BEFORE THE BOARD OF OIL, GAS AND MINING

DEPARTMENT OF NATURAL RESOURCES

IN AND FOR THE STATE OF UTAH

IN THE MATTER OF THE REQUEST FOR AGENCY ACTION AND APPEAL OF DIVISION DETERMINATION TO APPROVE SIGNIFICANT REVISION TO PERMIT TO ALLOW MINING OF TANK SEAM BY CO-OP MINING COMPANY BY PETITIONERS NORTH EMERY WATER USERS ASSOCIATION, HUNTINGTON-CLEVELAND IRRIGATION COMPANY, AND CASTLE VALLEY SPECIAL SERVICES DISTRICT, CARBON COUNTY, UTAH.	DOCKET NO. 94-027 CAUSE NO ACT/015/025

TUESDAY, OCTOBER 25, 1994, COMMENCING AT THE HOUR OF 9:00 A.M., A HEARING WAS HELD IN THE ABOVE MATTER BEFORE THE BOARD OF OIL, GAS, AND MINING, 355 WEST NORTH TEMPLE, 3 TRIAD CENTER, SUITE 520, SALT LAKE CITY, UTAH 84180-1203.

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BOARD MEMBERS: RAYMOND MURRAY
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JAY CHRISTENSEN
KENT STRINGHAM
JUDY LEVER
THOMAS FADDIES

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JAN BROWN, Secretary to the Board
JANEAN BURNS, Legal Secretary
BILL RICHARDS, Assistant Attorney General
JIM CARTER, Director, Division of Oil, Gas and Mining
JOE HELFRICH, Permit Supervisor
DARON HADDOCK, Permit Supervisor
RON DANIELS, Coordinator of Minerals Research

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SALT LAKE CITY, UTAH, OCTOBER 25, 1994, 9:00 AM

MR. LAURISKI: Good morning. We'll go on the record now. This is a matter before the Board of Oil, Gas and Mining in the matter of the request for Agency Action and Appeal of Division determination to approve significant revision to permit to allow mining of Tank Seam by Co-op Mining Company by petitioners North Emery Water Users Association, Huntington Cleveland Irrigation Company, and Castle Valley Special Services District, Carbon County, Utah.

This is Docket No. 94-027, Cause No. ACT/015/025. If counsel would enter their appearance for the record, please.

MR. SMITH: Craig Smith, appearing on behalf of petitioner, North Emery Water Users Association and Huntington Cleveland Irrigation Company.

MR. APPEL: Jeffrey Appel on behalf of Castle Valley Special Service District, petitioners.

MR. MITCHELL: Tom Mitchell on behalf of the Division of Oil, Gas and Mining, respondents.

MR. HANSEN: Mark Hansen for Co-op.

MR. KINGSTON: Carl Kingston on behalf of Co-op Mining Company.

MR. LAURISKI: Thank you. The first issue that we need to address this morning are procedural issues that

1 deal with the petition by Co-op on the matter of
2 collateral estoppel, and procedural issues that have
3 been filed this morning, as I understand, by the North
4 Emery Water Users Association, and the Huntington
5 Cleveland Irrigation Company, and Castle Valley Special
6 Service District on the timeliness issue relative to
7 collateral estoppel.
8 We would like to hear the arguments on those two
9 issues first before we proceed with the merits of the
10 request for agency action.
11 MR. HANSEN: We have a motion to exclude certain
12 evidence on the grounds of collateral estoppel. There
13 is a sound reason in the law for the doctrine of res
14 judicata and collateral estoppel that is to prevent the
15 relitigation of issues that have already been litigated
16 in the past. If these doctrines were not present,
17 parties could file a lawsuit, for example, lose, turn
18 right around and sue again, lose a dozen times in the
19 hopes that on the 13th time they could get a favorable
20 ruling. Collateral estoppel and res judicata prevents
21 that result.
22 There are sound reasons for having that doctrine. I
23 have read the memorandum that the petitioners filed this
24 morning in opposition to our motion. Their memorandum
25 addresses two issues; the timeliness, and whether the

1 issues are identical.

2 As to the timeliness, Rule 641-105-300 states that

3 oral motions may be presented at the hearing. The

4 written motion was filed when it was filed, there's no

5 question about the date. If there's any question about

6 timeliness, we would withdraw the written motion and

7 make it at the present time. That should take care of

8 any timeliness questions.

9 As to the issue -- the issue raised in our motion is

10 a very narrowly crafted issue. Co-op Mine's permit had

11 to be renewed in 1990. The decision of DOGM that

12 granted the renewal took place in May of 1991. In

13 connection with that renewal, the same petitioners

14 argued that Co-op Mine's then current activities, mining

15 activities in Bear Canyon, were adversely impacting

16 Birch Springs and Big Bear Springs. They argued it at

17 the informal conference, they argued it in the

18 subsequent written memoranda. And in granting the

19 renewal of the permit, DOGM ruled against them on those

20 specific issues. In making that ruling, the DOGM relied

21 only on facts in evidence, events that had occurred up

22 to March of 1991. And we are only asking in this

23 motion, based on collateral estoppel, that petitioners

24 be required to exclude evidence dealing with Co-op

25 Mine's mining activities from March, 1991, and backward

1 in time from that point. The collateral estoppel motion
2 and argument does not address any activities subsequent
3 to March of 1991, and we do not ask that any of those
4 subsequent events be excluded on the basis of collateral
5 estoppel.
6 That pretty much covers it, I believe.
7 MR. LAURISKI: Thank you. Mr. Smith?
8 MR. SMITH: Yes. Mr. Chairman, just in brief, we've
9 only received this motion to exclude collateral
10 evidence, actually came in the mail on Thursday of last
11 week. The rules of this Board clearly require that
12 written motions, and I think all motions that are of
13 this nature that are known about before the hearing, are
14 to be brought, under Rule 641-105-200, are to be brought
15 at least two weeks before the hearing.
16 It puts us at a real disadvantage to prepare for a
17 hearing at the last minute, attempting to respond to a
18 late filed motion. All the facts were well known to
19 Co-op months ago. They raised some of these same
20 issues, or alluded to these same issues in the response
21 filed in September. There's nothing here. It was just
22 an attempt by them to have a last minute tactical move
23 to file this motion where we wouldn't have an
24 opportunity really to respond to it. To now say they'll
25 withdraw their written one and do an oral one, I think

1 does not get at the fundamentals and fairness of them
2 filing a late filed motion. So, for that reason alone
3 this motion should be denied. It's because they have
4 clearly violated the rules, and their own extension that
5 was granted by the Board to file motions by October
6 10th. And that was the last day that was allowed for
7 filing of a motion of this type. That's the rules of
8 this Board.
9 But beyond that, the motion's just really not even
10 well founded at all. What they're attempting to do is
11 prevent us from presenting evidence of what things were
12 like before they started mining. Obviously we have got
13 to file that. We're not attempting to relitigate any
14 issue that's ever been litigated before. A lot of
15 water, so to speak, as gone under the bridge since the
16 last hearing, a lot of things have happened. We're
17 pointing to the impacts that we're seeing now and what
18 we will see through the mining of the Tank Seam. That's
19 what's before the Board at this time. There's no issue
20 before the Board about trying to reraise or relitigate
21 anything that was done in the past.
22 Also, I'd like to point out to the Board there's
23 been a significant change in Federal Law protecting
24 water sources since the last decision. We're gonna talk
25 to that in more detail obviously during this hearing,

1 but there's been a significant adoption of law in 1992
2 that changed the law and gave much greater protection
3 under Federal Law which this Board, under the agreements
4 and provisions with the United States government,
5 enforces to protect drinking water sources, and that's
6 exactly what we're here for today.
7 The last point, and we didn't have, obviously, a
8 chance to address everything that we'd like to address
9 in our quick preparation, in trying to prepare for this
10 hearing, but the last point is that collateral estoppel
11 only applies in courts if there is an identity of
12 issues. They have to be exactly identical. And we
13 pointed out a case that legal counsel to the Board can
14 certainly advise you on, but where even though it arose
15 out of the same fact situation because it was a
16 different issue, there's no collateral estoppel.
17 There's only collateral estoppel if you have an identity
18 of issues or an issue that could have been raised and
19 wasn't raised in the earlier proceeding. Obviously we
20 couldn't raise the issue that we're before you now,
21 because the facts hadn't occurred in this and this
22 permit wasn't -- revision of permit wasn't before this
23 Board.
24 So for those reasons, we think the motion of Co-op
25 is simply a tactical attempt to keep evidence this Board

needs to hear, away from this Board. Thank you.

MR. LAURISKI: Thank you. Mr. Appel?

MR. APPEL: I think Mr. Smith covered it quite well. I'll reiterate a couple of points. This sort of a notion keeps you from seeing important pieces of the puzzle. We have to be able to talk about the geology of the time, we have to be able to discuss with you how these springs have been developed over time. We have to be able to discuss Co-op's track record with respect to their first mine, which isn't all that great. And other than that we have some rather important issues concerning the public, health, safety and welfare. This is the water source for this area down here, or water sources in this particular case. There happens to be a coal mine being worked above it. If we can't give you all the pieces of the puzzle, it's difficult for you to render your decision. And I think that certain facts need to come in.

This attempt to exclude them is just to deprive you of certain pieces of the puzzle, and factual issues, and they're critically important. I think when you have a mine that's being worked on a daily basis, these facts change, theoretically, every day. So we can't have an identity of issues. It's different than it was in 1991. And on that basis, we urge you to hear all of the

1 evidence we have.

2 MR. HANSEN: May I respond briefly?

3 MR. LAURISKI: Yes.

4 MR. HANSEN: As to the identity of issues, we are

5 not, by our motion, seeking to exclude facts. If the

6 petitioner can tie those facts into the real issues at

7 hand, which is whether mining the Tank Seam is going to

8 have an adverse impact on Birch Springs and Big Bear

9 Spring, if there are facts of events that occurred prior

10 to 1991 that can be tied into that issue, then we do not

11 object on the basis of the collateral estoppel to

12 representing that issue. But in the petitioner's appeal

13 and request for agency action, paragraph four, they made

14 some specific allegations that appear to raise the

15 question of whether they want to make an issue of our

16 present mining activities.

17 And it's that specific issue that was already

18 resolved against petitioners in the last permit renewal

19 go around. And it's that specific issue that is subject

20 to collateral estoppel, not the facts that would support

21 the findings on that issue. Because as I said, we do

22 not object to them presenting facts on the basis of

23 collateral estoppel if they can tie that fact into the

24 one issue that's really at hand.

25 MR. LAURISKI: So I'm clear on this issue, we're

1 talking about you're not having any objection to those,
2 their raising the issues that are relevant to the Tank
3 Seam with respect to hydrology?
4 MR. HANSEN: To offer evidence on that issue, on the
5 basis of collateral estoppel, we're not making any
6 objection on the collateral estoppel grounds to that
7 kind of evidence. But we are objecting and moving that
8 they not be allowed to go into the other issues of
9 whether there are mining activities, or whether the
10 current mining activities not in the Tank Seam are
11 adversely impacting. That issue is not before the
12 Board.
13 MR. LAURISKI: That's the Blind Canyon seam?
14 MR. HANSEN: That's correct.
15 MS. LEVER: I thought your argument in your
16 memorandum is that the collateral estoppel only applied
17 to any evidence of 1991 and before, relating to the
18 other seam.
19 MR. HANSEN: March, 1991. April, May and so on,
20 would not be governed by the collateral estoppel.
21 MS. LEVER: Pre March of '91, on the original seam?
22 MR. HANSEN: That's correct.
23 MR. LAURISKI: Mr. Mitchell?
24 MR. MITCHELL: The Division is not a party to this
25 motion opposing the order, supporting it on the grounds

1 of collateral estoppel per se. But analytically the
2 same issue is in front of this Board on the issue of
3 relevance. This is before the Board on the request for
4 significant revision to an existing permit, with regard
5 to the existing permit which has been approved, and
6 under which Co-op is presently mining. Parties can't be
7 here today to complain about it. If they have a
8 complaint with regard to mining as it's going on today,
9 they have a remedy, but that remedy is not an objection
10 to a permit, to a significant revision to the permit.
11 Consequently, the narrow issue in front of the Board
12 today is whether or not the information is relevant to
13 new activity in the Tank Seam. I would submit that if
14 the evidence reflects upon existing mining within the
15 existing permit, within the existing coal seam, that
16 that evidence is not relevant unless it can be shown
17 that mining in the Tank Seam would change it. Not just
18 that we have opinions about the Tank Seam based on what
19 occurred in existing mining, the lower seam, but that
20 mining in the Tank Seam will make a difference in the
21 effect on their interest.
22 Otherwise, their objection really goes to the
23 existing permit. And that's not what this thing has
24 been noticed up about.
25 There has to be that connection for it to be

1 relevant to this particular objection to this particular
2 permit revision. Otherwise we're reopening the issue of
3 whether or not the permit should have been renewed for
4 existing mining within the existing seam. And we can
5 argue that in terms of collateral estoppel. I think a
6 similar analysis in this case is irrelevant to the
7 narrow issue which this Board has noticed up, and has
8 been exercising jurisdiction.
9 MR. HANSEN: I do have an additional motion based on
10 relevance on the same general grounds that Mr. Mitchell
11 was just speaking about. We can either wait until you
12 rule on the collateral estoppel motion, or I can argue
13 that motion now, whatever you prefer.
14 MR. LAURISKI: Why don't you present that argument
15 now. We'll probably recess following that argument, and
16 discuss the issue of collateral estoppel and timeliness
17 issue. Whether we'll reach a decision today or not, I
18 don't know. That will be something the Board has to
19 decide. But in any event, whether or not we reach that
20 decision we will move forward with the merits of the
21 case on the original petition. And so, Mr. Hansen, if
22 you'd like to move forward.
23 Before you do that, do petitioners have any response
24 to either Mr. Mitchell's arguments, or --
25 MR. SMITH: The response we have -- our response is

1 I don't think -- I think there's an attempt being made
2 to try to isolate the Tank Seam in isolation from the
3 mining operation, which I think makes little practical
4 sense. The Tank Seam is going to be mined, as we
5 understand it, through the existing mine in Big Bear
6 Canyon. It's going to have the existing dewatering
7 that's going on, it's going to continue as they mine
8 that. As the facts put forth by Co-op will show, that
9 the mine which in '91 was not producing any water, is
10 now producing 300 gallons per minute in excess of what
11 they're using in the mine. They're using 200 gallons a
12 minute in the mine. I think these are intertwined. And
13 I just don't believe, unless we're to hear today they're
14 going to open a new mine and mine a separate mine, the
15 Tank Seam separately from what's being done, that you
16 can so narrowly focus on the Tank Seam. The issue
17 before us is whether the mining of the Tank Seam is
18 going to have an adverse impact. But we have to
19 remember it's part of a larger existing mine. And the
20 dewatering and things that are going to be done or are
21 going to be continuing to be done are going to be done
22 through the mining of the Tank Seam and the existing
23 working. So I have a little bit of concern when we try
24 to just focus on what the Tank Seam's going to do.
25 Obviously the Tank Seam is going to be where they

are mining, where things are going to be happening, but it's part of a larger working. And I think to try to artificially separate those two makes no sense, because they are all part of the larger hole and the revision is going to allow this mining to continue if it's approved. And that's what we're objecting to, because obviously we believe that this will have impact on our water sources. That's why we're here today.

MR. MITCHELL: If I can briefly respond. I think what you hear counsel saying is, really our case isn't about the Tank Seam. Our case is unhappiness with the way mining is presently being done within the existing permit. That what's going to happen with the Tank Seam is not a new mine, they're going to do pretty much everything the same as they have always done it is what you hear them saying, and we don't like the way they are presently doing it. They may be right, for sake of argument, that they are unhappy, and they may even have a basis for being unhappy. We haven't heard that. The question is, can you, as you've noticed this today, as this thing has been brought to you as an objection to a significant revision to a change, hear about the part that isn't the change. And that's simply, I think, a question of whether it's relevant to the issue over which this Board has jurisdiction for this hearing.

1 MR. LAURISKI: Thank you.

2 MR. APPEL: May I?

3 MR. LAURISKI: Yes.

4 MR. APPEL: The reason that this is a significant
5 revision is because they visited this issue before with
6 respect to the attempt by Co-op to enter into the
7 different area of adjacent federal lease. That's the
8 proceedings that's being referred to by Mr. Hansen. And
9 if you look back at the order, my memory isn't all that
10 good right now, but if you look back, I think they
11 address many of these issues.

12 There were some open questions concerning how this
13 water moves through there, and the effect of mining on
14 it, and the right or ability of Co-op to go into that
15 particular area, as I remember, was denied. And so some
16 wells were drilled and they decided to explore and
17 understand what was really happening in this area.
18 These mines are not in separate canyons, they are within
19 the same groups of stratigraphic sequences, adjacent to
20 one another. They are adjacent federal leases. And
21 really what's happening, I guess, Co-op would like you
22 to believe they are separate operations, but they're
23 connected to one another. They are connected by man
24 made efforts by Co-op, as I understand the situation.

25 So to look at any part of that in isolation and not

1 explore the cumulative impacts that may be occurring by
2 this continuing mining, I think is not -- again, as I
3 mentioned, the puzzle, we're missing some significant
4 pieces of the puzzle.
5 That's all I have to say about that.
6 MR. LAURISKI: Thank you. All right Mr. Hansen, if
7 you want to proceed with your motion.
8 MR. HANSEN: We do move to exclude all evidence
9 dealing with Co-op Mine's present and prior mining
10 activities on the grounds of relevance. This hearing is
11 only on DOGM's decision to approve a significant
12 revision to Co-op's mining permit to allow Co-op to
13 begin mining the Tank Seam. That's the procedure
14 background to this point. That's the only issue before
15 the Board. The only issue raised by the petitioners is
16 whether allowing Co-op mine to go mine the Tank Seam
17 would have a material adverse impact on the quality and
18 quantity of water coming from the Birch Springs and Big
19 Bear Spring which could not be cured by Co-op treating
20 or replacing the water. That's really the only issue
21 that's before the Board. Whether or not the current
22 mining activities are having a material adverse impact
23 is not relevant to that particular issue.
24 It has been pointed out, and correctly so, that the
25 Tank Seam is in the same general area. In fact, it's in

1 the same strata 200 feet above the current mining
2 activity. Co-op mining is not going to be mining the
3 Tank Seam through its current mining area. They have
4 constructed a separate access road up to the Tank Seam.
5 The Tank Seam is going to have its own separate access
6 and be mined on a separate basis that way. As pointed
7 out, the only issue is the adverse impact that would be
8 caused by mining the Tank Seam, and that Tank Seam is
9 200 feet above the strata in which the current mining
10 activity is being conducted.
11 Now, in order to prepare for this hearing, Co-op
12 asked the Board for permission to conduct some limited
13 discovery, and the Board ordered we be permitted to do
14 so. That discovery took the form of a single
15 interrogatory asking about the petitioner's expert
16 witnesses who they intend to call, the qualifications,
17 the facts they would testify to. In response to that
18 interrogatory, the petitioners identified Bryce
19 Montgomery as their sole expert witness. And in
20 response to our question to state the substance to the
21 facts and opinions to which the person would be expected
22 to testify, petitioners stated the substance of the
23 facts and opinions to which Mr. Montgomery is expected
24 to testify, are "That the activities of Co-op Mining in
25 operating its mining in Big Bear Canyon, including its

1 mine dewatering and mine water utilization causing an
2 impact on Big Bear Spring", I think that is "is
3 causing", I think that's a typo, "is causing an impact
4 on Big Bear Spring which is utilized for drinking water
5 purposes. That impact by Co-op has caused both the
6 decreased flows to the springs and deterioration of
7 water quality. These impacts are measurable from the
8 decreased flows from both springs due to the hydrologic
9 connection between the aquifer being -- the aquifers in
10 which Birch Spring and Big Bear Spring hydrologic
11 connection between the aquifer being too wide to
12 influence mining operation, and the aquifers from which
13 Birch Springs and Big Bear Spring issue."
14 That entire statement deals with Co-op Mining's
15 present mining activity. There is not a single
16 statement in there that says anything about the Tank
17 Seam, that says anything about the potential impact on
18 Birch Springs and Big Bear Spring and mining of the Tank
19 Seam, but all deals with the current mining activity.
20 Well, Co-op mine obviously disputes all of the
21 allegations there, but those allegations were identical
22 allegations raised in Co-op Mine's last permit renewal.
23 Co-op Mine's permit is up for renewal again next year
24 and I expect to see those same allegations raised at
25 that time. That would be the proper time for the

1 petitioners to raise those issues. Here and now is not
2 the time.
3 Unless petitioners can demonstrate that those
4 activities are relevant to the issue of whether mining
5 the Tank Seam is going to adversely impact those
6 springs, none of that evidence is relevant and should
7 not be admitted.
8 MR. LAURISKI: Mr. Smith?
9 MR. SMITH: I guess we're hearing the same motion
10 twice because this is -- I hear nothing new in the
11 second motion. I'd like to point out, like I said, one
12 of the things I alluded to in my earlier argument is a
13 significant change in the Federal Law that this Board is
14 enforcing. And that law is codified in 30 USC, section
15 1309 A, where it says, under coal mining operations
16 conducted after the date of enactment of this action,
17 which was October 24th, 1992, shall comply with each of
18 the following requirements. Number two: Promptly
19 replace any drinking, domestic or residential water
20 supply from a well or spring in existence prior to the
21 application for a surface coal mining or reclamation
22 permit which has been affected by contamination,
23 diminution, or interruption resulting from under ground
24 coal mining operations.
25 We're here today because we believe that if this

1 significant revision to the permit is allowed, we're
2 going to experience these impacts. We believe the
3 evidence is already there, that some of these impacts
4 are being experienced now. But the mine dewatering, if
5 they continue to mine in the Tank Seam, will continue in
6 the same method as its happening now. This law will be
7 continued to be violated without action by this Board.
8 This hasn't been before the Board before. They're
9 asking for a significant revision so they can continue
10 mining in the same area, continue dewatering their mine
11 in the same way they are dewatering their mine now.
12 Yet, they're asking this Board not to even consider this
13 evidence, not even to hear this appeal, because they
14 claim it's all been resolved before. Well, it hasn't
15 all been resolved before. And just because we're having
16 impacts now, the impacts aren't going to go away, they
17 are going to be worse as we get into the Tank Seam, and
18 continue because they continue every minute while we sit
19 here. 300 gallons of water exit that aquifer, and it's
20 going to happen every minute they are mining the Tank
21 Seam. The longer this goes on, the more damage we're
22 going to suffer in our aquifer, the more water we have
23 lost. And I guess they can sit here and say don't
24 listen to any evidence. We need to drink that water. I
25 think that's all I have to say to that.

1 MR. MITCHELL: Can I have a couple of points about
2 public law?
3 MR. LAURISKI: Let me ask Mr. Appel first.
4 MR. APPEL: I'll be brief again. I think that the
5 argument of relevance is even weaker than the collateral
6 estoppel issue. You have one mine that they wished to
7 begin mining up here, you have something in between,
8 then you have the spring. Something in between is the
9 existing mine. If we can't explain to you and provide
10 evidence to you as to how that water moves through that
11 mine, and the effect that's having on our springs, then
12 you're missing the major intermediate piece of the
13 puzzle. It's relevant unless you want to take the
14 middle of the pipe out of the equation.
15 MR. LAURISKI: Mr. Mitchell?
16 MR. MITCHELL: A couple points. Number one, section
17 720 of the Federal Act as amended, I do not believe, has
18 been made part of the Utah program. I don't believe
19 that's adopted by the legislature at this time. As the
20 Board is probably aware, there's an issue as to whether
21 or not the State of Utah wants the water engineer
22 determining that issue, or this Board determining that
23 issue under issue of the existing State Water Act. So,
24 I question one, the applicability of this law to this
25 Board. Secondly, what you hear time over and over

again, and I think it's going to be an important issue unless you listen to the evidence, is we don't have any evidence about the Tank Seam. We're not here to talk about the Tank Seam. We're here to talk about what's going on today. We don't care what they do with the Tank Seam. All we care about is what they're doing now. We care about what's going on, and has been going on within the existing permit area. To us, all that's relevant is that -- in fact, what's interesting is what's been proposed in the significant permit revision is to stop mining in the area that these people are considering to be the problem, and to mine somewhere else above it. It seems to me that's the only relevant issue, is if you stop mining in one level and start mining in another level, what is the effect of mining in the new level, not what was the effect of mining in the old mine. Particularly where they have an absolute right at this time to mine within their existing permit on the old level.

And it's not that these people are without a remedy. If they believe that there's diversion of an existing water right, there's the state engineer. If they believe, under existing coal law, that there's material damage being caused by ongoing mining within an existing permit, they have a remedy. There's just no

1 shortage of remedies for these people. The problem is,
2 they put the respondents on notice, they put the Board
3 on notice, the Board put the public on notice that this
4 issue was about mining somewhere else in a different
5 seam. The question is, are we going to have a trial
6 today on the issue that was noticed up, or on something
7 else that they feel strongly about, but which was not
8 before the Board?
9 MR. LAURISKI: Okay. Thank you. We're going to --
10 MR. SMITH: If I can respond? I think our argument
11 has been grossly mischaracterized by Mr. Mitchell, and I
12 really object to that. I guess for about the third time
13 in my legal tenure I have to accuse someone of being
14 disingenuous with their argument. We're not here on
15 another issue, we don't have other remedies. We're here
16 on, I think, the proper issue. I think the Office of
17 Surface Mining, when we're in touch with them, they
18 believe that this Board and this Division was enforcing
19 the law that I read. They sent me a letter to that
20 effect, and Mr. Carter, the director of the Division,
21 got a copy of that letter. And this Board, it's the
22 responsibility of this Board to enforce that Federal
23 Law. This is the first time I've heard that this
24 Federal Law should be ignored. It's the law. And like
25 I say, the Office of Surface Mining, when we contacted

them, we got a letter in writing saying this Board was -- this Division was enforcing that Federal Law and it's your responsibility and the Division's responsibility to enforce this Federal Law.

MR. LAURISKI: Okay. Thank you.

MR. HANSEN: May I respond?

MR. LAURISKI: Briefly.

MR. HANSEN: First off, as to 30 USC 1309 A, we're told that that's a new requirement to replace water affected by contamination. That's nothing new, it's written into the current regulations. R 645-301-731 requires Co-op's plan to include measures to be taken to protect or replace water rights and -- I'm sorry, I apologize. Also require Co-op mine to replace any water that's contaminated or lost. That's written into the plan, it's already there. And if our, Co-op Mining's current activities are doing those things, then the petitioners should take appropriate action. But now is not the place to take that action.

As far as their claim that moving water through the existing mine is going to be impacted, unless the petitioners can demonstrate, which they cannot, that the water that is currently being encountered in Co-op's current mining activities comes from above the Tank Seam, mining the Tank Seam is not going to have any

impact on that. We dispute there are 300 gallons a minute being lost. But whatever the quantity is, unless that water is originated from above the Tank Seam, approving the mining in the Tank Seam is not going to have any impact on that. Whatever water is being encountered currently is not going to have any impact on that. Whatever water is being encountered currently is going to continue to be encountered. It's not going to be affected whatsoever by mining the Tank Seam. Unless they can demonstrate that that water originates above the Tank Seam, that is where it's going to be coming from, and that water is coming from above the Tank Seam, is going to be affected by our activities, what is going on right now is totally irrelevant, they should not be allowed to put it in evidence.

MR. LAURISKI: Anything from the Board?

MS. LEVER: I have one factual question. Perhaps from reading the memorandums I have made an incorrect assumption. I have been reading them and have understood, or at least it's been my assumption, that at some point in time when you move into the new Tank Seam, that you would indicate that you are finished with the level that you are on, is that correct? Are you going to be mining two levels?

MR. HANSEN: My understanding is both seams are

1 going to be mined during the same time period. Not
2 necessarily that both seams are going to be mined on the
3 same day, but there may be, for example, a six month
4 period where one mine, one seam will be mined and move
5 up to another seam for a period. That the mining
6 activities will be taking --
7 MS. LEVER: So you are not finished on your lower
8 level?
9 MR. HANSEN: No, not by any means.
10 MR. MITCHELL: If I left that impression, I
11 apologize.
12 MR. LAURISKI: Okay. Anything else? The Board will
13 be in recess for 15 minutes, and we'll reconvene about
14 9:50.
15 (Whereupon a recess was taken.)
16 MR. LAURISKI: We'll go back on the record. We want
17 to first of all deal with the issue of collateral
18 estoppel, and even before that we want to deal with the
19 petitioner's motion on timeliness relative to collateral
20 estoppel.
21 The Board has considered this, has looked at the
22 filings in this particular case, and in our judgment the
23 timeliness motion is relevant to this issue, and I would
24 refer the respondents and the petitioners to a request
25 filed by the respondents on the 12th of September, which

1 asked and moved the Board for an order enlarging Co-op's
2 time to file exhibits with the secretary of the Board,
3 and to file dispositive and other motions until October
4 7th, 1994. The Board granted that motion, also on the
5 7th of October, giving Co-op until that time to get all
6 motions presented.
7 Given that motion and the Board's order, we find the
8 timeliness motion to be -- is granted basically. There
9 by that resolves the issue of collateral estoppel.
10 However, I want to point out that in the Board's
11 deliberations, that the issue before us today relates to
12 the significant revision of the mining permit issued to
13 Co-op in July of this year, and the Board in its
14 deliberations determined that we would only consider
15 evidence as it relates to the impact of mining of the
16 Tank Seam. However, if petitioners need to lay
17 foundation by raising issues that relate to current
18 mining activities and as it impacts, they can show that
19 relationship as it impacts, as it might impact the Tank
20 Seam mining, then we will consider those issues as
21 relevant to this case. Okay?
22 Just for the record, I want to read in how this was
23 noticed, so that everybody understands the frame work
24 with which we'll conduct this hearing. The purpose of
25 this proceeding will be for the Board to consider the

1 objection of the petitioner to the Division for
2 determination of approving Co-op Mining Company's
3 significant revision to extend its mining operations in
4 to the Tank Seam. That also is what appears in the
5 petitioner's motion for this hearing. And so that's how
6 we're going to conduct the hearing, by narrowing that
7 focus as it relates to the Tank Seam and impact of
8 mining on that Tank Seam. Okay.
9 With that, we'll move into the merits of this case
10 and I would ask counsel if they have any opening
11 arguments they wish to present.
12 MR. SMITH: We do, Mr. Chairman. Before I start on
13 my opening arguments I'd like to say something for the
14 record, and I've apologized to Mr. Mitchell privately
15 but I'd like to do it for the record. In the heat of
16 argument I may have made several comments that I
17 immediately felt sorry for, and would like to retract if
18 they may have been construed to have said anything
19 negative towards Mr. Mitchell. I don't know him
20 personally, but I know of him through my association
21 with Division director James Carter, and know that he is
22 an excellent attorney and does an excellent job for this
23 Board and this Division. And I apologize personally and
24 I want to do it publicly and put that before the Board
25 on the record.

MR. LAURISKI: Thank you.

MR. MITCHELL: Thank you. No offense taken.

MR. SMITH: If I might begin with just a very brief argument because I think our time is going to be better spent today hearing the evidence and then my comments. But just to kind of set the tone for what we're here for today, we have one interest. And that interest is one interest alone, to protect the drinking water of northern Emery County.

The petitioners here today represent all of the people from Huntington town and the towns of Cleveland and Elmo and unincorporated areas around there, the entities that provide that culinary and that drinking water to these people. The water sources that we're concerned about in the area of the Co-op mine are critical sources, both from a quantity standpoint and also obviously water quality is extremely critical.

We believe that the evidence and even the probable hydrologic consequences that have been filed in support of this significant revision, and we're going to focus our arguments to that obviously, and also obviously we'll also have to bring up other background information so it puts, as Mr. Appel says, puts the puzzle together and puts things in context.

