IN THE MATTER OF AN ARBITRATION BEFORE A TRIBUNAL CONSTITUTED
IN ACCORDANCE WITH THE TREATY BETWEEN THE U.S.A. AND THE REPUBLIC OF ECUADOR CONCERNING THE ENCOURAGEMENT AND RECIPROCAL PROTECTION OF INVESTMENT, SIGNED AUGUST 27, 1993
(THE "TREATY")

and

THE UNCITRAL ARBITRATION RULES 1976

In the Matter of Arbitration Between:	
CHEVRON CORPORATION (U.S.A.), TEXACO PETROLEUM COMPANY (U.S.A.),	
Claimants,	PCA Case No. 2009-23
and	
THE REPUBLIC OF ECUADOR,	
Respondent.	

TRACK 2 HEARING AGUARICO-06 SITE VISIT

Monday, June 8, 2015

Coca (Francisco de Orellana)
Republic of Ecuador

The Aguarico-06 Site Visit in the above-entitled matter convened at 9:32 a.m. before:

MR. V.V. VEEDER, Q.C., President

DR. HORACIO GRIGERA NAÓN, Arbitrator

PROFESSOR VAUGHAN LOWE, Q.C., Arbitrator

Additional Secretary:

MS. JESSICA WELLS

Registry, Permanent Court of Arbitration:

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DR. HARLEE STRAUSS

C O N T E N T S

P R O C E E D I N G S

PRESIDENT VEEDER: Well, today is the 8th of June. We're at AG-06. It's the second day of the actual Site Visit. In accordance with the arrangements agreed, the Respondents have the floor.

OPENING STATEMENT BY COUNSEL FOR RESPONDENT

MR. EWING: Good morning, Members of the Tribunal. Welcome to Aguarico-06. As I have mentioned before, I want to give you a quick overview of where we are and then we'll dive into some of the details.

We again started off this morning in Coca, and we came up through Sacha, crossed through Shushufindi, and we are now at Aguarico-06, so the northern end of the Concession. And we are north of where we were yesterday at Shushufindi-34, and after we're here, we'll head south, a quick trip to Shushufindi-55.

Originally, this site was supposed to be after Shushufindi-55, but just for logistics we've moved around, and you'll see some of the reasons why that's the case. There are really four primary reasons that we've brought you here today and brought you from your comfortable homes to be looking at this.

The first is, it is easy to understand, just like at Shushufindi-34, whose oil--who put the oil in the ground that is now the problem. And just to give you some

09:34 context, we are looking out over a swampy area. It's called a plantation by some of the original auditors, and this is where LBG has done the vast amount of their sampling.

At the top of the hill we were at the platform, and I'd encourage you to work around there later if you'd like to. We decided to move down here just to simplify all of our lives a little bit and just start here. But when you're up there, you will see the wellhead. It's similar to what we had at Shushufindi-34. It's a round, steel disk that you can see in the ground. You'll also see some more pits up there that are demarcated--or one more pit you'll see from the Chevron demarcated.

We walked across one of the pits that we know is filled with TexPet oil on our way down here, so it's directly above us on this hill. Because of that, we can tell--or we know that the contamination that's down here is coming from up there. This site was only operative--the only party who ever extracted oil from here was TexPet. So, again, we know that the contamination that we are looking at is a result of TexPet's operations.

The second reason that we're here is that there is quite a bit of information about this area in the Lago Agrio Record. I think there was a slight misstatement yesterday in what is contained in the record about the

09:35 sites we are looking at. It is true that the Lago Agrio Court only visited a certain number of sites. They only went to, I think, 45, the Court itself under 45 sites, but there is information about all of the sites that we're taking you to in the Lago Agrio Record. For instance, in the HBT Agra Report, which is Exhibit C-13, was in the Lago Agrio Record, and it addressed these sites, and we'll talk about some of the things that that report said.

The Fugro-McClelland Report addressed these sites, and it was in the record. The same with the Woodward-Clyde Report. So, those are three examples of reports that addressed the sites that we're visiting. So, while they are not all Judicial Inspection sites, they are all sites--that there is information about them in the record, similar to how LBG has investigated, with a little bit more detail, 13 sites, but we are only visiting four. It's equivalent, kind of, but you have data about all of them.

ARBITRATOR GRIGERA NAÓN: May I ask a question.

MR. EWING: Please.

ARBITRATOR GRIGERA NAÓN: Did Mr. Cabrera visit any of the sites we are visiting now?

MR. EWING: Mr. Cabrera visited Shushufindi-55, which is where we will be going this afternoon.

ARBITRATOR GRIGERA NAÓN: The only one.

MR. EWING: As far as I know, yes.

09:37 The third reason that we're here is because it's easy to see the contamination. We have gone to many sites--I think the last count was 50 or 60--sort of to survey and understand what various sites looked like. This is a site where it is easy to see what the contamination looks like, how it shows in the environment. So, we brought you here to show you that.

The pits that are above us--actually--and the fourth reason--and we will talk about the pits--it's easy to see the threat to human health at this location. You can see out in front of us the farmer has cut down the trees. Dr. Garvey will talk about how different this site is from when we were here, and these are the trees I mentioned to you were cut down at the end of the Hearing. We learned about them and told you, but the farmer has then come in and planted corn.

He lives across the stream and walks back in here on an almost daily basis, it sounds like. And his cows--there is actually a path over here that he uses, and when we head down, I would encourage you to look up it. We originally wanted to bring you down it. We couldn't put steps on it because it would make it inaccessible for the cows, so we came this way instead. So, this is a commonly used pathway.

So, those are the four reasons that we're here.

09:38 So, I'd like to step into some of the history briefly of this site, which, I think, will help explain what we're seeing.

At this site--this is a map showing the Aguarico-06 platform at the top, where we parked our cars. So we drove in the road from that way and have all parked up here. The wellhead is here, and now we have walked down here, and I meant to mark it, but our platform is approximately here on the hillside, and we are looking at all the flags below us, are all these different marks. And the flags across the way in the stream that Chevron has placed there are the stream.

So, we are sitting here.

There is some disagreement. We count that there are seven pits at this site: One, two, three, four, five, six, seven. There's some disagreement between the Parties about what we have here, so let me just explain.

There are two pits that were documented and included in the RAP--there are three pits. The first is this one here. We drove past it on the way in. You may have noticed, again, Chevron has put their yellow flags around the triangle, and you'll see it when we go out. Now that I've mentioned it, you'll see it's back towards the road we're coming in.

These two pits here, the one of which we walked

09:39 over, we consider them two, based on the analysis of Chevron's internal documents and our own analysis of aerial imagery. Chevron considers these one pit. Whether it's one rather large pit or two medium-to-large pits, to me it seems relatively unimportant. It's a larger area of contaminated soil.

There are also then one, two, three, four undocumented pits. These pits were never documented in the RAP or otherwise disclosed that they had been dug by TexPet. In aerial imagery from '75, this area, this area, and this area are all cleared, and what we have found is that this area appears to have been an oil pit or the reserve pit. So, when the well was dug here--this is the top of a hill, as you know, since we just walked down, and this is also a steep slope down to this area. And, from what we can tell, what TexPet did is they took advantage of gravity, and they just used the hillside to let the waste fall down into this area.

We walked around down there last week, and I saw oil contamination just underneath the surface.

MS. WOOD: Objection.

PRESIDENT VEEDER: I think after yesterday, you shouldn't be saying anything about that.

MR. EWING: Okay. I won't say anything.

So, this area here--and we can show you this area

09:41 here--this area here is a little harder to get to, so we won't take you over there. This area here, this L-shaped pit, Shane is over here with the blue-and-white flag. He is standing approximately at this corner of this pit here.

Can I describe what it looks like to stand inside that pit?

MS. WOOD: I will make an objection. Let me turn my microphone on first.

Mr. President, I have let Mr. Ewing give this what he calls "background" to you. We obviously disagree, and we'll make the presentation to you. My concern is where he is going now is he's introducing evidence that is not in the record. Other than having shown that picture in the packet and discussing aerial photographs, they have done nothing prior to what we're hearing right now to document any of these other pits that they claim are out there. I have reason to believe that they want to use, and they have obtained, samples that they won't show you. We have not had any chance to verify any of that, to view any of those locations because we were going on what was in the record, and the only thing that's in the record in the Site Packets is this document here.

So, I object to them talking about anything with respect to what pits look like, based on what they have seen or their observations that are outside the record and

09:43 outside their Site Packet.

MR. EWING: Mr. President, this has been in dispute about this site about whether or not this is a pit, so I think there is clear evidence. We say it's a pit, they say it's not. I'd like to show you, and this is why we brought you out to the Oriente, to show you why we think this is a pit. I would be thrilled for you to walk over there where Shane just was and see for yourselves. Instead sort of like Chevron did yesterday with their sample, we wanted to show you what is in the floor of that pit, and to show you, and you can make your own decision.

PRESIDENT VEEDER: I think the difficulty is you can show us. Whether it is a pit or not, that is an issue between the Parties. But you're not a witness or an expert witness, so I think the only explanation, I think, given the difficulties--

MR. EWING: Yeah.

PRESIDENT VEEDER: --if you start describing what you saw.

MR. EWING: I can let Dr. Garvey do it and not me.

PRESIDENT VEEDER: As far as you're concerned, finish your explanation.

MR. EWING: Okay. Can I show you what we found or should I ask Dr. Garvey to do that?

MS. WOOD: I object--excuse me, I spoke over you.

I object to Mr. Ewing or to Dr. Garvey speaking about anything they saw or found or samples they collected. They've had unfettered access to these sites for three years. I made a special trip two weeks ago to come to this site to find out what they had taken samples of and had put in their Site Packets and put in the record. We came, we looked at the locations where they had taken samples. We knew nothing about other new areas that they now want to describe to you and to show evidence from those pits that they claim are pits. We have not had any opportunity to verify that. It's not in the record whatsoever, and we have been very consistent in sticking with the Protocol, and so I object to any of that coming into the record.

PRESIDENT VEEDER: When was this sample taken?

MR. EWING: This morning. Shane just walked back with it right as we were coming over.

MS. WOOD: And, if I might, Mr. President, let me just also explain--or clarify something Mr. Ewing said. The difference between yesterday and today is that everyone had the opportunity to go look at that pit that was to the north of the property. We had the opportunity to go investigate it. Samples had been collected from there. They could verify those samples. The difference here is we have never been to these locations that he is now trying to show you. We have had no opportunity to verify that, and

it's completely outside the record.

MR. EWING: I beg to differ. These pits have been outlined and have been described in our filings--

PRESIDENT VEEDER: Well, the pits have, but the samples haven't. That's the problem. You're catching the Claimants a little bit by surprise, and the Expert Witnesses for the Claimants also. Isn't this different from yesterday? I thought it might be the same, but it sounds like it's going to be more difficult to resolve.

MR. EWING: I don't think this is different from yesterday, in that, one, if you would like, it's more difficult to get to than yesterday, but it is not by any stretch, you know, impossible. Shane just walked.

MS. WOOD: Mr. President, if I may, it is completely different from yesterday. Yesterday, not only had they documented a pit, they had taken samples in that pit. We went to the same location and showed you material from where they had collected samples. We have never been to that location over there. We have never taken any samples. We have never been able to verify any of their samples. We are caught completely blindsided.

And, if you also recall, this was the site that we had asked to bring our experts over to because of the extensive modifications. Ecuador objected to that, so our experts have not even been to this site and have no

understanding as to what are these locations that they want to show.

We do not object to them talking about where they have sampled that is in the record and where they had collected samples and where we have also inspected. We object to them going to areas that now, many years after the fact, all they've given us were aerial photos and said: We believe there are pits there. Now they come out here a few days before the Site Visit and auger down and want to show you things that we have had no opportunity to check out.

