biggest engineers' groups in the valley here is the Sun City Engineers Club. I don't know how many hundred people were there, and there were some ***very prominent*** retired people, ***very prominent*** engineers that are now retired that live in Sun City. I recall giving a presentation there, which was to the largest group ever, and I don't know, I don't remember if I talked about the siphons or the tunnel at that particular time, but they just showed a tremendous interest, and, of course, they enjoyed it from the aspect of, "Well, I know what you're doing, but I don't have to dwell on it. I don't have to remember what you said." I mean, they were retired types. And likewise, I talked to some church groups, and either all these particular groups were truly interested or else they did a heck of a good job of trying to make me think they were.

Storey: Did you have a photographer on staff?

Dolyniuk: The project did, yes.

Storey: And we took a lot of photos of construction, I take it?

Dolyniuk: There are. There are several photos and several compiled programs someplace.

Storey: What was the best thing about doing C-A-P?

"Anybody who worked on C-A-P was, I think, pretty proud that they worked on it, and they all felt as if they were a part of it . . ."

Dolyniuk: Watching it grow, watch it to get done. Anybody who worked on C-A-P was, I think, pretty proud that they worked on it, and they all felt as if they were a part of it, and some day C-A-P is going to be . . .

END SIDE 2, TAPE 1. MAY 22, 1996.
BEGIN SIDE 1, TAPE 2. MAY 22, 1996.

Storey: This is tape two of an interview by Brit Storey with Andrew Dolyniuk on May the 22nd, 1996.

You were saying that some day C-A-P is going to be given more recognition than it is nowadays, and that you liked watching it grow. Were there any particular aspects of it you particularly enjoyed?

Dolyniuk: I wouldn't say that I enjoyed any specific item more than the next item, really. The whole complexity of it and the individual parts of this complexity, I sort of shared them as being all the same.

Storey: When you left in '83, where was the project in terms of construction?

Upon leaving, "Actually, two-thirds of it was completed, physically completed and probably money spent. . . ."

Dolyniuk: Actually, two-thirds of it was completed, physically completed and probably money spent. So basically we were down to, everything was pretty much completed between the river at Phoenix and most of the features were down to halfway–well, down to the Gila River–in other words, about fifty miles south of Phoenix. We were in the process of starting Brady and some of the southern pumping plants at that time.

Storey: And why did you decide to leave? What prompted you to leave the project?

". . . from an engineering standpoint . . . I thought it was great. The fact that some of the other aspects of the activity, personnel, all the other red tape, I got to the point where I thought I had enough of it. . . ."

Dolyniuk: Well, from an engineering standpoint, like I mentioned, I thought it was great. The fact that some of the other aspects of the activity, personnel, all the other red tape, I got to the point where I thought I had enough of it. And after all, I'd been in it for thirty-six years, or thereabouts.

Storey: Now, I thought you went to work in 1950 for us.

Dolyniuk: Well, there was service time and school time that counted.

Storey: Oh, I see. Okay.

Dolyniuk: And the total picture, it added up to thirty-six years as far as my benefits were concerned.[13]

Storey: So you decided to retire.

Dolyniuk: I decided to leave the Bureau.

Storey: Oh, you didn't retire?

Dolyniuk: No.

Storey: How old were you then?

Retired from Reclamation at Age 55 and Began to Do Consulting Work

Dolyniuk: Fifty-five.

Storey: What did you decide to do after you left Reclamation?

13. Federal retirement would have counted service time for all his full-time service, his summer service while in school, and his sick leave balance.

". . . I wasn't sure what I was going to do. I had a lot of opportunities to do other things, a lot of offers, but I really wasn't too interested in packing up and leaving the area. . . . Central Arizona Water Conservation District, (CAWCD) thought they could use my services on a part-time basis . . . as well as doing other things. . . ."

Dolyniuk: When I left, I wasn't sure what I was going to do. I had a lot of opportunities to do other things, a lot of offers, but I really wasn't too interested in packing up and leaving the area. And the district, the Central Arizona Water Conservation District, (CAWCD) thought they could use my services on a part-time basis, and I sort of latched onto that, and I'm still working with them in this particular respect, as well as doing other things.

Storey: Thirteen years later.