But we believe that even the probable hydrologic

1 consequences filed by the consultant for Co-op, and the
2 evidence that we're going to show, will show that the
3 area that the Birch and Big Bear Spring -- we'll hear a
4 lot about those springs today because those are the two
5 major springs that are currently used for culinary water
6 that are adjacent to the mining activities. That these
7 springs are interconnected with the mining activities,
8 and that the affect of mining, including mining of the
9 Tank Seam is having, will have a negative impact both on
10 water quantity and water quality. Where we disagree and
11 what our points will be as to the conclusions that have
12 been drawn both by the permit, persons seeking the
13 revision of the permit, and by the Division in accepting
14 that, and we believe that the conclusions are where the
15 mistakes are, not in the facts. And we think the facts
16 are there and we'll point out those facts. If the
17 conclusions are wrong, that have somehow concluded that
18 these two springs are not adversely impacted by mining.
19 We're going to show some things that have happened
20 in the past and things we expect to happen in the
21 future. As I said, I don't want to have a lengthy
22 argument. I don't think that's necessary. But I think
23 it's important for this Board to realize just the
24 critical nature of the -- we're talking about the
25 drinking water and one of the few sources of drinking

1 water that's available to these communities and these
2 individuals.
3 Now, there's been some allegations made that we're
4 here because we have some ulterior or improper purpose.
5 I think it will be interesting for this Board to hear
6 that many of our very own witnesses are people who sit
7 on the boards of these companies that are here today,
8 the citizen boards, much like you do with the Oil, Gas
9 and Mining, they do with their -- in their own little
10 way with the water companies that are involved in and
11 employed by the mining industry. And we're not here
12 because of anything other than a strong desire to
13 protect the most important resource. We understand coal
14 is an important resource, and that puts the bread on our
15 tables, but without water, none of us or none of these
16 folks could live in this area. And having a good
17 quantity and good quality, safe drinking water is why
18 we're here today and what we're seeking to have
19 protected.
20 Thank you.
21 MR. LAURISKI: Mr. Appel?
22 MR. APPEL: Thank you. I think it's important to
23 create the context to view this particular issue, and I
24 think the Board did fairly resolve the procedural
25 issue. But I hope you'll be fairly liberal in receiving

1 the evidence because it's tough to tell where one issue
2 starts and another one begins when you have seams of
3 coal that are related to one another by an artificial
4 working, which is the way Co-op is taking that coal
5 out.
6 They are taking it out through the lower seam portal
7 so there will be communication that way. These water
8 companies were there first. Water sources are
9 absolutely critical -- and we'll show that to you
10 through the evidence -- to the people of that area.
11 Without them, they won't have any water to drink. There
12 is no place else to go. So we need to view the workings
13 of this mine and the removal of that coal in that sort
14 of context as well.
15 I think it's important also, although I'm sure the
16 Board doesn't need to be reminded of this, it's not our
17 burden of proof to convince you, it's their burden of
18 proof to convince you they won't create material
19 damage. We don't have to show they will damage us, they
20 have to show you that they will not. And I think that
21 relates to what Mr. Smith has said. I don't think that
22 the reports are thorough enough or in-depth enough or
23 answer all the necessary questions to justify you in
24 granting the right to move into this particular seam,
25 and undertake these new workings.

I say that also because the last time we were here on the other adjacent federal lease area, that request was denied. I think it's worth while to go back there, there are some interrelated facts. If you revisit that order I think it will assist you in your deliberations.

In summary: We think you need more information, better information because of the health, safety and welfare issues attached to this. It's critical you do make sure you have enough information to make this decision. We're not talking about hurting a spotted frog down here or something like that; we're talking about people, and that's what this issue is all about, water for people. We're not gonna dry up some exotic strain of Cottonwood. It's along that creek. It's the people we're trying to protect, and it's not going to take too long for someone to get sick if something goes wrong in this particular mine. So it's a mine that likely requires additional safeguards because of this. There's no early warning system attached to it. It literally takes someone getting sick before they know that there's a problem there.

And in that context, we'll begin.

MR. LAURISKI: Thank you. Mr. Hansen?

MR. HANSEN: We'll hold off on oral argument until we present our case.

MR. LAURISKI: Mr. Mitchell?

MR. MITCHELL: I'll wait.

MR. LAURISKI: Okay. Mr. Smith.

MR. SMITH: We would like to call Mr. Jack Stoyanoff to testify. If he would come forward.

JACK STOYANOFF

was duly sworn, was examined and testified as follows:

BY MR. SMITH:

Q. Could you state your -- Mr. Stoyanoff, could you state your name and address and spell your name because I don't think anybody will be able to if you don't?

A. Jack J. Stoyanoff, S-t-o-y-a-n-o-f-f, and I live at in Huntington Utah P.O. Box 626.

Q. Jack, could you tell us what your current employment is?

A. I'm the manager for North Emery Water Users.

Q. And how long have you held that position?

A. Nine and-a-half years.

Q. Okay. Could you take a few minutes and describe for the Board just what North Emery Water Users association is?

A. We're a privately owned water company. All the

stockholders in the company own a share in the water company. We distribute drinking water to approximately 300 families, and then we also have 60 stock water connections for farm use, and there's 12 commercial connections like the airport and Huntington state park, and construction companies, and like that.

Q. And what's your primary purpose as a company?

A. To serve culinary water to the families.

Q. So, would it be correct to characterize the kind of boundaries of North Emery Water Users association as being the unincorporated areas in and around Huntington, Cleveland and Elmo, Utah?

A. Yes, un-huh.

Q. Okay. And when you say it's a private company, is it profit company or nonprofit?

A. Nonprofit.

Q. And your stockholders are who?

A. The people who own connections in the company.

Q. Okay. And about how big is your system? I think you mentioned how many connections. How many miles of pipe do you have?

A. Just over 100 miles. When they put the system in there was 92 miles of pipe. It was the largest water system in Utah at that time, as far as mileage goes. That was in '72, I believe.

Q. Okay. And what's your annual budget to operate this system?

A. About $110,000 a year.

Q. How is that budget raised?

A. From money that people pay for the water.

Q. Okay. Could you take a minute and describe what your duties are as the manager of North Emery Water Users?

A. Yeah. I take care of the system. I do everything from fixing broken water lines to maintaining the springs, and we have two water tanks and pressure stations. And then I also do all the water sampling and monitoring of the springs and those kind of things that are required by the state.

Q. Okay. Are you also responsible for the records of the company?

A. Yes, un-huh.

Q. Could you -- maybe we can just hold this map up. This is a USGS map, part of what we believe we marked as Exhibit 1. I'm going to try to hold it up and maybe you could stand up and use this pointer. I'll try to, I know this is small but I'll try to hold it so it's close enough. I tried it over on the wall, but it's so small I don't think anyone can see.

Could you point out kind of where your water sources

are. Show where Huntington Canyon is, and orienting the Board and the people here as to kind of where things are, and show where your water sources of North Emery Water Users Association are.

A. All right. This is Huntington Canyon here and our upper springs are in Rilda canyon. We have three springs areas up here in Rilda Canyon. And this is the Birch Springs right here, and we also have three other springs across the river from Birch Springs.

MR. LAURISKI: When you say right here, would you describe on the map for the record where right here is?

THE WITNESS: Well, the approximate --

BY MR. SMITH:

Q. Maybe you could say adjacent to Huntington, the highway in Huntington Canyon between Bear Canyon and Trail Canyon. Would that be an accurate way, or maybe you have a more accurate way of describing it.

MR. LAURISKI: Mr. Smith, is this is the same as Exhibit 1?

MR. SMITH: It is. It is Exhibit 1, the same maps, this is -- actually what it is is a compilation of two USGS maps, because as it always seems to be the case whenever you have something it's always right on the edge of the map and half is on one map and half of it's on the other map.

MR. LAURISKI: Would it be possible to identify these locations by either some numerical order alphabetical order, A, B, C?

MR. SMITH: Birch Springs shown on the map and written as part of the USGS map, and that is placed on the map by the USGS.

MR. LAURISKI: Okay, we're with you. I'm sorry.

MR. CHRISTENSEN: You've mentioned several spring locations. Some on this level and some are over there. Who owns, who has rights to this water? Is it all under one or someone else's?

THE WITNESS: We have rights through the canal company. The canal company owns all the water rights in Huntington Canyon, and then we have shares in the canal company.

MR. CHRISTENSEN: You buy water from the canal company, is that what you are saying?

THE WITNESS: Basically, yeah.

MR. SMITH: You mean Huntington/Cleveland Irrigation Company?

THE WITNESS: Yes.

MR. LAURISKI: I'm sorry, go ahead Mr. Smith.

BY MR. SMITH:

Q. Anything else you'd like to point out on this map? You were about to point out where Birch Spring

is. Anything else you'd like to point out on this map Mr. Stoyanoff?

A. This is the Little Bear Spring up here, Castle Valley Special Service District.

Q. When you say up here, you are pointing to a dot on the map that's up Bear Creek Canyon?

A. Yeah, Bear Creek Canyon.

Q. That's not North Emery, that's Castle Valley Special Services?

A. Yes.

Q. Okay. And are all your springs, are they interconnected through a pipe and working system?

A. Yes.

Q. That includes Birch Spring?

A. Yes.

Q. And -- why don't you have a seat. I think we're probably done with the map for right now.

Could you describe the importance of Birch Spring as part of your water system?

A. Yes. Every one of our springs are important to our water system, especially in the spring of the year and the fall of the year when the demand of the water is high. People start watering the lawns, and doing outside activities, and our springs haven't really started to rise. In the fall our springs will start to

drop and people are still using water, and so we don't have a storage tank up the canyon. We have two storage tanks down below, but anybody above those two storage tanks, in the spring of the year and fall of the year, there are times when they run out of water because we don't have a storage tank up there.

The way our system works, is we have to spill so much water in order to keep these people in water. As soon as that water starts to drop down the pipeline we start to run out of the water, the people up the canyon, and it's become more critical over the last probably four years. I've had to go out and try to regulate the tanks and keep the water flowing into them to a minimum in order to keep these people in water up the canyon.

So, without this spring -- this spring alone or this fall I probably was called a half a dozen times with people running out of water, even though I was keeping a close eye on it. And when we got the rains and stuff, the problem kind of went away. But about the last four years this has really been a problem because -- so without that spring, it would be a lot worse. Right now we're probably spilling between 20 and 30 gallons a minute up there. And Birch Spring is putting out 23 gallons a minute, so without that spring we would be out of water most the time.

Q. Okay. What if there were a loss in the water quality of Birch Spring, would that cause problems for North Emery Water Users?

A. Yes, definitely.

Q. Do you have any way to detect, say there was a serious pollution problem with Birch Spring, how would you learn about that?

A. Well, maybe I could use the example of the big flush we had in '89. We started getting calls from the people up the canyon the water was dirty. And so I went out and started looking for problems. We found an air vac up the canyon that was covered up with a road grader so we dug that out and cleaned it out and figured that was the problem. But the problem was still there, so I kept looking. And what had happened, there was, out at the Birch Spring, the flow increased from like 70 gallons a minute to 150 gallons a minute and there was also an additional 120 gallons a minute coming out of the rock face up there. And we had to turn that spring out. When I opened the collection box, it was full of sand, and the water was just as dirty as could be. And we had to turn that spring out for several months until it cleared up, and the flow went back down.

Q. So other -- so if there is a water quality problem it would be first detected by the consumers

1 themselves?

2 A. Yes.

3 Q. You don't have a warning system that would

4 automatically shut off a system if there was a dangerous

5 chemical or mineral or something that had gotten in to

6 the water?

7 A. No, we don't.

8 Q. Okay. I'll show you Exhibit 2, and this is

9 also among your exhibits that have been given to the

10 Board. And I'll ask if you can identify for me what

11 Exhibit 2 is?

12 A. This is a permit that we got from the BLM,

13 Bureau of Land Management, to go in there and redevelop

14 that Birch Spring in the early '80's.

15 Q. I don't believe I have any further questions

16 for this witness.

17 I would move, I guess if I need to move at this

18 time, for the admission of Exhibits 1 and 2, 1 being the

19 map and 2 being the permit from the Bureau of Land

20 Management.

21 MR. LAURISKI: Mr. Hansen?

22 MR. HANSEN: I object to Exhibit 2 on the grounds of

23 relevance.

24 MR. LAURISKI: I would tend to ask for foundation

25 for Exhibit Number 2, Mr. Smith.

MR. SMITH: Exhibit 2, I think is simply to show we have a right to be at Birch Spring, that we have developed Birch Spring and it was redeveloped in the '80's. I can ask some questions on that if the Board would like, but that's what it's being offered for. And I think really the exhibit more speaks for itself. I can certainly, if the Board would like to hear some questions as to that, and also I have some other witnesses who are going to testify further as to the development works. But that's what it's being offered for. I think it's relevant for that purpose.

MR. MITCHELL: We might be able to shortcut it because I don't think -- I think we could all stipulate that the two parties before the Board take their water from springs which they have a right to take their water from. That their theory of the case is those springs that are impacted in, some are impacted in some way, and we could stipulate that they are water users who have water rights, and what springs they think are at issue, and those are springs of which they have water rights. We can stipulate to that. We can shortcut that whole thing.

MR. SMITH: That certainly would.

MR. LAURISKI: Okay. Given those stipulations --

MS. LEVER: Mr. Hansen hasn't stipulated.

MR. HANSEN: I don't have any real problem with it other than it isn't really relevant. Mr. Stoyanoff did testify that his employer has rights to the water, we don't contest that. The exhibit shows that BLM gave his employer some kind of consent to do development work on that, and whether they had that consent or not isn't relevant.

MR. LAURISKI: We'll admit Exhibit 2, based upon the stipulations that I understand, only to the sense that it shows that the water users have a right to the water in Birch Spring.

MR. SMITH: Thank you, Mr. Chairman. We also have Exhibit 1 admitted as well?

MR. LAURISKI: Any objections to Exhibit 1?

MR. HANSEN: No objections.

MR. SMITH: That's all I have for Mr. Stoyanoff. He's open for other questions from other parties.

MR. APPEL: I have no questions.

MR. LAURISKI: Mr. Hansen, questions of Mr. Stoyanoff?

MR. HANSEN: Yes.

Q. You pointed out several springs up Huntington Canyon you have water rights in. I wasn't very clear on what those springs are, and I don't think you testified as to how much water was being taken from each spring

with the exception of Birch Spring. Could you point out those additional springs to me, and tell us how much water is coming from each spring?

A. Okay. This here is our Rilda springs, and it's called Rilda Canyon springs.

MR. MITCHELL: Just for clarification of the record, are you pointing to Rilda Canyon, at the upper reaches before it intersects Huntington creek?

THE WITNESS: Yeah. This is where it intersects Huntington Creek by the highway, and then it --

MR. MITCHELL: That's a distance of how many miles?

THE WITNESS: About two miles.

MR. MITCHELL: How many springs are located there?

THE WITNESS: We have three different spring areas. There are several springs. Our middle spring area -- we've got one in our side canyon spring, and there's several springs in our middle spring area. And then we have one in our lower spring area. To tell you each flow individually, I can't do that. But our Rilda Spring is what is considered a shallow spring, and they're influenced by runoff quite heavily.

And this time of year, our Rilda Spring's flowing about 60 gallons a minute. In the summer it flows anywhere from 270 to 400 gallons a minute, depending on the snow fall and that.

Then our next spring down the canyon would be what we call our main canyon springs, there's three of them just across the creek from Birch Spring. One of them is called our upper spring, the middle spring, and our lower spring.

MR. MITCHELL: You are pointing to the southwest of the Huntington Creek, but downstream now from Rilda Canyon?

THE WITNESS: Yes.

MR. MITCHELL: Are we still upstream from Birch Springs?

THE WITNESS: Just across the creek from Birch Springs.

MR. MITCHELL: But slightly southwest.

THE WITNESS: Yes, un-huh. These two upper springs are tied together, and they flow about 60 gallons a minute. And in the lower spring, main canyon spring, flows right around 100 gallons a minute.

MR. CHRISTENSEN: You say they are tied together so it would be 180 gallons tied together?

THE WITNESS: The two upper springs are tied together in one pipeline before they are metered, and they flow about 60 gallons a minute. And the lower one flows about 100 gallons a minute. These are called deep springs and they don't fluctuate in flow very much like

the Rilda Canyon springs, they are pretty constant year round and drop a little bit, but not very much. And then we have our Birch Spring, which is just across the river from those other springs, and right now it's flowing 23 gallons a minute.

MR. LAURISKI: Is that an average that it may flow year round?

THE WITNESS: It stays pretty consistent. When I first started for North Emery there wasn't a meter on there. We would bucket that spring and it was right around 70 gallons a minute. But it didn't -- that's a deep spring too, doesn't vary like Rilda does.

MS. LEVER: I have a question Mr. Stoyanoff. On the map, the excerpt we have, we have a Birch Spring on it above the picnic area; is that where you are talking about?

THE WITNESS: Yes.

MS. LEVER: And as I try to put on to my marker, your area that you are talking about, the upper and lower spring right there after Rilda canyon comes in, they are below grade and down from Co-op; is that correct?

THE WITNESS: On our map it shows the Co-op mine being up the trail.

MR. SMITH: If I can clarify. On the USGS map,

that's the old Co-op mine. The new Co-op mine, the one we're here before you today, is just south of that called Big Bear Canyon. That's what was on the USGS map and that's not something we put on there, but it shows on the map there.

MS. LEVER: Okay. Thank you.

MR. LAURISKI: Mr. Hansen?

MR. CHRISTENSEN: Were we going to talk about Big Bear Spring?

MR. HANSEN: I have no further questions.

MR. APPEL: We'll get to that with my witness.

MR. CHRISTENSEN: Okay.

MR. SMITH: I don't think I have anything further of this witness.

MR. MITCHELL: No questions.

MR. SMITH: At this time we'd like to call Mr. Scott Allred to testify.

SCOTT ALLRED

was duly sworn, was examined and testified as follows:

BY MR. SMITH:

Q. Mr. Allred, would you please state your name and address?

A. Ivan Scott Allred, Cleveland, Box 186.

Q. Okay. And what's your current occupation?

A. Board of Director for North Emery Water.

Q. Okay. And how long have you been on the North Emery Water Users Board?

A. About 14 years.

Q. And how much does that pay, how much does that position pay?

A. Nothing. Just about nothing.

Q. Why don't you tell me what some of your duties are as a Board member?

A. The duties I've took on more or less because I was voted in to overlook North Emery. I overlook like Birch Spring and overlook the development of the springs and overlook the upgrading and the things we have done throughout the system. Trying to help Jack with his jobs, and the other managers we have had in the past.

Q. Would you characterize it as a hands on Board position?

A. Yes.

Q. So are you involved in actual day-to-day workings with the company?

A. I have been, yes.

Q. And were you involved when Birch Spring was redeveloped in the 1980's?

A. Yes, I was.

Q. And what was your involvement?

A. I was going up there every night to see what the flows was and see what we was producing because I was the one that wanted to get Birch Spring going. It was developed in '72 or '77. I can't remember which year it was developed first. But we wasn't getting near the water that was coming out of the ground.

So we went into it because we needed more water, because of the drought years and stuff, and we owned more stock in Huntington/Cleveland Irrigation Company. So we was trying to get it through, the water rights that we had in that spring. So we went in and redeveloped it, and I was there every night trying to see what we could do about getting the water into the pipeline, into the system.

Q. Okay. I'm going to show you a picture, I believe this is Exhibit 3. I believe everybody on the Board has a copy of this exhibit. And I'll ask if you can identify Exhibit 3 for the Board?

A. This is when we just got started in the Birch Springs. We had Tony Sapieress (sic) come up and excavate and this was the start of the excavating, when we was in there. We went a lot deeper than this to try to get what water we could get out of it.

Q. So why don't you take a minute and explain what -- when you develop a spring, maybe not all of us are

familiar as we could be with what the development of a spring, at least as far as Birch Springs, entail. Take a minute and just maybe describe what work was done for the development of Birch Springs?

A. Well, we went in.

MR. HANSEN: We have given a lot of latitude and I object on foundation grounds and ask petitioners to establish some foundation so this testimony is relevant to the issue.

MR. LAURISKI: I think that's appropriate Mr. Smith.

MR. SMITH: I guess I'm confused. I've heard -- is it a foundation or relevance objection?

MR. HANSEN: At this point I'm objecting for lack of foundation. If they can't show foundation then I'll object to relevance.

MR. LAURISKI: As to the relevance.

MR. SMITH: I believe the relevance -- you know, I can speak to either one or both. Mr. Allred testified he was personally involved with the development work so he has personal knowledge of what happened there and can testify as to that. As far as the relevance, I just want to point out that the efforts that went in to develop Birch Springs as a resource for North Emery Water Users, and we believe it provides foundation for

later testimony our expert will give as to water that should be intercepting what it could intercept or has intercepted in the past, and that the development work should be intercepting the water that's there.

MR. HANSEN: Well, the issue again is what effect Co-op's mining of the Tank Seam has on those springs and I object to the testimony they are proffering here on the relevance grounds.

MR. SMITH: Well, if Co-op wants to limit any of its testimony to that and not raise any issue about whether we properly developed the spring and we are capturing the water that's in the spring, we can move ahead. But I don't want to be in a position where I've bypassed some evidence and have them bring arguments that, i.e., we did not develop the spring, or the spring wasn't properly developed, and that's the reason why, when we show what flows we're getting out of the spring, they attack that evidence as saying that's not the flows from Birch Springs, you are just not capturing the flows in your system so you are not getting the entire flow.

And so I'm happy to shorten the issue. I don't want to leave myself in a position where I haven't put on the proper evidence and when it's their turn have that kind of evidence brought by them, and me not having put on the evidence about our developing the spring.

1 MR. LAURISKI: Why don't you continue and the Board
2 will consider whatever weight that we can afford this
3 exhibit. We'll reserve our decision on your objection.
4 MR. HANSEN: I'll ask that he lay a foundation. If
5 he lays it, that's fine.
6 BY MR. SMITH:
7 Q. Mr. Allred, were you personally involved in the
8 development work of Birch Springs in the 1980's?
9 A. Yes, I was.
10 Q. And did you personally go observe the work that
11 was done?
12 A. Yes, I did.
13 Q. And did you observe --
14 MR. LAURISKI: Mr. Smith, could you lean forward and
15 closer to the microphone, please. Thank you. Mr.
16 Allred, I'm sorry.
17 BY MR. SMITH:
18 Q. And did you observe the construction work
19 that's depicted in Exhibit 3?
20 A. Yes.
21 Q. And does Exhibit 3 accurately depict
22 development work that was done at Birch Springs?
23 A. Yes, that was why we went in there. We was
24 already getting 20 gallons a minute out of the part that
25 has been developed. And so we went in and redeveloped

the whole thing and only gained 100 some gallons a minute, but we couldn't put it right in. And when we put it in, it was 90 some gallons and that was during the same time as they were mining at Co-op mine.

Q. So after the development work was done you were able to -- how much water were you able to capture from Birch Springs?

A. They was over 200 some gallons that was captured in there, that we was capturing in there.

Q. Okay. And I'm showing you what's been marked as Exhibit 4 and ask if you can identify that?

A. Yes, that was some more from when we was starting to really dig down into Birch Springs trying to get down to the sources of the springs.

MR. LAURISKI: So this is simply additional development work in the Birch Springs area?

THE WITNESS: Yes, more of the same.

MR. LAURISKI: If you look at Exhibit 3, it's actually more to the left of it, as I look at this; is that correct?

THE WITNESS: Yes.

MR. LAURISKI: Okay.

BY MR. SMITH:

Q. And I'd like you to take a look, and have you look at Exhibit 5, and ask if you can identify Exhibit

5.

A. Yes, these are checks we wrote to Tony Sapieress for 17,360.39. $21,460.

Q. And what were those checks to pay for?

A. This was to pay for development work in Birch Springs.

Q. Okay. And on the second page can you identify the second page of Exhibit 5?

A. Yeah, this is where we went in and got the water right from the ledge itself. One and two on there.

Q. And that's what, a drawing of some development work?

A. This is a drawing of the development work that was done in there.

Q. Okay. And prior to any development at all, where did the water issue from Birch Springs, when you say the rock ledge itself?

A. Before it was coming out right along where that hydrohole is sitting on this one picture you got, this -- which one is this one?

MR. MITCHELL: Three.

THE WITNESS: This creek was running water down through it, the stream bed was running water before we went in and developed it.

MR. LAURISKI: And I may have missed this, what year was that?

THE WITNESS: This was in '83 or '84, right in there.

BY MR. SMITH:

Q. Was that the first time that Birch Springs had been developed for use by North Emery Water Users?

A. No, it was developed in '76, I think, the first time, and that's when we was getting 20 some gallons a minute out of it.

Q. So the purpose of the development work was, in the 80's, was to do what?

A. To get the rest of the water that was coming out, that was coming down this creek bed.

Q. And how much, after the development work was done in the '80's, how much water was available, was captured in the North Emery Water Users system from Birch Springs?

A. Well, when it was all said and done all we really captured was 90 some gallons a minute.

MR. CHRISTENSEN: In addition?

THE WITNESS: Yes.

MR. LAURISKI: I'm confused a little. When we were talking about Exhibit 3, we talked about the development being capable of putting out 200 gallons. When you

finished, the flow went to 200 gallons per minute.

THE WITNESS: When we was developing it we bucketed the places where we come right out of the ledges and we was bucketing 200 gallons a minute.

MR. LAURISKI: So the collection of everything?

THE WITNESS: That was collection of one and two of those, one and two, on the back end. One of them was two hundred something and one was around 100 some gallons. That was when they put the pipe in and we had -- there was more water then, but that's what I was getting out of the buckets.

MR. LAURISKI: That was in 1983, '84?

THE WITNESS: Yes.

MS. LEVER: How much were you getting out after the pipeline was put in?

THE WITNESS: We was only getting 70 some to 90 some gallons a minute.

MS. LEVER: After the work was done you were getting about 90?

THE WITNESS: Yes.

MR. SMITH: I move for admission of Exhibits 3, 4 and 5.

MR. HANSEN: Object to the first page of Exhibit 5, the checks, on the grounds of relevance. I think the fact they did development work is relevant, but whether

1 or not they paid for it or who they paid the money to is
2 not relevant.
3 MR. LAURISKI: I'll allow the exhibits, and I think
4 that the first page of Exhibit 5 is just to indicate
5 that they actually had the work done at Birch Springs,
6 and we'll just accredit whatever weight is given to the
7 merits of this case.
8 MR. HANSEN: Okay.
9 MR. SMITH: That's all the questions I have for Mr.
10 Allred.
11 MR. MITCHELL: Could I get clarification?
12 MR. APPEL: I have no questions.
13 MR. MITCHELL: The checks on Exhibit 5 are dated
14 1984. Do you think you would have written those checks
15 in the same year in which you did the work?
16 THE WITNESS: I'm sure.
17 MR. MITCHELL: So 1984 is probably likely the year in
18 which it was done?
19 THE WITNESS: Yes.
20 MR. MITCHELL: And the final page of this exhibit,
21 the hand drawing, do you know who did the hand drawing?
22 THE WITNESS: I did some and Gary Larsen did some.
23 I don't know who did this one for sure. He was the
24 manager we had at the time.
25 MR. LAURISKI: When was this? Was this also

prepared in 1984, the second page of Exhibit 5?

THE WITNESS: Yes.

MR. MITCHELL: Was that for the purposes of having the contractor construct or depict what you believe you had accomplished?

THE WITNESS: That's what we did while we was doing it, developing it.

MR. MITCHELL: As you got it opened up?

THE WITNESS: Yes.

MR. MITCHELL: You saw what you thought -- how you wanted to lay it out?

THE WITNESS: We laid it out as we dug it up and found what we needed to find. You can't see what's in there so you have to go in, and as we developed it.

MR. MITCHELL: So this pretty much is intended to depict how it ended up getting done?

THE WITNESS: Yes.

MR. LAURISKI: Okay. Mr. Hansen, cross examination?

BY MR. HANSEN:

Q. You testified that when you went in there to begin development of Birch Canyon in 1984, you caught water in buckets and determined there was about 200 gallons a minute coming out of the face?

A. Yes. When we got it dug up we was getting two

1 different places there.

2 Q. And that when you completed your development,

3 you were only intercepting around 97 gallons a minute?

4 A. That's all.

5 Q. Do you have any records to reflect those

6 numbers?

7 A. We have tried to find them and we can't. We

8 have got a book when Gary Larson did do this, the guy

9 that was the manager, that he has got it in his diary of

10 what he did every day.

11 Q. But this 200 gallons per minute number and 97

12 gallons per minute number, you are relying on your

13 memory?

14 A. Gary Larson's too, but he wrote it down, it's

15 in his diary.

16 Q. Do you have his diary?

17 A. I think Mr. Hansen here has his diary.

18 Q. I ask that it be produced.

19 Could you describe the kind of construction work you

20 went through in developing that spring?

21 A. A lot, we just went through a lot. We had to

22 get boxes, man boxes to get into -- to get down into the

23 depth of them.

24 Q. I notice these photographs show that you did

25 excavation work?

A. We had a cat and a hydrohole.

Q. Did you have to do any dynamiting?

A. They did a little.

Q. Did that have any impact on the water flow?

MR. SMITH: I object, that calls for an opinion.

MR. HANSEN: Only if he knows.

THE WITNESS: I don't know.

MR. HANSEN: No further questions.

MR. LAURISKI: Mr. Mitchell?

MR. MITCHELL: No further questions.

MR. SMITH: No further questions.

MR. LAURISKI: Thank you, Mr. Allred.

THE WITNESS: Okay.

MR. SMITH: I'd like to call Mr. Menco Copinga.

MENCO COPINGA

was duly sworn, was examined and testified as follows:

BY MR. SMITH:

Q. Mr. Copinga, I think you need to spell your name as well as state your name and address.

A. Menco Copinga. M-e-n-c-o, C-o-p-i-n-g-a.

Q. And Mr. Copinga, are you currently employed?

A. Yes, I am, I'm employed by Plateau Mining Company.

Q. What are your duties with Plateau?

A. I'm a construction foreman on the ground.

Q. Do you also have a position?

A. I'm the President of the North Emery Water Users.

Q. So you're the president of the Board?

A. Yes.

Q. And that's a --

A. We're from different locations and we're voted in, and then as a Board they -- every year they appoint a new president and that's how I became the president.

Q. How long have you been associated with North Emery Water Users Association?

A. I've been a member for 18 years.

Q. Okay. And has Birch Springs been used by North Emery Water Users Association throughout that time?

A. Yes, it has.

Q. And let's see if my mathematics is right, 18 years, we're talking about 1976 about?

A. Yes.

Q. So North Emery Water Users made use of Birch Springs as a drinking water source since 1976?

A. Yes.

Q. Do you know whether that's prior to or after the mining activities started in Bear Canyon by Co-op?

A. I believe that was prior to when they started

Bear Canyon, yes.

Q. Do you have any recollection of what the flows were prior to any mining activities of Co-op in Bear Canyon from Birch Springs?

A. As Scott relayed it, it was -- we developed it, had about 25 gallons per minute and we knew there was more water because it was all coming to the surface. So we decided we better go in there and develop it. And by doing so, we ended up with about 90 gallons per minute.

Q. So you were part of the people who made the decision to do further development work that was done in about 1984; is that right?

A. Yes, I was.

Q. And that decision was made on the abundance of water in that area?

A. Right, yes.

Q. Okay. I have no further questions for Mr. Copinga.

MR. APPEL: No questions.

MR. LAURISKI: Mr. Hansen?

MR. HANSEN: No questions.

MR. MITCHELL: No questions.

MR. LAURISKI: Thank you, Mr. Copinga. I'm sorry, Mr. Murray, you had a question earlier of one of the witnesses?