Basically, what is happening is they're presenting witnesses, and they never had a witness statement. That's--

PRESIDENT VEEDER: I think what we would like you to do is to go on with the rest of your presentation. We're going to talk about this, and we will find an alternative solution, but can you move on or not?

MR. EWING: I can absolutely move on.

PRESIDENT VEEDER: Okay.

MR. EWING: Can I just clarify one point? They have had complete and unfettered access per the Protocol to come to these sites. We only objected once to say this had started. Before that, we were completely amenable to them being here as often as they wanted to be, and they have

been here almost every day.

MS. RENFROE: Except the immunity provision was not signed until we were--

PRESIDENT VEEDER: Let's leave it there--

MS. RENFROE: Yeah.

PRESIDENT VEEDER: --because we're losing time. We'll come back to this, but if you can move on.

MS. WOOD: And, if I might, just for the record to say I have a standing objection to any evidence he tries to put in about new evidence.

PRESIDENT VEEDER: Be assured, he is not a witness in any event.

MS. WOOD: Thank you.

PRESIDENT VEEDER: And he says it's not evidence.

MR. EWING: So, this--let me step into that issue. This well was drilled in 1974, to give you the context. The wastes were disposed of somewhere. We know that they were disposed of, and that there was oil that was left. The HBT Agra Report tells us that this area here, we'll talk more about, was an oily, recently closed pit. HBT Agra, Fugro-McClelland, and then Woodward-Clyde all tell us that.

This well was shut in in 1986 by TexPet, and, as I explained yesterday, that's a temporary closure of the well. So, it's plugged so it could be reused again. And,

in fact, we'll explain more at our next location that this well was used later as a reinjection well, but it was never used to produce oil after 1986.

Let's see. We'll jump ahead here. We'll just jump right into the injection aspect of this.

So, this well, like I said, was converted to be used as a reinjection well. When oil comes out of the ground, it comes out with a mixture of oil, water, and gas; and that oil, water, and gas is sent to a Production Station where it's separated out. The oil is sent for sale, the gas is either used or flared, and the water is disposed of.

During TexPet's era, HBT, Fugro-McClelland, and internal Chevron documents tell us that produced water was typically disposed either directly into the environment through unlined earthen pits or directly into drainages and into the streams. And LBG has done some calculations on the produced water and the damage that that has caused in and of itself.

But what's important for Aguarico-06 is that when this well--they converted it into a reinjection well, so think about it like this. The oil comes up when it's a production well. When it's a reinjection well, you're taking the produced water, the toxic produced water, and you're reinjecting it back down into the formation, so

approximately 3,000 meters below. It's considered the safest way to store it.

In TexPet-patented technology to do a reinjection, to improve on the reinjection process in 1962--or '72, and the American Petroleum Institute had even recommended reinjection in the United States since as early as 1962. So, before Chevron--or Texaco was producing oil here.

According to an internal Texaco memo, which we call the Henderson memo--this is R-489--they recognized that using unlined earthen pits for disposal of produced water was "not best practices" for the obvious reason that produced water will migrate beyond the pit otherwise.

So, at the end of the day, the point here with the reinjection well is that it is being used to reinsert the produced water back into the ground. It is not pulling more oil out, so it's been put into reverse.

So, from there, I would like Dr. Garvey to give you the floor to explain what LBG has done here.

DR. GARVEY: Good morning.

So, today I'm going to talk about several important features on this site, and I'm going to try to stand out of the way so you can see what I'm discussing. But basically some of the same things that we picked up yesterday at Shushufindi-55 we also can bring out here. That is, the presence of TexPet liquid oil, oil

contamination outside of the pits now as opposed to yesterday when we looked at Shushufindi-55--34, excuse me, Shushufindi-34, we had oil inside the pit. Here, we're going to show you some examples; we actually have oil outside the pit, okay, not oil--not contaminated soils, but oil. We're going to show that this oil had to have gotten here by a couple of different processes. We'll talk about which ones there might have been. We think likely it's by groundwater pathway that they reached this point, basically traveling through the soil and perhaps above the water table.

We'll talk about the clayey soils in this area and their failure to contain the contamination, the presence for the existence of present and future human health risks associated with this contamination, and then the site as an example of our inventory calculations, in support of our own inventory calculations.

So, to begin, then, this site has a history of oil seeping into the wetland. It's been documented by three different consultants, basically saying either there's oil seeping out of the pits or actually oil being seen seeping out of the ground. Okay. I believe it was the Woodward-Clyde Report that reported oil seeping out of this spring area here, and I'll point to it in a minute, back in the early Nineties. So, as early as the early Nineties as

part of the RAP, this area was reported to have oil seeping from the ground, as you see it here.

I'm going to point out--the spring here is basically directly behind this large tree. There is a small depression in the ground, behind this tree there, basically between--essentially a straight line from where I'm standing between the tree and the blue sign behind it, there's a depression there. That's a spring; it's a water spring. Associated with this spring and these points that you see down here is oil seeps coming out of the ground, oil coming out of the ground.

So, during LBG's investigation--well, excuse me, before we go on there, there are four or five pits associated with this site, perhaps more. We have had discussion about that, but your question may be why are we exploring the other pits. We have already shown you a pit with TexPet oil present in it at the current time. Again, our study was not to do a Remedial Investigation where we'd outline every pit and every site that we visited. Rather, here we're trying to show you a different feature. This is an example of oil outside the pits. That's why we focused here and not on the pits up the field.

Again, during our investigation, we examined the possibility of migration out of the pits and into the hillside here based on the historical records. It seemed

like a good candidate to investigate whether or not that process was still ongoing. It had been reported in the 1990s, and we came to visit it here. So, we tested these four Claimants' hypothesis:

Claimants' hypothesis that contamination is limited to the vicinity of the facility; that would mean basically up the hill.

Claimants' hypothesis that the oil in Oriente is weathered to a point that makes it immobile, that it's no longer fluid enough to move. Okay. So we can test the Claimants' hypothesis that any liquid oil found in the Concession area cannot be TexPet's because only recent oil is liquid. Older oil is something, et cetera, from TexPet's operations would no longer be liquid.

And finally, we can test that Claimants' hypothesis that the soils in the Oriente are so clay rich that they form an impermeable barrier that largely limits the migration of contamination away from the points at where they were disposed.

Based on our observations and data collected, we basically say that each of these claims is untrue.

Before I go further, I'm hoping you noticed--I'm sure you noticed at this point the nature of the soils that we walked down through. They're quite slippery. Okay. A truck got stuck in one. Why? Why is it so slippery? It's

the amount of clay in the soil. These soils are very, very high in clay, and very different from the ones that we saw yesterday at Shushufindi-34. These are much richer in clay. If any site was going to have the ability to retain the contamination within the soil, this would probably be an excellent candidate to find that because it is so rich in clay. So, this is a good place to test if the hypothesis that if clayey soils can do a really good job, we should see it here. Okay.

And you can see as an example the clay in the soils immediately behind you here, the red soil as you go on the side of the steps here. The fellows from Petroamazonas cut these steps in. We're dealing with some very, very slippery material just a few days ago to put those steps in. So, anyway, clay is very prevalent here, and it's prevalent at the top of the hill and it's prevalent down the side of the hill here as well.

So, how did we explore this area? Why did we pick this particular area below us here? Well, we noted the spring, as I mentioned here in the record, and the fact that it had been reported that it was contaminated, if it was oil seeping out from this general area. So, we undertook to do a small soil gas survey here and identified locations that were likely candidates for the presence of oil. So, essentially, these locations here were guided by

the use of the PID instrument that we used the other day. Okay. And so we used that to try to place these samples, just to kind of characterize the material coming out of the stream and the general area of seepage around the spring. Okay.

Just before I continue, if you would flip to Respondent's Tab 20, Page 1.

In the distance there are these various points. The highest value that we found here is that the orange flag in the distance there, the flag symbol pointing to the right, so that's a value of about 14,000 parts per million based on our TEM method. Okay.

Some of the other points of note here, the red square has soil of about 7,000, 6,800 parts per million, and it also has groundwater contamination of TPH at almost 4 milligrams per liter. Mind you, the standard for groundwater is .325 milligrams per liter on that scale. So, in any case, we see a number of locations with elevated contamination as a result of petroleum hydrocarbons in the soil here, and there's also a number of groundwater locations as well.

If we were to measure that, the location in the orange flag by Method 8015--and actually we did that--the value is about 4,000, just under 4,000 parts per million. So, it's still quite elevated at that orange flag, even by

the lesser method at the local level--a less-vigorous method, if you would.

PRESIDENT VEEDER: Give us the figure again.

DR. GARVEY: About 4,000 parts per million. It's still the--it's the value that's labeled on my map at 14,000.

PRESIDENT VEEDER: Okay.

DR. GARVEY: At that location then. So, by our method, 14,000; by Method 8015 just under four, 3900. Okay.

And certainly, by Method 8015 we find all of these points over--essentially all of these points over many of the standards as well as the cleanup criteria specified in the judicial decision.

Many of the samples also have PAH contamination, Polycyclic Aromatic Hydrocarbons. That particular high one, the one with the orange flag there, had a value of 126 parts per million, well over the regulatory threshold of one part per million.

In addition to that one point we talked about, as I said, many of these other locations also show contamination due to crude oil. Okay.

By Method 8015, in fact, six of the nine locations here given by the circles and the diamonds and the squares and the triangles and the like, just the simple coded ones,

not the ones with the borders, about six out of nine of them would exceed the 100 PPM threshold. So, from our perspective, all this area is impacted essentially.

Now, the levels of contamination down at the bottom of the hill here. We have pits at the top of the hill. We have perhaps, arguably, a pit to the side here, perhaps not. Okay. In any case, that's not the pit. Okay. This area of contamination, you have elevated contamination, is not a pit under anybody's assertions, yet it contains significant levels of contamination.

So, how did it get there? Okay. We're looking for a pathway. How did this material end up down the hill all the way from the operating facilities at the top of the hill here? There is one of two possibilities, really: Either the material spilled over the top and rolled down the hill to settle in this little basin near the shallower area or flatter area, or--and this is more likely--it traveled with groundwater, and I'll show you some evidence later as to why we think it traveled with the groundwater, not very--not dissolved in groundwater now, but as a subterranean flow perhaps just above the water table the oil essentially traveled through cracks in the soils and the like.

So, with regard to groundwater, the groundwater here we would note is quite contaminated. Chevron has

marked all the groundwater stations that we have in this area with those green triangles again. However, I am quite curious as to why they're all green. Five of the six values that we have here exceed the Ecuadorian drinking water standard for groundwater. Okay. None of them--only one value falls below 300 parts per billion. All of the others are in excess of that. So, five of the six triangles that point downward exceed the drinking water standard. In fact, we have a couple of values here that are ten times higher than the drinking water standard, about 3,000 parts per billion. Okay.

So, we don't, again, we don't understand the basis for this. We have no numbers for these wells that would indicate a low concentration. And we can argue about how to interpret the numbers that we have, we actually have no numbers below--save one below 325 parts per billion. Okay.

Now, one point about these wells before I continue, Chevron's experts may assert that these locations, when we installed these locations that we entrained the material down into the well, and that's the reason that we have high numbers, that the process of installing the well, we incorporated surface materials or other sediments and brought them down. And we have established already this area is contaminated to begin with. All right?

But I would just make this following note. Louis Berger's geologists that were responsible for this inspiration had between 20 to 30 to 40 years of experience as hydrogeologists installing wells. We know what we're doing. To say that we've entrained that material as part of the installation process is really ludicrous. I would also point out--

PRESIDENT VEEDER: I know you're on a time limit, but speak a tiny bit more slowly because otherwise we lose what you're saying.