Dolyniuk: Right.

Storey: What other kinds of things?

Dolyniuk: Oh, for World Bank, I made five trips to India on some of their large projects out there, and I worked with some contractors, I worked with other consultant firms, and other sidelines as I found interesting.

Storey: And what is it you're working on? Are you

advising on design or construction or, you know, what?

Dolyniuk: Okay. While I was the construction engineer for the Bureau of Reclamation, the district had at that time hired a consultant firm to monitor and follow the Bureau of Reclamation construction activities. At that particular time when I left, they had Bookman-Edmonston Engineering, which reviewed, supposedly they'd review the specs and sort of monitor the Bureau's activities to satisfy the district that the Bureau was doing what they're supposed to do from an engineering standpoint.

So anyway, when I left the Bureau, the new district manager at that time decided he didn't like Bookman-Edmonston and asked whether I'd play that role. So since then, I've been working with the Bureau, working with the Bureau to this day. So actually, I'm very familiar with what the Bureau has been doing since I left and are doing now. So it's almost as if I did not leave in that respect.

Storey: And are you enjoying it?

Dolyniuk: I'm enjoying it. I enjoy it. Of course, that's really not too time-demanding what I've been doing. Right now I'm real busy with the

district, but that's because the district is doing construction work of their own and they're also issuing some specifications, and I'm helping them in that area.

Storey: And are you planning, again, to quit working?

Dolyniuk: Not for a while. Not until it becomes a burden. I mean, this is a fill-in type of thing. I don't punch any clocks or do anything of that nature. And I also am working part time, or once in a while, with some consulting firms.

Storey: Did you ever meet any of the politicians like [Congressman John] Rhodes or [Senator Carl] Hayden or [Senator Paul] Fannin in the years that you were here in Phoenix?

Congressman John Rhodes

Dolyniuk: John Rhodes, I've met him several times. I got to know him pretty good. During the early period, right before we went into construction and right after we got into construction, every week we'd meet at noon on a given day with somebody from C-A-PA and the project manager, and I'd be there and probably some dignitary from some of the different entities, and anytime John Rhodes was in town, he'd probably be with us. So

we used to meet on a weekly basis, and I got to know him pretty well.

Storey: What is C-A-P-A?

Dolyniuk: Central Arizona Power[14]–well, wait a second. It's one of the governing bodies that used to promote C-A-P activities and they used to collect funds and sort of promote social events and what have you. Is it called C-A-P-A, Central Arizona Project–it'll come to me.

Storey: To whom did you report as the construction engineer for the C-A-P?

Dolyniuk: Administratively, I reported to the project manager. Technically, I report to Denver.

Storey: To the chief engineer?

Dolyniuk: Right.

Storey: Or the Assistant Commissioner for Engineering and Research, or whatever he was called at the time.

Dolyniuk: Whatever he was then. We always called–it was chief engineer during the early sixties, and later on it became assistant commissioner.

14. Referring to the Arizona Power Authority.

Storey: I presume that was until ‘79?

Dolyniuk: That’s right.

Storey: Did it change then?

Dolyniuk: Then I reported, as the authorized rep of the contracting officer, I reported to the region.

Storey: To the regional director or to a division chief or what?

Dolyniuk: Division chief at that time.

Storey: Who was that?

Dolyniuk: Billy Wolfenbarger [phonetic], to start with. I had no problem with Billy Wolfenbarger as an individual at all, but the fact that it was a complete change in thinking and in administration, that was different.

Storey: Did the fact that you reported both to the project engineer and to another location cause any tensions or problems or issues to come up?

There Was Some Tension over the Traditional Construction Model in Reclamation Which Would Have Had a Construction Office Independent of the Project Manager

Dolyniuk: It did for a while. There was a little bit of a concern for a period of probably a year or two in there. Traditionally, when you have a construction engineer in the project, he has his own office. This was basically the way the Bureau functioned. And there was no way that the project manager here was going to let the project be fractionated to a construction office and another office, so there was quite a squabble going on for a while as to who really had the responsibility of getting the work done. And Shunick was very touchy in this particular aspect. He was really concerned that some of his project would probably get fractionated, and it sort of did for a while, but then it came back together again.