1 MR. MURRAY: I'm okay.

2 MR. SMITH: If we're done with that witness we'll go

3 on to our next witness, Mr. Lee McElpragk. I'd like to

4 call him at this time.

5 LEE MCELPRAGK

6 was duly sworn, was examined and

7 testified as follows:

8 BY MR. SMITH:

9 Q. Could you state your name and address for the

10 record.

11 A. My name is Lee McElpragk. M-c-e-l-p-r-a-g-k,

12 Box 448 Huntington, Utah.

13 Q. And Mr. McElpragk, are you currently employed?

14 A. Yes and no. I'm a retired coal miner, but I'm

15 a full time farmer.

16 Q. You say retired coal miner. What types of jobs

17 did you have in the mine while you were employed in the

18 coal mine?

19 A. Oh, I worked up to a general mine foreman.

20 Most of my mining career was in a management position.

21 Q. And which mines have you worked in?

22 A. Well, I started in Lee Master's mine in Mill

23 Fork Canyon, I went to the Beehive mine, later named it

24 Desby Bluff (sic) mine. After they split down I

25 transferred to the Deer Creek Mine.

Q. Okay. And are you on any boards or do you have any position on any boards in your area?

A. Yes. I'm on the Board of the Huntington/Cleveland Irrigation Company.

Q. Okay. And it's my understanding Huntington/Cleveland Irrigation Company is the holder of the water rights for the water that issues from both Birch Spring and Big Bear Canyon spring?

A. Yes, that's right.

Q. And it's also my understanding you have had a lot of opportunity to observe particularly Birch Spring; is that correct?

A. Yes, all our life we have been cattling, I've seen the springs all my life.

Q. And you say all your life, about what period of time are we talking about?

A. Oh, I was probably like 10 years old before I could remember, you know, doing too much about it. The Birch Spring in particular is right on top of the hill which we call the Bear Canyon hill. We used to truck cattle up there in an old truck and it was hot, and my job was to dip water out of the spring to cool the old truck off with.

Q. Okay. And when you were starting -- I should have asked how old you were and we could figure it out.

1 Tell us when you were 10 years old, what year was that?
2 A. 1949.
3 Q. And so you'd dip water out of Birch Spring to
4 put in the truck; is that right?
5 A. Yes.
6 Q. And could you give an estimation of how much
7 water you saw in Birch Spring during your visits there,
8 and if it changed, let's talk about the changes, but if
9 it stayed constant, give an estimation?
10 A. I don't know that it ever changed.
11 MR. HANSEN: Objection, lack of foundation. Unless
12 he took measurements to quantify, I don't think he has
13 any personal knowledge to testify.
14 MR. LAURISKI: You can go ahead Mr. McElpragk, and
15 we'll consider the objection.
16 THE WITNESS: I would guess, and my guess would
17 probably be 75 gallons a minute.
18 BY MR. SMITH:
19 Q. That's based on how big of a stream? Can you
20 describe what kind of stream you saw coming out of Birch
21 Springs?
22 A. Well, the only thing I could relate to is pump
23 water. I have one pump I use quite a bit that runs 200
24 gallon a minute and we're out another pump that run 150
25 gallon a minute. And just what I was basing it on,

trying to guess how big that stream was compared to what these pumps out there --

MR. HANSEN: I object and move to strike the testimony. This establishes he's speculating.

MR. LAURISKI: His testimony with respect to the flows out of the Birch Springs?

MR. HANSEN: That's correct.

MR. LAURISKI: Proceed, we'll consider the objection.

BY MR. SMITH:

Q. And so you visited Birch Springs about how many times a year, from 1949 on?

A. Oh, would be four or five times in the spring and probably two or three in the fall, plus -- gosh, we see it all summer long really.

Q. And this was every year from '49 until the time that Birch Springs was developed?

A. Yes.

Q. Ever any times when you saw the Birch Spring just was dry?

A. No, no I never did see it dry.

Q. Did it have approximately the same flow every year?

A. I would think so. As far as I know, I never did notice no change in it anyway.

Q. Okay. How about the spring in Big Bear Canyon, did you have an opportunity --

MR. LAURISKI: Can I stop you for a minute? When you talk about no change, Mr. McElpragk, what time frames are we talking about here from, 1949 to 1994, or?

THE WITNESS: No, I'm talking from '49 to probably '70, through that area.

MR. HANSEN: I object and move to strike on the same basis.

MR. LAURISKI: Go ahead.

MR. SMITH: And the reason it ends in the '70's, that's about when that spring was developed and obviously the flow changed when the development work went into the spring?

A. Yes.

Q. Okay. Moving to Big Bear Canyon springs, did you have an opportunity to observe that spring?

A. Yes, I did.

Q. Was it under the same circumstances as you described for Birch Springs?

A. No, no. The only reason I observed that spring, I used to go up with a kid by the name of Derrick (sic) Rolly, Darrell Rolly was his dad and he took care of the Huntington water. He was a city

1 Marshall, and he done roughly what Jack done. I
2 remember going up there with him when they checked the
3 spring.
4 Q. And they would check that because that was a
5 water source for Huntington city?
6 A. Yes, at that time Huntington City's only water
7 source.
8 Q. So you go up with him to just check and see how
9 the spring was doing?
10 A. Yes, just do that.
11 MR. LAURISKI: Can we establish a time here, Mr.
12 Smith?
13 BY MR. SMITH:
14 Q. Thank you. Can you tell -- when you say you
15 would go up with Mr. Rolly and check that --
16 A. Prior to 1957, when we were still in school.
17 Q. So, approximately from '49 to '57?
18 A. Yes, that period of time.
19 Q. That's all the questions I have for Mr.
20 McElpragk.
21 MR. LAURISKI: Mr. Appel?
22 MR. APPEL: No questions.
23 MR. LAURISKI: Mr. Hansen?
24 MR. HANSEN: No questions.
25 MR. LAURISKI: Mr. Mitchell?

MR. MITCHELL: No questions.

MR. CHRISTENSEN: Mr. Chairman?

MR. LAURISKI: Yes.

MR. CHRISTENSEN: I asked a question about Big Bear Spring some time ago and you said what you had done, but we didn't ever talk about any kind of quantities, flows on Big Bear. How does that relate to the other gallons per minute you have been talking about?

THE WITNESS: Quantity wise?

MR. CHRISTENSEN: Yeah, do you know?

THE WITNESS: No. There was, as I remember, we run into a four inch pipe and that four inch pipe took care of all of Huntington. It was quite a big spring really.

MR. SMITH: How many people lived in Huntington during -- approximately how big was Huntington during this time?

THE WITNESS: I think Huntington at that time was probably 800 people.

MR. CHRISTENSEN: How many gallons per minute is Big Bear putting out now?

MR. APPEL: With our next witness we'll take care of Big Bear. He represents Castle Valley Special Service District.

MR. CHRISTENSEN: Oh, okay.

MR. SMITH: We're getting there. Thank you, Mr. McElpragk.

MR. APPEL: We'll call Darrel Leamaster.

DARREL LEAMASTER

was duly sworn, was examined and testified as follows:

BY MR. APPEL:

Q. Mr. Leamaster, could you state and spell your full name please?

A. My name is Darrel Leamaster, D-a-r-r-e-l, L-e-a-m-a-s-t-e-r.

Q. What is your address?

A. I live in Huntington, Utah, 90 North 200 West.

Q. How long have you lived in that general vicinity?

A. Well, I was born and raised there, I was gone for about 15 years, and then I've been back for the last 17 years.

Q. What is your current occupation?

A. I'm the district manager of the Castle Valley Special Service District. I'm a professional civil engineer.

Q. Could you describe your duties that you perform in relation to that occupation?

A. Yes. I'm the general manager and mainly in the

office, it's an administrative job, I supervise employees. Castle Valley Special Service District is a local government entity or a branch of Emery County government. We provide culinary water, irrigation water, sewer and roads to eight communities in western Emery County.

Q. How long have you held that position?

A. I was the first employee of the district, and I've been there for a little over 17 years now.

Q. You characterized your occupation as somewhat administrative. You do spend quite a bit of time in the field, don't you?

A. I do. I work closely -- we have a foreman and laborers that work in each of the areas. In the Huntington/Cleveland area we have a foreman and two full time people there. And I'm in the field with them quite frequently, looking at jobs, reviewing our facilities and that kind of thing.

Q. Could you describe the water service components of Castle Valley Special Service District?

A. In relationship to Huntington/Cleveland and Elmo?

Q. Yes.

A. Yes. We have at the present time, we have Huntington/Cleveland and Elmo combined on one water

1 treatment system. That system depends on springs for
2 their main source. We currently have three springs that
3 we rely on, and maybe I should refer to the exhibit.
4 MR. APPEL: Why don't we do that. We've referred
5 previously to the Big Bear Spring and I might point that
6 out. It's located here.
7 MR. MITCHELL: Clarify for the record, we're pointing
8 at Exhibit 1.
9 THE WITNESS: Yes, Exhibit 1. Big Bear Spring is
10 located approximately a half a mile from the portal of
11 the Bear Canyon mine. It is located in the Bear
12 Canyon. This is Highway 31 and Huntington Creek. As we
13 follow that on upstream approximately three miles, maybe
14 three and-a-half miles, we have a spring called Little
15 Bear Spring. And Little Bear Spring is located on the
16 opposite side of the canyon, on the east canyon side of
17 the mountain. This is Little Bear Canyon. And that is
18 located right here.
19 We also have a spring that we utilize in Tie Fork
20 Canyon. Tie Fork Canyon is here on the map and --
21 actually we have two springs, an upper spring, which is
22 located at the fork of the canyon, and we have a new
23 spring developed in 1993, that is approximately half way
24 up. The upper spring is no longer in service, it's
25 diverted out. It was impacted by another mining

operation and we have an agreement with them where this spring is turned out of the system, and they helped us develop this other spring that we call the lower spring. It is now in service.

I might tell you about what flows we're receiving now. The lower Tie Fork spring is producing approximately 93 gallons a minute. The Little Bear Spring is our biggest spring, and I've forgotten when that was. In '93. The other flow was 291 gallons a minute, around, and the Big Bear Spring is currently flowing at about 118 gallons a minute. Those three sources provide the water for Huntington/Cleveland and Elmo.

Q. How many connections do you have for water service?

A. Right now we have approximately 1,050. They are mostly residential connections that would include a few commercial services and serves around 2650 people.

Q. Is there any other water service entity that competes with you as far as size and number of people served?

A. Not in Emery County, no.

Q. Have you had occasion to visit the diversion works at Big Bear Spring?

A. Yes, I have. We have inspections there we do

each year. The first time that I visited there was in 1977. It was going through some reconstruction and updating at that time. That was done by Huntington City prior to our taking over the maintenance of the system.

Q. Could you describe the diversion works at Big Bear, please.

A. Big Bear Spring comes out of rock ledges and fractures in rock ledges, sandstone rock ledges. To capture that water we have built concrete boxes that are right up against the ledges. There are, I think, three spots where it comes out of the ledge. They then go into a common collection box. From that collection box it then goes into the transmission lines that leads to the community and to the rest of our facilities.

Q. Where are those diversion works located in relation to the Co-op mine, and if you'd like to refer to Exhibit 1, that would be fine, if that will assist you.

A. I think that the actual location of the spring is approximately a half a mile from the Co-op portal. The spring is located here, and the road that goes up to the mine is in the bottom of the canyon, and then it swings back and the mine portal is approximately right here.

MR. LAURISKI: The mine portal being the access to

the Blind Canyon seam; is that correct?

THE WITNESS: That's correct. I think we're about half a mile from the mine portal.

MR. CHRISTENSEN: Higher or lower?

THE WITNESS: We are lower. Our springs are about at the bottom of the Star Point Formation, and I'm not sure of the exact element, I would guess probably three, 400 feet higher than of the mine to our springs. I'm not sure of the elevation.

MR. MITCHELL: Mr. Appel, for clarification, Exhibit 1, which is actually what's in evidence, and it was submitted as you are looking at it, as it's folded and three hole punched. You're looking at what would be actually the northwest corner of this document that's in front of the Board, in this fashion, assuming the top is north?

THE WITNESS: Yes.

MR. MITCHELL: Okay. And there's a small circle just to the left of the R and Bear; is that correct?

THE WITNESS: Yes.

MR. MITCHELL: That's the spring you are referring to?

THE WITNESS: Yes.

MR. MITCHELL: And then the mine portal would actually not be included on this map, it would be off

the map?

THE WITNESS: It is off the man slightly.

MR. MITCHELL: But your estimation is up the canyon -- referring to Bear Canyon -- approximately a half mile is the portal?

THE WITNESS: Yes.

MR. MITCHELL: Okay.

BY MR. APPEL:

Q. Mr. Leamaster, what is the average flow of the Big Bear Spring in gallons per minute?

A. In 1993 the average was 118 gallons a minute. In prior years it has been higher, and has gradually decreased over time. When we began operation and maintenance of the system, we installed meters and we have kept continuous meter records of the spring output and had that information since approximately 1980. We have prior information back into 1977 that's also available.

MR. LAURISKI: When you say gradually decreased over time, can you tell us what time frame we're looking at here?

THE WITNESS: Particularly since 1983, and '84, when we had real wet years and we're up, probably our average flow was 230, 240 gallons a minute, somewhere. We're now at 118.

BY MR. APPEL:

Q. When did Co-op begin their mining operations in the area?

A. I'm not positive, I think it was 1985, '86, somewhere in that area.

Q. Okay. How important of a water source is this to your company?

A. It's an extremely important source. It represents now around 25 percent of the total amount of flow. It has been indicated that spring has been developed for a long period of time. We've researched back into the records and we think it was first used by Huntington back in about 1921. It's been in continuous service since 1921. It was upgraded in 1977 to do the structures that I talked about, to capture the spring as it comes out of the mountains. Huntington City did that, and we think they spent around $15,000 for that work at that time.

Following that in 1982 and 1983, we did all of the transmission lines that lead from those springs down in to the city, and that project we spent about $325,000 for. Also to point out that in 1991, the Department of Transportation had a construction project where they realigned and widened U 31 which is the highway up the canyon. At that time, they relocated and moved all of

our transmission lines, and the North Emery Water Users' transmission lines. And that project was over a million dollars to move those lines.

So we have made a tremendous -- the State of Utah paid for that, so not only is our district, but the state has made a real commitment to both of those systems as far as the amount of money we have spent on them.

It's a very good quality water, and has been to this point. One of the great advantages of it is it comes out of the mountain. We chlorinate it and that's basically all the treatment that it receives, so it's very cheap water. We don't have the cost of a water treatment plant, we don't have the chemicals, electricity, the pumping costs. It's all gravity flow so it's a very valuable resource for us to have.

Q. What would you and your customers do if you were to lose the ability to divert that water for whatever reason?

A. It would have to be replaced from someplace. The problem is in that area there are very few ground water sources available there that's not being utilized, and it would be very expensive. Some how it would have to be replaced. It might be that we would have to go to a surface water table treatment plant and replace it out

of the river. I don't know of any other ground water sources available at this time.

Q. Do you have any sort of ballpark idea of how much a treatment plant itself would cost?

A. I'd really be guessing, half a million dollars at least.

Q. Have you noticed any difference in the quantity of flow and the quality of the water since Co-op began its operations?

A. Yes, we have. And we are very concerned about some of those things. I think that they were given some exhibits on water quality, is that right?

Q. Well, we'll wait a second on those.

A. Okay. Just a brief answer. We have seen changes in the flow, and we have also seen some changes in the water quality which we are concerned about. One of the problems within spring, is that we have no advanced warning systems if something happened to any of our springs, water quality wise. The water would enter the system, and would be to our customers before we had any way of knowing that we had a problem. We are in the process of working with another government agency, the Emery County Water Conservancy District and the Bureau of Reclamation to put in some continuous flow monitoring systems and TDS monitoring systems. They will work off

of solar power and will generate a signal that will be transmitting radio waives to our office so we can continually monitor at least TDS. We hope in the future we could add turbidity monitoring to that as well, as soon as money allows, but those systems are just coming on line now. Our problem is we have no way of knowing if some kind of contamination occurred. It would be in the system and to our customers before we had any way of knowing it.

Q. In the last 10 years, have you noticed any what's called anomalous events that have occurred with respect to water flows in Big Bear Spring or water quality?

A. Yes, we have. The main events that we saw occurred in the winter of --

MR. HANSEN: I object, we're getting very far afield from what's relevant here. There's been no foundation to show that any of this testimony is relevant, and I object on that basis.

MR. LAURISKI: Mr. Appel, how is this going to relate to the mining of the Tank Seam? Everything I'm hearing seems to indicate we're talking about a time period of current mining activity into the Blind Canyon seam. What relationship are we getting at between that and the mining activity that's going to occur in the

1 Tank Seam?

2 MR. APPEL: The reason that's important, and we'll
3 tie that together with the expert testimony of Mr.
4 Montgomery, the effect on the surface and the effect on
5 this system of the mine. And he will discuss the
6 interrelationships between Mr. Tegerfees (sic), the
7 faulting that will allow for communication of water, and
8 how the water could get from the Tank Seam down in to
9 this mine, but we have to understand what occurs, and in
10 particular this lower mine, because that's again, as I
11 referenced in the beginning, the middle section of the
12 pipe. And if we're to ignore the middle section of the
13 pipe, you won't have the entire picture. It's
14 foundational and background information for the Board.

15 MR. HANSEN: Again, this testimony is out of order.
16 There's has been no foundation. They are stating they
17 intend to lay the foundation well after the testimony is
18 given. I think before this testimony can be given, they
19 should be required to put on their expert, and establish
20 some foundational grounds to show there is some
21 connection between mining of the Tank Seam and what will
22 happen to these springs.

23 MR. LAURISKI: I tend to agree with Mr. Hansen, we
24 have talked a lot about periods from 1949 through 1984,
25 and 1984 to the present time, and we've yet to hear

anything about any relationship to the Tank Seam and how this information's going to tie into that.

MR. APPEL: Well, we have to start someplace. We chose to start chronologically back in time and move forward to where the Tank Seam is now, and I'm not sure how best to approach that except to say that this is the way we chose to present it, and I think it makes sense that way. You can see the development and the impacts the mining has had. We'll get to the Tank Seam. We understand that's what this hearing is about. But that's the way we have approached it.

We think this is critical background because they are connected. There are interworkings between them based on the way Co-op has suggested they will take the coal out of the Tank Seam, and these workings come into evidence on that basis. The water has to be drained in some way.

MR. HANSEN: I take no issue with the statement that they have to start somewhere. But the point here is they have started at the wrong place. Until they show there is some connection between mining the Tank Seam and an adverse impact that may happen to these other springs, all this other testimony is totally irrelevant, and I object to it in its entirety.

MR. SMITH: Mr. Chairman?

1 MR. LAURISKI: Mr. Mitchell first.

2 MR. MITCHELL: I guess what I think might be helpful,
3 is if the representation could be made to the Board that
4 they are going to put on evidence that there is water in
5 the Tank Seam. I think if they don't intend to put on
6 any evidence there is any water in the Tank Seam, I'll
7 proffer we'll put on evidence there essentially isn't
8 any water, or no evidence of water in the Tank Seam.
9 Then I guess I'm not sure how it could ever link up.

10 MR. SMITH: Mr. Chairman, if I could be heard.
11 First, it's, I think, not only customary, but required
12 to put on factual evidence before you have your expert
13 come on and give his opinions because the opinions are
14 based on facts that are in evidence. To have the expert
15 come on first and tell you what the connection is, and
16 then have to -- that's a backwards way to approach it.
17 We would draw a similar objection, I'm sure, from the
18 respondents if we put on Mr. Montgomery first and have
19 him give his opinions. They would say there is no
20 factual basis for those opinions. So, you know, it's
21 putting the cart before the horse.

22 On the other point as far as water in the Tank Seam,
23 we have to remember, not only is the Tank Seam going to
24 be mined, but the mining is -- there's a connection
25 created between the Blind Canyon seam and the Tank Seam

1 within the mine itself. It's going to cut through a
2 number of feet of rock and strata of rock, and what's in
3 the Tank Seam itself. It's also to reach -- it is
4 important to our argument. So to try to lend this to
5 what's in the Tank Seam, I think is putting blinders on,
6 because obviously the workings that will have to take
7 place in that mine to get to the Tank Seam are extremely
8 relevant to this Board, because that's exactly what
9 we're here for, is that they're doing revisions to be
10 able to do the workings and get to the Tank Seam. We
11 think there will be more impact caused by getting there
12 than what's in the Tank Seam.
13 But to try to say what's exactly in the Tank Seam is
14 to such a limitation, because they're going to ramp up,
15 as we understand, from the mine plant, to ramp up into
16 the Tank Seam, take the coal out of the Tank Seam down
17 through the present workings. I don't want to be so
18 limited I guess is my point.
19 MR. LAURISKI: I'm going to let you proceed, but I'm
20 having some difficulty seeing where this testimony is
21 going to tie in to your expert's testimony in terms of
22 the future mining of the Tank Seam. So I'll reserve our
23 judgment on the objection, to the relevance of this
24 testimony, until we have had an opportunity to hear from
25 your expert. And there has to be a tie here somewhere,

Co-or

211.25 - Gentry

p. 75 - Tie Fork

Ice Formations p. 86-89

Records p. 95

p. 106 extensive faulting.

106-07 montgomery.

key p. 120-21

p. 124

Flow chart springs 1980-1994 p. 142

p. 156

p. 159

Trution analysis montgomery

put in tritium analysis.

[illegible] 228

otherwise we're not going to be able to consider the testimony you have presented so far. At least as I can see it.

MR. APPEL: I'm willing to proffer to the Board our expert will make that connection for you. What I'm doing with Mr. Leamaster is laying a foundation. It's an interesting objection to suggest I'm not providing foundation when I'm in the process of laying the foundation for the expert. But I appreciate the ability to continue.

MR. LAURISKI: Yes.

BY MR. APPEL:

Q. Mr. Leamaster, I believe we were talking about what we casually referred to as the event. You would explain that to the Board.

A. Yes. In the wintertime, 1990, 1991, we and when I say we, I mean our foreman who operates in the area, and myself, observed a great deal of ice formation on the cliffs immediately above our springs, and back towards the Co-op mine. This was something that we had never seen before. I called and made arrangements with the fellow that Mr. Howard -- Darrell Rolly who was familiar with the canyon, and hauled coal out of there for the old mine, and asked him to go with me. I told him I wanted him to see something. I didn't tell him

why. He immediately commented he had never seen anything like that before. We had a lot of water coming out of the cliffs and freezing on the outside that we had never seen before.

MR. LAURISKI: What year was this?

THE WITNESS: This was in 1990 and 1991. First started seeing it probably in December of 1990, and went on in though 1991.

We started investigating that, and we saw some changes in some of the chemical characteristics of our spring. We didn't, at that time, notice any flow differences, but looking back at it now, we can see they were impacting on the flow of the spring. And what we eventually found out was that Co-op mine was discharging mine water back into the old workings of the old mine.

MR. HANSEN: Objection. Lack of foundation, no personal knowledge.

MR. LAURISKI: I'll note the objection, Mr. Hansen.

THE WITNESS: We have prepared some information showing the water quality, how it was affected during that time period. And if you'd like I can give that to you now.

MR. APPEL: That's the last question I have for this witness at this point in time. I'll refer him to Mr. Smith at this point for exhibits.

MR. LAURISKI: All right.

BY MR. SMITH:

Q. Mr. Leamaster, I want to show you what's been marked as Exhibit 13 and Exhibit 14. And I'll ask you to tell me if you can identify Exhibit 13 and 14.

A. Yes, I can. These are photographs that have been put together in the area immediately up canyon from our springs. These would be looking up Bear Canyon towards Bear Canyon mine, and they were taken to show the ice formation on the cliffs above our springs. Our spring would be about in the center of Exhibit 13, and the Bear Canyon mine would be to your right on up the canyon. Again, these were taken in the winter of 1990 and 1991.

Q. Do these photographs accurately depict what you saw at that time?

A. Yes, they do.

Q. And I would take it 13 would be a larger shot and 14 would be a close up of what's depicted in 13?

A. That's correct. I think 13, we took several photographs and then put those together to get a whole -- I guess you would call it a mosaic of the canyon area. 14 is a closer view with the ice formation.

MR. SMITH: I move for admission of Exhibits 13 and 14.

MR. LAURISKI: Mr. Hansen?

MR. HANSEN: No objection.

MR. MITCHELL: No objection.

MR. LAURISKI: Okay.

MR. HANSEN: Except on relevance.

MR. MITCHELL: Except on relevance.

MR. LAURISKI: Okay.

BY MR. SMITH:

Q. I'd like to show you a document that's been marked as Exhibit -- a 4 page document marked as Exhibit 18, and ask if you can identify Exhibit 18 for the Board?

A. Yes, I can. This is information that was developed by me in our office, concerning water quality from the Big Bear Springs.

MR. LAURISKI: Can you hold on for a second Mr. Smith, I think we're having trouble finding them.

MS. BROWN: They were included, Mr. Chairman, in your files this morning.

MR. LAURISKI: This morning?

Okay.

THE WITNESS: The first page of that document is basically a data summary of information that we have on water quality. The first tests we found were in 1971, and it goes up through June of 1994. We have basically

1 summarized the information that we have in our file
2 showing water quality through that time period.
3 If you turn to the second page of that -- I'm not
4 sure which one you have second. Is it marked calcium
5 concentration on the left side? Okay. What we have
6 done here is graphically plotted out some of the
7 parameters versus time, and the time period we're
8 talking about that we're concerned about occurred in
9 1990, late 1990, and through the early part of 1991.
10 You'll notice we have one high spike in that area of
11 calcium concentration that occurred in February of '91.
12 And in general, we're a little bit higher in calcium
13 concentration in that area.
14 If you turn to the other exhibit now, the next page,
15 it's on the left hand side, it says total dissolved
16 solids in milligrams per liter. And you'll notice a
17 very distinct rise in TDS concentration, starting in
18 like January of 1991, and persisting later on into 1991,
19 probably into July or August. And then we back off to
20 more close to the average.
21 And then the last page of that exhibit plots sulfate
22 concentration again against time, and there you'll see a
23 marked differential in the increase during that same
24 time period in early 1991 into say July or August of
25 1991.

We felt that these occurrences were related to the ice flow on the ledges, that our spring was being affected by something that was going on in the mine.

MR. HANSEN: Objection to the statement, lack of foundation, no personal knowledge.

MR. MITCHELL: Can I just briefly voir dire this witness with regard to the exhibits? I think we can short cut a lot.

MR. SMITH: Okay.

BY MR. MITCHELL:

Q. Mr. Leamaster, with regard to the exhibits showing pictures of ice on rock in what you believe was about '90, '91, in Exhibit 18, you believe there was a connection between the ice on the surface, and the change in concentration of materials measured for in 1991; is that a fair statement?

A. Yes, I do. I think there was.

Q. And not only do you believe there was a connection between those two events, but you believe there was a connection between something going on at the mine in 1991?

MR. HANSEN: I object to any answers he's giving to the extent they call for expert testimony.

MR. MITCHELL: Right, I just --

MR. HANSEN: If he's giving his lay opinion --

1 MR. MITCHELL: I just want to know what he thinks.
2 Do you think that?
3 THE WITNESS: In my opinion, I think there was a
4 connection.
5 MR. MITCHELL: Okay.
6 Q. And because you believe that, have you retained
7 an expert to try and help you figure out what's going
8 on; is that right?
9 A. That's correct.
10 Q. And you aren't trying to tell the Board you
11 have personal knowledge of what exactly happened, but
12 you were worried and you believed it was appropriate to
13 hire an expert; is that right?
14 A. That's correct.
15 Q. And the expert has his opinion as to what
16 happened?
17 A. That's correct.
18 Q. Is that a fair statement?
19 A. Yes.
20 Q. But if you can't do any more than say because
21 of what you believe were one, an event you observed of
22 ice on rock; two, measurements you took, and your
23 interpretation of those measurements; and three, what
24 you believe was going on in the mine, you believe
25 there's a connection?

A. That's correct.

Q. But you don't have anything you can point to of our own personal knowledge of that time other than what you may have learned from your expert; is that a fair statement?

A. Yes. Although we have been also given some information from DOGM, not directly from the mining company, but from DOGM that also --

Q. From the records filed with DOGM as a requirement of their permit?

A. That also indicated there was a problem.

Q. What time would that have been filed with the Board of Oil, Gas and Mining?

A. It didn't come until later, probably a year, year and-a-half after these events occurred.

Q. Okay. Is that something that you've raised, you've been concerned about, talked about before with the Board of Oil, Gas and Mining?

A. Yes.

Q. Okay. And you've raised your concerns, about the information that you believe was in the Division's records, with it?

A. Yes. Division of Oil, Gas and Mining has not had this information until now. They have had parts of it, but not all of this.

Q. Of your water monitoring?

A. Yes.

Q. Okay. So, what you're saying is that as of today would be the first time the technical staff of the Division of Oil, Gas and Mining would have had the data as presented?

A. That's correct.

Q. In Exhibit 18?

A. Yes.

MR. MITCHELL: Thank you.

MR. LAURISKI: Okay. Your objection is noted, Mr. Hansen.

BY MR. SMITH:

Q. Mr. Leamaster, this Exhibit 18, is that a compilation of records and data collected by your company?

A. Yes, and it also includes some data that has been collected by Co-op mining and they have submitted that to us.

Q. Okay. And it's accurate to the best of your knowledge?

A. Yes, it is.

MR. SMITH: We move to admit Exhibit 18.

MR. HANSEN: No objection.

MR. LAURISKI: Mr. Mitchell?

1 MR. MITCHELL: No objection.

2 MR. LAURISKI: Be admitted.

3 MR. SMITH: That's all the questions I have for this

4 witness, Mr. Chairman.

5 MR. LAURISKI: Mr. Appel, are you through?

6 MR. APPEL: Yes.

7 MR. LAURISKI: Before we begin cross-examination,

8 we're going to take a five minute break.

9 MR. HANSEN: I have about two minutes of

10 cross-examination.

11 MR. LAURISKI: Okay, then proceed.

12 BY MR. HANSEN:

13 Q. Mr. Leamaster, you testified that according to

14 your observations, flow decreased in the Big Bear Spring

15 since approximately 1983, '84; is that correct?

16 A. That's correct.

17 Q. And at or about that time, I believe you

18 testified that you had some wet years as far as

19 precipitation; is that correct?

20 A. Yes.

21 Q. And the precipitation in that area has declined

22 since that time; is that correct?

23 A. That's generally correct, yes.

24 Q. No further questions.

25 MR. LAURISKI: Mr. Mitchell?

MR. MITCHELL: No further questions.

MR. LAURISKI: Thank you, Mr. Leamaster.

(Whereupon a recess was taken.)

MR. LAURISKI: Back on the record.

We'll go back on the record so we can proceed.

MR. SMITH: We'd like to call Mr. Bryce Montgomery at this time.

S. BRYCE MONTGOMERY

was duly sworn, was examined and testified as follows:

BY MR. SMITH:

Q. Could you state your name and a address for the record, Mr. Montgomery?

A. S Bryce Montgomery, S. B-r-y-c-e, M-o-n-t-g-o-m-e-r-y. 3512 South 100 East in Bountiful, 84010.

Q. And what's your profession, Mr. Montgomery?

A. I'm a consulting professional geologist.

Q. And how long have you been engaged as a geologist?

A. At least 36 years.

Q. And could you briefly tell us what your educational background is as it relates to geology or hydrology?

A. I have a Bachelors degree in geology from

Brigham Young University and graduate courses there, and at other Universities in both geology and hydrology, and groundwater and soils, and geophysics.

Q. Okay. And in addition to your educational background, have you had an opportunity to have work experiences that relate to geology?

A. Yes. I've been in the actual practice of geology for at least 36 years, that's included working as an area engineer for the state engineer of Utah, and as the chief geologist for the Utah Division of Water Resources up until 1984.