DR. GARVEY: I would point out that Chevron's Experts, to our knowledge, have not installed a single monitoring well in the Concession Area. They have sampled groundwater from various homes that have hand-dug wells, but they, themselves, did not install any monitoring wells, permanent monitoring wells, that we are aware of, so we haven't seen any data from them. Okay.

So, you can see here that there is a clear risk to human health. Okay.

Let me just turn to Respondent's Tab 16 before I continue with the human health risk. I just want to give you a feel for what this area looked like beforehand.

This picture here--I don't have a blowup of it but you have it in your handouts--that picture was taken down there below us. Okay. This is the environment that we had

to work with when we were placing these wells. Just to give you an idea of how much things have changed since we were here last, that was the condition a year ago in June of 2014, okay, a very thick, dense rainforest. All of this clearing has taken place since then. The point being here is that again, this area is undergoing dynamic development. It's constantly changing. What was once a very dense rainforest that was very difficult for us to work in has now become a farmer's field.

So, with that, we can clearly show that human exposure is very likely here. There's contaminated soils that are down there below us, marked by those placards, are part of the farmer's field. This is a subsistence farmer. He's planting corn by hand. He's going to come in contact with those soils as he plants his corn is that corn is potentially able to uptake material from the soil and result in contamination. The farmer may also graze his livestock in here or chickens and the like where they can also be exposed, so we have clear and current human exposure here. Okay.

In addition to this human exposure--I need to point out that the risk assessment that Dr. Strauss conducted shows there to be unacceptable risks here for human exposure under a current use scenario based on these soil samples. Under a future use scenario, you might put a

house right here. It's a nice view. Okay. Look out across the hill here. It's a little bit out of the way, out of the soggy swamps below us. It would be a nice place to put it. Okay. Groundwater here is contaminated. Soils here are contaminated. Both of those would pose risks under a future use. In fact, under this--I believe under this--at this site the groundwater here poses a human risk, an unacceptable human risk to both non-cancer endpoints as well as cancer endpoints. Okay.

So, this contamination--so again I'm going to finish up here, just to want to review, then, contamination is not limited to the vicinity of the pits up at the top of the hill here if we downhill a significant distance away from the pits, and we have significant levels of contamination here.

Mr. Chairman, if you wouldn't mind, we do have a bucket of soil from this area. I had Shane go back and get that from the areas immediately here, not from the pit, but from the areas down here at the swamp.

PRESIDENT VEEDER: Any objection to that?

MS. WOOD: I just want to, if I might clarify, you're talking about the area where you sampled in your Expert Report, Dr. Garvey?

DR. GARVEY: Yes.

Shane, is that correct?

MS. WOOD: No objection.

DR. GARVEY: Okay. So, this is material from the area where we sampled. Okay. If you remember yesterday when we put this PID near the oil coming out of the seeps at the other pit--if you would, Shane.

MR. McDONALD: It's about zero now. This is a swampy sample. This is the best I can do under these circumstances.

6, 7, 8, 9, 11, 12, 13, 16--sorry, 17.

DR. GARVEY: Okay. So, it's impacted. It's not as impacted as some of the materials we would have shown you, but suffice it to say this material still contains oil. All right.

So--all right. To finalize--just to wrap up here, again contamination is not limited to the pits or directly attributable to TexPet, that this site is not on a weathered state, but we'll show you that a little bit later.

The soils of the Oriente are not so clay-rich as to prevent the migration of contamination this far away. We are tens if not--even about 50 or 100 meters away from the pits at the top of the hill here. So, it's a significant distance to transport, okay? And included in the concentrations that we see both in the soils and in the groundwater are elevated. This is clearly a significance

distance of transport.

Has it got an odor to it?

MR. McDONALD: It does.

MR. EWING: I'll offer it to them.

We have gloves. It's likely we'll be offering them to you for our next stop where we will be seeing more. But we do have gloves.

ARBITRATOR LOWE: We could smell it in a bucket. I don't see how the glove would help my nose.

PRESIDENT VEEDER: Are you ready?

MS. WOOD: To smell or to object?

PRESIDENT VEEDER: Smell.

(Laughter.)

DR. GARVEY: All right. So, to conclude, then, these soils are not so clay-rich as to prevent this kind of contamination from making it this kind of distance away from the hill site, and actually, we're going to show contamination yet still further from this area. Okay.

MR. EWING: We are going to be moving downhill to where you can see the tent off to the side, where the blue circle is, an area that is similar to what is here, more easily accessible.

A couple of things before Carol objects.

So, when we were here and asking permission from the landowner to put these accessibility modifications in,

he granted his permission gladly, and said: Oh, but there is also another place you might want to see.

And he took us over there last week. When he took us there, I had been here in the morning with Mr. Bianchi from Chevron. We hadn't yet done this because we did accessibility modifications at the end. As soon as we found that, we called Mr. Bianchi and I told him that afternoon what we had found. So they've known this for about three to four hours less than we have of this existence. So that's where we're going to head.

PRESIDENT VEEDER: Has Mr. Bianchi been out there, or anybody from Chevron?

MR. EWING: Yes. Yes, they have.

Just a couple of quick things, practical things.

Please do be careful on these steps. We're going to be going across more slippery logs. We do have gloves for down there; I think you may want them, at least some of you may want them. And then you'll also notice along the way some little yellow flags which we have in our list of signals, the second rail, we called them oil blossoms, but we'll talk about those more at the bottom. Just look for those as you walk.

PRESIDENT VEEDER: One more moment.

ARBITRATOR LOWE: There are two questions I've got. One, I think, is for you, Dr. Garvey.

10:11 When you find results, how do you decide how many samples you take, and particularly when you get a result like the 14,000 orange flag down there?

DR. GARVEY: Well, okay, that's--you asked--well, very quickly here. We didn't have the 14,000 parts per million sample before we laid out this grid. We kind of said we wanted to characterize the general level of contamination. One sample is not sufficient.

Actually, we'll show you some evidence this afternoon to show why you can't rely on single samples. So we placed about a half a dozen, maybe eight points here to say this will give us a pretty good average, basically simple linear statistics, eight numbers is a good start for an average, and so that's what we did here. We said okay, we place about eight samples here in this general area--maybe there's nine--but basically eight to nine samples in this area as a basis, say, let's get an idea of what the average looks like, what's the average level of contamination, and, you know, lo and behold, we found the 14,000, but we didn't know that going in. We knew it was visually contaminated. We know there was a history of it. We inspected this and seen the oil contamination, but we selected a number of samples knowing that we want to get a pretty good estimate. We want to avoid individual sample variations and say, okay, let's take a bunch, if you would,

10:13 throw a few darts, and say, okay, this is a reasonable estimate to get a basis for these many samples.

ARBITRATOR LOWE: Thanks. That's that question.

The second question I had, you've referred to this being the farmer's land. In circumstances where there's been a pit created on farmer's land--no, let me ask the question first. Are there instances in any of the sites that we're visiting where the pits have been created on land that belonged to the farmer?

MR. EWING: Are there--

ARBITRATOR LOWE: And was there yesterday, the pits that we saw yesterday?

MR. EWING: Just to make sure I understand what you're asking, are there pits that were created on the landowner's or the farmer's land around the sites?

ARBITRATOR LOWE: Yes.

MR. EWING: So, yes. This, these pits, yes. Shushufindi-34, where we were sitting, was in the farmer's land where he is growing his cacao plants, and there are more there.

ARBITRATOR LOWE: And was it the farmer's land at the time when the pits were created?

MR. EWING: I can talk for sure about Lago Agrio-02. I know a little bit more about the documentation and the history there. So, for instance, the families that

10:14 lived at Lago Agrio-02, where we will be going tomorrow, they have been living there the whole time, so that land has been theirs the whole time around the platform, and the same for Shushufindi-55, where we will go this afternoon. You'll see the houses and the people that have been living there since 1975.

I don't know the ownership particularly here or at Shushufindi-34, but I would be happy to find that out.

ARBITRATOR LOWE: I would perhaps leave it to a more appropriate site. But what I'm interested in is what, if any, arrangements were made with the farmer for the use of his land in those circumstances, and presumably there was some kind of arrangement. They didn't just come and dig a big hole on his land without asking him. But I will leave you to find that out for the sites that we're looking at to which it may be relevant.

Thank you.

MR. EWING: Now, just to quickly answer, we will look. I'm not aware of any documentation of any arrangements that were made during TexPet's era, but we will look into them.

PRESIDENT VEEDER: Before we move, just talk us through what we are going to do for the rest of the morning. We're going to do down these steps and then what after that?

10:15 MR. EWING: Yes. So, we are going to go down these steps to this location of the tent. Dr. Garvey will primarily speak there. We will finish our affirmative presentation and hand the floor to Claimants, who will do their--

PRESIDENT VEEDER: And what will the Claimants be doing? Come back up here?

MS. WOOD: It somewhat depends on--it depends on your ruling on my continued objection and a supplement to my objection that I would like to make next, but we'll both speak from here as well at some point.

PRESIDENT VEEDER: Okay. You're making a supplemental objection.

MS. WOOD: Yes.

Going to the side that they're proposing to take you to now is a clear violation of the Protocol. As you heard Ms. Ewing just say, they did not learn of this location until last week when the farmer came and talked with them. Obviously, we were not privy to that conversation. We had no idea where this came from, how it was put here, and, quite frankly, where we have had or some of our support staff have had access to the site. If anything, it has raised suspicions in our mind as to how the material came to be here.

Once again, as I said before, we had no idea what

10:17 Dr. Garvey is getting ready to say at this site. So you are allowing a--if you would take us down there, you would allow a witness to testify, and we have seen no Witness Statement whatsoever about this site. They have not even shown you that this was a location they identified as a pit in their aerial photograph. It is a completely new site that they investigated just a few days before this Site Visit started. We have had no opportunity to investigate it, to determine what's out there. They had no samples; they did not, and they ware out here for several years. They were all over this area and took samples. We could look at those samples, we could comment on these samples and the data, and we were able to do that at the Hearing. We are now being taken to a completely new site that just was made available--given notice to us a few days ago, and we had no samples, no information about this, and we are getting ready to hear a witness testify on something completely brand new.

So, for all of those reasons, we would object to going down there or having the Witness discuss that site.

PRESIDENT VEEDER: What's your response?

MR. EWING: A few things.

To start, this has been--these seeps in this area have been well documented, and I can ask Dr. Garvey to explain how what we will be looking at--

10:18 PRESIDENT VEEDER: That's one thing you can do. You're going to explain.

MR. EWING: You'd like me to?

PRESIDENT VEEDER: Yes.

MR. EWING: So, the area that we will be looking at, as you can see in the pictures that are in our Site Packet, looks very similar to the area that LBG sampled.

Maybe the more fundamental point is that we asked you to come here to be able to see for yourselves what this contamination looks like. According to HBT Agra, according to Dr. Hinchee at the Hearing, you can visually inspect for oil, and visual inspection and olfactory inspection is adequate. We want to take you here and let you see for yourselves.

PRESIDENT VEEDER: That goes for the ones with the flags, but this is a new site. We're not experts. Why is it that you're taking us to this new site, and what is Dr. Garvey going to tell us?

MR. EWING: Would you like him--

PRESIDENT VEEDER: No. We want you to tell us.

MR. EWING: So, what Dr. Garvey is going to explain to you is that what we are finding over here to your left is identical to what we have here in that there is oil seeping from the pits above, and it's coming out of the ground here.

10:19 PRESIDENT VEEDER: What does this add to your case?