Storey: You mentioned earlier that you didn't want floodwaters to reach the canals. I don't understand why. I mean, after all, our job is to capture water and move it.

Why Flood Waters Need to Be Kept out of Canals

Dolyniuk: You can't control floodwaters and put them in your canal. You have to bypass them. If you captured particular floodwaters, you're probably doing a couple things. You're going to fill your canal with sediments, and also, of course, you take in so much flood water that it could rupture your canal. So

that's, in essence, the last thing you wanted to do was to be capturing any of the waters.

Storey: One of the interesting things about the C-A-P, to me at least, is the control system that was developed. I've seen other control systems, like in the Central Valley Project, for instance. I've toured the one here. This one is heads and away more sophisticated than anything I've ever seen before. What kinds of issues were coming up while you were project construction engineer about the control system, and how was it being developed and worked on?

Control Systems on CAP

Dolyniuk: You know, while I was still on the project, actually we didn't get into the ultimate design of the control system. We did bury cables, control cables, along the system. We knew we needed that particular thing. But as far as all the R-T-Us, as far as--

Storey: R-T-U?

Dolyniuk: Actually, that's your recording units that you have out in the field or everything, and all the console models and how it operated was developed after I left. The capability or the refinement of control systems advanced so quickly in the last ten years, that what was

good fifteen years ago now would be almost redundant. So I certainly can't elucidate much on control systems, as such.

Storey: But you weren't building it in detail while you were building the rest of the project?

Dolyniuk: No, we weren't. We built buildings out there. We knew where we were going to put the recording stations, but we did not develop the system. In other words, we physically built some of the canals. We put in our check gates. We put in all those particular elements. We put in our float wells. We put up buildings, and we brought cables into them, we brought conduits up to them, but we didn't finalize what went into them.

Storey: I take it that was done consciously.

Dolyniuk: Oh, yes, yes.

Storey: Because of this technology change?

Dolyniuk: Probably, right. And also it was–well, it was to capture the latest technology. And they're still working on them.

Storey: What else should we be talking about?

Dolyniuk: I really don't know. You're sort of picking the wrong person when you want somebody

to keep on discussing these subjects. I mean, like we talked before, Larry ***Morton***[15] is the guy that you want to keep going. You probably are only half through with him.

Storey: Uh-huh.

Dolyniuk: I'm a doer. I'm not a talker.

Storey: But I take it you enjoyed your thirty-three years with Reclamation.

Dolyniuk: Oh, I did, certainly did.

Storey: And you liked construction?

Dolyniuk: I liked the engineering ***and*** construction, right.

Storey: It's been typical of Reclamation construction projects that the project construction engineer would move to a new project and he would bring personnel with him from his old job. Did you do that when you moved from the Parker-Davis office over to this office?

Some Staff Transferred from the Parker-Davis Office to the CAP Office

Dolyniuk: We did. About the time that we were going

15. Reclamation's oral history program includes interviews with Larry Morton.

into full construction here, the work at Parker-Davis was sort of diminishing anyway, so, yes, we brought those people over. We brought over some of the field crews and we brought over some of the contract administration types, that is true. I don't remember the exact numbers, but it was a significant basis for what we needed.

Storey: And was there any construction at all continuing at Parker-Davis?

Dolyniuk: Whatever it was, we finished it.

Storey: So you weren't doing both at the same time, for instance?

Dolyniuk: Sort of.

Storey: Oh, you were?

Dolyniuk: Right.

Storey: Okay. For how long, do you suppose?

Dolyniuk: Well actually, the transmission line work went on for quite a few years, and also any modification to the electrical systems, any modifications that might have been required at Davis Dam or Parker Dam. See, that's part of the Parker-Davis Project, or was. So we would perform those functions.

Storey: The only thing I think we haven't talked about that I'm interested in is the regional directors and your impressions of them, and the regional directors for Lower Colorado, beginning in 1970, Arleigh West retired in 1970. Did you know Mr. West?

Arleigh West

Dolyniuk: Very well. Very, very well.

"He didn't like me. That was one of the instances, now that you mention his name, that my loyalty was to the chief engineer, and he didn't like that at all. . . ."