Q. Could you explain, this Board may not be as familiar as some with what an area engineer for the State Engineer's office, what that job entails?

A. It involves the analysis of applications being made before the state engineer for the appropriation or change or other methods of moving water around or appropriating water, and the distribution and adjudication of water rights.

Q. In that job, did you have to determine if say one person's well would affect another person's well?

A. Yes.

Q. If they had additional rights moved to that well?

A. Yes.

Q. And so did you have an opportunity to be involved in underground water and hydrology issues in that job?

A. Yes.

Q. And you also mentioned you worked as chief geologist and geologist for the Division of Water Resources?

A. That's correct.

Q. What were some of those job experiences?

A. That involved aspects of the application and use of water, both surface and groundwater, planning, and the investigation of areas for development including location of wells, development of springs, the design and construction of projects for the development improvement use of water.

Q. I see. Any other job experiences that you've had you'd like to tell the Board about?

A. I've worked for independent oil companies as their geologist. I've done consulting work in several aspects of geology, specifically groundwater, over all of the years I've mentioned where it wasn't a conflict with my regular employment. And then since 1988 I've worked full time as a consultant in principally groundwater development, but also in oil and gas, and mining foundation studies.

Q. And have you been employed by the protestants here today to consult with them as far as groundwater issues that are before the Board today?

A. Yes, I have.

Q. And when did you begin that work for the protestants?

A. Started in the fall of 1990, and has continued on and off to the present time.

Q. And before I move on, I'd like you to take a few minutes and describe for the Board kind of some of the work that you've done in regards to this issue that's before the Board today, whether it be field work or investigation work, so the Board has an idea of the depth of the work that you've put into this issue.

A. Since the fall of 1990, I've done field studies of this area, and in fact the whole region. I've determined the source for the various springs, the interrelationship between the springs and the surface water, and the development of mining activity in the area, not only for the Co-op mine, but Plateau Mine and Pacific Corps., Genwal and other mines in the area. I've determined source protection areas for Castle Valley Special Water District, for their spring sources. This included the study of stereoscopic pairs (sic), aerial photography over this whole region and

1 adjacent areas, and it's consisted of a very extensive
2 study over the years.
3 Q. You have actually visited the area?
4 A. Several times.
5 Q. How about the mine in Big Bear Canyon operated
6 by Co-op, are you familiar with that mine?
7 A. Yes, I am, and my studies included a tour
8 provided by the mine manager of their operations, within
9 the mine.
10 Q. Okay. Since --
11 MR. LAURISKI: When was that, Mr. Montgomery?
12 THE WITNESS: When was it?
13 MR. LAURISKI: Yes.
14 THE WITNESS: That was in 1991. The tour in the
15 mine.
16 MR. LAURISKI: Okay.
17 BY MR. SMITH:
18 Q. And I assume you have had other opportunities
19 to visit the area and do field investigations?
20 A. Several times, yes. It's related not only to
21 these springs, but other springs in the area.
22 Q. Now, have you also reviewed documents prepared
23 by either Co-op or their consultants in preparation for
24 your testimony today?
25 A. Yes, I have. And I've also studied and

researched documents, provided by other mining companies in the region, on file with the Division of Oil, Gas and Mining, and otherwise acquired.

Q. Okay. And could you describe which documents provided by the respondent that you've had a chance to review?

A. Well, I've studied all of the documents that they have submitted to the Division of Oil, Gas and Mining in making application for their permitting since I've become involved. And that's included studies their consultants done for them, EarthFax. And I've also studied their submittals here for this hearing, in consideration of their request to be permitted for the Tank Seam coal mining.

Q. Okay.

A. This also included research of U.S. Geological Survey studies that have been done in this area and adjacent areas.

Q. Okay. Since we're not all geologists or hydrologists, and specifically not me, would you like to take a few minutes and kind of explain the general hydrology, geological features of this area that are specifically pertinent to your testimony today? There may be some exhibits here that we want to refer to.

A. Yes, I'd be glad to do that. You already know

where the mine is located and the springs are located, I believe, from the previous testimony that's been given.

MR. HANSEN: Excuse me, could we have the witness hold the exhibit back far enough so I can see it as well, please.

THE WITNESS: Yes, I'm sorry.

MR. SMITH: This is also one of the exhibits in your packet.

THE WITNESS: This is a blow up of one of the exhibits.

MR. LAURISKI: Number 9.

MR. SMITH: Thank you, Exhibit number 9.

A. What I would like to emphasize is that the tank coal mining seam is merely a segment of an overall hydrologic system that exists throughout this whole area. And in some ways you might liken it to one piece of a jigsaw puzzle you would lay on the table. To take one piece of that puzzle and try to determine what the total picture is, is greatly restrictive. By taking that piece and fitting it in with the other data or other pieces of the puzzle, then you get a clear picture, and that's what I'd like to emphasize to you. As I say, the Tank Seam is only part of this overall geologic and hydrologic system.

What we have, and I depicted on this generalized

outline, is we have a regional aquifer that extends throughout this whole area. Generally that aquifer consists of the lower previous geologic formations that are present in the area that will allow groundwater to enter in to them and be stored, and to be released from them.

The lower section of the geologic section that allows a regional aquifer to be developed within them, is the Blackhawk Formation, which contains the coal seams that we're talking about. The Tank Seam is in the upper part of it, and the Blind Canyon seam or Bear Canyon seam is the one that's presently being mined, the Co-op mine, and it's in the lower part of the Blackhawk Formation.

Underlying the Blackhawk Formation, we have a sequence of sandstones that have some inner beds of shale. This is known as a Star Point Sandstone Formation. And it rests directly upon a very thick shale formation known as the Mancos Shale, several thousand feet, it's quite impervious. So that acts as a floor to hold up the groundwater above that point within these pervious members.

The Star Point Sandstone has three members, sandstone members that are pervious and will receive and store groundwater. The upper member is the Spring

Canyon, the middle member is the Storrs, the lower member is the Panther member. And it's from the Panther member -- the base of this system, this hydrologic system, that the Birch Spring and the Big Bear Spring issues forth. The coal mine, Co-op's coal mine as presently operating has intercepted this regional aquifer that is within both the Star Points -- the Star Point sandstone and the Blackhawk Formation. So, the regional aquifer has a potentiometric surface or a sloping surface very much like the land surface that extends upward as you get in to the higher mountains.

And at the discharge point where the springs are, the potentiometric surface is very low, and the formation directly above it is not saturated. But as you get back northward into the mountain range, the Gentry Mountain Range to the north, THEN you have a thicker saturated section, and that section actually reaches up into the Blackhawk Formation which contains the coal beds. So when they mine the coal they intercept the groundwater.

Now, there are conditions here that make this groundwater not only able to flow laterally through the pervious sandstone beds, but it can also be transmitted vertically down through the strata, and it's due to extensive faulting that's occurred in this area. These

are tensional faults, formed by tensional forces pulling apart the rock formation and allowing cracks or joints to be formed, and where there's actually been movement or displacement along the joints, that's a fault.

You have openings that are developed vertically. These are near vertical faults that trend north and south. The Big Bear Spring and the Birch Spring, along with the Co-op mine, are located directly between two very prominent faults, as I show here on this sketch. One immediately to the east which has been called the Bear Canyon fault, that's at least 100 feet of displacement along it. And to the west, which is west of the Birch Springs, it extends northward also, as does the Bear Canyon fault, known as the Pleasant Valley fault. These extends for miles northward and southward. And in between those two faults is a segment of the earth's crust that's also faulted with less prominent faults. The Big Bear Spring discharges from three prominent joints at the south end of a prominent fault, just west of the Bear Canyon fault. The Birch Spring discharges along the very prominent fault which ties in with the Blind Canyon fault which is adjacent immediately on the west edge of the Co-op mining operations. So, and they are directly down gradient, these springs are directly down gradient to the south of

the Co-op mining operation.

Gentry Mountain area extends to the north with higher elevations, and that's where a lot of the recharge comes from that enters into that regional aquifer and discharges into the springs. I'd like to refer also to this cross-section, which is generalized again, through this area. The heavy black line is actually the surface of the ground, so, again, you have the Mancos Shale as I stated before which underlies the whole area which is impervious. And you have the Star Point sandstone immediately on top of it with the three members I've mentioned, and immediately above that you have the Blackhawk Formation, with the prominent coal beds within it.

And then above that you have other formations, which also receive infield trading water from precipitation and run off, that eventually works its way down and gets into the bottom of the hydrologic system or the regional aquifer, which again is comprised of both the Blackhawk Formation and the Star Point Sandstone. This has been proven and shown by several studies conducted by the U.S. Geological survey not only in this area, but the area to the south, the area to the north.

Referring to this exhibit, which is whatever

number.

Q. Excuse me, this is, I believe, Exhibit 11.

A. Okay. This is taken from one of the U.S. Geological studies and shows, depicts this system I've just explained to you.

MR. HANSEN: Objection, hasn't been established it does show the conditions as it exists in the area that's being mined. What we are looking at is a very general diagrammatic cross-section that bears no necessary relationship to the specific conditions found in the areas that Co-op is mining. In particular, this Exhibit doesn't show the Tank Seam at all, and shows no relationship between where the water may be coming from and where the Tank Seam is, and what effect mining in the Tank Seam may have, and I object to this exhibit on that basis.

MR. SMITH: Mr. Chairman, we're trying to at least establish kind of the basic geology which this testimony is based on. This exhibit is taken from a USGS study of that area of the coal field. The Wasatch Plateau coal field. It's not being offered, hasn't been offered yet. I don't even need to talk to an objection until I actually try to offer it into evidence, but it will be offered just as a learned treatise that shows helpful information as to the general geology and hydrology of

this area of the state.

MR. HANSEN: Again, even though it shows general geology of the areas, unless it shows specific geology of the specific area we're looking at, including the Tank Seam, it is in fact not helpful.

THE WITNESS: Can I show the specifics?

MR. LAURISKI: Well, let me -- we'll note the objection, and we'll consider what weight to give the exhibit if in fact it is offered into evidence relative to its applicability to the tank in the Blind Canyon seam. Go ahead.

THE WITNESS: All right.

It's true that it doesn't contain all of the detail, but it's hard to put on a chart in this fashion of display, every detail. But it does show sufficient to show the interrelationship of the regional aquifer from which the two springs discharge, subject springs discharge, and the existing coal bed that's being mined and the Tank Seam that's being proposed to be mined. This area in blue --

MR. HANSEN: I object, this document does not show where these springs are being discharged from, doesn't show the springs at all.

MR. SMITH: Mr. Chairman, if the witness could finish the answers before the objections are interposed,

1 I think this would go a lot better.

2 MR. HANSEN: The time the objection is to be made is

3 at the time.

4 MR. LAURISKI: I'll consider it a continuing

5 objection to this exhibit and to his testimony.

6 MR. HANSEN: Thank you.

7 THE WITNESS: Perhaps I could refer to an exhibit

8 that has been already accepted, that is similar to

9 this. That shows the actual springs, if I -- that shows

10 the actual springs. This Exhibit D depicts very much

11 the same as this other exhibit, but it's in three

12 dimension, which I've prepared Exhibit D and the

13 others.

14 MR. SMITH: That's Exhibit 8.

15 THE WITNESS: Eight, your eight looks like a D. But

16 anyway, it does then -- well, I guess it's still another

17 exhibit that I've actually named the springs on. But

18 let me continue.

19 MR. HANSEN: Again, I would point out that Exhibit

20 8, according to my notes, has not been discussed or

21 offered or admitted.

22 MR. LAURISKI: He has moved off of Exhibit 8 and

23 gone back to Exhibit 11, so I think we can move forward

24 here.

25 THE WITNESS: Okay. The thick blue section

1 represents the regional aquifer which is at the base of
2 hydrologic system and extends over several miles, wide
3 area. All of the coal mines in the area, actually as
4 they develop back into the mountain further into their
5 operations, they intercept this aquifer, including the
6 Co-op mine. At the base of that aquifer, there is
7 spillings that takes place. The water quality in this
8 aquifer is high quality and circulation and movement of
9 water from the area of recharge to the point of
10 discharge. Birch Springs and Big Bear Spring are two of
11 the points of discharge of that regional aquifer.
12 This black bed right here, represents the lower beds
13 in the Castlegate Formation of the Blackhawk Formation,
14 such as the Blind Canyon seam that's presently being
15 mined in the Co-op mine. This seam right here, this
16 black one here, would depict the Tank Seam that's
17 proposed to be mined, and you can see that in this
18 example no appreciable groundwater exists in the Tank
19 Seam. There may be a little perched water that's worked
20 its way down through the vertical fracture system and a
21 small amount may be encountered. But below the Tank
22 Seam you have the principal aquifer and the
23 potentiometric surface sloping towards the canyon
24 bottom, as I mentioned, as depicted on this
25 cross-section. So, the proposal by Co-op Mining Company

to mine the Tank Seam, not only involves the Tank Seam itself, but they need to have an interconnection as so stated in their proposal.

After they remove the coal from the face, they're going to move it down a ramp into the present workings where the Blind Canyon seam is being mined now. So they are going to affect this interval between the Blind Canyon seam and the Tank Seam. Plus, as they mine this Tank Seam and introduce whatever contaminants either in the subsurface or on roadways, such as salt applied in the winter, it's going to be able to be conveyed downward by any water, whether it's precipitation falling on the surface up here, or it exists within the ground, as it moves its way downward to the base of the hydrologic system. Whatever contaminants may be introduced, that water can convey it downward over time.

The other aspect of it is, as they mine this seam they are removing a support within the geologic section. That will later cause collapsing of overlying beds and induce increased jointing and fracturing for any infield trading water that may fall to the surface of the ground. That water too will work its way on down until it get to the bottom of the system, the regional aquifer.

So, it too can introduce contaminants into the system in that manner. Besides that, as they continue to use the lower workings to take out the coal of the mining operation in the Tank Seam, they will continue to intercept and drain this regional aquifer of part of its water and bring it out to the surface and dump it into the surface drainage of Bear Canyon where it can't get back in to recharge or supply the springs. The springs are receiving water out of the storage of this regional aquifer.

If you consider what Co-op has reported, they reported that they have encountered approximately 500 gallons a minute of water as they continue their operations. They say they are removing about 300 gallons a minute out of the subsurface and dumping it into the surface. That's nearly half a million gallons of water a day that they are subtracting and removing out of this storage. It will not be available over time to supply these springs.

The movement of this groundwater is very slow. It's not like water in a river. It's moving very slow through this rock. From the pumping in tests that have been conducted both by EarthFax for Co-op, and by Plateau Mining Company, the rate of flow is only about a 10th of a foot per day or less.

If you intercept this water by your mining operations, and then convey it such as was originally done prior to 1991, and convey it into the south end of the mine workings, then you've interrupted the natural rate of flow through that section. And as the -- let's see. Could I -- as the photographs depicted that were earlier shown, I took these photos myself in the winter of 1990 and '91, it's Exhibits 13 and 14, that groundwater, here's the top, very top of Exhibit 14, that bed is the collapsed coal bed that's being mined in the present mine. It's been set on fire naturally, and then the rock has collapsed. And you can see that's where the water is discharging from, is the base of that Blackhawk Formation. And it's spewing down over the face of the cliffs. They're interbedded shales in this Star Point section spilling over that contain dissolved solids. So besides the dissolved solids that are being conveyed out of the mine, which in those days prior to 1991, they were using calcium sulfate or gypsum dust to suppress the coal dust. Besides dissolving the water and bringing it out as this water flows down over the face of these cliffs, it picks up additional dissolved solids. Some of that water reentered the fracture system and becomes part of the recharge to these mines or these springs that we're talking about, both Big Bear

and Birch Spring.

So that's how the interrelationship is of one strata to another and how the groundwater moves down from one to the other. It all moves down towards this basil regional aquifer.

Q. Before we get to the next chart, maybe we can -- let me ask you this question, Mr. Montgomery. Is Exhibit 11, which is the one we have just been looking at, is that an accurate representation of the geology of the area around the Bear Canyon mine?

A. Yes, it has the formation named along the margin.

Q. I move for admission of Exhibit 11.

MR. LAURISKI: Mr. Hansen?

MR. HANSEN: I have no objection as too what it shows. I do have some objections as to the comments that have been made and I've made most of those. But as for what it shows on its face, I have no objection.

MR. LAURISKI: Mr. Mitchell?

MR. MITCHELL: Let me clarify. This is introduced for illustrative purposes only to show a generalized cross section of the geology and hydrology of the Wasatch Plateau?

MR. SMITH: Yes.

MR. MITCHELL: Subject to that limitation, I have no

objection.

MR. LAURISKI: Be accepted.

MR. SMITH: Also, we probably ought to do Number 9, which is a diagram of major faults. I'll hold the whole thing up. The major faults around the mines and the spring that we were talking about, both a cross-section and a, I guess, a plan view. I'd move for admission of that exhibit.

MR. HANSEN: I have a few voir dire questions I'd like to ask about this exhibit.

Q. Mr. Montgomery, in testifying about Exhibit 9, in particular the upper half of that exhibit, you stated that this diagram shows two major faults which are, as I read it, are identified on the diagram as the Pleasant Valley fault and Bear Canyon fault?

A. Yes.

Q. And you said there was a minor fault between those two faults.

A. More than one fault. There is a fault right at the west edge of the present Co-op mine known as the Blind Canyon fault. It splays southward, it splays southward and a branch of that fault is this fault you see depicted in the earlier exhibit at the Birch Spring. That's a fault very pronounced in that photograph.

Q. In fact, either that Blind Canyon fault or -- I'm not sure whether the fault I'm referring to is named, but either the Blind Canyon fault or some other fault is not a minor fault, it's a major fault with over 200 feet of slippages?

A. I was comparing it with the Bear Canyon fault on the east and the Pleasant Canyon fault on the west as being minor to those faults, but they're certainly very pronounced and very significant and important in this whole relationship.

Q. And this other significant fault that is not shown on Exhibit 9, is actually located about 800 feet from where Birch Springs comes out, isn't it?

A. The fault splays to the south, it branches like the branch of a tree, southward. So there's more than one fault as you go southward. It splays, divides, splits.

Q. And in fact, Co-op mine does not mine the coal seams on the side of the Bear Canyon fault, and does not reach the other side of that Blind Canyon fault, does it?

A. Yes. I've been in the workings and it goes right up to the fault, the workings go right to the fault plain.

Q. To the Blind Canyon fault, not the Pleasant

1 Valley fault?

2 A. That's correct.

3 MR. HANSEN: I object to Exhibit 9 on the grounds it

4 was offered to accurately portray the conditions that

5 exist there and it does not.

6 MR. LAURISKI: Mr. Mitchell?

7 MR. MITCHELL: Mr. Montgomery, Exhibit 9 is really

8 two different exhibits, isn't it?

9 A. A plan view and a cross-section.

10 Q. And the source of your information for these

11 came from a variety of sources?

12 A. That's correct, it's a combination of all the

13 effort I've previously mentioned.

14 Q. And so is it fair to say that since you became

15 involved with this issue for the water districts, in

16 late 1990 early '91, you have looked at previous USGS

17 monographs, you have looked at some information, I

18 believe you testified, both by the operator and their

19 consultants?

20 A. That's correct.

21 Q. And this Exhibit 9 is your interpretation of

22 all of that data over all of that time?

23 A. In a brief generalized way because again, it's

24 not as a detailed map, but merely to display, to show

25 the interrelationships here. So it's not a precise

complete map and section.

Q. So it's illustrative of what you believe are the most important geological hydrological features in this area, which demonstrate or would support your theory of what's going on with regard to mining and the subject springs?

A. That's correct. As I stated on the title it is generalized.

Q. Okay. I would not object to its admission so long as it was admitted simply as illustrative of his interpretation of various sources, for purposes of demonstrating his theory of what's going on, not as he says, an accurate detailed depiction of the actual state of affairs at any particular identifiable location.

MR. LAURISKI: It will be accepted only as an illustrative exhibit.

THE WITNESS: I'd like to refer to this exhibit, which is a geologic map which I have prepared of this whole region which was included the areas we're talking about.

MR. SMITH: For the record that's Exhibit 6.

A. This is a geologic map depicting the interrelationship of these faults and joints, the outcrop of the Star Point sandstone, and the location of the springs that we're talking about, and the structure

of these rock strata that are involved.

The very pronounced, numerous number of faults and joints are indicated on this map, and again, they don't -- it's hard to depict every individual joint, but these are the most pronounced and prominent joint trends and faults that cut through the area. And as you can see, this is the Co-op mine tract right here, and the Big Bear Spring is immediately down gradient, right below it. The Birch Springs is immediately at the southwest edge of it, in association with Blind Canyon fault that trends along the west edge of the mining operations.

This map also shows that the involved formations are regional in nature, and the aquifer we're talking about represents a large storage area that contains groundwater that's been moving within it for many many years at a relatively slow rate.

I'd like to refer to this other exhibit which is also taken from a U.S. Geological survey publication, and it shows the relationship of how mining effects groundwater in bedrock such as we have in this case. Here is the conditions before at the top, and you have a coal bed through here. You have a potentiometric surface here of the groundwater aquifer that involves the coal bed. This would be representative back deep in

the mine to the north of the Co-op mine. When you come in with a tunnel to mine that coal, it's the same as if you were to drill a well vertically into an aquifer and pump out of it, only in this case the groundwater is able to flow by gravity out of the aquifer so the potentiometric lines which are normal to the flow lines show how the water then moves out of the aquifer by their drainage system that's been introduced in to the mine, which occurs at a very much faster rate than was occurring naturally.

So water that would normally then flow in its natural course down through the bedding and the fracture system to discharge naturally, such as that the springs are intercepted by the operation of the coal mining. And by withdrawing that water out of the groundwater system and discharging it away where it can't remain and flow on its natural course, subtracts from the total storage. So the effects of coal mining will be a very long term affect. It will affect these springs for many many years, because it's reduced, it's pulling out of the storage water that would have been available to those springs, specifically in dry periods.

MR. HANSEN: I object at this point. Again we've heard a lot of testimony on and on about the effects of groundwater and so on, which is all very well and good,

but all of this testimony relates to Co-op's current mining activities and it's already been mining. Mr. Montgomery very quickly testified there was no appreciable water in the Tank Seam and then went on. I think that statement he made is key. He's already testified there is no appreciable water in the Tank Seam, and the issue here is whether mining in the Tank Seam is going to affect the groundwater. The things he's testifying to now relate to Co-op mine's current mining activities, not to the effect on the groundwater or what's going to happen if they go up in the Tank Seam. It's not relevant.

MR. LAURISKI: Mr. Montgomery, if we could go back to the prior exhibit, Number 10, the one that shows the working face and the gravity flow as well as using that exhibit there. That's correct. As I look at that exhibit, as I look at Exhibit 11 which is the one you just set down that supposedly offered to depict the two seams, the Blind Canyon seam and the Tank Seam, where in the upper exhibit would the Tank Seam intersect one of these under ground aquifers to allow the gravity flow you are depicting?

THE WITNESS: The Tank Seam would actually be above the water table depicted here because the water table or the potentiometric surface exists below the blind seam

where it's been drilled in the Co-op mine. They encountered very little if any water. I think in one hole it was a 10th of a gallon per minute and the other hole a half a gallon a minute. But that water is water that is moving downward through the formations and working its way down towards the water table of the principal aquifer. You can have a lot of water stored in the section above, such as in the formation where the Tank Seam is, and not be completely saturated to where it will yield water to a bore hole. It has to be saturated before it will flow out and yield water.

MR. LAURISKI: Are you saying then that water would not flow downward to the bottom aquifer if mining didn't occur?

THE WITNESS: No. The fact the fracture system is present in the area allows that vertical flow downward. If it were not so you would have groundwater flowing out to the face of the cliffs and spilling down the cliffs, such as was done when Co-op dumped the water in the south end of the old workings, and that occurred.

MR. LAURISKI: So regardless of whether the Tank Seam was mined or not mined, the water in the upper aquifer is would flow by gravity to the lower aquifers through fractures, and joining in the strata?

THE WITNESS: That's correct, you're right.

MR. SMITH: If it's mined it won't flow that way.

MR. LAURISKI: Mr. Smith -- please.

THE WITNESS: Rephrase it so I'm sure that I'm answering it as correctly and truthful as I can.

MR. LAURISKI: My question is, is that regardless of whether or not the Tank Seam is mined, the Tank Seam as I understand, does not intersect --

THE WITNESS: The regional aquifer.

MR. LAURISKI: -- the regional aquifer.

THE WITNESS: At this position.

MR. LAURISKI: My question then is, as I've understood your testimony, the regional aquifer, the bottom part, the bottom aquifer would still receive water through fractures and joining from the upper regional aquifers, regardless of whether or not the Tank Seam was mined or not?

THE WITNESS: Yeah, these are actually called perched aquifers. They're spilling water downward through these vertical fractures, to the regional aquifer. In some instances you may get a spring up high, but we don't have any in this area in this vicinity, in the Co-op mining area. The only reason the ice built up so far as is shown there is because Co-op was not discharging the encountered water to the surface, they were conveying it into the south end of

their workings, then it built up and burst out through whatever means it could.

MR. LAURISKI: And the question is that would occur, whether or not that Tank Seam were mined?

THE WITNESS: Yes, but whatever amount of water is encountered in the mining operation by the Tank Seam, and discharged out of the mine, would be a subtraction from what would have occurred naturally.

MR. LAURISKI: Wouldn't it also go on through the floor joints and floor fractures in to that regional aquifer?

THE WITNESS: Well, if you've been in a coal mine, the floor is very well compacted. The joints that exist in the floor of the coal mine, once you get in there and work on it, you've got coal dust, you've got dust that's been introduced to suppress coal dust, you've got compaction by equipment working back and forth over it with water in it, and so you actually plaster the floor of the mine to where the permeability is greatly reduced for that water to enter back and go vertically down through the formations beneath the mining operation.

So you've interfered. You've damaged the permeability that existed naturally to allow that flow to go down through.

MR. LAURISKI: Are the Blackhawk formations

susceptible to floor heating?

THE WITNESS: Yes, all formations are once you take out this -- the coal seam, then you've taken out the opposite force that's holding things in place and it's able to bump or come up. I mean that's common in all mines.

MR. LAURISKI: Okay. Thank you.

MS. LEVER: May I, for my clarification, if I'm understanding a coal miner's question to a non coal miner's question, is that you're saying that if the Tank Seam is removed, that the water, that it becomes like a barrier and is more likely to go out and divert the normally percolating waters that are going on and divert them off so they don't get to the aquifer or are much less reduced that would get to the aquifer?

THE WITNESS: You're right.

MS. LEVER: Okay. So, bottom line is it damages the aquifer?

THE WITNESS: That's correct. It damages the natural system, changes the regime, the way the groundwater moved through the system before. If I might use the example, prior to 1991, when Co-op was taking their encountered water and discharging it in to the south end of the old workings, you see they conveyed that by a pipe line within the mine. So they changed

1 the rate of flow from where they encountered the water
2 in the face of the mine, through that interval or
3 distance towards the south end of the old cave workings.
4 When that water was dumped, it took whatever course it
5 could, and some of it went downward, some of it went
6 laterally and spilled out on the face of the cliffs.
7 MR. LAURISKI: But as I look at that exhibit though,
8 we're talking about the Blind Canyon seam intersecting
9 the regional aquifer versus the Tank Seam which doesn't
10 intersect that regional aquifer. And then you're
11 relying upon that impact to be from the first aquifers
12 above it. Doesn't that have some impact in terms of
13 where the coal seam is going to intersect, either
14 intersect or not intersect those aquifers, particularly
15 the regional aquifer?
16 THE WITNESS: Well, in this example, if this -- if
17 you see the potentiometric surface of the water table,
18 it goes up higher as you get back into the mountain, and
19 the seam is near horizontal. If you were to continue to
20 mine that seam, you might intercept some of this, the
21 top of that aquifer, as you get farther back north into
22 the mountain and towards the principal area of
23 recharge.
24 MS. LEVER: So Mr. Montgomery, are you saying the
25 darker line that you have showing where the Tank Seam

line is, that that goes on back farther and you haven't drawn it in to intersect?

THE WITNESS: It's not saturated in this position, but you could encounter saturation as you get farther north.

MS. LEVER: So your stopping of the line is not because the seam stops?

THE WITNESS: Well, see what they did, they drilled drill holes from the existing mine upward, to intercept the Tank Seam. That's how they determined that. Pardon me just one moment.

MR. SMITH: This is not an exhibit we prepared, this is an exhibit that comes from a USGS publication.

MR. LAURISKI: We understand that it was introduced for illustrative purposes.

THE WITNESS: I believe I mentioned before, that one of the other impacts by mining the Tank Seam is whatever contamination is introduced will change the natural system in the area of this mine. The groundwater that normally would have worked its way down to the principal aquifer will pick up any of these contaminants and convey them on downward into this aquifer, and that way it can impact the aquifer in that manner. And also it will restrict the movement that was originally there naturally for that water to move downward because you

have an artificial flow now that you've introduced in the mine, very much like this Mancos Shale surge underneath. It becomes very less in its permeability. It's the ability for the water to move through the floor of the mine.

MR. LAURISKI: Thank you.

MR. SMITH: We'd like to move for the admission of Exhibits 6 and 10, Exhibit 6 is the area map and Exhibit 10 is the chart taken from the USGS publication showing the impact or how mining impacts water.

I should also note that Exhibit 10 in your book also has a photograph that we didn't enlarge, showing water coming out of a roof bolt hole. We'll have some testimony later on about that.

MR. LAURISKI: I'll reserve judgment on accepting that exhibit until we've had the testimony on the photograph. Mr. Hansen, what about Exhibit number 6?

MR. HANSEN: No objection to Exhibit 6.

MR. LAURISKI: Mr. Mitchell?

MR. MITCHELL: Exhibit 6, help me.

MR. LAURISKI: It's the map.

MR. MITCHELL: And that again is offered in the same way as Exhibit 9 was, for the same purpose?

THE WITNESS: No, this is a detailed geologic map.

MR. MITCHELL: To show the generalized area running

from roughly Range 7 East north to --

THE WITNESS: Yes, it extends through all of the Huntington Canyon drainage.

MR. MITCHELL: Showing the entire Huntington Canyon drainage?

THE WITNESS: Yes.

MR. MITCHELL: I have no objection to that exhibit.

MR. LAURISKI: It will be accepted.

MR. SMITH: Thank you.

MR. MITCHELL: Have we moved for Exhibit 10?

MR. SMITH: Yes, I moved for the bottom half of Exhibit 10 because that's all we've covered at this point, and I move for its admission.

MR. HANSEN: To the extent it's offered for illustrative purposes only, I would not object. If it's offered to depict actual conditions, I would object.

MR. MITCHELL: Just a brief question. The Exhibit 10, the different potentiometric surfaces do not depict any fracturing or faulting, do they?

THE WITNESS: They generalize the effects of fracturing and faulting because the potentiometric surface can be generalized with contours or a line such as in this section, but actually it's quite irrelevant because the permeability will vary wherever this water will encounter a joint or fracture. So it may look more

like a stairway, the steps on a stairway. Even though you could draw a straight line, there are irregularities along it.

MR. MITCHELL: But Figure 3.22 states they are cross-sections showing changes in flow through a uniformly permeable coal bearing aquifer. If you did not have a uniformly permeable coal bearing aquifer, then this would not accurately represent the nature of the potentiometric surface and mining, would it?

THE WITNESS: In principal it would, but it would be irregularities in these lines because of the local variations.

MR. MITCHELL: And the degree of irregularities just tells us nothing about the degree of irregularity depending on the quantity and quality of fracturing?

THE WITNESS: That's correct.

MR. MITCHELL: With the understanding that this does not purport to depict a non uniformly permeable coal bearing aquifer, as stated on there, I have no objection.

MR. LAURISKI: We'll accept the bottom half of Exhibit 10 for illustrative purposes only.