MR. EWING: This adds to our case the ability to see how far liquid oil goes. Because seeing liquid oil while standing there, being able to recognize how far it has gone, completely disproves the assertion that oil contamination is contained within pits or even within the platform areas that TexPet originally had created.

ARBITRATOR GRIGERA NAÓN: Excuse me. And that access was made by you guys?

MR. EWING: Correct.

ARBITRATOR GRIGERA NAÓN: Without participation of Chevron or knowledge?

MR. EWING: I was here with representatives from Chevron, and I walked through all of these modifications with at least two people from Chevron's team and explained what we were planning to do before we had done it. And then once Ms. Wood was here, we came and we walked through it again, so...

MR. BLOOM: Just one quick point, and that is, we do not consider this a new site. The site is Aguarico-06. There is nothing to stop the Members of the Tribunal--we've encouraged it from the beginning--to walk the site yourself. The purpose here is to look at a site that we have long identified, long argued about and essentially see

10:20 it. I think it's going to speak for itself. I think you get something more if you have someone with the background to tell you what it is that you're seeing, but this is not a new site.

MS. WOOD: May I respond?

PRESIDENT VEEDER: Yes.

MS. WOOD: A couple of points. One, we have just heard that it is irrelevant to go to the other site because it's doing nothing other than proving where they have already sampled; where they have actual data, where they can make the points that they want to make at this site. So there is no need to go to this other site because they already have a site that they can show you that both sides have had privy to. We have sampling data from here. We can comment on that.

In response to the comment about Chevron has known of this site and in response to Dr. Leon, these modifications were all made by Ecuador. We knew about this site simply because they said we're going to make a modification to go all the way over to the site, and we found stuff there. That is completely different from having an expert testify to this Tribunal and say, "This is what this means scientifically." I have an expert who has never seen this site, never seen that location, and has no idea what Dr. Garvey is getting ready to say other than the

paraphrasing that Mr. Ewing just said.

I would also say that we specifically requested to come to this site once our Expert was in town and heard about these extensive modifications. Ecuador objected. The Tribunal, enforcing the Protocol said, no, you cannot go to the site.

If we go to this location, it is a violation of the Protocol. In addition, it is irrelevant because they already have a site that we are not objecting to, that everyone knew months ahead of time was what we were going to look at and what we were going to see at this site.

So, I would object strenuously to go a site that was recently discovered, that, quite frankly, we do have some suspicions about as opposed to a site that both sides have been able to analyze and be prepared to provide our side of the story to the Tribunal and fully answer the Tribunal's questions.

MS. MILLER: If I could just clarify about the modification process--

PRESIDENT VEEDER: No, wait.

MS. MILLER: Okay.

PRESIDENT VEEDER: The debate, I think, has gone as far as we can--

MS. MILLER: Okay.

PRESIDENT VEEDER: --I think, and we need to know

about a modification.

Let's stop there. We've got to decide what we're going to do about both objections. So we will go to our retiring room in the jungle and come back.

(Laughter.)

(Tribunal conferring away from the Parties.)

PRESIDENT VEEDER: Let us resume.

The Tribunal has had a chance to deliberate on the two objections that have been made by the Claimants to the Respondent's presentation, and we will take each in turn. But, before we do so, we want to stress two things. One, we are determined to stick to the Protocol. We did it on the first day; we're going to do it again today.

Number 2, we do not see this, from the Tribunal's perspective, as an evidence collection exercise. The evidence is in, and we're here to understand that evidence. We're, of course, prepared to see illustrations. We're not here to hear and collect brand-new evidence which is not on the record.

So, if we turn to the first issue, we're prepared to go over to that pit to our right on the issue of whether it's a pit or not. That's an issue between the Parties which is well understood and which both sides have advanced notice, but we're not prepared to look at samples taken from that pit.

The second matter is much more problematic. We do think the Respondents have been--sorry, the Claimants have been caught by surprise, and unfairly so. On the other hand, we understand the Respondent's desire to show us what it looks like; that is, to see oil on the surface of water as an illustration. So, again, we're prepared to go down--this is on the left-hand side of where we're looking at--to look at that as an illustration, but we're not prepared to hear Dr. Garvey or any other expert interpret what we see or smell. We are going to hear counsel, that's you, and you can tell us as an illustration, as a general illustration, but not as a new example of environmental pollution.

So, that's our ruling. I hope it's clear. We can finish, I hope, any presentation now the Respondent wants to make on this platform, and we can hear the Claimants if we need to.

MS. WOOD: May I just ask a clarification.

So, we will go down to the site over here. And did I hear you say that you were just going to look at the site--

PRESIDENT VEEDER: Correct.

MS. WOOD: --and so no discussion--

PRESIDENT VEEDER: Well, we can be told by counsel "look there" rather than "look there because otherwise

you're missing what I'm trying to tell you about," but no more: Not Dr. Garvey, no scientific interpretation, no--

MS. WOOD: And then, likewise, if I see something I want to point out--

PRESIDENT VEEDER: Of course.

MS. WOOD: --I could also point that out.

PRESIDENT VEEDER: But not your experts.

MS. WOOD: Not experts.

PRESIDENT VEEDER: And there won't be evidence. It's simply an illustration of what oil might look like on the surface of water or running water.

And now it started raining.

MR. EWING: We do have a tent there.

PRESIDENT VEEDER: Oh, okay.

MR. EWING: But we have nothing further here, so if we could proceed.

Just to clarify, would you like to go over there?

PRESIDENT VEEDER: Whatever you want. If you want us to, we will.

MR. EWING: I would like to take you here, and that way use up our hour.

PRESIDENT VEEDER: Oh, okay.

MR. EWING: So, while I would love you to walk over there, it's not--

PRESIDENT VEEDER: Is it easy or is it

helicopter--
MR. EWING: It's more difficult.
PRESIDENT VEEDER: Okay.
MR. EWING: It's probably why we're not going there.
PRESIDENT VEEDER: We can send the Secretary.
(Laughter.)
(Pause.)
PRESIDENT VEEDER: We're now at Respondent's blue-circle site, and we're going to hear counsel, but will not be evidence. This will be explanations.
MR. EWING: Thank you, Mr. President.
I'm happy to use this as an example, an illustration of what we have attempted to present to you in our pleadings in LBG's Expert Reports.
The first to give us a little explanation of where we are. Right now straight in front of you, you will see LBG's sampling locations, and beyond those is the spring that Dr. Garvey had pointed out. So, what we are in now is a swale, a drainage swale, that comes from that spring, through LBG's sampling points, down through here, and you'll see right here, as you walk back, where this drainage runs into the stream.
So, this is all a part of the same feature, the same drainage that LBG had sampled above us. This is a

more easily accessible one, which is why we wanted to bring you here to show you what that area looked like.
There are a couple of key aspects to what this illustrates for us. One is how the contamination flows down these drainages. Once it is into the water, once it's with and working in these sediments. Dr. Hinchee testified at the Hearing about how once the contamination reaches the stream, you'll necessarily have to clean up sediments, and it may travel very long distances.
So, what we have here is contamination in sediments. And, in fact--as you may have noticed the yellow flags, this is one of them--we have the oil that is on top of the surface and is exuding out from underneath the ground. If you would like to smell this--you don't have to--you may take my word, if you like.
PRESIDENT VEEDER: Can you smell it?
ARBITRATOR LOWE: Yes. It's overpowered by the smell of the gloves.
MR. EWING: No, the gloves don't smell like anything. Maybe a newer one.
PRESIDENT VEEDER: That's the glove. You're right. So the glove does--
MR. EWING: I'm pretty confident it's not the glove.
So, what this shows to you is what this

contamination looks like; as you look around, you'll see it.
And the other really important illustration here is, if you look around, you see this corn that the farmer has planted, and the close proximity within which it is planted with the oil that we have now found coming from up above. This corn is in many places planted right on top of it, and especially as you're walking back to the path, when you look to your side, you'll see these yellow flags, and you'll see where the oil has come out and reached the surface, and you'll see that the corn is planted in and around that corn (sic).
I mentioned earlier that HBT Agra and Fugro-McClelland had found and had documented that this was happening down in this plantation, that this oil contamination had been spreading. In 1982, Fugro-McClelland said that the pit up above us was, "seeping oil," and that's Exhibit C-12 at Section VI.4.
And, in 1993, HBT Agra, who was the joint auditor hired by both Parties, found that there are oil wastes in the pits up on the hill above us, and that each pit, "contaminants have migrated beyond the confines of the pit," and that's Exhibit C-13.
When Woodward-Clyde came here--Woodward-Clyde is the Contractor that was hired by TexPet to assess the

contamination or assess the Oriente and to develop the pits in areas that needed to be remediated. So, when TexPet's contractor came, they noted that--they have a drawing of this area, and this is Claimants' Tab 5 of their Report--of their Site Visit Packet, and it's on Page 9, and it's a drawing from Woodward-Clyde that shows this plantation, is what they called it, it having oil seeps coming out of the ground. And whether they identified this exact one, maybe one up a little further, maybe the one LBG sampled, it was all part of this drainage that they identified.
And then it says, you know, that there is an oil seep. And they noted in their documentation that there is a leak of oil from above down into the plantation below. And again, that's our Exhibit R-610, at Table 3.1, where it's included as Tab 8, Page 8.
So, this has been known and documented for a period of time. Since we have been here, since LBG sampled here, as Dr. Garvey said, these trees have been cut down. So, again, this is an illustration of how these sites changed pretty dramatically even in the periods of time we're talking about. This site, for instance, is now really a farm. Based on Woodward-Clyde's description in 1995, it may also have been a farm. They called it a plantation. In between, it became a forest, and now we're back to farm. So these sites change dramatically over

time.

Another point of illustration, the path that we just walked down, we just put the boards down on the owner's path, and he walks back and forth through there all the time. So, we are just using some of the same features that they have. And we originally put that in, in part to where it went to the stream, I think Clarence may take you there, in part also to come here. So, he crosses the stream and walks through.

And just if I can take one second.

PRESIDENT VEEDER: Of course.

(Pause.)

MR. EWING: If you guys would like gloves and would like to touch any of this, we have plenty of the gloves.

PRESIDENT VEEDER: Okay.

MR. EWING: And I think they don't smell.

But that is--we wanted you to see this. It is, as you said, an illustration of what we've been trying to show you.

(Discussion off the record.)

PRESIDENT VEEDER: Thank you.

OPENING STATEMENT BY COUNSEL FOR CLAIMANTS

MS. WOOD: While we're here, why don't I make three quick points, and we can go up top where there is a

better breeze.

What Mr. Ewing just said about the knowledge of petroleum coming from the pit up top, we do not disagree with them. As a matter of fact, I'm going to show you those documents when we get up to the platform. He told you it was '92, it was '93, '95. What also happened in 1995? That was when Ecuador agreed that TexPet had no obligation to remediate anything at this site pursuant to the RAP. They had full knowledge of all the documents he just told you about. They knew that there was petroleum impacts at this site. But they then said, okay, TexPet, you do not have to remediate that. It's consistent with what Mr. Bishop told you yesterday. And what Ms. Renfroe told you is there was a division of environmental responsibility of these sites because it is not just TexPet, as Mr. Ewing continues to say. It was Consortium. It was not TexPet oil. It was Consortium oil. And Ecuador was by far and away the largest member of that Consortium. They were getting the largest share of any revenue that was made off that oil.

It was not TexPet oil. It was Consortium oil. Ecuador knew about these impacts when the RAP was signed, and Ecuador still said, okay, we'll take that, Petroecuador will take that, and, TexPet, you clear up other areas outside of Aguarico-06. And we will walk you through the

documentation so you can see that. That's my first point.

Second point, again, Mr. Ewing continues to say, well, Petroecuador did not produce oil from this site. He did acknowledge that there was an injection well for the produced water down the injection well. He didn't tell you that they had to rehab that well. They couldn't pull oil out that might be in there in order to turn it into an injection well.