He didn't like me. That was one of the instances, now that you mention his name, that my loyalty was to the chief engineer, and he didn't like that at all. He figured that–and maybe I was shortsighted. Maybe I didn't realize how much I needed to more or less try to understand his needs. So he was a little bit upset with me at the time. He wanted to expedite some of the work that was going on, and the chief engineer said, "No way," and I got into a bind.

Storey: What about Ed Lundberg?

Ed Lundberg

Dolyniuk: Lundberg was my favorite by far. He was less concerned about his political field, about his personal outcome, and he was sincerely interested in the construction area and wanted to see the project move on. And he's the one that directed me to go to C-A-P from Parker-Davis.

Storey: Manuel Lopez came after him. Manny Lopez.

Manuel (Manny) Lopez

Dolyniuk: Manny was a great person, and he sort of rode along with the waves, so to speak. He didn't make them; he went with them.

Storey: And then I think Gene Hinds came in. Did he come from Amarillo?

Gene Hinds

Dolyniuk: He went to Amarillo.

Storey: Oh, he went there. Okay.

Dolyniuk: He went to Amarillo. Gene Hinds was the head of one of the divisions at the region, and he was the one that got involved in the transition from Denver to the region as far as contracting authority went. He didn't instigate it, and he wasn't really instrumental

in what happened, but he ultimately followed along. I thought that he was more or less hoping that–I was hoping that he'd more or less want to retain it in Denver, but he didn't show a position one way or the other.

Storey: And Nelson Plummer must have been the regional director when you retired.

Nelson Plummer

Dolyniuk: When I left, that is correct.

Storey: What was he like?

". . . when Nelson Plummer got out of college, to start with, he applied for a field engineer job and I didn't select him, and he never let me forget it. . . ."

Dolyniuk: Well, it was kind of interesting, and I don't mind saying it. But when Nelson Plummer got out of college, to start with, he applied for a field engineer job and I didn't select him, and he never let me forget it.

Storey: But, was he vindictive about it or he was just teasing you about it?

Dolyniuk: He would remind me of it quite often, and consequently he was not one of my favorites. But I saw him the other day, and we greeted

each other. We get along okay.

Storey: Oh, is he living here in the area?

Dolyniuk: Yes. I mean, there's a person you can catch, if you haven't yet. He'll keep you busy for several sessions.

Storey: Okay. Now, Ed Lundberg was the person– let's see, he was in '70 to '75. The National Environmental Policy Act was passed in '69. He was the person who began to hire an environmental staff into the regional office, people like Wayne Deason and I've forgotten his boss' name right now. What effect did their activities, did the environmental activities have on Central Arizona Project and your work?

"We probably started about a year after we would have if it wasn't for finalizing the environmental statements, but that was sort of a condition of the times . . . we had to write some more specific environmental statements. So it was a little taxing until you get used to it. . . ."

Dolyniuk: Well, it actually detained the ultimate construction for a while. We probably started about a year after we would have if it wasn't for finalizing the environmental statements, but that was sort of a condition of the times rather than the particular people

that came into the region, because we had an overall environmental statement that was pretty well developed, and before we could eventually get into construction, we had to write some more specific environmental statements. So it was a little taxing until you get used to it.

"You know, anytime that you're forced into a change mode, there's some adjusting that has to be done. I don't care what it is, there's some adjusting to be done, and sometimes it's a little difficult and sometimes it's not. . . ."

You know, anytime that you're forced into a change mode, there's some adjusting that has to be done. I don't care what it is, there's some adjusting to be done, and sometimes it's a little difficult and sometimes it's not. I felt we tried to fine tune some of this too much for a while, until I realized what they had to do. I wasn't sure they had to do this, but I finally found out that we had to.

Storey: Okay. Anything else?

Dolyniuk: Really not. If we talked about specific people and jobs–that is, we went along–there's a lot of experiences and stuff that we could talk about, but they don't surface, they don't come to mind.

Storey: In that case, I'd like to ask you whether or not you're willing for the information on these tapes and the resulting transcripts to be used by researchers.

Dolyniuk: Fine. I have no problem.

Storey: Good. Thank you very much.

Dolyniuk: Okay.

END SIDE 1, TAPE 2. MAY 22, 1996.
END OF INTERVIEWS