THE WITNESS: May I refer back? I believe this is Exhibit 1.

MR. SMITH: Yes, that is Exhibit 1.

THE WITNESS: Exhibit 1 again, the relationship, here we have Big Bear Spring, we have Birch Spring, and then we have up here across Huntington Canyon, Little Bear Spring. The reason I draw your attention to this, is it's part of the regional aquifer system, this Little Bear Spring. But it's in a position to where it has not been impacted by coal mining. There is no coal mining impacting Little Bear Spring. And so if you use Little Bear Spring flows in comparison with the average annual precipitation, it represents an undisturbed condition of the aquifer. So I'd like to bring that to your attention, as to its location.

MR. SMITH: Mr. Chairman, you asked me to keep tabs on the time. I think we probably do have another 20 to 30 minutes of testimony to go. So this -- I note it's 12:40. This may be a good opportunity to break for lunch.

MR. LAURISKI: I agree with you. We'll reconvene at -- is an hour enough for everybody?

MR. SMITH: That's fine.

MR. LAURISKI: We'll reconvene at 1:30. Thank you.

(Whereupon the lunch recess was taken.)

MR. LAURISKI: Okay. We'll go back on the record. And I believe everybody's here. Mr. Smith, if you want to continue.

MR. SMITH: Thank you, Mr. Chairman.

Q. At this time we'd like to continue with the direct testimony of Mr. Bryce Montgomery. And I believe, Mr. Montgomery, you were explaining some of the geological basis for your opinions, and your conclusions in this thing. And I think you were going to talk about some water flow information if I'm correct.

A. Yes. I started to talk about the fact that Big Bear Spring and Birch Springs actually are part of a regional system and Little Bear Spring, which is three miles northwest of those springs, is a part of this regional system. And it has not been impacted by mining operations in the up gradient area of the spring. So by relating flows and changes in mineral content of the water of Birch springs, and Bear Spring to Little Bear Spring, helps one to determine what impacts man has introduced in to the natural system because Bear, Little Bear Spring represents the natural system without man's impact or influence on it.

MR. HANSEN: I object and move to strike at this point. Little Bear Spring is not only considerably up the canyon itself, but it is across the canyon and

1 across the river, and from petitioner's own evidence,
2 it's not part of the same water table. I think they
3 should establish some foundation. There is no
4 connection between what goes on in Little Bear Spring
5 and the potential impact of mining on Birch and Big Bear
6 Spring.
7 MR. LAURISKI: Mr. Smith, I tend to agree that it
8 seems like the condition is directed at Birch and the
9 Big Bear Springs, and I don't think we have any reason
10 to consider any evidence relative to Little Bear since
11 it's not within the permit boundaries of the mine.
12 MR. SMITH: That's right. Mr. Chairman, our purpose
13 in bringing Little Bear is to act as a control, or a
14 spring that is not being impacted by any mining
15 activity, as a control just as you would in any other
16 kind of scientific test of having a control as a
17 comparison to the two springs that are at issue, Big
18 Bear and Birch springs.
19 MR. LAURISKI: I don't think we have yet established
20 that the mining activity has impacted the springs at
21 this point, and we simply have received some data
22 relative to flows and some generalized cross-sections of
23 the area that have left us yet without the full realm of
24 answers relative to the mining impact.
25 MR. SMITH: That's right, and that's exactly where

we're heading with the charts of the flows. And like I say, the relevance that Little Bear has is as a control of a spring that has not been impacted, or there's no evidence of any impact of any mining activity on Little Bear Spring, and obviously if the respondents disagree with what our testimony is, they have their own experts here and can present all the evidence they want to attack that position. But I think we have the right to put forth that evidence.

MR. HANSEN: The question is one of relevance. If the evidence is not relevant, it's not admissible. Mr. Smith has stated that they intend to use this evidence to show a control, they may as well show -- introduce evidence of a spring in the High Uintahs or in Pennsylvania or elsewhere, there's no more relationship to those than to this spring.

MR. LAURISKI: I have noted the objection, and I think we can proceed forward.

THE WITNESS: The Big Bear Spring and the Birch springs are discharging out of a base of the regional aquifer system, that's the basal member of the Star Point sandstone known as the Panther Tongue or Panther member, and so is Little Bear Spring. It is part of the regional aquifer system of this area.

The precipitation also is very important in this

area because all groundwater reaching from precipitation, either direct infiltration or runoff that later infiltrates in to the subsurface, that's where groundwater originates, comes from. So, the changes in precipitation certainly have an influence on the springs, how they respond. And where you have a spring such as Little Bear Spring that has not been impacted by mining, it represents, you might say, the natural conditions unaffected, except for changes in precipitation.

Here on this chart, Exhibit 15, comparative flow chart from 1980 to 1994, of the three springs stated plus the precipitation. Precipitation is shown in the heavy blue line. Here you can see on the left side the scale is in tenths of inches for the precipitation. This is obtained from the Red Pine station which is just across the canyon from the two springs of concern.

And it was provided by the Department of Agriculture, the data for that. The red line depicts the flows by year across the bottom of Little Bear Spring. And you can see how that spring has fluctuated over that number of years from 1980 to 1994. There has been some ups and downs, but in general you can see the trend like thus, as I place the marker through that area.

In comparison, the green line depicts Big Bear Spring flows. You can see that there was a high in 1980 of about 270 gallons per minute. Then there was a drop down to about 180 gallons a minute. Then all of a sudden there was an abrupt rise and a hump, anomalous hump in the flows of Big Bear Spring.

MR. HANSEN: I object to testimony and characterization of what that exhibit shows. It shows what it says, and speaks for itself. We can all look at it and see what it says and don't need opinions as to what it says.

MR. LAURISKI: Well, Mr. Hansen I think Mr. Montgomery's been offered as an expert witness in this case, and I think that opinions are appropriate for experts.

MR. HANSEN: My point is, it doesn't take expert testimony to tell what a diagram shows. It shows what it shows.

MR. LAURISKI: It also leaves open a lot of question that perhaps either the Board has, at least I know I have some, and I'd like the opportunity to hear from Mr. Montgomery relative to what he thinks causes the anomalies or causes the decline in the curve with respect to these different springs. And I think it's appropriate for him to offer that into evidence.

THE WITNESS: This anomalous hump that occurred between about 1983 and approximately 1987, then it drops off and levels out. But the flows never have come back up through these exceeding years through 1994, equaled anything that had preceded that up to 1980.

The yellow line shown at the bottom are the flows, measured flows from Birch Springs. You can see that there was an anomalous high about 1989, 1990, and then it dropped off rapidly, leveled out. Not quite leveled out, still declining gradually to where the flows are down to about 20 gallons a minute, approximately 20 gallons a minute at this present time.

MR. LAURISKI: Before you leave Birch Springs, the question I have is, what the data would show prior to 1989. We have had testimony here today that that particular spring has been measured for a number of years in terms of its flow, and my question is what would that curve show?

THE WITNESS: Okay. The reason that the witnesses who preceded me were asked the questions they were, was to show that there were appreciable flows naturally before the spring was ever developed, and even after development they tried to give as accurate as testimony as they had.

From my perspective, in the plotting of this data,

we did not have recorded data prior to this time for this chart. But nevertheless, as I say, it was a very -- it was a high, up to approximately 100 gallons a minute in 1989. And then there was an abrupt drop off, gradual decline that's never come back. During this same period, from the water quality data that was previously presented under Darrel Leamaster's testimony, during that same period there was an anomalous rise in total calcium and sulfate and total dissolved solids during that period of time when this rise took place in both Birch Springs and Big Bear Spring.

Now, that, in going back to the chart again, in comparing those curves with the base line type curve of Little Bear Spring, you can see that there's a difference. If there was no impact by man, or influence beyond what man's provided, these curves should nearly parallel the same as Little Bear Spring. But you can see there has been a difference, and a steady decline in these flows that never come back up in either Little Bear or Big Bear Spring. From my judgment of why this has occurred, going back to this illustration, Exhibit 11, using the example of this before, here is the regional aquifer depicted by the blue, the present Blind Canyon seam being mined, and above it the Tank Seam to be mined. With the present mining operations

intercepting the potentiometric surface of that regional aquifer, they have created a drain, as I explained before, which is bringing water out of the mine. That's approximately a half a million gallons a day that's being subtracted out of this system. If these -- if this water was coming out of isolated aquifers that are not associated with the regional aquifer from which the springs are spilling, then the water quality would not be as high as it is. There has to be circulation of that water to maintain the high quality of less than 400 parts per million of the mine water.

And so, the interception of that water is subtracting, as I say, about half a million gallons a day out of that. It would have naturally worked its way downward and helped to supply the springs.

Now, if this water was not -- if it was separated water, completely a different aquifer, it would flow laterally out to the face of the cliffs and be spilling out to the face of the cliffs. It has to be moving, it is circulating water and that water is not naturally -- never has it naturally flowed out to the surface, because it's been working its way downward just like the gradient shows to the basal member of the Star Point.

Q. This is as good a time as any. We'll move for the admission of Exhibit 15 which is the comparative

1 flow chart from 1980 to 1994 of the springs.

2 MR. LAURISKI: Mr. Hansen?

3 MR. HANSEN: No objection.

4 MR. LAURISKI: Mr. Mitchell?

5 MR. MITCHELL: I would object because he's had a

6 chance to testify about it. The question is, does it

7 come in for purposes of relevance, and I'm going to

8 renew the basis there's no evidence before the Board

9 that Little Bear's appropriate as a control. There is

10 no evidence of any sort of long term trend. His own

11 testimony has been this is very slow moving water. And

12 yet he shows, for example, Little Bear as being very

13 reactive to precipitation. And he shows Big Bear and

14 Birch as being essentially non reactive to it. He has a

15 theory as to why that is, but it all assumes a lot of

16 things that they haven't established.

17 They haven't established that Little Bear is an

18 appropriate control and is part of the same. The only

19 evidence you have in front of you is sort of a

20 generalized picture of the Wasatch Plateau which he says

21 is faulted, discontinuous faulting all through it. He

22 says that's the recharge for even assuming there is a

23 single unidentified aquifer for the entire region which

24 is continuous across the board, and you could drill a

25 well anywhere in there, or find a spring anywhere in

there and correlate what's going on. He says that this aquifer is essentially recharging across the full length of it.

So, he then gives you a map which shows numerous mining operations to the north of it, up gradient. And yet none of his testimony has taken into account what effect mining might have had in those areas. Consequently, I would object to the comparative flows coming in for the purpose of showing that they're comparative of something that this Board can rely on as relevant or accurate for this purpose.

MR. LAURISKI: Mr. Smith?

MR. SMITH: Maybe what we can do to try to solve Mr. Mitchell's objection is take the time and put on the evidence about the -- at least our evidence about the relationship between Little Bear and Big Bear and Birch Springs.

Q. Mr. Montgomery, you've chosen Little Bear as a control, believing that is in the same aquifer. Would you first take some time and describe for the Board what you base that belief on?

MR. HANSEN: Again, I renew my objection. I apologize for having to do this so often, but I feel it's necessary to object on the grounds of relevance, keeping in mind what the narrow issue is, whether

1 Co-op's mining activities and Tank Seam, if it be
2 permitted to engage in those activities, is going to
3 impact Birch Springs and Big Bear Spring. And
4 petitioners have not established and cannot establish
5 that any evidence that they put on relating to Little
6 Bear Spring is going to have any impact on that issue.
7 MR. LAURISKI: Again, I tend to agree with Mr.
8 Hansen, we have nothing before us either in your
9 petition to this Board, to object to the decision of the
10 Division in granting this significant revision to
11 indicate that Little Bear Spring has had any impact or
12 would be impacted by mining in the Tank Seam.
13 MR. SMITH: We don't believe it's impacted by the
14 mining of the Tank Seam. We've --
15 MR. LAURISKI: So the question becomes the relevance
16 to the testimony on Little Bear.
17 MR. SMITH: And we believe that it is valid, because
18 it's issuing from the same aquifer that has not been
19 impacted by mining. The question is -- and we have been
20 -- an objection has been received from the Division
21 saying we haven't established that. We're happy to take
22 the time today and establish that. At least that's what
23 our belief is.
24 MR. LAURISKI: My understanding of the testimony,
25 and I'll raise this briefly, is that Little Bear hasn't

been impacted by the activities. And my question to you Mr. Montgomery, is why do we see a declining rate in discharge out of Little Bear and an inclining rate in discharge out of Big Bear? We see those two curves coming together.

THE WITNESS: I'd like to explain that if I might.

MR. LAURISKI: Okay.

THE WITNESS: First, I'd like to mention so far as the relevancy of Little Bear Spring and these other springs, three studies that have been, I think, previously presented to you, made reference to by the U.S. Geological survey. One of them was done on this very area, by Terence Danielson and others, Hydrology of the Coal Resource Areas in the Upper Drainages of Huntington and Cottonwood Creeks, Central Utah. That report shows the relationship that I've just pointed out to you.

MR. HANSEN: I object, petitioners have not offered that report as an exhibit and not identified it as an exhibit. I don't believe it's proper for him to testify as to its contents.

MR. SMITH: If I can speak to the objection. Under the rules of evidence in Utah, an expert is allowed to base his opinion on whatever experts in his field would customarily rely on in basing their opinion. And

1 whether it's in evidence or not in evidence, makes no
2 difference, or whether it's even admissible in
3 evidence. And I believe what Mr. Montgomery's trying to
4 do is point out the things he is relying on in basing
5 his opinion that he thinks these are on the same
6 aquifer.
7 MR. LAURISKI: Go ahead, Mr. Montgomery.
8 THE WITNESS: That report refers to the specific
9 area we're talking about, was done with a lot of
10 research and detail by the U.S. Geological survey
11 hydrologists and geologists which I considered with
12 respect to be competent and know what they're doing.
13 And another study that was done just to the north of it,
14 on the same formation, same relationship, same kind of
15 problem, was done by Wadell and others, and it's
16 entitled Hydrology of the Price River Basin, Utah, and
17 that shows the relationship that I've just pointed out
18 to you also. That is water supply paper 2246 of the
19 United States Geological Survey.
20 To the south of us, bounding on the south, another
21 study has been done by the U.S. Geological Survey by G.
22 C. Lines, water supply paper 2259, entitled groundwater
23 System and Possible Effects of Underground Coal Mining
24 in the Trail Mountain Area, Central Utah. And it
25 establishes the same relationships, the same problems

1 and concerns, and impacts or potential impacts of coal
2 mining on this regional aquifer system we have just
3 talked about.
4 So, I offer those to you, in support of what I've
5 just said.
6 Getting back to your question, Mr. Chairman, this
7 anomalous area, and in Big Bear Springs as well as in
8 Little Bear or Birch Springs, coincide with the increase
9 in total dissolved mineral solids, almost doubles the
10 content during those periods as was shown to you on the
11 other exhibits.
12 MR. LAURISKI: Could you pull that exhibit up,
13 because I don't see the correspondence. I see the
14 anomaly in the total dissolved solids as occurring
15 between the period of February of '91, and April of '91,
16 and I see that anomaly as being clear back in the years
17 1984 and '85.
18 THE WITNESS: Okay. If I might, I'd like to refer
19 you back to this chart here. From the time that the
20 coal mining operations of Co-op Mine intercepted this
21 aquifer and started picking up water, they conveyed that
22 water throughout the mine either for use or through a
23 pipeline, and dumped it in the south end of the
24 operations. That water was building up in there. They
25 have transported it, intercepted it back here,

1 transported it at a much faster rate than nature would
2 have done, through a pipeline and dumped it in the south
3 end of the workings, that water buildup, and eventually
4 infiltrated it. It took a while to move through
5 naturally down to where the springs discharge. So, it
6 had yet to go through an actual section after they had
7 interrupted the flow. But when it finally broke through
8 to the surface, as depicted in the photos there, showing
9 the ice on the cliffs, when it finally broke through to
10 the surface it started spewing down the surface. It
11 picked up additional total dissolved solids and started
12 infiltrating again in this section before it got into
13 the spring area, in to the fractures and so forth.
14 So you have first an increase in flow, due to this
15 shift of water, making it more available at the face of
16 the cliffs where it could go directly into the recharge
17 system of those springs, fault systems. Then eventually
18 the calcium sulfate that was used in the mine for rock
19 dust as well as the increased solids in the shale beds,
20 picked up additional -- the water moving through there
21 picked up additional sulfates, calcium sulfate, and it
22 doubled in both springs, Birch Springs and Big Bear
23 Spring, it doubled the concentration of calcium sulfate
24 during that period of 1990 to '91.
25 MR. HANSEN: Again, I object. All of Mr.

1 Montgomery's testimony, at least since the lunch break,
2 has nothing to do with Co-op Mine's mining activities in
3 the Tank Seam, and potential impact of those particular
4 activities. The petitioners, at the beginning of these
5 proceedings, stated that they intended to keep their
6 case narrow to that issue, and instead they have been
7 wandering all over the field getting in to things that
8 happened years ago in the Blind Canyon seam, things in
9 the Hiawatha Seam, and made no serious effort to tie
10 those long ago events to what may occur if Co-op's Mine
11 is permitted to mine the Tank Seam.
12 I think that they should be instructed to confine
13 their testimony to that specific area.
14 MR. LAURISKI: Mr. Appel?
15 MR. APPEL: I've been sitting here fairly silent,
16 but I think we would likely be able to tie this all
17 together if we could proceed with the expert testimony
18 of Mr. Montgomery without these continual objections as
19 to form. I know that Mr. Hansen doesn't like Mr.
20 Montgomery's conclusions, but he's here as an expert and
21 they'll be entitled to have conclusions from their
22 expert. I think the Board should understand our
23 presentation without continual objection.
24 MR. LAURISKI: Let's move forward, but at this point
25 I agree with Mr. Hansen, that we haven't been able to

1 see that tie between the Tank Seam, what is projected to
2 be the impact of mining the Tank Seam and what we're
3 seeing out of these springs. And I think we need to
4 reach that point. I'm writing myself a lot of
5 questions, where do we get this tie, and I tend to
6 agree, we haven't reached that point yet. We have been
7 talking about periods pre 1994 or even before that, and
8 this thing wasn't approved until July of 1994.
9 MR. SMITH: I think we'll very quickly and shortly
10 tie these things together if I can get the rest of my
11 exhibits ruled on and testified to, then that's exactly
12 my next question for our expert, is directed right
13 towards the SHEA, is the acronym, prepared by the
14 Division for this significant revision.
15 MR. LAURISKI: Okay. Let me do this Mr. Hansen. I
16 know you have a continuing objection to all this
17 testimony and it's noted so that we can proceed. Mr.
18 Mitchell, I've heard some of your objections relative to
19 relevance, and we'll assume that on all those issues
20 it's a continuing objection and take those under
21 advisement when we deal on this issue.
22 So if you would, if we can move in to the relevance
23 of Mr. Montgomery's summary relative to the Tank Seam.
24 MR. SMITH: If I could ask for admission of Exhibit
25 15. I think Mr. Montgomery testified that he relied on

other USGS reports that, to tie in, I think the only problem was with whether the Little Bear had any relevance. I didn't hear any objection to either the precipitation or the flows of the two other springs. I move for admission of Exhibit 15. I'd also like Mr. Montgomery to identify -- I'll do that and then move on.

MR. LAURISKI: We have the objections listed on Exhibit 15, and I'll note those objections, and we'll go ahead and take the evidence and consider the objection relative to the --

MR. MITCHELL: So is it fair to say at this time on 15, you're reserving whether you're going to take it or not?

MR. LAURISKI: That's correct.

MR. MITCHELL: And there will be an opportunity to cross examine Mr. Montgomery with regard to that exhibit further?

MR. LAURISKI: Yes, you will.

MR. SMITH: I then would like to have Mr. Montgomery identify Exhibit 16, which is a flow of just the, or chart of just the precipitation for Big Bear and Big Bear Springs for a shorter period of time, more detailed breaking up of the year from 1989 to 1994. And I'll have him identify that so we can get that moved for

1 admission.

2 THE WITNESS: This shows the same as the other

3 diagram on the flows except it covers a shorter period

4 from 1980 to 1994 with an amplification of the scale on

5 the left of gallons per minute. And it shows that the

6 precipitation is quite steady through this area.

7 Although you have areas of ups and downs, you can

8 average a line quite steady through it. But the flows

9 of Birch Springs were anomalously high, up a hundred

10 gallons per minute, dropped and have continued to drop.

11 And that drop is very pronounced on this scale, and they

12 never have come back up again over those years.

13 The Big Bear Spring is shown in the green, and

14 again, if you average a line to the highs and lows,

15 there's a gradual decline from '89 through '94 of the

16 flows.

17 MR. SMITH: I move for admission of Exhibit 16.

18 MR. HANSEN: I object on the grounds of relevance.

19 Mr. Montgomery did testify that the water in this water

20 table is moving at an extremely slow rate. I believe he

21 testified one tenth of a foot per day was the flow rate

22 in this water table. At that rate it moves less than

23 approximately 36 feet per year. Mr. Montgomery also

24 testified that there is at least a half a mile between

25 Big Bear Spring and the portal of the current mining

operation. That is what, 2600 feet. It would take in excess of 20 years for water to flow at that rate from the mining operation down to the spring. Given that 20 year discrepancy rate, trying to compare flow rates a month apart is totally irrelevant.

MR. MITCHELL: I also have a concern with the lack of scale with regard to precipitation. The precipitation is measured in one tenth of an inch. I don't know what that means on this, next to gallons per minute plotted across this. It's visually appealing, but I can't do anything with it.

MR. LAURISKI: I have noted both objections like Exhibit 15, and we're going to reserve a decision on the objection so you'll have an opportunity to cross examine on the relevance of these two exhibits. Mr. Smith.

MR. SMITH: Thank you.

Q. I'd like to turn your attention now, Mr. Montgomery, to what's been submitted to the Board by Co-op Mining Company as their Exhibit B, which is certain pages out of the technical analysis prepared for the Tank Seam, significant revision prepared by the Division. There are certain pages I specifically would like to turn your attention to. What's listed as page 21, which is the second page of Exhibit B, and I'd further focus your attention on the second or last

paragraph on that page, under the heading of groundwater.

And maybe the easiest way is I can read -- I'll read for the record this paragraph, and then have you testify as to whether you agree with this conclusion, or disagree with this conclusion that was reached by the Division on the significant revision that's before us today.

MR. CHRISTENSEN: What are we looking for?

MR. SMITH: You're looking for -- Co-op Mining Company has submitted their exhibits and rather than using numbers they gave them letters. It's their Exhibit B.

MR. CHRISTENSEN: Okay, thank you.

MR. SMITH: Second page of that. The top of page it says page 21. They've excerpted certain pages, I guess, that are relevant and submitted them today, or submitted them for the hearing today. And when everyone finds that I'll be happy to, like I said, I'll read that and then you can, Mr. Montgomery, testify as to whether you agree with the conclusion or disagree. And if you disagree, give us the reasons for your disagreement.

I'll begin with the conclusion in that last paragraph. It says, "Although a regional aquifer (termed the Star Point - Blackhawk aquifer by Danielson,

et. al., 1981,) has been designated for the area, in-mine drilling and aquifer testing conducted for this study area indicate that three aquifers within the Star Point sandstone have individual static water levels. Further, in the southern most hole (DH-3) -- I assume that's for drill hole three -- shown on Plate 2, PAP, none of the three aquifers are fully saturated. This fact indicates each of the units have a separate and distinct water levels. The springs issue from the bottom of the Panther Tongue in (417 to 433 feet below the Blackhawk Formation contact with the Star Point Sandstone.) Therefore, Birch Springs and Big Bear Springs are hydrologically isolated from the impacts of mining in the Blackhawk Formation by the presence of two Mancos Tongues in the Star Point Sandstone."

A. I have no argument with the fact that separate water levels are measured in the three separate tongues of the Star Point Sandstone. And that part of the sandstone members were not fully saturated. As I depicted earlier, the mine intercepts the groundwater table or the potentiometric surface of this regional aquifer. So what you've got, you've got groundwater that is trying to move laterally within the pervious three sandstone units. And you're -- you can easily get different water levels, successfully deeper water levels

from the upper one to the bottom one because of some interpolation of shale beds. But this does not preclude this groundwater from moving downward through joints and faults to the lower most member. That's exactly what's happening.

If this was not so, if this water could not move downward, it would move laterally out to the face of the cliffs and discharge down the face of the cliffs, which it never has done naturally. 300 to 500 gallons a minute is a lot of water, that's a half a million gallons a day. And you don't have that just come to the face of the cliffs and evaporate. It has to flow somewhere. And it goes downwards through the fracture system.

BY MR. SMITH:

Q. I'll read the next paragraph and have you similarly comment on the next paragraph.

"Areas of encountered groundwater within the mine are fractures which drain over a period of several months as the mine advances northward. This indicates a high degree of hydraulic interconnection through fractures in the portion of the Blackhawk Formation which overlies the mine. Inflows in the north end of the North Main and Second East entries are through roof bolt holes and hairline fractures which are presumed to

drain overlaying perched aquifers in the Blackhawk Formation. The current rate of discharge from the mine is approximately 300 gallons per minute."

A. Well, the water is moving downward into this regional aquifer as I've explained before. You'll find it in all degrees of saturation. The only place you'll see it moving is through a joint system, or such as was indicated, you could drill a hole up and intercept a joint or a bedding plain that's conveying the water, and get water to come out of it.

There's other members that perhaps are not saturated. Keep in mind that we're working, the Co-op mine is working both out of the regional aquifer at the south end, gradually northward to where it penetrates, and as it goes farther northward, it's penetrating it further with a higher head and more pressure there so more flow will come in to the mine as they go northward.

So, the chemical quality in the mine should be higher than water that was discharged by man out to the face of the cliffs, and then run down over the face of the cliffs which had both been in contact with calcium sulfate rock dust in the mine, as well as shale beds exposed across, or across the ends of the shale beds that are exposed to the cliff face. So you are bound to

get more sulfates in the water that is traveling through that interval.

The comments made a moment ago by Mr. Hansen about this water traveling at that rate, not all of it is traveling under ground, some of it has been spewed out and spilled down the face, and the water we're talking about was sampled back in 1991. That's the figures we're talking about, both from Co-op's studies as well as the data I've supplied to you. It was back then when we had this anomalous high, 1990 and '91.

Q. I'll continue and read the next paragraph and ask you to simply comment on this conclusion of the Division.

"Big Bear Springs Birch Springs in the vicinity of the Bear Canyon mine issue from joints at the contact between the Panther Tongue and the Mancos Shale. The majority of water inflows in the mine are through bolt holes and fractures draining perched aquifers in the Blackhawk and an indeterminate amount of interception of water from the floor in the area of the Second East entries. The review of water source information, the graphical tracking of precipitation versus flow, the testing of the spring water and mine water quality for tritium dating, analysis of water quality chemical data using Stiff and Piper diagrams, and the known presence

of three separate a piezometric surfaces based on drilling in the Spring Canyon, Storrs, and Panther Tongues of the Star Point Sandstone, leads to a conclusion of no significant material damage to the Hydrologic Balance outside the permit area."

A. Well, I believe that's a wrong presumption. And as I just stated before, there are differences that have occurred by the mining operations on this aquifer system, beyond what was naturally occurring before with regard to the tritium content. Tritium is a daughter product of radiation from open air bomb testing. It has a short half life of about 14 years. In other words, water that has been within the subsurface for a long period of time would have very low tritium content, specifically before the testing, the atomic bomb testing.

But surface exposures and water on the surface is bound to have higher tritium content. Once that water was discharged out of the face, of the cliff face -- the mining operations, it flowed down over the face and could easily have picked up more tritium content before some of it reinfiltrated back into the exposed Star Point Sandstone which is at the face where this water is infiltrating back into the recharge of the springs.

Q. Okay. We'll do one more paragraph, it's the

next paragraph down.

"Co-op Mining Company has drilled 8 exploratory drill holes into the Tank Seam, (page 2-13, Appendix 7-J, PAP). All were dry except one which flows at .5 GPM (drilled up from the mine workings in the Blind Canyon Seam). The inflows into the Tank Seam are expected to be much less than those encountered in the Blind Canyon Seam. Stratigraphically, the Tank Seam is 250 feet above the Blind Canyon Seam and therefore would tend to be drier and not expected to have the groundwater inflows found in lower coal seams (i.e., the Blind Canyon and the Hiawatha Seams). There has been no continuous water quality problems associated with mine water discharge at the Bear Canyon Mine and therefore it is not expected to change in the future, although it will be closely watched for any long term trends."

A. I have no objection to the earlier statements there, as to the facts presented there. But the conclusion in the last sentence is erroneous. There have been water quality problems, we have pointed those out to you, associated with discharge of water at the Bear Creek mine. Furthermore, as the Tank Seam is mined, whatever water is encountered will be dropped into the present workings. There's proposed to be a ramp to remove the coal from the Blind, or I mean the

Tank Seam, down into the Blind Seam mine workings under operation.

So you have a mixing of whatever water is encountered up there. And you are going to have an interruption of the natural movement of groundwater vertically down through the section from the Tank Seam through the intervening rock, to the present mine workings.

MR. LAURISKI: Are you saying, Mr. Montgomery, that there's been no -- are you disagreeing there has been no continuous water quality problems, or are you saying there have been some water quality problems?

THE WITNESS: There have been water problems.

MR. LAURISKI: Continuous?

THE WITNESS: Relative to quality. The anomalous conditions were the most pronounced, but they have ceased dumping their water in the south end of the workings, they're dumping it in to the surface out in the old channel of Bear Canyon. So that's been changed. But this doesn't happen overnight. I mean, there's still going to be some effect of that.

MR. SMITH: Could I have one second? I believe that's all the questions we have for Mr. Montgomery at this time.

MR. LAURISKI: Mr. Appel, do you have anything?

MR. APPEL: I think just one question because I'm not certain we have made the tie you are looking for at this point in time.

Q. Could you describe for us, Mr. Montgomery, the interconnection of the workings between the tank, proposed Tank Seam mining operation, and the existing mining operation?

A. As I understand it, there's to be a ramp constructed through the intervening section of about 225 feet up from the existing mine workings to intercept the Tank Seam. I understand there will also be a portal constructed up at the elevation to daylight from the Tank Seam, and there will also be a road constructed up the side of the mountain to access that portal. That's my understanding.

So, this is the relationship to mine the Tank Seam, it's not a matter of gouging the coal out. You've got to transport it and remove it, and that's going to be done through the present workings which has been presenting the problems that we've talked about, and those problems will continue. Their effect will be long term. When these people move out and stop the mining, the owners of these springs are still going to be suffering the effects of the impact of mining on those springs. It will be long term, over many years.

Q. So it's your conclusion that there will be an interception of some water by the Tank Seam?

A. Yes, but from the mining -- or pardon me -- from the test holes drilled to date, it appears to be a small amount. Although, there will continue to be infiltration from the ground surface downwards, intercepted or passing through the intervening Tank Seam. And it will continue to work its way on down to the present workings and would be a part of that discharge.

Q. And another problem you're perceiving, if I can summarize your testimony, is that there will be contamination inherent in the mining operation that will not only exist in the Tank Seam, but likely will communicate with the lower workings as well?

A. Whatever contamination is introduced, it will be in a position to be transmitted downward, eventually reaching the regional aquifer which supplies the water to the springs.