There were over four workovers that occurred at the well site here. There is no indication--we don't have the records from Petroecuador. All of what we can find is publicly available, but they also performed work here. They rehabbed the well, they ran site water injection, and they did workovers at the site.

In addition, if you look at the documents in the packets we gave you, they've also inventoried, as a list of the environmental liabilities, they've inventoried the site, specifically referencing impacts into the estuary. So, you can see the continuing of they knew about the contamination. We said, okay, we'll take this site because Petroecuador was going to continue to use it, if not as an operating oil well as an injection well, and then they took responsibility for any type of petroleum impacts here.

So, it perfectly underscores the point we're trying to make: There was a contract between the Parties,

the Parties decided who would do what. Without a complete release--TexPet received a complete release from Ecuador after they knew about this site, and TexPet nor Chevron had any responsibility for remediating petroleum impacts at the site. The other thing I want to point out--so those were two, the RAP, and this is not a TexPet-only site.

The other thing I wanted to point out--and this is still consistent with what Mr. Connor has said, and he's going to talk with you about it more up top--is there are still limited impacts. You do not see swathes of petroleum here. LBG has had access to this site for over three years. The most they are able to show you is what we saw in that limited area down from the platform and this here.

They have not shown you that there is widespread contamination. There are pockets of impacts, and again Mr. Connor is going to talk with you about it more.

The other point I want to make to you is when you go to here and you have been picking up the oil, you're not seeing anything underneath the oil. It's on top. And I want to show you that particularly there in the pathway because you will also see petroleum sitting on top of the sawdust that was used to make the platform.

So, it raises suspicion of where did this petroleum come from? How did it appear, particularly along the pathway. You pass a pink flag is what they do here

about, I don't know, about 20 yards, and look at it. It's petroleum, but it's sitting on top of the ground. It's sitting on top of the sawdust.

So, that is why we were concerned about coming to a location that we have never inspected before and are not quite sure how petroleum got in this area.

So, those are the points I wanted to make while we were here.

What we're going to do next is we're going to go down the pathway and we're going to stop at the stream, and I'm going to have Dr. McHugh talk with you about the stream that Ecuador has said they have real concerns about the quality of the stream. I will let Dr. McHugh talk with you about what the data shows.

PRESIDENT VEEDER: Thank you very much.

MR. EWING: Real quick, Members of the Tribunal.

I want to propose, we would want to rebut what Ms. Wood just said in that this is not deep here. My proposal would be if we could just dig that now instead of going back up and coming back down.

PRESIDENT VEEDER: Both comments takes us beyond our ruling, so let's leave it there. We just wanted to see what it might look like, and we have done that.

MR. EWING: Okay. Thank you.

PRESIDENT VEEDER: So, we will stop this part of

the session and we will resume down the track.

(Pause.)

MS. WOOD: I just wanted to stop for a moment here and point out to the Tribunal--again, Mr. Connor is going to explain the flagging to you, but there was both a surface water and sediment sample collected there, and those markings show that it met all standards, met Ecuadorian standards for sediment and for surface water and for drinking water. So, I wanted to point that out to you.

ARBITRATOR GRIGERA NAÓN: And the stream is running that way?

MS. WOOD: The stream is running that way, yes, sir.

ARBITRATOR GRIGERA NAÓN: All right.

MS. WOOD: Towards that point.

ARBITRATOR GRIGERA NAÓN: Okay.

MS. WOOD: Thank you.

(Pause.)

MS. WOOD: We wanted to stop here because again, as we've said time and time again, the data is what is important. What does the analytical data show as opposed to speculation about what may or may not be somewhere? There were samples taken by LBG around this stream. We showed you sample points just over here that was downstream of where we are. I'm going to ask Dr. McHugh to talk about

what the data tells us about this stream.

Dr. McHugh.

DR. MCHUGH: Yes. So, this is the stream that was sampled by LBG. They had five sample locations along the stream. This is the third. So there are two upstream--that stream is flowing down this way--and there are two further downstream.

The analytical program and results here are very similar to the monitoring wells that we saw yesterday in that the water samples were analyzed using three different tests for petroleum. Two tests were non-detect. The third test showed very low levels. But an inspection of the results again indicates that it's plant material.

Regardless of how you interpret that chromatogram, all of the analytical results still satisfy Ecuadorian criteria, World Health Organization drinking water criteria and EPA drinking water criteria, so this water is safe. With respect to petroleum, it's safe to drink.

So, when you see these maps showing the sample locations, the maps produced by GSI and the maps produced by LBG show all of the locations along here with green symbols, indicating that they meet criteria; the surface drinking meets criteria.

MS. WOOD: Okay. And just, if I can stop you there, Dr. McHugh, so you're saying that both Parties agree

that the stream meets Ecuadorian criteria.

DR. MCHUGH: That's correct.

Yesterday, I believe Mr. Garvey said that you have to analyze these samples using several different methods to understand what's going on. Well, in the United States, we will typically collect a sample, analyze it using only one method for petroleum. And all three of the methods they used are widely used in the U.S. and are accepted by regulatory authorities. And they're all very capable of detecting petroleum if it's present at a level of any concern.

And so, in the United States, any one of those results that returned a non-detect result would have been sufficient to provide a regulatory authority in the United States with the comfort that this water was safe and did not pose a concern.

The sediments also have been shown to meet criteria when you look at the 8015 results. And, in fact, the 8015 results for all five samples are particularly illustrative here because Mr. Short--or Dr. Short, the Ecuador Expert on petroleum fingerprinting, testified that for sediment samples that are uncontaminated with petroleum, you would typically get results by Method 8015 that ranged between 50 and 100 milligrams per kilogram, that--but it has no petroleum.

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11:10 The five analytical results collected at these stations ranged from 124 to 18, and so they're very consistent with that range that Dr. Short testified was consistent with this naturally occurring material and does not indicate any evidence of petroleum.

So, the analytical results within the stream, both the surface water and sediment, are very clear that this stream has not been impacted by petroleum.

MS. WOOD: Thank you, Dr. McHugh.

Any questions from the Tribunal?

PRESIDENT VEEDER: Not for the moment.

MS. WOOD: Thank you. Then we will proceed up back to the platform.

PRESIDENT VEEDER: Okay.

(Pause.)

MS. WOOD: Mr. President and Members of the Tribunal, I want to elaborate a little bit on the quick points that I made down below. First, I want to just give you an overview of what I hope to accomplish in the next few minutes.

One goes to my point about this was a RAP site, that Ecuador signed off on the site, that TexPet did not have to do any remediation with full knowledge there were petroleum impacts here.

Two, this is not a TexPet-only site. Not only did

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11:18 Petroecuador operate the injection well, Petroecuador actually closed the two pits, the only documented pits at this site, and I will walk you through that.

And then I'm going to turn it over to Mr. Connor to talk about the limited petroleum impacts that are out here. I will let Dr. McHugh finish up on his toxicology opinions, and then have a quick summary of why this site cannot justify the Judgment.

Just by way of helpful tips for you, in your mini-Site Packets, at Page 1, we have put together a chart of just key pertinent facts about each site. Page 2 for each site is just a chronology--this is in the mini-packet, I believe you're looking, Dr. Naón, at the Respondent's package.

ARBITRATOR GRIGERA NAÓN: Oh, I'm sorry.

MS. WOOD: It's okay. It's just so you have this later on. There is a chronology, and then our data box maps, not only do you have them in the threefold, but you also have them in the Site Packet.

ARBITRATOR GRIGERA NAÓN: Oh, yes, right here, yes.

MS. WOOD: Okay?

All right. So, let me just pull the yellow map out.

So, let me direct you to what I call the yellow

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11:20 map, and again you saw this with Mr. Connor at the Hearing. Ms. Renfroe also showed it to you yesterday. It is in your mini-packet as well.

And this is the point: Under the Scope of Work, under the Settlement Agreement between the Parties, the sites were listed as these sites might need remediation, might need attention. Then Woodward-Clyde went out and did an investigation, did an RI, that data was made available to all the Parties, and then the decision was made as far as what would go in the RAP, what actually had to be done.

So, initially, and why these two pits are striped, is initially it was included in the Scope of Work. After the investigation by Woodward-Clyde coming out here, it was determined that these two pits did not need remediation. There was also some soil on the platform. It was determined did not need remediation.

So, while this was fully addressed in the RAP, the decision in the RAP was, TexPet, you do not have to take any remediation actions at this site.

So, I want to make sure everybody is clear about that.

So, anything being identified now by Ecuador is Petroecuador's responsibility pursuant to the RAP.

So, now let me walk you through very briefly what Mr. Ewing and I do not disagree on, which is, there were

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11:21 non-petroleum impacts at this site, and Ecuador knowingly said, okay, TexPet, you don't have to do that. You do not have to remediate those.

So, first let me show you, here is the Report. It was in 1992. This is in Page 38 of your mini-packet, and it states both that "pits were recently closed"--and this is in 1992--"pits were recently closed, seeping oil."

And let me back up just one point and make sure we're clear on the record about the date of June 30, 1990. That was the last date of TexPet operations. It then turned over to Petroecuador. So Petroecuador began operating these sites in July 1 of 1990.

So, when you see "1992, pits were recently closed," Petroecuador would have been operating the site for a couple of years at that point.

Okay, if you go to the next one.

The next one is Page 41 and 42 in your mini-books.

On Page 41 and 42 of your mini-packet, HBT Agra's--that's the Report that was jointly done by the Parties--says "two oil pits recently covered." The observations in that report were from 1993. And if you look at the first page, if I might--if you don't mind me turning it over--so if you look over here, you see "recently covered," that's on Page 40, and then if you turn to the next page, the indication with the drawing around

11:23 the box tells you this is a closed pit and that there has been impact outside the confines of the pits, and that was on Page 41.

So, then let's go to--well, I don't have it in the mini-packet--the Scope of Work is where it just says, here are the sites that there could be pit remediation necessary at, and that was in March of 1995.

Then we had the Remedial Investigation occur, and that's at Page 56 of your mini-book. And this is the sketch from the RI, and Mr. Ewing spoke about it. In this, here is the clearing, the platform, here's the pit, and it specifically says, it notes "seeps," and you see it in this marshland area.

PRESIDENT VEEDER: Where would you put us at the moment?

MS. WOOD: You would probably put us right here.

PRESIDENT VEEDER: Okay.

MS. WOOD: We're just on top of where the pit is drawn in on Page 56 of your mini-book.

So, then we go to the actual RAP, which was September of 1995, and that is on Page 22 of your mini-book. And a couple of points.

First off, it identifies two pits--just two pits--at the site, and it says "closed post June 30, 1990," both of those pits. And that was the key for the RAP as

11:25 far as whether or not that was a Petroecuador obligation. And you also see and look at the plantation below. So, again, this was known about.

Then, if you would go to Page 26 and 28 of your mini-book, and in it you see--this was all part of the RAP--you see they're actually showing pictures in 1995 of the Petroecuador remediated pits. And the writing, the initials down below, were the initials of the Parties who signed the RAP. That included senior officials from the Ministry of Energy for Ecuador as well as Petroproducción and Petroecuador.

So, they knew that it was being represented that these were post June 30, 1990, closure of pits. These were pits that Petroecuador had closed, and they are agreeing that TexPet did not have responsibility for the pit or any impacts at this site.

And then if you go to Page 36 of your mini-book, that is the Final Acta. And in the Final Acta, Ecuador signed off and agreed after having known about this site and known about impacts and said, "Yes, we're releasing TexPet from any further responsibility for this site."