Q. One last question. Do you consider these two separate mining projects, or related mining?

A. It's obvious that it's all part of the present mining operation. They're not going in with a completely separate mine to mine the Tank Seam, it's going to be tied in with the present operations and

1 their present facilities are going to be used to convey
2 that mined coal out of the Tank Seam, out to be sold.
3 MR. APPEL: I have no further questions.
4 MR. LAURISKI: Okay, thank you. Mr. Hansen?
5 MR. HANSEN: I'll begin by renewing my objection to
6 move to strike the entire testimony of Mr. Montgomery on
7 the grounds of relevance. We heard promises throughout
8 the testimony that there would be some foundation to be
9 established to show the relevance; that has never taken
10 place. All of Mr. Montgomery's testimony is related to
11 his opinions concerning mining activities in the current
12 mining operation. There has been no evidence presented
13 either in the form of facts or evidence that would
14 indicate in any way that mining the Tank Seam would have
15 a material adverse impact on the quantity and quality of
16 water coming from the Birch and Big Bear Spring which
17 could not be cured by Co-op treating or replacing the
18 water. That's the standard that has been met. There is
19 no evidence to controvert that.
20 There's been nothing in any of Mr. Montgomery's
21 testimony that I was able to discern that ties to what
22 Co-op proposes, to have any adverse impact that they've
23 anticipated in Birch Springs and Big Bear Spring.
24 MR. LAURISKI: I noted your objection. Do you have
25 any questions of Mr. Montgomery?

MR. HANSEN: Yes.

MR. MITCHELL: Could I -- before we start asking Mr. Montgomery questions, I think it would be helpful to know whether or not the Board is ready to make any sort of review of -- you're resting your case in chief, am I correct?

MR. SMITH: We may have follow up questions.

MR. MITCHELL: Other than follow up questions you have no additional evidence?

MR. SMITH: We have no additional evidence after Mr. Montgomery.

MR. MITCHELL: And it's conceivable if the Board were to find all of this relevant, that we would then want to put on evidence going back to the earliest Division studies of hydrology in this area, in which case we'll be here for several -- could be here for several days. So, if we could have some sort of inclination as to whether the Board -- as to what it is we're going to be rebutting, because that will also affect our cross-examination. If all of his testimony is open to cross-examination because the Board's going to consider and weigh it as relevant, then, you know, we're going to need to focus on things other than the Tank Seam. We're going to have to go into two experts, hydrologic study for the entire Wasatch area, or if indeed you're going

1 to exclude evidence except for what's going on between
2 existing mining and the Tank Seam, that would help us
3 focus and narrow our cross examination and our
4 presentation.
5 MR. LAURISKI: Well, I'm not sure we're prepared to
6 do that Mr. Mitchell, but I think that Mr. Montgomery's
7 last statement should give you the opportunity to
8 determine whether or not the data he's presented so far
9 is relevant. He simply said, without my quoting
10 verbatim, that his conclusions were that because of the
11 ramp between the seams, the road construction pad,
12 construction and new portal construction, that what was
13 going on constituted additional impact on the water by
14 mining the Tank Seam.
15 And it seems to me, that from there you ought to be
16 able to make the connection, if there is any, in terms
17 of relevance between those issues, and the impact on the
18 hydrology of the area. He offered his conclusions, and
19 they have offered evidence to support his conclusions.
20 I don't know that this Board is prepared at this point
21 or at this juncture to give you any indication as to
22 whether or not we're going to accept or not accept the
23 information he's presented. Unless somebody else on the
24 Board has a different opinion, I'll turn it to the
25 Board. If you would like to take a recess now and

consider those issues, we can do that, or if we need to move forward. What's the Board's pleasure? Mr. Faddies?

MR. FADDIES: Move forward.

MS. ERLER: Move forward.

MR. MITCHELL: So could we have a brief recess to confer with our witnesses?

MR. LAURISKI: Five minutes.

(Whereupon a recess was taken.)

MR. LAURISKI: Mr. Hansen, we're back on the record.

MR. HANSEN: We'll call Kimly Mangum.

KIMLY MANGUM

was duly sworn, was examined and testified as follows:

BY MR. HANSEN:

Q. Would you state your full name?

A. Kimly, K-i-m-l-y C. Mangum, M-a-n-g-u-m.

Q. And can you tell us where you live and where you are employed?

A. I live at 388 East Boynton Road in Kaysville, Utah. I am employed independently by Mangum Engineering Consultants.

Q. Are you familiar with Huntington Canyon and the Co-op mine area in the canyon particularly?

A. Yes, I am.

Q. Are you aware of when Co-op mine first began mining in Bear Canyon?

A. Operations began 1981.

Q. Were you ever in the canyon area before that time?

A. Yes, I was.

Q. Can you tell us a little bit about the times you were there before Co-op mine began mining?

A. I was there, before Co-op mining began on one particular occasion that I recall, where I went over with a friend and went inside of the mine, in the existing workings that were there. It was in late fall. There was ice inside the mine where water was dripping from the ceiling. There was -- we had to hike up part way. There was ice on the outside on the hills where there was water apparently from springs from the surface.

Q. I'm going to show you my copy of Exhibit 14. That isn't too clear, maybe if we could get the color photograph that was marked, it would show it. Can you identify the area that's shown by Exhibit 14?

A. May I see the color one? This appears to be the cliffs above what is known as Big Bear Spring.

Q. And on this visit that you were just

discussing, what year was that?

A. 1979.

Q. Did you see this area that's shown in Exhibit 14 during that visit?

A. Not in that particular visit. I do not recall seeing this spot.

Q. Did you see other areas in the Bear Canyon area?

A. Yes.

Q. Did you see icing in those other areas similar to the exhibit shown here?

A. Yes, I remember seeing icing to the -- slightly to the north of where the portal is now, and also to the south there's a canyon there and I saw some ice.

Q. Between 1979 and 1991, did you visit Bear Canyon?

A. Yes, I did.

Q. During any of those visits did you see any icing on the cliffs?

A. Yes, there were times I visited on official -- as a consultant for Co-op Mining Company. I started working there in '87, '88. And so I was there in the canyon at those times. Prior to that time I visited the canyon, there was -- and actually went to Big Bear Springs, just walking around in the canyon. And I was

there in the wintertime in November, specifically hiked around looking for a Christmas tree, and had permission from the property owners. And so I was around on the property looking for a Christmas tree and I recall seeing icing on the hills.

Q. During any of those visits between 1979 and 1991, do you specifically recall seeing any icing in the area shown as Exhibit 14?

A. Yes.

Q. No further questions.

MR. MITCHELL: No questions.

MR. SMITH: No questions of this witness.

MR. LAURISKI: Thank you, Mr. Mangum.

MR. HANSEN: Call Charles Reynolds.

CHARLES REYNOLDS

was duly sworn, was examined and testified as follows:

BY MR. HANSEN:

Q. Will you give your full name, please?

A. My name is Charles W. Reynolds.

Q. And where do you reside?

A. I currently reside in Trail Canyon which is a non incorporated area in Huntington Canyon.

Q. And who are you employed by?

A. I'm currently under the employment of Mangum

Engineering Consultants, and my services involve full time management of the environmental and compliance issues for the Co-op Mining Company.

Q. How long have you been employed in that capacity?

A. Since the summer of 1991.

Q. Are you familiar with the conditions in the Co-op mining area?

A. Yes, I am.

Q. Are you familiar with the Co-op's mining permit, and the proposals relating to hydrology?

A. Yes, I am.

Q. Can you please describe for us the testing that Co-op mining did to determine hydrology relating to the Tank Seam?

A. Excuse me. As we were preparing the application for significant revision, where the Tank Seam existed directly above our current workings in the Blind Canyon Seam, we integrated a drilling program that consisted of holes drilled up from the Blind Canyon mine that penetrated the Tank Seam. At that time there were approximately eight holes that were drilled. Those eight holes that were drilled were spread throughout the existing permit area.

Q. What did you discover in those test holes?

A. We found for the most part that all of the holes were dry. There was one exception. There was one hole on the extreme north end of the permit area where we did encounter approximately half a gallon per minute of water, just under that coming out of the drill hole. And various of the other holes did have water dripping from them, but there was no significant amount of flow coming out of them.

Q. When did you last see those drill holes?

A. I reinspected them yesterday.

Q. Between the time they were first drilled and yesterday, has there been any change in what you observed in the hydrology?

A. No, there's no significant change there. The flows appear to be the same as what they were originally encountered.

Q. You've heard Mr. Montgomery testify as to the amount of groundwater that is being encountered in the mining operation.

Are the things Mr. Montgomery said about the current groundwater being encountered, true?

A. No. The actual flows that have been presented are not accurate as to what the current conditions are in the mine.

Q. What are the current conditions?

A. Currently in the Blind Canyon Seam where we have been mining, the water inflow we measured at right around 200, just a little over 200 gallons per minute, about 210 gallons per minute, and currently there is varying between 185 to 195 gallons that are being discharged into Bear Creek.

Q. Now, as you were mining in the Blind Seam you were mining towards the north; isn't that correct?

A. That is correct.

Q. As the Co-op mine mined towards the north, was there any variation encountered in the amount of groundwater that was having to be discharged?

A. There was always a small amount of water flowing in from the time that Co-op Mining Company first went into the seam, but it wasn't enough flow to meet their needs. They were actually having to pump water into the mine to use for their operations. As mining progressed north, this inflow from drippers, it was water dripping from the roof, did follow the mining as it advanced north, and it would dry up behind the mining. And also as it went north, the flows continued to increase. What we found is they would increase initially when it was first mined, and then as the section sat for a while, the flow would decrease significantly.

The 500 gallons per minute that was presented in previous testimony, was the initial flow that we saw when the entries were first pushed into the area. And then over the course of the year, that steadily decreased down to about 200 gallons per minute which it was currently flowing at.

Q. Tell us about the permit provisions dealing with entering the Tank Seam, mining the Tank Seam, and taking the coal out of the Tank Seam.

A. The revision, the revision to the permit which was approved by the Division, called for a road which would be constructed up to the Tank Seam, where three portals would exist. One portal as an intake and haulage way, one portal for exhaust ventilation for the fan, and one portal for the belled entry. It also consisted of construction of a bore hole from the surface down in to the existing mine in order to transport coal to our Tippel (sic) facilities.

The coal would be brought to the surface from the Tank Seam line, then it would be conveyed into the bore hole, which would take it down in to the Blind Canyon seam, and from there onto the existing conveyor structure which would take it to the surface where our Tippel facilities currently are.

MR. LAURISKI: So if I understand you correctly,

you're talking about a vertical ray shaft versus a slope connection between the two seams?

THE WITNESS: Yes. There's no slope connections that will be constructed between the Blind Canyon Seam, and the Tank Seam, it's simply an eight foot ray shaft dropped from the surface adjacent to the Tank Seam, into the Blind Canyon Seam. And this ray shaft, the location of it is to the southern end of the mining area. I do have some maps of the underground workings I could point out these locations, if it would be helpful. But the location of that bore hole is on the south end. There is no water flowing into the Blind Canyon Seam. The pilot holes that we've drilled at the location of the bore hole has indicated no water flowing from the location where the bore hole is to be constructed. And all indications indicate that the area in between the seams is also dry. To our knowledge there are no springs that emit from that area either in the construction of the road up to the portals, no springs have been encountered during road construction, and no springs have ever been documented in that area around where the road will be.

BY MR. HANSEN:

Q. Was any water -- excuse me. What is the status of constructing that access road to the Tank Seam?

A. Currently the road has reached the Tank Seam, and we have faced up the seams and are in the process of getting the equipment in place to construct the bore hole.

Q. Was there any -- go ahead.

A. So far there have been no entries pushed into the Tank Seam, no mining into the Tank Seam currently.

Q. Was any water encountered in constructing that road?

A. No.

Q. No further questions.

MR. LAURISKI: Questions?

MR. CHRISTENSEN: I'm trying to visualize, will the bore hole be inside or upside?

THE WITNESS: It will be outside the mine.

MR. LAURISKI: I guess I'm a little lost.

THE WITNESS: It will be outside of the Tank Seam line, and go down into the Blind Canyon seam line.

MS. LEVER: Will it be a conveyor belt that will bring the coal to the bore hole and drop it down the bore hole?

THE WITNESS: Yes.

MS. LEVER: But it will see the light of day outside of the portal on the Tank Seam load; is that right?

THE WITNESS: The coal itself will be in a

completely enclosed structure. The structure will see the light of day as it comes out.

MS. LEVER: And then goes down. But there will not be any vehicular connection between the seam inside the mountain?

THE WITNESS: No.

MR. LAURISKI: When you say that the bore hole is outside the Tank Seam, are you saying that you're having to go in through some rock access to bore that bore hole?

THE WITNESS: No, the bore hole is.

MR. LAURISKI: Does it come from the surface and go down through into the Blind Canyon Seam?

THE WITNESS: Yes.

MR. LAURISKI: Oh, okay. All right.

MR. CHRISTENSEN: That's what, 200 plus feet?

THE WITNESS: The total length is about 208 feet.

MS. LEVER: Do I understand on the path where you have the bore hole going in, you are saying that the water you might encounter either on the Tank Seam, and the water you know you're encountering down on the Blind Canyon Seams, those will be diverted away from the bore hole?

THE WITNESS: Yes. First of all, where the Tank Seam is the drilling has indicated pretty well dry in

order to conduct the mining activities. We'll actually have to bring water, pump water in in order to mine with. And the way that will be done is using the existing rights that we have for the Blind Canyon Seam. As was mentioned earlier, the production will not take place in both seams at the same time. The primary purpose of holding a lot of the mining activities in the Blind Canyon while we're mining in the Tank Seam is because currently in the Blind Canyon Seam, or what we call first mining which is basically developing the entries in, has reached the edge of the permit boundary on the north end.

The current application will not proceed any farther north in the current permit until it is ready for second mining which is pillar extraction. And before pulling a lot of those pillars, we're a little concerned with the impact that pulling those pillars may have on subsidence in the Tank Seam. And so our plans are to develop the Tank Seam fully and retreat mining there prior to completing retreat mining in the Blind Canyon Seam.

MR. LAURISKI: Thank you.

Mr. Mitchell, do you have any questions?

MR. MITCHELL: No. Thank you.

MR. LAURISKI: Mr. Smith, any cross-examination?

MR. SMITH: I have a couple questions.

Q. I want to talk about the eight exploratory holes in the Blind Canyon seams, do you understand what I'm talking about?

A. Yes.

Q. Who chose the spots where those were put?

A. I selected the locations of those.

Q. Now, I understand that most of the infiltration of water, of groundwater in the Blind Canyon Seam of the mine comes in from cracks and roof bolt holes in the roof; is that correct?

A. Yes.

Q. You didn't happen to select spots that appeared to be particularly dry as compared to spots in the roof where there was water coming through, did you?

A. No, in fact the eight holes were distributed evenly across the whole permit area. We did have one hole north in the section with water flowing, that has water flowing out, but there was just dripping out of the hole. We also have the hole that is flowing about .5 gallons per minute. There is some dripping from the roof in that surrounding area. So actually we don't know for sure whether the water comes from the area of the Tank Seam, or from somewhere in between the two seams.

Q. You didn't, did you, locate any of your holes

1 adjacent to the wettest, maybe the areas of greatest
2 inflow from the roof of your line?
3 A. As close as we could. The hole I was referring
4 to in the wet section was as close as we could get to
5 the wet areas. Currently the far north section of our
6 mine, which actually goes down hill to the north, is
7 where the water flows in, uses our mine storage. So a
8 good portion of the section is under water due to the
9 mine inflow where we have allowed it to fill up to
10 provide for water storage underground.
11 So, where the flow, where the major portion of the
12 flow is coming in, it would be not accessible by a
13 drill.
14 Q. I see. You couldn't drill on the wettest parts
15 of the mine to explore how much water is above your
16 mine, is that what you just testified to?
17 A. No. The drill holes we put was within 300 feet
18 of the face of our current mine, which initially, the
19 face at that point, that's where the water was flowing
20 in, where currently the major portion of the water is
21 flowing in. It's approximately 300 feet north of where
22 the hole was drilled up.
23 Q. And you have full discretion to put the holes
24 wherever you wanted to put them?
25 A. We're limited to a certain extent by -- we have

that section that was completely under ground and we do have another, or under water, and we do have another section which due to the floor upheaval was inaccessible when we were drilling. In both places we put holes right adjacent to those areas.

Q. I see. But you didn't put it so you have a part of your mine, is that what you said, that is completely under water?

A. Well, what we have is a section that was mined, that is used for under groundwater storage. And the mine workings have been allowed to fill up with water in order to provide us a storage reservoir underground.

Q. And where is that in the mine?

A. That is what we call our first north section on the north end of the mine.

Q. So you're storing water there right now?

A. Yes.

Q. And why did you drill the eight bore holes?

A. We were trying to find two things, both to see what the geology of the Tank Seam was, coal thickness is, coal quality and then also to observe the hydrology, possible water content within the Tank Seam and in the formations in between the Tank Seam and Blind Canyon Seam.

Q. And you didn't want to find water, did you,

because it would make it harder to get the permit.

MR. HANSEN: Objection, argumentative. Also irrelevant whether Mr. Reynolds wanted to find water or not.

MR. LAURISKI: I agree with Mr. Hansen.

MR. SMITH: I'll of course follow the Chairman's form, but I'll point out this is an employee, or at least a full time consultant of the applicant, and -- well, anyway, I'll rephrase my question.

MR. LAURISKI: Yes.

BY MR. SMITH:

Q. The more water you found the more problems you would have; isn't that correct?

A. Not necessarily. Simply the more water we found, the more measures we would have to take to control that water, and to deal with that water during mining in the Tank Seam.

Q. So you weren't concerned about, at that time, about getting this substantial revision to your permit when you did those, drilled those holes?

A. At that time, those holes were drilled we were simply exploring the seam. We did not know the extent of the seam, the thickness of the seam throughout the whole area. And the purpose of the holes was for exploration, primarily to see what coal was there.

Q. Now, you say currently you're discharging about 200 gallons per minute out of your mine?

A. Yes.

Q. And that's --

A. Well, let me rephrase that. There's an inflow of about 200, 210 gallons per minute.

Q. How do you know what the inflow is? How do you measure the inflow?

A. What we do is we have a meter that measures the water that's pumped out of the sections where the water's flowing into the mine, and then we also have a meter that meters the water that is discharged.

Q. How much are you discharging from the mine?

A. It's between 100, varies from 185 to 195 gallons. Sometimes it's a little less, depending on how full the sumps are in the mine.

Q. So approximately 200?

A. Close to that, yes.

Q. And how much -- so you're discharging -- so that's excess water you don't need for any use inside the mine?

A. That's correct.

Q. And I assume you're using water that you find in the mine as well; is that around 200 gallons per minute as well?

A. The water that we're using within the mine is around 15, usually about 15 to 20 gallons per minute.

Q. So, I guess then from what you're testifying there's an extreme error in your PHC, that's Exhibit C, that's been submitted by Co-op. Do you have that? Are you familiar with that?

A. Yes, I am. There was, in the original PHC that was submitted for the Blind Canyon Seam, there was an error in the flows. There has since been a correction submitted to the Division to correct that information. An amendment has been submitted.

Q. So on 2-13 there's an error, at least what we've been relying on in this hearing, there's an error in this document?

A. There's an error in the PHC that was approved for the --

MR. HANSEN: I think it's fair, if the witness is going to be testifying about the contents of a document he should be able to review it first.

MR. SMITH: I'm looking at page 2-13, and 2-14 of the PHC that was submitted by Co-op, as one of their hearing exhibits today.

Q. Why don't I read each sentence and you tell me whether that sentence is correct or in error. "Prior to 1991, mine water inflow was small and often --" I'm

1 sorry, I'm reading from the last paragraph on page
2 2-13. "Prior to 1991, the mine water inflow was small
3 and often insufficient to meet the operational needs of
4 the mine. (Chapter 7, M&RP). During 1991 --" and so is
5 that sentence correct?
6 A. Yes, that is correct.
7 Q. "During 1991, mining proceeded into the northern
8 portion of the permit area and groundwater inflow to the
9 mine increased." Is that correct?
10 A. That is correct.
11 Q. "During 1991, Co-op Coal Company began
12 discharging between 30 and 60 gallons per minute in the
13 mine."
14 Is that sentence correct?
15 A. That's correct.
16 Q. "By January, 1992, mine discharge increased to
17 300 gallons per minute and continued at this rate
18 through March of 1992."
19 Is that sentence correct?
20 A. That's correct.
21 Q. "Present total mine inflow is approximately 500
22 gallons per minute."
23 Is that sentence correct?
24 A. At the time that that document was originally
25 written, which was in 1992, then that was correct.

Since then it has decreased.

Q. Was that correct on April 30th, 1993 when this document was submitted to the Division of Oil, Gas and Mining?

A. No, that was not correct. This document that was on April 30th, 1993, that was submitted, contained red line strike-out revisions pertaining to the Tank Seam application, of which that information was not changed, and was not a part of the Tank Seam significant revision. It was actually -- that is actually information that was approved back in 1992, when the original PHC was submitted to the Division for the Blind Canyon Seam.

Q. I see. So, this isn't correct, and you did something to correct it, but it never made it into the file. I'm a little bit confused.

A. The amendment was recently submitted when Tom Munson called it to our attention. Tom Munson is a hydrologist for the Division, and he called it to our attention a couple of months ago that it had not been updated, and we have since submitted amendments to update that information, which is still under Division review.

Q. I see. So it's not before us today as far as what we're relying on for this hearing?

A. No.

Q. Okay. The next sentence says, "Of this total, 200 gallons per minute is used in mining operations and 300 gallons per minute is discharged to Bear Canyon Creek". Is that sentence correct?

A. No, it's not.

Q. What's incorrect about that sentence, tell me?

A. First of all, the 200 gallons per minute, at the time that that flow was occurring, that water was not being used in mining operations, and that was an oversight in the original. At that time the water was not being discharged because we were filling our mine sumps underground and the water was going into storage underground.

Q. I guess that that's not something that's changed since then, that's a clear error in the PHC; is that correct?

A. The fact that it states it was used in mining operations, is an error.

Q. And this was submitted by Co-op's consultants, EarthFax Engineering, that's who prepared this PHC is that correct?

A. Yes.

Q. And prepared for Co-op at -- Co-op hired Earthfax to prepare this document; isn't that correct?

A. I would assume that's correct.

Q. Did you have anybody at Co-op review it before it was submitted to the Division of Oil, Gas and Mining?

A. Yes, there were people at Co-op that went through and reviewed it, and again, that was overlooked in our review prior to being submitted.

Q. I have no further questions.

MR. LAURISKI: Mr. Appel?

MR. APPEL: Maybe I was dozing off or day dreaming.

Q. Did we ever go over your schooling, background?

A. No.

Q. Why don't you tell me a little bit about that starting with after high school and college.

A. After high school I went to the University of Utah, and I have a Bachelors degree in Mining Engineering. Graduated in 1991.

Q. But you're in charge of the environmental processes at Co-op Mine?

A. Yes, I oversee compliance activities for Co-op Mine.

Q. Do you have any additional degrees in hydrology?

A. During my college time I did take several courses in geology and in hydrology, which are what the University of Utah offers.

Q. Did you also take geology courses?

MR. HANSEN: I'm not going to object, but as this witness was called, he has testified only in that capacity.

MR. APPEL: Thank you for that clarification. Have you had the time or been asked to look at any of the treatises on the geology of this particular area by your employers?

MR. HANSEN: Exceeds the scope of direct.

MR. LAURISKI: I'll allow him to answer. Go ahead, Mr. Reynolds.

A. Could you please clarify that question for me.

Q. Well, you're working in an area that has geology and you're working in a mine, and I'm wondering if you've had a chance to review any of the treatises. Scholarly publications by the United States Geologic Survey or others on the geology of this particular area?

A. Yes, I have.

Q. Did any of those -- did you recognize any of the names that Mr. Montgomery utilized as people who have published treatises this particular area concerning the geology?

A. I have recognized them, and reviewed some of their work. I'm not an expert on their work.

1 Q. Okay. You've indicated that you didn't
2 intercept much water in the drillings above where you
3 perceived the Tank Canyon Seam come in; is that right?
4 A. That's correct.
5 Q. Do you agree with Mr. Montgomery's theory that
6 the water is going to move down gradient through the
7 sandstone and other layers above that seam?
8 MR. HANSEN: Objection, this witness was not called
9 as an expert witness, he's not qualified as an expert
10 witness. There's nothing -- he certainly shouldn't be
11 called on for agreeing or disagreeing with this other
12 side's expert witnesses.
13 MR. LAURISKI: I agree, he's been called as a fact
14 witness, and I'll sustain that.
15 MR. APPEL: I'd be happy to ask for his lay opinion
16 on that.
17 MR. MITCHELL: I object to him doing that.
18 MR. LAURISKI: I don't think there's any basis in
19 his direct testimony to ask for his opinion on that
20 particular question. Again, he's been called as a fact
21 witness to describe what work he's done at the mine, not
22 as an expert of the respondent.
23 BY MR. APPEL:
24 Q. Are you aware, Mr. Reynolds, that we've been in
25 a period of drought?

A. Yes, I am.

Q. Do you know how long that period of drought has persisted in that area?

A. No, I don't. I moved to the area in 1991, and at that time we were in a drought.

Q. How long do you propose to mine, or does Co-op propose to mine the Tank Seam?

A. The estimated projection of mining in the Tank Seam is about six years.

Q. I'll refer to you as the environmental coordinator, is that correct?

A. Yes.

Q. What plans do you have to reduce contamination to the water moving subsurface below that particular mine, meaning the Tank Seam?

A. So far we haven't found evidence of water in the area of the Tank Seam. The permit does provide for any impacts which may occur to springs in the area. There would be mitigation provided for the replacement of water, or some treatment of that water.

Q. How will you -- I'm sorry?

A. If there were any water affected.

Q. Well, and I understand that that's a statement that's been made in the documents, but what sources do you plan to use to provide water to these people?

MR. HANSEN: I object, that far exceeds the scope of direct.

MR. APPEL: I think we're talking about the PHC and the requirements, and certainly as an element of the law that you're going to apply. The fact that he's an environmental coordinator, they have opened the door to let us examine. We're trying to get to the truth here and it's fairly important.

MR. LAURISKI: Is that question addressed in the PHC?

THE WITNESS: Those stipulations are in an agreement in the current PAP, and in an agreement with Huntington City at the time mining began in Bear Canyon. They're not in this, in the PHC that's been updated. They're not discussed in that because we have found no evidence to indicate that there has been impact due to mining operations.

MR. APPEL: That's dancing around my question. What sources would you use to replace should you find that there is impact, because you recognize we disagree with you on that. People can't disagree if we end up prevailing. What sources will you use to replace?

MR. MITCHELL: I object to that because one, it's not clear he's qualified to provide the answer for the company he consults for. Two, you're referring to an

1 agreement entered into between the City of Huntington
2 and Co-op Company, as to how that contract will be
3 fulfilled. I think that's beyond the scope of the issue
4 here which is whether or not he's aware of how they plan
5 to mind the Blackhawk, and if he's aware of what was
6 encountered in the way of drill holes. That's all he's
7 testified to.
8 MR. APPEL: The terms and conditions of this
9 proposed permit require, under the law you apply, and
10 certainly the Energy Policy Act of 1992, that they
11 mitigate or replace, and they're saying they're willing
12 to do it. I'm simply asking where they propose to get
13 the water from.
14 MR. MITCHELL: Have you determined he's qualified to
15 provide that answer?
16 MR. APPEL: I'm trying to find out if he can
17 answer. He's the environmental coordinator for this
18 mine. If he doesn't know, he can tell me someone else
19 who does and I'll ask them that question. But it would
20 seem to be within his purview since he's preparing those
21 particular documents.
22 MR. HANSEN: Mr. Reynolds is an employee of Mangum
23 Engineering Consultants who's a consulting firm retained
24 by the mine to do work in connection with the
25 permitting. Mr. Reynolds has not testified that he's

1 qualified to speak oh behalf of the mine. He's called
2 only as a fact witness. He certainly isn't an officer
3 or director of the mine and doesn't have authority to
4 bind the mine as to what it intends to do should it
5 encounter problems.
6 MR. LAURISKI: Mr. Reynolds, do you know?
7 THE WITNESS: I do not know the exact source that
8 would be used.
9 MR. LAURISKI: All right.
10 BY MR. APPEL:
11 Q. Do you know whom I should ask to find the
12 answer to the question?
13 A. I would say you'd have to talk to the
14 management of Co-op Mining Company.
15 Q. Will the management of Co-op Mining Company be
16 testifying today? Just a general question. I'm
17 frustrated because it's an important issue.
18 MR. LAURISKI: But the issue I understand that's
19 framed before this Board, is whether or not mining in
20 the Tank Seam is going to impact the hydrologic balance
21 of the area. And if it does, the rules and the
22 regulations are very clear. If it does, there has to be
23 mitigation of that. And so your issue is that, as I
24 understand it, is that there is going to be impact, and
25 that that impact is going to be significant, and

1 therefore mining, either mining shouldn't occur or there
2 needs to be mitigation because of that. And I think
3 with this particular witness we're getting outside the
4 scope of the issue. And at least in my opinion, I don't
5 know, Mr. Appel, but perhaps there may be somebody
6 better to ask these questions. The Division for one.
7 MR. APPEL: Okay.
8 Q. In the course of assisting Co-Op as their
9 environmental coordinator requesting this permit, have
10 you anticipated what would happen if we had a series of
11 wet years?
12 A. The primary effect or the short term effect of
13 a wet year -- well, I'd have to say I'm not really
14 qualified to answer that because I'm not an expert on
15 hydrologic effects of precipitation.
16 Q. Do you know whether it was addressed in the
17 permit request?
18 A. I believe it was.
19 Q. Did you address what will occur with respect to
20 the changes of the underground hydrology when the
21 subsidence, you mentioned, may occur when you take the
22 pillars out of the Blind Canyon Seam?
23 MR. HANSEN: Objection, not relevant.
24 MR. LAURISKI: I disagree Mr. Hansen, that was a
25 direct question and direct answer that Mr. Reynolds

provided when talking about the need to mine the Tank Canyon Seam first, so I think it has a direct bearing.

MR. HANSEN: I may have misheard his question.

MR. LAURISKI: He asked whether or not they considered the hydrology effect from subsidence by mining the Tank Seam above the Blind Canyon Seam, and that was an open question because the testimony Mr. Reynolds provided was what seam they were going to mine first and why they were going to mine it first.

MR. HANSEN: I withdraw my objection.

MR. LAURISKI: Thank you.

THE WITNESS: I believe that PHC has looked at those and considered those issues. I think those would be better answered by an expert witness that could talk a little bit more about subsidence effects, as far as the effects on the hydrology. I do know we have planned subsidence to where we would expect some subsidence to occur. That subsidence which has been calculated is minimal, and to date the subsidence that has occurred has been minimal. As far as the effects on the hydrology, I think a hydrologist can answer that better than I could.

Q. Did you consult with a hydrologist during the course of preparing this?

A. Yes.

Q. Who was that?

A. Earthfax Engineering.

Q. Any particular person within Earthfax?

A. The individual I was working with was John Garr. I've also worked with other staff members at EarthFax Engineering.

Q. So really you don't know whether or not that issue was addressed within the document you are referring to?

A. No, I don't know how completely it was addressed.

Q. Okay. You made an interesting statement that you have had background in those things because of prior schooling, but you stated that water intercepted is not really a problem, it's just a question of what you do with it, meaning you conduct it someplace, I presume?

A. I don't remember those words, but what -- any water that would be encountered would have to be dealt with either through a discharge permit, or -- that would be the primary thing, would be water that's encountered in mining that's not used would be discharged through a permit obtained from the state.

Q. Where would you send the water if you intercepted some in the Tank Seam?

A. It would be discharged to Bear Creek.

Q. Down the bore hole?

A. Yes, there would be a pipeline going down the bore hole that would convey the discharge of, or water in the event water was encountered. There could be possibly a better alternative. Currently where we're not expecting any water, we don't anticipate the need for a pipeline going down through the bore hole.

Q. I don't have any further questions.

MR. LAURISKI: Anything further, Mr. Hansen?

MS. LEVER: Can I ask Mr. Reynolds a question? Mr. Reynolds, I had a question. You testified that you thought the proposal to go up into the Tank Seam, that you would have a life of about six years for mining that out. Did that six years include taking out, I mean, taking out both first and second phasing of both seams?

THE WITNESS: That is just for the Tank Seam.

MS. LEVER: That's just for the Tank Seam, and you come back. So if you were not given the Tank Seam, allowed to expand into the Tank Seam, how long would be the life of the mine if you just ended up needing to go to the second phase pulling out the rooms and pillars on the Blind Canyon Seam?

THE WITNESS: I would anticipate three to four years.

MS. LEVER: Okay. Thank you.

1 MR. LAURISKI: Mr. Hansen, anything else?

2 MR. HANSEN: No further questions.

3 MR. LAURISKI: Mr. Mitchell?

4 MR. MITCHELL: No questions.

5 MR. LAURISKI: Thank you, Mr. Reynolds.

6 MR. HANSEN: I'll be calling John Garr, could I have

7 a minute?

8 (Whereupon a recess was taken.)

9 MR. LAURISKI: Ready?

10 MR. HANSEN: Yes.

11 MR. LAURISKI: Back on the record.

12 MR. HANSEN: Call John Garr.

13 JOHN GARR

14 was duly sworn, was examined and

15 testified as follows:

16 BY MR. HANSEN:

17 Q. Would you give us your full name for the record

18 please?

19 A. My name is John D. Garr.

20 Q. Where do you live?

21 A. 3014 East Sundrift Circle, Salt Lake City.

22 Q. Tell us a little bit about your educational

23 background?

24 A. I have a Bachelors degree in geology from Weber

25 State University, 1981; I have a Masters degree in

geology from Utah State University, 1988.

Q. Do you have any qualifications as a professional engineer, professional geologist?

A. No, I'm not an engineer. I am a geologist. I've worked in the oil field from '81 through '83. Did some coal exploration in 1983, went to graduate school in 1983, and have been employed with Earthfax Engineering since late 1986.

MR. LAURISKI: Could you pull the microphone closer to you, please.

BY MR. HANSEN:

Q. Tell us a little bit about some of the work you have done for Earthfax.

A. I've done a lot of hazardous waste investigations, hydrogeologic investigations, inmine drilling for Co-op to characterize the aquifers below the mine. Geologic hazards investigation, fault investigations, groundwater supply development, drilling deep water wells.

Q. You're aware Co-op mine hired Earthfax to -- please describe what it was that they did, put it in your own words.

A. They hired us to -- I became involved in the revision of a hydrogeologic characterization report and revision of a PHC. Part of that involved installation

of three and now four inmine monitoring wells completed only to the Mancos, with hydrologic testing at each of the three sandstone tongues.

Q. Are you familiar at all with the Bear Canyon area?

A. Yes.

Q. Describe for us how you became familiar with that area?

A. Through working for Co-op, the inmine drilling, looking at the springs in the general area. I fish there a lot in the area.

Q. So you have first hand knowledge of the area?

A. Yes.

Q. Do you have any knowledge of the geology of that area?

A. Yes.

Q. Can you tell us how you acquired that knowledge?

A. I took the document that another person in our office had done a couple years previous, and updated that and confirmed their impressions from published maps, USGS reports, field visits, inmine work.

Q. You have heard Mr. Montgomery give some testimony based on exhibits taken from USGS publications and so on; is that correct?

A. Yes.

Q. To your knowledge, can you tell us how site specific that information is?

A. Everything that I saw presented today has been very general and regional, and none of the USGS stuff, it's -- would be considered incorrect. I revere the USGS as much as any other geologist. I'm not saying they're wrong, but what they're publishing is very region wide, it's not site specific. And it's being used in this hearing to imply that there are some things happening at Co-op based on very region wide phenomena. We have more site specific data that we're using. It costs a lot of money to get this data, and it shows a little bit different picture from what you're seeing here.

Q. Tell us a little bit about that different picture, would it be appropriate to start with this diagram up here?

A. We could do that.

Q. Tell us what we're looking at here.

A. Okay.

MR. SMITH: It would be helpful, Mr. Chairman, if we could have cross references with exhibits that have been submitted so we know where we're talking from, especially if they plan on having some of these things

1 admitted into evidence, so we know where we have seen it
2 before. So if we could ask that it be cross referenced
3 with things that have been submitted.
4 MR. HANSEN: At this time it is not being
5 submitted. It's an exhibit under Rule R641-105-500. We
6 haven't offered it yet, but that rule says any exhibit
7 intending to be offered by the parties in rebuttal of
8 evidence presented at the hearing will be presented at
9 the hearing. This is an exhibit intended to rebut
10 evidence presented by Mr. Montgomery, and will be
11 offered under that basis.
12 MR. SMITH: Mr. Chairman, if I can speak at least to
13 the rules, and I think these rules adopt the rules of
14 civil procedures, and obviously your legal counsel may
15 have to advise you on this, but rebuttal testimony is
16 not -- is typically testimony by the movant after both
17 parties have put in their testimony. We would be the
18 ones to rebut. They know what kind of a case we're
19 going to bring. They'll be bringing their evidence
20 against it. That's not my understanding of what
21 rebuttal evidence is. I don't -- haven't had a chance
22 to look at this rule closely because this is the first
23 time we have seen this. But I think they're trying to
24 again, pull a surprise on us. And I guess I have to
25 object because I don't believe this would fall under

1 rebuttal in the sense of the term that it's used in the
2 courts and under the rules of Civil Procedure.
3 MR. MITCHELL: I would ask the Board to consider it
4 under separate grounds. And that is, as you know, the
5 respondents arrived today thinking they were going to be
6 talking about a very isolated matter, and arrived
7 prepared, and filed exhibits thinking they were going to
8 do that. We now are talking about the entire regional
9 area. We're trying to bring it back down. I do think
10 that examination of this witness will demonstrate that
11 this material is part of the Division's files and
12 records which are the basis for the Division's files and
13 records and submittals to the Division and, therefore, I
14 don't think constitutes a surprise in terms of how the
15 Division got where they got.
16 MR. HANSEN: I would state that the diagram, I
17 believe the witness will testify, is a pictorial
18 representation, verbal descriptions of the area that are
19 contained in our Exhibits C and D. It's prepared so we
20 can get a clear picture of what is described verbally.
21 MR. SMITH: We have no concern about a clear
22 picture. Our concern is we're presented with hearing
23 something we have never seen. We submitted our
24 exhibits, the other side had an opportunity. We
25 submitted them weeks before this hearing as we are

1 required by the rules, had an opportunity to review
2 those and get their experts prepared. We have had no
3 opportunity to be prepared to deal with this exhibit at
4 all. And for them to show up at the hearing and say
5 here's this new exhibit, that is a tremendous -- puts us
6 at a tremendous disadvantage and is kind of prejudicial.
7 So that's why there's these requirements. Obviously
8 they had it before, they didn't prepare it during the
9 lunch hour, they had it before. They knew what our
10 exhibits were, they knew what our points were that we
11 brought up in our petition. Obviously they just chose
12 not to submit it because once again, they want to put us
13 at a disadvantage, and have things before this Board
14 that we haven't seen.
15 The rules require the exhibits be submitted before.
16 I just ask that the Board follow its rules.
17 MR. HANSEN: A point of fact: The petitioner's own
18 Exhibit 18 was not, certainly not delivered until
19 yesterday at the earliest to us.
20 MR. SMITH: They had an opportunity to make any
21 objection they wanted to 18 and they didn't raise it,
22 it's been admitted and that's not an issue.
23 MR. HANSEN: Mr. Garr pointed out to me this is an
24 extension of an exhibit that is included in Exhibit D,
25 Figure 2-2, located on page -- I think between pages 2-9

1 and 2-10 of our Exhibit D, and that just clarifies the
2 information that is diagrammatically contained in that
3 exhibit.
4 MS. ERLER: Where was it?
5 MR. MITCHELL: Exhibit D. Table 2-2, between pages
6 2-9 and 2-10.
7 MR. LAURISKI: Well, after consulting with counsel
8 and considering what it is that we see being offered as
9 evidence in this case, I'm not going to allow it. I
10 don't consider this to be rebuttal evidence. This is
11 obviously something that has been prepared in advance of
12 this hearing. The Board granted Co-op an opportunity to
13 provide all of their exhibits, and in fact we broadened
14 that opportunity, gave you additional time to submit
15 evidence, including exhibits and other dispositive
16 motions that you needed to do by the 7th of October.
17 This document was not submitted as part of your
18 exhibit list. Counsel has not had an opportunity to
19 present it, and I think it would be an oversight on our
20 part to take that prepared exhibit and allow it to be
21 entered into evidence without counsel having an
22 opportunity to examine it.
23 MR. APPEL: Along that line, Mr. Chairman, we would
24 interpose a continuing objection to introducing evidence
25 that is not contained in the documentation presented to

the Division which got us here in the first place.

MR. LAURISKI: We'll take each one of those issues on a case by case basis and see what it is that they're going to offer. But we are concerned by any documents that have been prepared beforehand, knowing that they're going to be used as rebuttal evidence based upon the facts that you've learned from the petitioners in this case, without giving them the opportunity to see what that evidence is going to be in your response to their request to have this case heard.

So with that, we can move forward.

MR. SMITH: Thank you.

BY MR. HANSEN:

Q. Can you tell us the diagram that we're looking at now?

A. This is part of the hydrogeologic evaluation, hydrogeologic evaluation Figure 2-2. It shows really nothing that this picture doesn't.

Q. It's Figure 2-2 in our Exhibit D, located between pages 2-9 and 2-10, immediately following page 2-9.

MR. LAURISKI: Now, would you take us to that again, please. We're at Exhibit D?

MR. HANSEN: Figure 2-2, the fold-out sheet immediately following page 2-9.

MR. LAURISKI: We're with you.

BY MR. HANSEN:

Q. Okay.

A. The data on that figure was used to produce this cross-section which is just easier on the eye, it's not new information, it's just easier to understand in its context of a cross-section. If you'd like to proceed with this one, I can tell the same story. These are the inline drill holes we put in at Co-op. We set a packer at the top of each one of these sandstone tongues, bottomed the hole in the shale which is impermeable, and then slug and bail tests in there, in each one as we proceeded. So we isolated each aquifer as we proceeded. We got separate piezometric surfaces or each of the sandstone togues, separated by the impermeable -- in fact, when you took the shale out of the core and broke it, it was dry. These are all separate aquifers. They've got separate piezometric surfaces.

As far as a regional aquifer is concerned, I think it's a matter of semantics. There's no regional aquifer cutting across the Blackhawk and the Storrs and the Spring Canyon and the Panther as such. It's much more complex than that. And just simply taking a USGS block diagram and pointing to a line that slashes through

things, is not really accurate. I don't think it tells the whole story. We've got some very expensive, very good data here to show that things are otherwise. The fact that he piezometric surface actually rises above the shale-- this is the Panther, here is the Panther tongue here -- it's confined, so is the Storrs water, it's confined; so is the Spring Canyon water confined in the furthest north hole. It's unconfined in the furthest south hole. The mountain faces somewhere out here. It's much more easy to understand on that piece of paper, but if you can visualize it we'll be all right.

The fact that these are confined, suggests the recharge for these aquifers is well to the north at a higher elevation, probably in the shattered zone, as we've pointed out in the hydrogeologic evaluation which is north of the Co-op. This is from Brown and Spieker, all data compiled from USGS documents.

Q. I don't want to run afoul of the Board's ruling on this. We have an exhibit included. I don't believe that one was.

A. This is from the hydrogeologic evaluation.

Q. In your revised geologic evaluation?

A. I don't know what was submitted. It's usually held in a pouch in the back.

MR. SMITH: It's probably shown on that map, and that's been admitted. It's an exhibit.

MR. LAURISKI: The Board has no objection if the exhibits are submitted as part of the evidence. What the Board objected to was whether or not you were submitting new evidence that was outside the Board's order of October 7th.

MR. HANSEN: It wasn't new evidence, it was just trying to illustrate the evidence that was already here in a fashion more easy to understand.

MR. HANSEN: It is included in my preliminary exhibits.

MR. LAURISKI: Is this what you were looking at?

THE WITNESS: This is a plate from the hydrogeologic evaluation submitted to the DOGM. Plate number 1, geology and structure map.

MR. MITCHELL: Well, is there an objection to using it?

MR. HANSEN: It is among the exhibits I designated as an exhibit in my September 9th, 1994, designation of exhibits. It is just not on my final exhibit list that was filed last week.

MR. SMITH: Maybe we can shorten this. We have no objection to that map. I don't want to open the door because what Mr. Hansen is alluding to is he submitted

and said everything on file at the Division of Oil, Gas and Mining we may use as an exhibit. We all know that's drawers and drawers full of stuff. And then he submitted a list of exhibits which is what we're working off of, which he called his final exhibit list.

As far as that one map, if that's going to speed things up, let's get the map in. But I'm -- obviously we aren't waiving our objection to other things that may be new compilations we haven't seen.

MR. MITCHELL: Let's take them one exhibit at a time.

MR. LAURISKI: Go ahead, Mr. Garr.

THE WITNESS: We've got this groundwater in each of these aquifers is confined by these shales that are here. It's our interpretation that the recharge to this, to these aquifers is not on Gentry Ridge. Gentry Ridge is very narrow, very little flat surface to infiltrate water. It's gonna have runoff, very narrow above the mine. There's an awful lot of recharge going through here. The pressure suggests the recharge is actually to the north up dip and the shattered zone as identified by brown, is a much more likely recharge area. It's more flat, it's a flatter area, it's shattered, it infiltrates much more quickly than a ridge on Gentry Mountain. If I could look at Exhibit 9.

MR. HANSEN: While he's doing that, I believe that's all the testimony that Mr. Garr is going to offer on this Plate 1. We offer it as our Exhibit E.

MR. LAURISKI: Mr. Appel, do you or Mr. Smith have an objection to allowing that to come in as Exhibit E? The map, Mr. Garr, the plate?

MR. APPEL: No.

MR. SMITH: No objection, your Honor -- Mr. Chairman.

MR. LAURISKI: Thank you.

THE WITNESS: Here on Exhibit 9, one thing I noticed with the sense of movement on the Bear Canyon fault, is incorrect. It's actually down on the Bear Canyon side or the mine side, and up on the other side. This is -- we have about 110 feet of movement on it down to the west. It's put forth as a major fault, because as was mentioned earlier, there's another fault that runs through here. Blind Canyon Fault would run somewhere like that. This isn't really to scale either. Birch Springs is actually 800 feet to the west of Blind Canyon Fault.

MR. LAURISKI: When you say "like that" would you describe what "like that" is.

THE WITNESS: I've got this map that will show you where it is. Here's the Blind Canyon fault running

through there. Here's the Bear Canyon mine, here's the Bear Canyon fault. Displacement down on the west. Here's the -- Blind Canyon fault here has approximately 220 feet of displacement down on the west. Again, this fault was sort of left off the discussion before, but it could be very significant. Either the Blind Canyon Fault could serve as a conduit to groundwater flow or serve as a barrier to groundwater flow depending on whether it was filled with fault gouge or if it had voids. In either case if groundwater was moving from Co-op into the Blind Canyon Fault, it's either going to be stopped by the gouge, or it's going to act as a conduit that's going to carry the water out. And you're gonna see a spring at the mountain point where that fault daylights. There's no such spring. Yet we go 800 feet further west to Birch Spring which is associated with some joints. I don't think they're connected. I don't see any reason why they would be connected. It should have been included on here though.

Exhibit 10. Exhibit 10 was put forth to show what happens during coal mining the groundwater. Here we have got the water table well above the mine seam. This is all saturated presumably. This is just what happens when you do that with a coal mine and groundwater is above you. The water table is above you. That's not

1 the case at Co-op at all. And that's shown in this
2 diagram where -- here's the mine seam right here at the
3 floor where these wells take off. Groundwater is below
4 that. It's even below it, if you poke a hole through it
5 and let it come up, it's below the coal seam.
6 MR. APPEL: For clarification you are talking about
7 the Blind?
8 THE WITNESS: Yes.
9 MR. APPEL: Not the Tank Seam.
10 THE WITNESS: And of course the Tank also because
11 the Tank is 200 plus feet above. If I could show this
12 lovely drawing that would show that very simply,
13 otherwise I have to describe it.
14 MR. MITCHELL: Would it be helpful for you to use a
15 marker on the blackboard and draw what it is to describe
16 or --
17 THE WITNESS: I could do that.
18 MR. MITCHELL: -- illustrate your testimony.
19 MS. LEVER: Do you want to save it and put it on the
20 white paper?
21 MR. MITCHELL: It's just for illustrative purposes.
22 (Witness is drawing.)
23 THE WITNESS: Here's the area, is a view from the
24 north south through Gentry.
25 MR. LAURISKI: Mr. Garr, we need you to speak up.

THE WITNESS: All right. Here's the Tank Seam and the Blind Canyon Seam. Groundwater in what we have found in the drill holes, going generally like that, there are three different heads and down here Panther actually issues springs.

Q. Both Birch Spring and Big Bear Spring issue out of the Panther?

A. To my knowledge, yes.

The groundwater isn't in the Blind Canyon Seam here, certainly not going to be in the Tank Seam. There's going to be perched water here and there, but that perched water does not contribute to the springs. That's our contention. The reason for that is because of the very small recharge area on that ridge. The fact that we have got the potentiometric surfaces above the confining layers in the north part of the mine, and they're unconfined at the south part of the mine near the outcrop.

Exhibit 15. The idea of using Little Bear Spring as a control, we don't consider to be valid because Little Bear looks like it responds pretty quickly to precipitation, recharge just like that. We're looking at other springs. They could have a year or two lag time between the precipitation event and when it shows up. And in fact we see that in, I believe, Big Bear

Spring. This shows it. We have precipitation here, big flow increase at Big Bear here. That's about a year on that one. We've got some data that would show about two years lag from when you have a real wet year to when it starts showing up as increased flows at Big Bear. I don't know if that was submitted. The point is that to pick out one spring, and use that as a control is not realistic. I think the G.S. even had a word to say about that.

Q. Would you tell us what it is you are looking at?

A. I'm looking here at Terence Danielson et. al, 1981, USGS open file report 81-539.

Q. Is that a document Mr. Montgomery used to form his opinions?

A. I believe so. Care should be taken in selecting springs for monitoring. The discharge recession curves of springs that are supported by more than one water-bearing zone may not be similar from year to year because of nonconformity of recharge to the different zones from year to year. Also, algae and plant roots could clog the plumbing in developed springs, resulting in an unnatural change in flow characteristics. Ideally, the monitoring of spring discharges should be in conjunction with water-level

monitoring in observation wells, in order to detect recharge that may occur during the normal recession period that would alter the recession curve."

Q. What does that mean to us layman?

A. Don't take Bear Spring to represent hydrologic systems in a region.

Q. Why not?

A. Because it is very different from the others. It might have young water, you might have a rainfall today, spring will increase next week, double or triple. Whereas at Birch, tritium data suggests that Birch is very old water, similar to the water that's encountered in the mine, it's old, old water, it's been stored there for years, thousands of years.

If its recharge area is far away and it's very old water, it might be three years of sustained high precipitation to get a deflection in the flow. So, to say that the one little spring is representative of the area, is just not accurate. We can show that with all those curves.

Q. Let's talk a little bit about water, both groundwater and water infiltrating from this surface to the Tank Seam. You've stated that you examined that area and generally are familiar with the area?

A. With Bear Canyon?

Q. Yes.

A. Yes.

Q. Are there fault lines, fractures above the Tank Seam?

A. Not that I'm aware of.

Q. If there are, are you aware of any water that comes out of the mountain in the form of springs or otherwise above the Tank Seam?

A. I believe there are some springs above the Tank Seam, I haven't visited those myself.

Q. Well, what's the source of that information?

A. Charles Reynolds.

MR. LAURISKI: I'm sorry?

A. Charles Reynolds.

Q. If in fact there are springs, water coming out, from faults above the Tank Seam, what would be the source of that water?

A. Faults above the Tank Seam.

Q. Above the Tank Seam?

A. I'm not -- I don't think there are faults above the Tank Seam.

Q. Okay.

A. There are springs that issue from the mountain side.

Q. Above the Tank Seam?

A. Un-huh.

Q. What would be the source of that water?

A. That water would be infiltrating through the ridge, coming down hitting the permeable layer like a shale and going out to the edge of the canyon.

Q. Obviously if the water is doing that it never makes it to the Birch Spring or Big Bear Spring?

A. Right. There are some impermeable zones from the top down heading out that way, so it's not going to recharge the springs. Recharge over the mine permit area is going to be very insignificant.

Q. Are you aware of any other difficulties with the exhibits that were offered in connection with Mr. Montgomery's testimony or his testimony itself?

A. Just generally that they are very general. They're region wide, not specifically the site. We have specific data that suggested a different story. Some of the things were far too general, and in fact I think misleading. They may be true for the region, but not true for the site.

Q. Are we able to draw any conclusions through precipitation information we have as to the impact on Birch Springs and Big Bear Spring of mining the Tank Seam?

A. I don't believe there will be any impact at

all. I don't believe there's an impact mining Blind Canyon Seam, and they're absolutely would be no impact mining the tank which is 200 feet above.

Q. I believe I have no further questions at this time.

MR. MITCHELL: I have a couple of questions.

MR. LAURISKI: Mr. Mitchell, before you go, Mr. Murray, I believe, had a question.

MR. MURRAY: I have one question. On the Birch, is there any culinary industrial development there that's causing that in that recharge on Birch Spring that you know of?

THE WITNESS: Not that I'm aware of.

MR. MURRAY: Okay.

MR. LAURISKI: Mr. Mitchell?

BY MR. MITCHELL:

Q. Mr. Garr, for illustrative purposes you have shown a ridge line with the Tank Seam and Blind Canyon Seam showing the water bearing formations that you encountered with the wells you drilled, monitoring wells you drilled.

Can you provide an overview picture of what we're looking at in terms of what the recharge area is? In other words, are we talking about a large plateau overlying the Tank Seam in this area or are we talking a

high thin ridge?

A. You follow this ridge up. We get to the top of the north Horn Formation, this is highly fractured through here. I don't know anything more about this than it's the shattered zone. We don't know what it's like in depth. This is a broad area, both east/west and north/south, flat. Water's going to percolate down through here, probably through fractures, possibly through some faults, we don't know. But it's a much more likely recharge area for these aquifers. The Star Point.

Q. What formation?

A. Star Point formation.

Q. The fracture zone?

A. This is just the shattered zone, in the north Horn.

Q. Is that part of the Flagstaff limestone?

A. North Horn, they are not synonymous, but integrate into each other.

Q. You earlier expressed some familiarity with the Monograph, USGS Monograph relied upon by Mr. Montgomery, Danielson, et. al, 1981 survey. Are you familiar with those authors' conclusion that recharge to the Star Point/Blackhawk aquifer, direct infiltration of snow melt in areas of outcrop, probably is small in

comparison to direct recharge to the Flagstaff Limestone?

A. I've read that before.

Q. Does that fit with your theory?

A. Yes.

Q. Of how this works?

A. Yes.

Q. What does -- what did those authors state concerning recharge? How does that fit with Mr. Montgomery's theory of effect on recharge concerning mining of the Tank and Blind Canyon at these locations?

A. It's difficult to explain other than very broad flat areas that are fractured are going to be much better, more efficient at getting the precipitation in to the groundwater system. This is the ridge out here, like this.

Q. Is it safe to say that sieves shaped like a bowl allow water through them better than knives up on edge?

A. Yes, sir.

Q. Would that be a good example of why one theory makes more sense than the other?

A. Yes.

Q. And it's also based on what the USGS has said?

A. Absolutely. There is going to be some small

amount of infiltration through here, but it certainly is not supplying anything meaningful. You have this recharge area up here, tens of thousands of more times surface area, more permeable. Not going to have the runoff that this does. Recharge here is really insignificant compared to this up here. In fact what we see, this is being recharged at the higher elevation.

Q. Are you familiar with the statement in Danielson where the authors state, I believe it's page 38, "Subsidence has not been extensive and where water-bearing zones that overlie the Star Point-Blackhawk aquifer are perched, it is unlikely that mine dewatering induces greater recharge to the groundwater system. Neither is it likely under these conditions that the flow of springs that issue from the perched zones or the rate of natural downward leakage into the Star Point-Blackhawk aquifer are affected by mine dewatering."

A. That's what we've been saying all along, that the water that the mine encounters when they drill the bolt hole, or if they drill into the Tank and get a dripper, we think of hitting this perched ledge, and they're not rerouting the water that would be destined to the springs.

Q. Is it fair to say the USGS monograph for this

area actually supports your theory of what's going on here better than it does a theory of one integrated cohesive regional aquifer?

A. There are probably a lot more in there that would confirm what we are saying. I have not read that document in its entirety.

Q. Thank you. I have nothing further.

MR. SMITH: I have a few questions. If I can approach the Board here, maybe that will help me ask the questions.

MR. LAURISKI: If you'll keep your voice up.

MR. SMITH: I rarely have a problem with that. In the Supreme Court in New Mexico I was told to lower my voice. So I will do my best to keep it up. I don't have a problem.

Q. As I understand it, Mr. Garr, this is Gentry Mountain up here, right? And it's a big flat top mountain. When I was younger I hunted a few deer up there. It's a flat top mountain, isn't that correct?

A. Yes.

Q. And exposed to Gentry Mountain it's not the Star Point Sandstone or the Blackhawk Formation, those aren't exposed up here? They're not exposed, it's the North Horn, is that what you said?

A. Yes.

Q. That's correct?

A. Yes. My cross-section shows the North Horn.

Q. That's exposed up here and it has to work through, the water has to work through a number of layers of rock. In fact, on my chart which is Exhibit 7, we haven't had this admitted in to evidence, but Exhibit 7, is it has to work through Price River formation, another formation, the Castlegate sandstone, before reaches the upper part of the Blackhawk Formation and the coal is in the lower part of the Blackhawk, is that correct?

A. Absolutely.

Q. And so we have got these rocks, Star Point Sandstone's back here, and then back here is also the Blackhawk Formation. Now, my understanding is that the water moves not only down, but it's moving to the south in that area; is that correct?

A. Yes.

Q. So if the water would move along an aquifer or along a rock, it would move south towards what we have Big Bear and Birch Springs, they're kind of at the end of this, right?

A. Yes.

Q. And all this, my understanding from your report, is that Birch Springs and Big Bear Spring are

also recharged up in this area; is that correct?

A. We think that's more likely.

Q. Okay. Isn't it also likely that as water moves down these, aren't -- you put straight lines here, but that's not how water moves, it doesn't move in straight lines down and over, right? It moves into one rock and up along the formation until it finds another fault?

A. It's going to fall into fractures.

Q. Kind of a stepped approach?

A. I don't know if they are stepped, maybe vertical.

Q. But the water -- and in fact, from your tritium data, the Birch Springs water was the same age as the water you're encountering in the mine; isn't that correct?

A. It was analyzed as pre bomb water.

Q. Very close in tritium, am I correct?

A. Yes.

Q. So --

A. It was old water.

Q. Isn't it kind of funny to say that here they're all being recharged, and water -- or maybe I should phrase it this way. Some of the water recharging here maybe is in the mine here, and then would later move down in to the Birch Spring, but it's being intercepted

and taken out of the mine. Isn't that a plausible scenario?

A. How is it going to move through the Mancos shales?

Q. It's moving somewhere because the Mancos shales are back in here too. If they were separating this -- excuse me, let me --

MR. HANSEN: Objection, no evidence to suggest there are --

MR. SMITH: All of the evidence is that the Mancos shale tongues, you're saying, separate the Birch Spring and the Big Bear Spring from this other aquifer, isn't that correct? But if the Mancos shale was in here it would separate it here. There would be no water for those springs, if you had this barrier you're talking about here. That's so impermeable here.

MR. MITCHELL: Let him answer the question.

THE WITNESS: You are doing very well.

Q. Thank you.

A. I'm saying, I don't know what the business is about the Birch and Big Bear being separated, I've got three separate aquifers here separated by two shales.

Q. But aren't they somewhere, at some point, the water is going through that shale. How could it get there? No doubt it is, right?

A. Fractures.

Q. Fractures.

A. I'm not going to fracture my sandstone and not my shales.

Q. So there's fractures and that's how the water moves from the North Horn high level down, way down here to the Star Point Sandstone; isn't that correct?

A. Yes.

Q. Gees, if there's fractures over here, why aren't there fractures here, or are there fractures there?

A. This is a zone of intense fracture. I don't know how it goes there, but USGS has identified it as such. That's good enough for me.

Q. That's good enough for you, what USGS says. USGS also says that the Star Point Sandstone and the Blackhawk Formation are one regional aquifer; is that good enough for you?

A. In a general sense, no. Not at this site because I have data to suggest otherwise.

Q. You believe them over here, but you don't believe them over here?

A. When a geologist goes in and maps the shattered zone, I'll believe it. I'd like to go see it. I'd like to kick around in it. I haven't done that. But I'm

1 going to believe that if he delineates that on a map as
2 a shattered zone. I'll believe that. If I look at
3 regional wide, Wasatch Plateau wide report that shows
4 one water table shooting through there, I'll say that's
5 great for now, let's get site specific data, which we
6 have done.
7 Q. Any site specific data here? You're just
8 relying on what the USGS says here, right?
9 A. Yes. It doesn't enter into this question,
10 where does the recharge come from. That's a real good
11 place for it here. Beats the heck out of that ridge.
12 Q. Isn't it likely there's some fractures, faults
13 that move the water from here to Birch Springs there?
14 It's the same age water, right?
15 A. It's possible. But how are you going to get
16 the groundwater in the mine below the mine to Birch
17 Springs? You've got that fault I was talking about,
18 Blind Canyon. Then you've got to go 800 feet further.
19 And we've got information on how slow water does move
20 through the sandstone, if you'd like to hear that.
21 Q. I just want answers to my questions. But the
22 water is moving from a much higher level here for
23 recharge. It's getting down here somehow, it's not
24 coming out of nowhere, out of Birch Springs; isn't that
25 right?

A. Moving much farther than you're saying.

MR. MITCHELL: I think the question has been asked and answered. He asked him and he told him. I don't see any point beating him over the head with it any more.

MR. LAURISKI: I agree, I think the question is asked and answered.

BY MR. SMITH:

Q. Some of the water -- now, there is water?

MR. MITCHELL: I think that's been ruled on.

MR. LAURISKI: Again, you guys are up there arguing with each other and we're missing all the testimony. If you would slow down and the reporter could that, it would be appreciated. Thank you.

BY MR. SMITH:

Q. There is water in the Blackhawk Formation, right?

A. Yes.

Q. That water recharges up here?

A. I'm not sure about that.

Q. You're not sure?

A. I don't have data.

Q. You don't know where the groundwater comes from?

A. I know there's perched water in the Blackhawk

that may come from here.

Q. I see. I'm sorry, I misunderstood you. I thought you said Gentry Mountain was the regional recharge for these aquifers; is that correct?

MR. MITCHELL: Mischaracterized his testimony. He agreed with the USGS report which says the primary source of recharge for the Star Point Sandstone was the Horn Formation to the north. I don't see any reason in trying to get more out of him than what he agreed.

THE WITNESS: It contributes to the recharge.

Q. Tell me what's recharging the Blackhawk Formation there?

A. I don't know. I don't know if you can say there was recharge. There's precipitation coming down on the ridge, a small amount of water comes down and gets perched. If you take a bolt hole and go up, at that point you'll drain that with a little dripper.

Q. Would you call 500 gallons a minute a very minimal amount of water?

A. I don't think that's what's happened.

Q. It's in your report.

A. I don't believe it's all perched water.

Q. Where is it coming from?

A. Possibly out of the floor.

Q. So where's the floor water coming from?

A. Here.

Q. Out of the Star Point?

A. Correct. We don't know how much.

Q. And you're here today to tell me there's no interconnection between these two aquifers?

A. Which two?

Q. The Star Point, which the springs issue from, and the Blackhawk?

A. I don't think I said that.

Q. I'm sorry. So the aquifers are interconnected; is that what you are saying?

A. I don't think I'd say that.

Q. Well, tell me what you're gonna say?

A. I think there are some more holes at the north end of the mine that intercept on the Star Point aquifers and the pressure is coming up. I don't know how much.