So regardless of whether--so Petroecuador knew, Ecuador knew that there were impacts from the site. They signed off and said, TexPet, you do not have any further obligations at this site. Regardless of whether they knew

11:27 about that area that Mr. Ewing took us to, regardless of whether there are two pits out here, that is all Petroecuador's responsibility pursuant to the Contract between the Parties.

So, now what I'm going to do is I'm going to turn over to Mr. Connor and let him talk some about the data that has been collected out here in the environmental setting that we're in.

(Pause.)

MR. CONNOR: Hello again. I'm John Connor, and I'm here to talk about the data at this site and what it tells us about two things: One, the migration of the materials; that's where is it going, and the extent of it, where is it. So, first we're going to talk about the extent of it and then where is it going.

So, and I'm also going to try to explain why we have differences of opinions out here based on what our observations are and address this whole issue of what are the mechanisms that would lead to the oil we see in this particular location.

Let's start out with the setting, where we are. We're on a hillside underneath the platform. It's a natural hillside that goes from the platform down, I would say, 10, 15, 20 meters and comes down to a swampy area; right? So, what's happening here is rainwater and

11:30 groundwater will come off of this hill, exit into this low-lying bog and then move slowly towards the stream. Okay. So, that's basically what we have here.

And the bog and every place we stand here are underlaid by very plastic clay. I think Dr. Garvey pointed out to you today the red hill behind us. There is only one type of soil that will stand like that and that's clay.

And I believe Mr. Garvey and Shane also showed you yesterday samples from here and how plastic it was. That indicates a very high content of clay, higher than we observed yesterday. Yesterday would make a ball, but this you could make a bunny; right? You can mold it and make anything you wanted out of it. So, those are all important facts for the setting about where we are out here and what we should expect in terms of migration.

So, I'm going to do two things. First, I'm going to look at the big picture and then I'm going to look at the little picture. And the big picture with regard to extent is this, that we have a pit closed after 1990 up on the hill. We have some surficial oil down here in this bog, and we have a stream that's completely free of contamination. There is no oil in that stream. So, that's limited; right? And that's what I meant by the impacts being in proximity in the general area of the sites. So, here we have a pit up on the top. We have some problems

down here down the hill. But they don't extend to beyond that treeline; right? In fact, the only ones we have in this area extend about halfway to the treeline. So, that's the extent, big picture.

Now, let's talk about migration. Okay. If we have that same setting and now we have observations in 1995 and in 1992 that there were oil seeps in this area, they observed oil on the surface in 1992 and 1995, and they're still there. Okay. They're still there. So, that tells us that we're not getting migration. Those seeps are still where they were. They were observed at that time. And in all that time they have not moved to the stream. The stream still has no oil in it.

So, that's important big-picture stuff.

So, now let me get to little picture. Little picture, I'm going to go back to criteria that explain why some symbols are green and why some are red, and we talked about that yesterday. We talked about that the symbology being use by the Chevron team was linked to Decree 1215, so that for soils, if it's above the numbers given on Table 6 of 1215 based on the land use of that location, then it's red. In this location, the land use that's dictated by 1215 is agricultural, even if there aren't crops there, even if there aren't crops, and the reason for that is that regulations commonly anticipate changes in land use; right?

So, why do we call it agricultural when it's not? Because it could be agricultural. That's why regulations make those assumptions, and today we find that just in recent time this forest, this formerly wooded area, is now to be used for agricultural. Therefore, the assumption of agricultural fits that future use.

And that is the most--next to a sensitive ecosystem, it's the most conservative but the strictest land use that can be applied for human use of the soil.

Okay. So, that's why we use agricultural.

So, let's go through the different media here. I'm going to talk about surface water. I'm going to talk about soil. I'm going to talk about groundwater. So I'm going to be kind of moving back from the stream.

So, down there at the stream, I don't know if--you all were down there and could see the green flags, and you can see the set of green flags just at the end of the trail down there. There are two types--there is somebody waving. Okay. There is the horizontal triangle; that's for the sediment, and for that we've applied Decree 1215 sensitive ecosystems because that's a practice that we've seen followed by many other Operators here. It's not a declared sensitive ecosystem, but that's a number that's sometimes used by the Parties. We use the strictest number, 1,000 PPM. All of the locations meet that.

Then there is another triangle that's shaped like this, it's pointing down; that's marked SW, for surface water. All the surface water meets that standard too, and Dr. McHugh already explained that.

So, now let's move back from that location to this location here, just below us, where you see a variety of signs in the ground, both horizontal and vertical that are marked "GW."

In this location, I'm going to talk about the soils first, and again, this is our effort to make these diagrams real. Okay. So that the green spots that you see on this figure from your mini-booklet are the same that we plotted down here.

And there's quite a few symbols down there, but if you look at the horizontal flags and the vertical triangles you'll see what I'm looking for. There is one red flag down there. There is one red flag because of all the soil samples collected, only one exceeds the agricultural standard for soils. So the other soil flags, those horizontal triangles, are green because they're all below 2500 PPM, using the Method 8015 that is approved in Decree 1215 and not TEM, which is specifically instructed not to be used in 1215. So, we have one spot that warrants action under the applicable regulations used by all Parties in Ecuador.

Then they have groundwater flags, and those are the vertical triangles with a "GW" on it, and you will notice, as Dr. Garvey pointed out, that they're all green. And they're all green for a reason. They're all green for a reason because they are based on the TULAS regulation and they're specifically based on the groundwater quality standards--or criteria, I should say--that are set forth in Table 5 of TULAS.

And I believe I can answer Dr. Garvey's question as to why these are green when they do have oil in them. They do have oil in them. Those samples down there where those wells were put in, there is petroleum in those wells, and I can explain why, but first I'm going to explain why they're green.

So, in Table 5 of TULAS, it starts out by saying these are reference criteria for groundwater quality. They consider a soil with a clay content between zero and 25 percent. That means that if the soil is a sandy material, a sandy material that can produce water in a usable amount, then these criteria apply, but if there is more than 25 percent clay, these groundwater reference criteria do not apply by TULAS. And so we haven't applied them. We haven't applied them because they don't apply. And that explains why the flags are green, even though there is oil in those samples.

So, the logic behind this--this is not unusual, you'll see this in other countries' regulations and other States in the U.S.--is that if water is usable, it is to be protected, but if it's not usable, then resources for protecting unusable waters are directed towards better things for protection of the environment.

So, let me talk a little bit about those groundwater wells and why do they have--why do we find oil in them, even though they don't apply; right? So, why do we have oil in those? So, I am going to go back to the soil data and look at some of the cross-sections that are out here. And I'm going to show you some of the boring logs that were prepared by Dr. Garvey's team, and they did do a good job on these boring logs. They are professional people and they do a competent job.

This is an example of a boring log that's in your mini-packet, and I want to just point some things out to you on this log. What you have here is with depth, the soil is described as you go down into the ground, and it indicates where certain observations are made. It shows how the well was built. It describes the methodology using certain symbols and what's called the Unified Soil Classification System, and there are PID measurements as well. And then over on this side, you will see a text that describes what the soil looks like, and these particular

descriptions use the standard colored system, and they use the Unified Soil Classification System that professional geologists and engineers use.

MS. WOOD: And--Mr. Connor, can I just interrupt?--for the Tribunal, it's Pages 15 through 19 of the soil borings. Some of you might have found that, but just--

ARBITRATOR GRIGERA NAÓN: 19.

MR. CONNOR: Oh, there are those other ones.

ARBITRATOR GRIGERA NAÓN: That's 19.

MR. CONNOR: This is--

ARBITRATOR GRIGERA NAÓN: 19.

MR. CONNOR: AG-06.

ARBITRATOR GRIGERA NAÓN: That's 19.

MR. CONNOR: This one? So, there's more than one, but there's an important point here. You'll notice in the upper 30 centimeters here asphalt particles of petroleum odor, collected sample AG-06 SW-00-6 from 0.02--that's like right on the surface--to 0.3 meters pbgs. So, in the upper 30 centimeters of the soil, oil was observed, but below that level oil was not observed. You can see that even using the tool that Sean has been so nice to show us. At the surface, there is a PID reading but down low it's zero. And so the soil descriptions tell us that this material is just on the surface.

That's important for a couple of reasons. First, it tells us that as a mine well is drilled down through that material, the mine well will contact with that material, and it's not possible to go down through that material and not drag it down, even by a professional like myself or like Mr. Garvey's team, unless certain physical precautions are taken, and there are protocols for how this is done. A special exterior casing is first installed to keep away all the contamination, and then the sleeve goes down inside that cemented casing to extract that sample. So there are protocols that are used that can be done. Sometimes those are difficult to use out in settings like this. But without using those Protocols, we can't be certain that it wasn't dragged down.

And, in this case, we know that the contamination didn't come up; it went down. Why do we know that? We know it's not a spring of oil. Because if oil is coming up from beneath, it would be oily down here. The farther away you get from a spill, the lower the concentrations. So you would have a high concentration deep and a lower concentration at the surface. Here we see the reverse. High at the surface, cleaner down below. It's a surface release. It's a surface release. And that's important because it tells us the groundwater data is compromised, and it also helps us understand a mini-picture of what's

going on out here. So, Ernie has a couple of these logs that are in your packets. You can look at them yourselves.

Now, there is another issue on the groundwater. Why do we know the groundwater is not reliable? First we said the criteria don't apply. And then we said we have "drag down." And the third is there were two types of samples taken from the monitoring wells. There were samples just pulled out with what is like a little bucket, and there was another type where a special sampler called a "diffusive sampler" is put down in the water. The diffusive samplers all had zero. The buckets all had numbers around .3 or higher. The diffusive sampler only allows dissolved materials to come in. The bucket can pick up oil droplets that were dragged down. That again, tells us that we have a drag-down problem. My conclusion, as I've said in my Reports, is that we do not have groundwater contamination here.

There is another piece of evidence for that, and that is the natural spring that comes out from the bottom of this hill, and I am going to show you two sets of samples. First I will show you the sample from the stream. This is what a stream looks like. It's an organic stream--this is what streams often look like here. You see all the vegetation in it and the black material. It's a natural sediment that has a dark color. Why is it dark?

11:42 Because it's rich in organic material. That's why riverbeds and flood plains are great places to grow crops because when a flood happens and this material is put on the soil, you're getting a lot of nutrients; right? There is no oil smell to this. It's been analyzed extensively in the laboratory. This is free of petroleum, but it has a natural dark color, as all good rich soils do.

And here's the water that flows through that. You can see this water--I'm going to set it out there so I don't get mud all over you, but that water is clean and clear; right? That's what it looks like. When our lab data tells us it's clean, it looks like this. Okay?

And now I'm going to show you the spring.

Do I have that material? Okay.

So, the spring is where groundwater comes to the surface. And a swamp is an area where groundwater is very close to the surface. So here's the spring down below, and you will notice a little fish in there. Do you see that guy? I'll put it over here. They can check it out.

PRESIDENT VEEDER: Do you see them?

MR. CONNOR: Yeah. There are a lot of little fish in that stream--in that spring, so that spring is coming out here, and I believe Dr. Garvey did describe it. It's coming out and it flows through the swamp. And it's a healthy spring. It has no petroleum observable in it.

11:43 There is a picture of it in the main packet from--I don't want to touch it, Ernie--in the mini-packet--oh, I'm sorry, in the Site Packet presented by Ecuador.

PRESIDENT VEEDER: Tab 9?

MR. CONNOR: Tab 9, actually.

ARBITRATOR GRIGERA NAÓN: Ecuador's, Ecuador's.

MR. CONNOR: Is that right? In Ecuador's--I'm sorry. Did I say the right thing? Tab 9. Okay.