Q. Can you point that to me?

A. If you penetrate that at this northern end, you're gonna get water coming up out of there.

Q. Can you point to me, in the PHC you prepared, or the Exhibit D, that hydraulic analysis, you mentioned that even --

A. There's phrasing there, "undetermined amount of water from the floor", I believe.

Q. But the major water that comes into the mine is from the roof, isn't that correct?

A. That's what is being said, I'm not sure.

Q. I don't want to misquote you, you helped prepare this PHC didn't you?

A. Yes, I did.

Q. And it says here on page 2-13, groundwater enters the Blind Canyon Seam of the Bear Canyon mine through fractures and roof bolt holes?

A. Yes.

Q. It doesn't mention anything about the floor water that you are bringing up now.

A. It's in there somewhere.

Q. Please point me to it.

A. If that's the mine to the north and as they -- the floor advances with them and rises up.

Q. Let me see.

A. We inferred it's perched, but we don't know.

Q. I see. So you don't think the Blackhawk Formation is getting recharged on Gentry like the Birch Springs?

A. I think it's getting a very small amount.

Q. Why isn't it getting --

A. We have tritium analysis of these drippers to suggest it's all pre bomb, old water which fits with the

perched idea.

Q. So does Birch Springs have the same tritium analysis?

A. Relatively, pre bomb water.

Q. That would be the same water based on that analysis, same source?

MR. MITCHELL: That's argumentative, he's been asked and he answered that.

THE WITNESS: Not necessarily.

BY MR. SMITH:

Q. Can't distinguish it by tritium analysis?

A. All you can see is it's relatively old or new.

Q. And both waters, both Birch Springs and the mine water are relatively old based on tritium analysis; is that correct?

A. Un-huh.

Q. You need to say yes or no so our reporter can get it.

A. I said yes.

Q. Thank you. Let me move you to this chart a little bit. I think it's Exhibit 16. Following up on a question from the Board, you don't have any explanation for the dramatic decline in Birch Springs, do you?

A. I don't.

Q. Don't you think that should be a matter of

concern since it's so close in that area?

MR. MITCHELL: Concern to him, concern to who?

THE WITNESS: My client hasn't requested I investigate that.

BY MR. SMITH:

Q. I see. In preparing your PHC, on page 2-10, you didn't even take any initial measurements of either Big Bear Spring or Birch Spring in preparing the possible hydrologic consequences, did you?

A. No, we did not.

Q. So?

A. We haven't taken any measurements.

Q. You haven't taken measurements, yet you're here giving expert opinion, expert opinion under oath? I think we put you under oath.

A. Yes, you did.

Q. That there's no effects from the mining activities on these springs, yet you didn't bother to take initial measurements of these springs?

A. I don't take the measurements, EarthFax Engineering didn't, the mine did.

Q. Okay. Wouldn't you say that's a significant flaw in the PHC?

A. No.

Q. It's not?

A. No. The water company didn't bother to take any measurements prior to 1989 at Birch Springs.

Q. They're not here trying to get a permit approved, you are. So what they did is completely irrelevant, what's recommended?

A. We rely --

MR. MITCHELL: Let's not argue with the witness. Ask him a question let him answer it and then ask the next question.

THE WITNESS: We don't have -- we have taken them at face value and used their flow numbers to generate our graphs.

BY MR. SMITH:

Q. You don't consider that to be a flaw?

A. No.

MR. MITCHELL: He's answered that no.

MR. SMITH: I asked him if it was a major flaw.

MR. LAURISKI: Well, I'll tell you, we're losing our patience with all the arguing that's going on in the room. Ask questions and please answer the question and let's move forward. Perhaps when we get through with this witness it would be a good time to take a break so you guys can relax a little bit, okay?

MR. SMITH: I have a few more questions. I apologize and appreciate the patience of the Board.

MR. LAURISKI: The Board has an interest in getting to the facts and determining whether or not the petition is valid. And that's what we're here to determine. We're not here to referee arguments between witnesses and counsel. So let's try to keep focused on the issues so we can all move forward on this matter.

BY MR. SMITH:

Q. Let me direct your attention to 2-6 of the PHC. The last sentence starting on that page, it says, "The Star Point Sandstone together with the lower Blackhawk Formation are considered by Lines to be a regional aquifer." You see that statement?

A. Yes.

Q. That was Mr. Lines' best opinion; isn't that correct?

A. I can only assume.

Q. But, and you testified before you don't agree with that?

MR. MITCHELL: No, that's mischaracterizing his testimony.

THE WITNESS: That's not what I testified.

MR. LAURISKI: Mr. Mitchell, let -- if he disagrees that's what he said, let him answer, okay? Thank you.

THE WITNESS: As I said before, Mr. Lines' work, I hold in high regard. But it is regional, and I think

that Mr. Lines, being the good geologist he is, would have to modify the case for this site, based on the information we have, based on region wide information.

Very generally, he is dead on. It's a wonderful study, but it's not gonna be like that across the entire Wasatch Plateau, that's not real. Mr. Montgomery knows that, I know that, Mr. Lines would know that.

BY MR. SMITH:

Q. Let's go to page 2-8.

MR. LAURISKI: I'm sorry, two?

BY MR. SMITH:

Q. 2-8. It says, "Outcrops within the permit area include the Price River Formation -- this is the last paragraph -- Castlegate Sandstone, Blackhawk Formation, Star Point Sandstone and the Mancos Shale." Is that correct?

A. Yes.

Q. You are referring to?

A. Yes.

Q. "Indicate that recharge to the Star Point-Blackhawk aquifer from direct infiltration of snowmelt to formations which outcrop below the North Horn Formation is small in comparison to recharge through low relief surfaces on the North Horn Formation."

That's the top of Gentry Mountain; is that correct?

A. Yes.

Q. "In the study area, exposures of formations below the North Horn Formation and above the coal outcrops are limited to steep canyons. Therefore, the potential for recharge through these formations to the regional groundwater system within the permit area is limited."; is that correct?

A. Yes.

Q. And so, as I understand it, the area -- we have been through this and I'll quickly move to recharge -- is up on Gentry Mountain, not regional aquifer then?

A. I wouldn't say that.

Q. Okay.

A. For the regional aquifer there's recharge all over the place. But in this area, in the area of Co-op, recharge is much more likely to occur on Gentry as the USGS says, on flat areas with a lot of surface area open to the sky. It's not gonna occur very efficiently on steep slopes over the mine.

Q. And that, in both the Blackhawk and Sandstone underlie this recharge area; is that correct?

A. Yes.

Q. Okay. A little farther down on the same page on 2-9 it says, "No springs were found within the permit

area." Is that correct? See where I'm reading from?

A. Yes, "within the present permit area".

Q. So Birch Springs and Big Bear Spring are outside the permit area?

A. I believe so.

Q. Okay.

MS. LEVER: What about the line in between?

MR. SMITH: I'm sorry?

MS. LEVER: You skipped a sentence.

MR. SMITH: Okay. We can read that too. "Within the proposed expansion area there are three springs associated with the perched aquifers above the coals mined by Co-op Mining Company". Is that the line?

MS. LEVER: Are they the same springs we are talking about?

MR. SMITH: I'm not sure. Don't ask me, I'm the wrong person.

MS. LEVER: I'm sorry. Do you want to ask Mr. Garr?

THE WITNESS: Are you referring to a number of low volume springs, two GPM or less?

MS. LEVER: Just go on.

BY MR. SMITH:

Q. The two largest springs, Big Bear -- I'm skipping down. I want to try to focus on some

important, what I consider to be important facts in here. About two thirds of the way down that paragraph starts out a sentence saying "The two largest springs in the area, Big Bear." Are you following me?

A. Yes.

Q. "Big Bear Springs and Birch Springs are associated with fault and joint zones and issue from the Panther Tongue of the Star Point Sandstone".

A. Yes.

Q. So those springs issue from fractures or faults; isn't that correct?

A. Fractures.

Q. Do you know how far up he fracture goes that Birch Springs issues from?

A. No.

Q. For all you know it could go all the way up to the Blackhawk Formation or farther up?

A. It may.

Q. And water could be coming through that?

A. Yes.

Q. You just don't know?

A. I think it probably is.

Q. I see.

A. It's a joint system.

Q. And the same thing with Birch Springs and Big

Bear both, they're issuing from faults that are going upward from the springs?

A. Issuing from joints.

Q. Can you explain just -- I'm a layman -- what's the difference between a joint and a fault?

A. A joint simply is a crack, there's been no relative movement across that. A fault, by definition, has relative movement.

Q. If I can show you Exhibit 3, is this the -- would this be the joint we are talking about in Exhibit 3, where the rock -- it appears to be rock going a different direction in the upper left hand corner of Exhibit 3?

A. It looks like that to me. I haven't studied that area, as I said.

Q. I see. Okay. And you're not sure how far that joint goes up into a higher strata?

A. No. I know it's 800 feet from the Blind Canyon fault however, and both north trending.

Q. Go to page 2-13. This is a section we've been through before, actually we've been through these sections before, but I want to ask a couple of questions. The first full paragraph that says, "Groundwater enters the Blind Canyon Seam of the Bear Canyon Mine through roof bolt holes."

Where would that water, without mining water that's moving through a fracture, where would it naturally go if you weren't mining in the area and intercepting the water through the mining process?

A. Generally until it hits an impermeable layer , and if that were not fractured it would follow that until it hit the daylight.

Q. And that's where the water -- that's why we have Birch Springs and Big Bear Springs where they are because water is working both downward and southward?

A. Yes.

Q. From this recharged area in Gentry until it hits an impermeable area?

A. Probably further north.

Q. Even further?

A. That's not the exclusive recharge, we should stop saying that.

Q. That recharge and other recharge areas, water will move both southward and straight down or downward, until it reaches that impermeable layer and comes out as a spring; is that correct?

A. Yes.

Q. And both the Blackhawk and the coal seams and the Blackhawk Formation that are being mined by Co-op supposedly, are both up gradient and north of these two

springs; is that correct?

A. They are higher. I'm not sure where they are proposing to mine in their lease relative to the current workings.

Q. And they also are north, is that correct, they could be south?

A. I don't know where they're proposing to mine the Tank Seam.

Q. I see. The Birch Springs, at the very edge where that hole -- maybe I could draw that and save a little time. We have Trail Canyon here and we have Big Bear here, and Birch is right there and Big Bear is right there. There isn't much where they could mine south, therefore, because this is Huntington Canyon, Birch Springs is right there. So where they are mining is north, obviously, of these two springs?

A. Yes.

Q. Okay. Now, on 2-13, that last paragraph, the previous witness -- you were here when Mr. Reynolds testified and said there were mistakes in that paragraph. Were you aware before of his mistakes in that paragraph?

A. It was two or three weeks ago, he called and asked said that the DOGM wanted a revision of the PHC and would I please put the corrected values in red line

strike out so they could submit on page 2-14.

Q. Do you know who gathered the information that was put in here about the counting of 500 gallons per minute?

A. I understood it was Mr. Reynolds.

Q. Anybody from Earthfax go down and verify the numbers?

A. No.

Q. You just took Mr. Reynolds' information, and incorporated in the PHC?

A. It's referenced that way.

Q. Okay.

A. It's not our job to judge whether our client's being honest with us or not.

Q. I'm not saying it is. Go to 2-22. That's a Piper Diagram, isn't it? What I understand is a Piper Diagram, and I'm no geologist, but that is where you take the mineral contents of water, and then diagram it out to compare how similar waters are; is that correct?

A. That's my understanding. I'm not a geochemist, and I didn't produce this, but that's my understanding.

Q. Who did produce these?

A. Earthfax employee, water data.

Q. Is he here? If he's going to testify I'll save the questions.

A. She is not here.

Q. I'm sorry. Okay. And from this diagram, the water of Birch Springs seems to be a little bit -- that's number one on that diagram?

A. Yes.

Q. The point by the 1 seems to be close, but a little separated from the rest of the points of water. These are some of -- this water is the spring and some is water found in the mine, but the water from Birch Springs is very close, in fact it fits right in with the other water?

MR. MITCHELL: I think it's established he's not qualified.

THE WITNESS: I can't say anything about this, to be honest.

BY MR. SMITH:

Q. Okay.

A. I can't interpret these diagrams.

Q. You can't. Okay. Go to page 2-33 and you have six reasons why, at least the report has six reasons why you don't believe there's a connection between Birch Springs and Big Bear Springs and the water in the mine, encountered in the mine?

A. Yes.

Q. Number 1 is a Tritium test. Isn't that

correct? But the Tritium test does not disqualify Birch Springs?

A. No, and it doesn't say anything about that.

Q. Okay. I just want to make sure that's clear. The next one is the Stiff Piper Diagram. They don't disqualify the Big Bear Springs in any way; is that correct?

A. We had Tritium data suggesting Big Bear was different water from the mine, also from Birch. We had chemical data suggesting Birch was different.

Q. Isn't the converse true as well, that the Tritium data suggested that the Birch Spring was the same as the mine, and the chemical data suggested that the Big Bear Spring is the same as the mine? Doesn't it work both ways?

A. No.

Q. Why not?

A. It doesn't. All the Tritium data -- it's talking about the age, not the source. It's not talking about the source or the chemistry outside of hydrogen ions. It's talking about the relative age. This water was in the atmosphere prior to open air bombing in the '50s, that's all it's saying.

Q. Based on that data, you would say they're probably the same water?

A. Again I will say, based on that data I will say they are similar age, relative age, not source.

Q. But --

A. They are old water.

Q. But you're using these tests to determine what the sources are of this water, isn't that correct?

A. Generally, yes. If we find young water coming out of Big Bear Spring for instance, relatively young water, then we can say -- we can't say there's no connection. But we can infer this is getting recharged from a different location than just the mine because the mine is old water. If Big Bear Spring were being recharged from the Panther mine, it would be very low in Tritium counts. Also, it would be old water. We're using as many tools as we can to characterize this stuff. You're gonna have a water of a certain chemistry that you get here in Salt Lake, and then go to Saudia Arabia and find the identical composition in the water. That's not the same source, is it? That's what we're talking about here.

Q. Just one more area I want to talk about, one more question really. On page 2-28, it says, "Waters from DH-1A", I guess that was a drill hole in the mine, I take it?

A. Second line.

Q. Second line?

A. Yes.

Q. "And DH-3 have Stiff patterns similar to those of the calcium-bicarbonate spring water depicted on Figure 2-2. Water from DH-2 has a calcium, magnesium, sodium, potassium-sulfate pattern. This pattern is distinctly different from other groundwater that has been sampled in the permit and adjacent areas, and is presumed to be due to the dissolution of locally-occurring sulfate salts."

A. Gypsum.

Q. There's some different mineralization of water found within the drill holes of the mine; is that correct?

A. Yes.

Q. Yet you're using chemical analysis to distinguish the spring water from the mine water. Couldn't the difference in the spring water be from some locally-occurring, as you put it, locally-occurring sulfate salts near the mouth of the spring?

A. Yes.

Q. So --

A. You see what we're working with here?

Q. Yes. So not an exact science, is it?

A. No, it is not. That's why we have to use as

many tools as we can and do as much work as we can and gather as much data as we can to come up with a story.

MR. SMITH: That's all I have, thank you, Mr. Garr.

(Whereupon a recess was taken.)

MR. LAURISKI: We'll be back on the record. Mr. Appel, I believe you have cross-examination of Mr. Garr.

MR. APPEL: That's correct. I should remain standing, Mr. Garr.

MR. LAURISKI: Before you do, go off the record.

(Whereupon a discussion was held off the record.)

MR. LAURISKI: With that, we'll go on the record. Mr. Appel, you may proceed.

BY MR. APPEL:

Q. Mr. Garr, with respect to this particular drawing which you have on the Board, did I understand you to say that your view of movement of this water is it comes in the shattered zone, enters Star Point that way, and then moves down in this particular direction, because they're basically some confining members within the Star Point?

A. I think that it's probably saturated up here also. I think it's saturated to the north. This probably contributes to it. Nobody really knows for sure. All I'm saying is this is a lot better recharge

area close to the mine than this. Very simply that.

Q. This is a little awkward. Could you go around this exhibit. What does this line mean right here?

A. This is the potentiometric surface right here. Right here is the mine floor. These are logs just very general logs from the mine floor to the total depth of the wells. We checked the water level and hydrologic characteristics of the aquifers, in each of these aquifers in each of these holes. We isolated it with the packer (sic) system, tested just that aquifer, drilled on, tested just that aquifer, isolated this aquifer from the one above it. This is the groundwater surface.

Q. This line would reflect the down gradient movement of subsurface water?

A. This line shows where spring canyon water is. This is the spring canyon aquifer under pressure, confined, and it pushes up to this elevation above the mine floor, if you are just below the mine floor.

Q. So, they're not really confining geologic members, they actually have some communication of water in between them?

A. I'm not saying this water is up in here, no. This is the potential surface, that's the pressure, expression of the pressure that the water in this

aquifer is under.

Q. Where did you encounter water?

A. In that aquifer, as soon as we hit it.

Q. Where did you encounter water in this aquifer?

A. We didn't.

Q. Absolutely none at all?

A. I don't recall any.

Q. Okay. Now, this is the mine floor, correct?

A. Yes.

Q. So, it's safe to say that very shortly this particular surface that you've identified here, is going to interact with the mine floor within how many feet?

A. I'm not sure where it's going to hit.

Q. If the mine --

A. You have progressions. You picked it.

Q. Right. There's a reason for that. If the mine were not there, then this line would intersect the mine floor approximately what, six feet from where you have it?

A. If you had a conduit, which is what we created when we drilled down there, we provided it a means of getting up to that height.

Q. But in fact, there are joints and fractures throughout all these structures. You testified to that. And it would start at the bottom of the Mancos

Shale and the same fractures would be pervasive to this entire section particularly?

A. I'm not sure of that, I'm not sure they would connect up. I don't know, through going through fractures.

Q. Didn't you testify that if the sandstone was fracturing that your shales were going to fracture as well?

A. No, a joint area such as Birch, yes, there's lenses fractured, discontinuous fracturing here.

Q. In fact, refracturing?

A. This water is coming up in the mine floor through fractures.

Q. Thus they can also go down, if the water level was below, down here?

A. Yes.

Q. So, it will move down, down gradient this way as well as across gradient this way?

A. Primarily, the floor horizontally.

Q. Okay.

MR. LAURISKI: Can I ask a clarifying question here? When you reference the mine floor, Mr. Garr, are you talking about the Blind Canyon Seam mine?

THE WITNESS: Yes.

MR. LAURISKI: Or the Tank Seam?

THE WITNESS: Blind Canyon. We started the wells from the floor of the Blind Canyon.

BY MR. APPEL:

Q. Let's go over to your drawing here. Now, we just discussed the fact there are fractures and joints through this area, and you admit they exist?

A. Not necessarily. I don't know.

Q. How did joints and fractures, how are they created?

A. Through extension, you can break them by extending, have the same kind of thing going upward. Subsidence can do it.

Q. It's a response to stress created within the earth's crust?

A. Yes.

Q. Okay. Chances of it being different from one section to another are fairly slim, aren't they?

A. I'm not sure I understand what you are saying.

Q. Usually you have an area that is usually -- you have an area that has similarities with its jointing and fracturing; isn't that correct?

A. Yes.

Q. Because it's really responding to regional stress?

A. Usually, yes.

Q. Now, you testified before that one of the reasons you disagreed with Mr. Montgomery's position is that you feel that the water -- tell me if I'm wrong. I'll ask you what I know his theory is. His theory is the regional water table, we have called it regional aquifer, that doesn't help me as much as the water table because as you know, we're moving between layers. It's difficult, but comes approximately like --

A. That is a permanent marker by the way.

Q. Oh.

A. I discovered that.

Q. Let's just -- approximately like this.

MR. HANSEN: Objection, there's been no testimony.

THE WITNESS: I don't think he said that.

BY MR. APPEL:

Q. Why don't you show me where the extreme --

A. I don't think it's that extreme of depth.

Q. Help me where you think --

A. I'd like to see where he put it. I don't know where he'd put it. He put it -- he takes the USGS information, the regional general block diagrams, and runs a single water table crossing the Blackhawk and the Star Point. We've got three different aquifers with three different heads. That suggests that those confining layers are competent, and it doesn't suggest a

lot of vertical communication from water in an outward tongue to a lower tongue. It suggests the opposite, that the shale units are competent to sustain the pressure.

Q. Competent enough to transport the water along those particular bedding plans you've suggested within the Star Point?

A. Yes.

Q. That's your conclusion?

A. Yes.

Q. And your conclusion is they're below the Blind Canyon Seam?

A. Currently, yes.

Q. Now. If these levels of layers are so competent, and there's no communication between them, why don't we have springs like Bear Canyon and Birch Spring coming out where they exit in the side of the wall rather than everything coming out in Birch and Bear where it hits the Mancos shale?

A. There's water flow through those aquifers to the surface. It moves very very slowly when it gets to the surface. You can see at those outcrops it is damp. Not through the full thickness necessarily, because we have even shown they are not fully saturated at the south end. You see more effervescence or salt deposits

on the cliff face, suggesting minerals carried along by the groundwater when they pit the interface with the atmosphere.

It's not correct to say there's an absence of water at the outcrop. There's an absence of measurable water, and the springs are in joints for a reason, because joints are conduits.

Q. You didn't have that same absence of measurable water for drill holes, did you?

A. There was measurable water, of course those units are saturated, yes. The water is moving very slowly.

Q. When they come out here they are not saturated. Where is this water going?

A. It's going out at the outcrop.

Q. Down at these springs -- is it equally possible it's exiting from the spring?

A. Not from the aquifers below the mine. I don't think that's the case. It's exiting at the outcrop. If it were all going to springs, you wouldn't see effervescent outcrops on the south of the mountain. You wouldn't see dampness.

Q. Let's walk through this again. You have joints and fractures throughout this area. Are you willing to concede that?

A. I don't know to what extent I have seen fractures in the ceiling. The rock is fractured. I don't know how much water has communicated.

Q. And this water moves through joints and fractures in this particular area?

A. Yes.

Q. So isn't it also equally possible, rather than slowly seeping out in quantities we can't really see, that this water is in fact moving along through here, down joints and fractures through three layers, and exiting once it hits the Mancos shale which is a far more plastic substance than these other more brittle shales and sandstones?

MR. MITCHELL: I want to object. That question has been asked to him twice now, and each time he has answered it and he said because of the competence of the shale, between those, he believes it is highly unlikely. If he's asked this until eight or 9:00 tonight, I think he's a tough guy, and I think he'll hang in there. But I don't see why we should have to live through it with him.

MR. MURRAY: I agree.

MR. APPEL: I think the question I asked is different. I've got him to admit there are joints and fractures. Mr. Mitchell doesn't like the fact --

MR. MITCHELL: He admitted that three questions ago, and he said, but I don't know if they are communicating joints and fractures through here because of the competence in the water pressure.

MR. LAURISKI: Mr. Garr, answer the question one more time, and we'll see where that takes us.

THE WITNESS: I need the question asked again. I'm not sure what it is.

MR. APPEL: I don't think you've heard this one before.

MR. LAURISKI: Ask the question.

BY MR. APPEL:

Q. There's a distinction between the -- let's call it the plastic nature of the Mancos shale and the shales within the Star Point. I'm asking you --

A. I don't know that there is.

Q. You don't know there isn't.

A. I didn't say there was.

Q. But the one thing we do know is that wherever water comes through here, exits at Birch and Big Bear when it hits the Mancos shale, correct?

A. I don't think that's really a thoroughly honest statement.

Q. Well --

A. It's my opinion, sir, that the water in Spring

Canyon, below the mine, exits at the face on the south end of the mountain, and that the water in the Storrs exits at the face of the south end of the mountain, and the water in the Panther exits there also. And that the water in Big Bear Spring and Birch Spring exits through joints when it hits the Mancos.

Q. Because of the nature of the Mancos, that's really the floor?

A. Because it's incredibly thick.

Q. So any water that does come --

A. That's the floor for Birch and Big Bear, yes.

Q. Okay.

A. It's not necessarily the floor, and I maintain it isn't for the aquifers below the mine.

Q. How thick is the Mancos shale?

A. Hundreds of feet, six or 700 in this area.

Q. Nearly a thousand. Okay. All right.

Let's -- that's your opinion. I also wonder, would you mine comparing the volume you have seen exiting the cliffs in the area?

A. I told you it's not measurable.

Q. Does that mean it's not very much?

A. It is very little.

Q. Very --

A. Because that water was -- moves very slowly.

Q. And using the same measuring stick, would it be correct to say that the water exiting Birch Springs and Big Bear Spring is very great?

A. There's a lot more water exiting there. It's concentrated into joints. It's a pipe, conduit collecting water, maybe for miles and miles up gradient flowing into the joints, going out through the face of the mountain.

Q. Back to this drawing. This particular -- is this hard for you to see at this point? How far is the lined area, this way to the north, from this particular hole? How many feet of the mine is there?

A. You'd have to ask Charles that, I'm not -- I can't recall.

Q. Would you be surprised if I told you it's over 2000 feet?

A. I think I'd be surprised if you told me it was 2000 feet.

Q. Would you be surprised if the permit area was 2000 feet beyond this drill hole?

A. No.

Q. If you have a drill hole 2000 feet this way, which on this scale would be quite a ways out, would you tell me where it would be?

A. On this scale, this is 400 feet and one inch,

it would be here.

Q. From this drill hole?

A. Yes.

Q. Okay. As you back your potentiometric surfaces this way, when do you hit water out here if you drill a hole at the end of your mines?

A. I know we've got water in the north end, north mine, I believe it's called. There is water coming out of the floor. Stands to reason.

Q. And that's water --

A. Out of a well, out of a boring.

Q. In the floor?

A. Yes.

Q. And again, I have to ask the question, are we talking about in the Blind Canyon?

MR. LAURISKI: And again, I have to ask the question, are we talking about the Blind Canyon Seam or in the potential for the Tank Seam?

MR. MITCHELL: We're not anywhere near the Tank Seam.

MR. LAURISKI: That's why I'm more concerned.

MR. HANSEN: We're 200 feet below the Tank Seam.

MR. LAURISKI: We have sat here for, in essence, almost three hours, and I have yet to see how we've tied the Tank Seam -- the mining impact and the Tank Seam to

the aquifers below the Blind Canyon Seam. It seems like everything we're driving at is dealing with the Blind Canyon Seam under the current mining permit.

MR. APPEL: I'm a question away from that.

MR. LAURISKI: Please get us to that question. Okay?

MR. APPEL: I know you've hated the direction I've approached this from all day, Mr. Chairman, but this is unfortunately easier for me.

Q. 200 feet above is here?

A. This is 800 feet vertical.

Q. I see.

A. 200 feet is up here so we project that out.

Q. When does your potentiometric surface hit?

A. I'm just going to take a wild stab and put it about here.

Q. What's your margin for error here? I know this is an unfair question for a geologist.

A. These are measured to a hundredth of a foot. I'm sure Charles' surveys are that good also.

Q. But water will migrate through these particular sections?

A. I'm not sure I understand what you mean.

Q. Because of --

A. This particular section?

Q. Between Spring Canyon Tongue and the Blackhawk Formation, up through the Mancos to Spring Canyon Tongue. In this general stratigraphy in this area, water will migrate because of the fractures up and down?

MR. MITCHELL: If there are fractures.

THE WITNESS: If there are fractures and this is under pressure with the change with the Mancos number one shale. Yes.

BY MR. APPEL:

Q. Okay. Thank you.

A. What's that got to do with the Tank Seam?

Q. I ask the questions.

A. I see.

MR. MITCHELL: You have any more questions?

MR. LAURISKI: Mr. Appel?

MR. APPEL: I've concluded.

MR. HANSEN: I have some very brief redirect. I may get some asked and answered objections, but I think there's a couple of points that were confused during cross-examination that should be made clear.

MR. LAURISKI: Well, I'm going to ask that counsel direct the questions to the impact of mining in the Tank Seam, how that's going to impact the water supply in the mine, the Tank Seam.

MR. HANSEN: I believe the question directly relates to that.

MR. LAURISKI: Okay.

BY MR. HANSEN:

Q. We have heard a lot of testimony about what may be going back up here in the Gentry area, in the North Horn formation, and basically what we know is we don't know very much about what's going on up here. But what can you tell me about what we do know about the water table, the aquifer here at the Tank Seam within the permit area?

A. Within the permit area, it's well below the Tank Seam, and in fact, much of the area is below the Blind Canyon Seam.

Q. The other question that I thought was unclear, I thought was confusing during cross-examination, I think can be addressed on this diagram. As I recall, this was a depiction of the location of Birch Canyon and Big Bear Springs. There is a major fault between those two springs, if you would show us approximately where that is?

A. This isn't to scale at all, and I'll probably put the spring somewhere out here. But it's 800 feet east and it's Blind Canyon fault.

Q. Now --

A. 800 feet. Mine workings are somewhere over -- this really ought to be out here also. Something like that.

Q. Does Co-op mine mine on this --

A. No.

Q. -- Birch Canyon side?

A. No.

Q. No mining that takes place on that side of the fault?

A. No, except 220 feet here.

Q. If you are -- if water intercepts on the mine side of this major fault, intercepts the fault, where does the fault direct that water towards?

A. The groundwater, the direction of movement of groundwater in these three separate aquifers is south, or southeast, a little different in each one. The fault here could act either as a conduit to flow, or as a barrier to flow, either way. If water for some reason decided to come from under the mine, hit this fault, it's either going to be stopped by a clay gouge filling the fault itself, be stopped, or it will be conducted through open voids. If it's conducted through open voids it's going to come out here and make a spring. There's no such spring here at Blind Canyon, to the Blind Canyon fault.

Over here, 800 feet away, we're asking the waters to somehow come from the mine, cross that fault somehow, and go 800 feet to affect Birch. It's just not very likely. There are so many other things that would happen to it before it did that. It's really not even a question.

There's no spring here. We can't get across 800 feet like that. This water moves so slowly, that anything in the mine, in the north main section they did up there, assuming it was going to travel horizontally and not hit faults, granted, not hit faults or fractures, it's going to take 200 some odd years to get to Birch Spring. Operating 10 or 12 years, we don't see the fracture system that this water could be entering. It just isn't there.

MR. HANSEN: No further questions.

MR. LAURISKI: Mr. Mitchell?

MR. MITCHELL: No questions.

MR. LAURISKI: Thank you, Mr. Garr. With that, we're going to go off the record now, and we'll continue at 1:00 p.m. on November the 17th. It will be in this Board room unless you hear differently. We'll reconvene on that date. Thank you all for your patience with us. Again, we'd just like to say we are interested in knowing the facts, and that's what we're here to do, and

1 try to give a decision that's within the purview of the
2 law. So with that, this hearing is closed for today.
3 (The hearing was adjourned to November 17, 1994.)
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STATE OF UTAH)

COUNTY OF SALT LAKE)

I, Linda J. Smurthwaite, Certified Shorthand Reporter, Registered Professional Reporter, and notary public within and for the county of Salt Lake, State of Utah do hereby certify:

That the foregoing proceedings were taken before me at the time and place set forth herein, and was taken down by me in shorthand and thereafter transcribed into typewriting under my direction and supervision.

That the foregoing pages contain a true and correct transcription of my said shorthand notes so taken.

In Witness Whereof, I have subscribed my name this 3rd day of November, 1994.

Linda J Smurthwaite

LINDA J. SMURTHWAITE
CERTIFIED SHORTHAND REPORTER

LINDA J SMURTHWAITE
Notary Public
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