So, we have a picture of it so you don't have to walk down there, but we collected these samples, and here is what the soil looks like. It's the same red soil that we see on the hill behind us. It is not organic. It hasn't received all the vegetative decay. So this is the same clay and there is no oil in this material, and that's very evident.

Why do we care about that? That means we do not have subsurface flow of contaminants from up on top of the hill. We can't have subsurface flow of contaminants or they would come out in a natural place where they should come out. They should come out in the spring. So, we have seen that the oil is on top of the soil. We've seen that groundwater is not bringing oil down to the swamp. And what does that leave us with? That leaves us with the fact that it was some type of event that caused blobs of oil to come down in this area.

11:45 And one plausible explanation for that is that when an oil pit is closed by covering it with earth, it's very much like a man getting into a tub of water. It will overflow. Right? It can overflow. So, when you push dirt into a pit like that but don't mix it slowly and create a slurry, you can get overflowing. And this is observed, and it appears that was observed by the different Parties in '92, '93, and '95, so it's plausible that that's associated with that, and I think that is a reasonable explanation.

Let's then go to other differences between the Parties. There are criteria. I talked yesterday about analytical differences--the PAH criteria that was discussed by Mr. Garvey and Mr. Ewing--and said that the PAHs--those are Polycyclic Aromatic Hydrocarbons, sort of chemicals that are of a particular concern because they can express carcinogenic effects--and we have those all plotted on one of these box plats here. And if they're above the limit, it's red, and if they're not, it's green.

So, we only have one location, and that's driven by TPH, not by PAHs. The difference in the Parties is this: The difference is that we have added six compounds as instructed in Decree 1215, but the Ecuador Experts have added well over 20, 50 compounds that are not specified in 1215.

Why does 1215 specify six compounds? Because

11:46 those are six compounds that are indicators of the overall toxicity of the material. That's a common practice. So, when you do that analysis and you compare that criteria, you need a new right number. So, that's really the difference between the Parties, whether you're following the criteria or not.

There was also a statement by Dr. Garvey that exhibited a misunderstanding between the Parties that I would like to clarify when he said that Chevron had never installed monitoring wells in this area. During the Judicial Inspections, 28 monitoring wells were installed. They were always installed outside of pits. Why? Because of a drag-down issue. The materials to do it right were not available. They were always outside of pits and they were always clean. They never showed impacts.

Dr. Garvey's team has also done investigations of that nature. And, as I said in my Report, when those monitoring wells were installed by Dr. Garvey's team through pits or through oily areas like that, they had impacts most of the time. When they weren't drilled through those areas, they were almost always clean. There are some exceptions, but they were almost always clean. You see a real contrast that indicates they are having a drag-down problem, which is hard to avoid; it's hard to avoid.

So, the next thing--so, I talked about why are the Parties saying different things, and I want to clarify one other thing that I think is really important for you to understand. There has been a misunderstanding regarding--how am I doing on time?

MS. WOOD: You're good. You're good.

MR. CONNOR: Well, I'm just going to slow down.

(Laughter.)

MS. WOOD: Not too much.

MR. CONNOR: Okay. There is another misunderstanding that--I'm just going through these in a somewhat random fashion--another misunderstanding regarding weathering of oil and what we mean by "liquid" and "not liquid."

Dr. Garvey understood that it was our position that if it's liquid, it's Petroecuador. That's not our position. If it's fresh, it's Petroecuador, but if it's weathered and liquid, it's an old spill. And we testified, I believe, that old spills are really hard to figure out how they happened, and I think the Parties are in total agreement about that.

Our experience has been that if a spill is more than a year old, it looks like a spill that could be 20 years old in this environment. Weathering is just like anything. If you took some gasoline in a tank and you put

it out in your garden and you left it there for 20 years, it wouldn't be in very good shape; right? You couldn't put it into your car. Same thing with oil. You leave it in an environment, all kinds of things happen to it. And we know it's weathered because, once again, the light ends, the saturateds and aromatics are gone. It's been demonstrated by the laboratory data; right? So, there's no question that it's weathered, but it can still be liquid. It can be a resin with dissolved asphaltenes in it; right? So, it doesn't mean it was a recent spill.

A recent crude-oil spill will also be liquid, but when you smell it, it's like Vicks Vapor Rub. It's way in the back of your sinuses. It's like smelling gasoline because is has--and this is API 25 gravity--it will have a volatile fraction, I think around 10 percent or more. So, there's a lot of gasoline in that. So, fresh oil is really different from weathered oil. And liquid oil is not necessarily fresh; it can be weathered. So, I just wanted to clarify that because I think we had a misunderstanding.

Oh, and also, the issue about clayey soils. Can oil go through clayey soils? No, it can't go through clayey soils. Why not? Because oil won't go where water won't go; right? Water can go through pores much easier than oil. And there was a test done down at these wells to see if the water come into that. Dr. Garvey described it

accurately yesterday, where a well was drilled into the ground and some water was pulled out of it and he measured how fast the water comes back up; right? Or you add water to it and you look how fast it goes down. Well, the water that was pulled out of these wells, it didn't move at all.

And what that tells us is first--it tells us that the permeability is really, really low for water. It's really low. And so if water can't go through it, neither can oil; right? And so we have a uniformed clay material out here, you can't have subsurface flow, and I'm told there are a number of reasons why; we know that. Okay.

Let's see if I covered all these issues. I think so. I'm just going to check my next page here.

Yeah. Okay. Data interpretation, I mentioned the TEM test yesterday, I don't think there is anything else to say about it. When you have a dark soil like the sediment here, you get a much bigger contrast with TEM and 8015. The 8015 on this stuff is around 40. The TEM is over 2000; right? So, that's not double. That's 50 times; right? It's a big, big difference.

See the TEM--see all those sticks in there that are on your table? So that's why. When you do an oil and grease, it dissolves those things and you'll get a whopper. You get a big TEM number. So, that's why. And always in a dark soil like this, a dark organic soil, you get a high

TEM because it's measuring everything.

And I have talked about the PAHs. I don't think there is anything else to say about that.

And I will stop with the mass calculation. There has been a discussion as to whether or not this site verifies the mass calculation. I will show you our depiction of how that calculation works here. It would say that this pit emanates problems radially. We know that wouldn't happen. If there was a problem from the pit, it would come down the hill. It would come in this direction and it may have spilled over. It may have overflowed in this direction.

But the idea with this calculation is that you have radial problems out zero to 50, 50 to 100, 100 to 200 meters away. Now, the treeline down there is roughly about 100 meters. You see the stream right there? It's right at that treeline. This calculation says that the contamination doesn't just go to that stream, it goes a 100 meters to the other side. Well, it can't do that. Even if it was subsurface flow, it would come out at the stream, which it hasn't done. And, if it was overflow, it would be in the sediments, which it's not there. So, we know that's not true. We know it's not true.

So, I think we need to be careful. Again, we had another site where we can't--we find that the mass

calculation is just not real.

And I think Dr. Garvey made a good point when he says, "on average," or we think about the average, on average it works. Sometimes it will; sometimes it won't. That means half the time it should work, but I don't know of any site where it works, so it means there's something really wrong. And I tried to explain a number of times in my Reports and in my testimony that the calculation is erroneous and has no value in terms of understanding.

PRESIDENT VEEDER: For the Transcript, that is Page 12 of the mini-bundle.

MS. WOOD: Thank you, Mr. Connor.

MR. CONNOR: That's it.

MS. WOOD: Before he exits stage right, any questions from the Tribunal?

ARBITRATOR GRIGERA NAÓN: No.

ARBITRATOR LOWE: No.

PRESIDENT VEEDER: No questions from the Tribunal.

MS. WOOD: Thank you.

I'm going to now ask Dr. McHugh to speak.

Do you want to begin?

DR. MCHUGH: You remember from yesterday, I'm Tom McHugh, toxicologist, addressing health issues. I'm going to try and touch on the same three points that I covered yesterday, that the residents in the area have a source of

clean water, the conditions here are safe for human health and they're safe for livestock.

So, the residence--the nearest residence that has been identified to this site is 300-meters away. It's over a little hill to the south of us.

In Dr. Strauss's Report, she reported that the residents use a rainwater catchment system that is supplemented by municipal water when needed, and she also reported that they had a hand-dug well, but that was not tested by LBG. But the available evidence indicates that they have a safe source of drinking water, or in this case, three safe sources of drinking water.

Yesterday, Mr. Ewing suggested that using rainwater as a domestic water resource was evidence that the groundwater was contaminated and that they were avoiding using the groundwater. However, during the Judicial Inspection process, the Chevron Judicial Inspection team members sampled over 250 hand-dug wells, and found that they were free of petroleum. LBG during their testing program tested three hand-dug wells and they found that all three wells met Ecuadorian standards, USEPA drinking water standards, and World Health Organization standards. There is the same dispute about whether it contains a small amount of petroleum because of the issue with plant matter being detected, but the story is the same

that they tested using three methods for petroleum, two of them were non-detect, and one of them had low levels of detection, that even if accepted as petroleum, was below the Ecuadorian standard.

So, all of the available evidence suggests that groundwater utilized through hand-dug wells within the Concession Area is safe to drink.

So, moving on to the health conditions, I've already talked about the stream, it's free of petroleum and safe for use. Mr. Connor covered the groundwater and explained why the groundwater was--that the water was measured here was simply not a usable resource. Both Parties have described that area as swampy, and regardless of the clay content of the soil, that sort of swampy area is simply not suitable for installing a hand-dug well.

(Pause.)

DR. MCHUGH: So, this swampy area is not an area where anyone would install a hand-dug well. You have seen the material from the spring, although LBG elected not to test the spring, the visual inspection indicates that it's clean, and would be a suitable resource to be used by anyone building a residence in this area.

Moving on to the soil, the story here is again very similar to what we heard yesterday, that Dr. Strauss estimated risk using six different calculation methods.

All of her calculation methods included this assumption of daily exposure with the soils in that area, not just walking through the area, but daily contact with the soils there every day for 30 years, and even with that intensive exposure, the calculation that she conducted in accordance within an established regulatory framework indicated that that was not a health risk. It's only when she deviated from that established procedure that she found a health risk.

Finally, closing with livestock, the stream is clearly safe for livestock because it does not have petroleum. The soils, when you use the 8015 results, the results that were--that go with the API screening value that have been used to evaluate risk to livestock, when you look at the 8015 results, there are no results that exceed livestock screening criteria, and so the conditions documented by LBG and the Government of Ecuador are not a risk to livestock.

And, again, it was suggested that plants, agricultural crops growing within the area of petroleum contamination, that that could be a risk, but I will repeat again that the weathered petroleum material is simply not taken up by plants. The water-soluble components are the only thing that could go up into the roots and into the plants and that the weathered materials stay in the ground

and not go from the plants. Even to the extent that plants were to take up any of these lighter, more volatile constituents, the available scientific studies show that they exit through the leaves and that they do not build up in the fruits or the seeds. So, that covers the health issues.

MS. WOOD: Thank you.

PRESIDENT VEEDER: Thank you.

MS. WOOD: Any questions from the Tribunal for Dr. McHugh?

PRESIDENT VEEDER: No thank you.

MS. WOOD: Just to--a few final points before we are finished--three points, actually.

One, I believe it was Dr. Garvey who made reference to produced water and implied that produced water generated at the site could have flown down to the stream. How these sites work was the produced water was piped to the Production Stations. I don't know if you saw the large flare, the fire in the air as we drove up here. That is Petroecuador or one of its Contractors' Production Stations. That is where any produced water would have been piped over, to that Production Station, so there would have been no pits for use of produced water at this site. That Production Station came on line approximately at the same time as this well in the Seventies.

Second, I have talked with you and I have shown you documents that the pits, the documented pits here, were closed by Petroecuador. There's a document that you might recall that came into evidence at the Hearing that was not included in Respondent's Site Packet. But, to the extent that they want to talk with you about that in their rebuttal, I just want to make sure you know that that does not prove that Petroecuador did not close these pits.

PRESIDENT VEEDER: Say that again. There is a couple of negatives.

MS. WOOD: Yes. Okay.

PRESIDENT VEEDER: Three.

MS. WOOD: That document which is--there were three GSI preliminary documents, they might try to use that to say that Petroecuador didn't close the pits here. We disagree with that, and I've included in your Site Packet at Pages 13 and 14 a comparison, so one of the pits where, even to the naked eye, you can see that the pit is still there in July of 1990.

Second--excuse me, third, was the Judgment. They have brought us to the four sites that Ecuador believes best represents their most favorable story that these sites support the Judgment. I think we showed you Shushufindi-34, we're showing you now and we will show in the next two sites that they do not justify the Judgment.

In fact, you've heard time and time again that they're ignoring reality in order to try to justify the Judgment. And a few points on that.

One is the criteria, the standard that is being used. The standard that we are applying are the standards that Ecuador applies to Petroecuador. They are the standards of Ecuador. Instead, you heard Dr. Garvey talk about lower standards, additional standards, 100 PPM from the Judgment. That alone shows you that the Judgment was not based in reality, was based on fraud because the 100 is not the standard that is applied to Petroecuador and is applied in Ecuador.

Second, you heard them talk about methods, such as the TEM method, which is not allowed by Decree 1215 and has a known bias of high effects from plant matter. Look around you. All you see is plant matter. Obviously that's going to have effect on any type of TEM results. TEM does not equal TPH.

They're claiming contamination by pointing to chemicals that are not regulated by Ecuador, and you heard Mr. Connor talk about that. But two key points again are that they are ignoring the actual facts of Petroecuador's activities at this site in closing of the two pits as well as expansion in the area. And Mr. Ewing said yesterday they weren't sure why we were pointing to the 1-to-2

kilometer map. It's not that we're saying that activities from 1 or 2 kilometers away would have impacted this site. We showing you that Petroecuador and its Contractors are very active throughout this entire area, active in terms of production, in expansion, and active in terms of remediation of historical Concession impacts, which shows that they are recognizing and abiding by the Agreement between the Parties.

And, finally, with respect to anything that has been shown to you here today in terms of impacts, those impacts were known by Ecuador, and Ecuador said TexPet, you do not have responsibility for that. They're ignoring the Contract between the Parties in order to claim that the Judgment is valid and that TexPet has responsibility out here.

And, with that, I will conclude my remarks, unless the Tribunal had any questions.

PRESIDENT VEEDER: We have no questions. Thank you very much.

MS. WOOD: Thank you.

PRESIDENT VEEDER: That concludes the Parties' presentations. We've come to an end.

MR. EWING: We have our rebuttal.

(Pause.)

REBUTTAL ARGUMENT BY COUNSEL FOR RESPONDENT

12:19 MR. EWING: Members of the Tribunal, I want to start with sort of an overarching point that has raised a bit of indignation on our side. There is zero evidence that we or anyone for us on behalf of the Republic has done anything to falsify or create any of this evidence. There is some earlier intimations. They were unclear about the source. This source is historically documented. We didn't put this here. There is zero, zero evidence. I just want to start from there to clear that this has nothing to do with anything that the Republic has done.

The second point I want to talk about, and we're going to be discussing regulations a bit more as we go on through these sites, it's become clearly an important part for Claimants. But if you think back to the Claimants' original pleadings, they were willing to apply a 10,000 parts per million standard or a 5,000 parts per million standard. There was no discussion of the adequacy of Ecuadorian standards. Now, they're willing to apply an Ecuadorian regulatory standard. So their position even has changed.

But this is not about what the Ecuadorian regulatory standard is. This is not a regulatory case. This is not the Government of Ecuador attempting to apply its regulations to clean up of this area. This is a case based on the Lago Agrio Plaintiffs' complaint, which

12:20 requested that all contamination be removed from these areas, all contamination be removed from the people's private land, and the Judgment has based its decision on an understanding of what background level contamination is.

Mr. Connor said in another case, in Burlington, that TPH should be zero. They calculated TPH in this case as 12 in natural backgrounds; the Judgment selected 100. As Dr. Garvey said, that's five to ten times above what should naturally occur, which is somewhere between zero and 12. So the Judgment--and the Judgment also said, they, the Judgment will not apply current standards retroactively and instead apply the law that was in place at the time, which said you shall not contaminate the wetlands, the streams, the water sources and, therefore, applied a standard that was appropriate for the time period when these operations were occurring, not current regulations in 2015 or even in 2011 when the Judgment came out.

And the interesting thing about this or another aspect of this that's interesting is Claimants have never attempted to refute that the Court was incorrect in not retroactively applying current standards. So Claimants have never argued that the Court was incorrect in its finding, that you don't retroactively apply the law. This is now they're trying to impose on the Court's Decision the current regulatory standards, and that's just not the

12:22 way--what the Court found what the Judgment did, that does not make this a denial of justice.

Third point, Petroecuador did not remediate the pits above us. There is no evidence that Petroecuador remediated these pits. I think that was stated a few times. Ms. Wood referred to the document which is R-1546, which is a GSI internal assessment of this site. And, according to GSI, it says the pit appears to have been closed--let me take a step back. They analyzed these two pits, and both of these pits were listed as posters that Mr. Bianchi--sorry, Gino is holding--not Gino, sorry--anyway, the pit--the person you see who is holding here said that they are closed, "No Further Action," because they are closed post 1990. But what we know from Chevron's own internal documents is that they also don't agree with that. This is not our statement.

Looking at the first pit, they said the pit appears to have been closed between 1996 and 1990, so earlier than was disclosed in the RAP.

Talking about the second pit. This is the area. It was apparently marshy and encompassed at least 1500 square meters and it became revegetated by 1986, meaning it was also closed by 1986, if not before.

MR. BLOOM: Do you have an exhibit number?

MR. EWING: Yes, and that's R-1546.

12:23 And these are the same pits that, during the Remedial Investigation in 1995, they found that oil was seeping out of those pits, the same pits that we believe are the source for the contamination we see below you.

So, maybe Mr. Connor is right, that this contamination came overland. We don't see any evidence of that. You would expect to see asphaltic material in the woods, if there was such a large overland spill. We don't see any evidence of that. But at the end of the day, TexPet put the oil in there and this is TexPet's oil down here. Whether they pushed it down here or it flowed underground, it's still TexPet oil.

Fourth point, when we were standing at the stream, Ms. Wood said that data is important. Data is key, I think is what she said. And we agree that data is important. There is no question. We've spent thousands and thousands, if not more, dollars to put together the data and really understand aspects of these sites, but it is not the only thing that's important. Visual inspection is more than adequate to assess the contamination that we see, contamination that we saw down there. Even without samples, visual inspection is more than adequate. Dr. Hinchee said so at the Hearing. It was the standard in the RAP. They looked to see whether contamination existed. ASTM guidance, Dr. Strauss in her Reports tells you that

12:25 ASTM guidance says you clean up what you can see first and then you go and sample and figure out what the risks are. But first you deal with what you can see.

And, even today, Dr. McHugh put before you the tray of spring water and told you, look at it. It looks clean. He said by his own statement that visual analysis is adequate to define that as clean. So, visual inspection that you have been able to perform and other people have been able to perform here is more than adequate to assess the contamination.

And, with that, I would like to turn the floor to Dr. Garvey to briefly respond as well.

DR. GARVEY: There are a number of points I'd like to make.

ARBITRATOR GRIGERA NAÓN: Just one second, please.

(Tribunal conferring.)

PRESIDENT VEEDER: Please.

DR. GARVEY: Very good. I would like to talk a little bit more about the evidence that you see here in front of you in terms of the seeps and the impacts downstream, the potential impacts to the stream below us, and then about the inventory issue again.

To begin with, with the oil seeps here, we've argued at the previous site and we argue here again that the finding of liquid oil here at the surface implies that

12:26 there is an underlying reservoir of material that's contaminated. I'm going to show you some information that suggests as much based on one of our cross-sections. However, I would also note that the Plaintiffs' Expert Dr.--Mr. Connor has asserted that now this oil, since it's not supplied by a deep reservoir, has been sitting at the surface, effectively, for better than 20 years and yet still remains liquid. Previously in their arguments, they've argued that things have become asphalt or asphalt-like, the implication being it's been solid.

So, you can't have it both ways. If this material is still sitting liquid at the surface 20 years after it cascaded down the hill, clearly oil not solidifying remains available to the environment. On the other hand, if it's what we think, which is that this oil is being supplied by a reservoir, then it's a much larger problem, so to speak, that's underneath the ground, and, in fact, I'll show you some evidence for that.

In this same regard, yes, this was a very tight soil, these clayey soils are relatively impermeable, but we know that it's not completely impermeable because we have a spring here. Okay. There's water coming through the ground feeding this point right here. There's water coming out. And, in fact, there are seeps all along here that feed this wetland. So clearly not all of the ground is

12:27 impermeable. It's sufficiently permeable to deliver water here. If it can deliver water here, it can deliver oil here. Okay.

With regard to our groundwater wells and installation, our groundwater wells were developed properly. They were purged at the time of installation, and then the samples were collected from them two weeks later, allowing the water in the well to come to equilibrium with the soils around it, thereby minimizing, if you would, any kind of draw-down impacts. And, in fact, we have wells at other sites that show contamination where the overlying soil was clean, and we still get contaminated--groundwater depth of--all of these wells here had contamination at the surface when we measured it.

So--make another point on this. Okay. And, again, Greg Ewing made the same point, as if this well had spilled down the hill, why is there no evidence of it in the hillside here, why do we not see asphalt-like material? Okay.

With respect to our diffusive samples--now we're getting into the leads, and I apologize a little bit--but they are the measure of the very lightest of components, coming back with the clean gasoline--they measure basically gasoline range type of stuff in the wells. They came back clean, that's true, but we have not argued that this oil is

12:29 sufficiently fresh to supply gasoline-like components. It has some weathering. It remains liquid. So, the finding that the diffusive samples came back clean is not proof that this groundwater is, in fact, clean. Okay.

I think Greg covered the health risk assessment issues. Okay. So I won't repeat them again. Okay.

One last point about--and this is in the record as well. The residents in the area had to give up groundwater as a resource because of the risks of contamination, and the farmer--and this is in the record--the farmer that lives here, lived here all his life, has complained that livestock in this area get sick as a result of--he attributes it to feeding in this area. So there's, again evidence to suggest exposure to this material are an ongoing risk to people and their animals.

With respect to the inventory question--I know this is getting dense, and I apologize--an average is an average. It's not right half of the time, and if we average all the people here, we will get the average height of everybody that's here. It isn't right half of the time and half of the time it's wrong. Average is not a median. It's not an on/off type of thing. It's simply the integration of the data that you have in front of you. So, to say that an average is right half the time and wrong half the time is really a mischaracterization of the

information.

First of all, that's not how it works. We're not talking about a median. We're not talking about a yes-no answer. It's not a median. It's just the information that you have: You add it together, you divide it by the number of samples that you have, that's the average.

If you remember that diagram that they drew up, one of the reasons we were able to do the inventory and we felt comfortable calculating the inventory with the data that Chevron had collected, is that--do Plaintiffs have that map with the concentric rings available? I don't know the reference number to it.

PRESIDENT VEEDER: Number 12.

DR. GARVEY: This is the exhibit I'm referring to.

When Chevron sampled around the various pits and the like in the various sites, they placed pit samples not on one side but in kind of an area in an attempt to outline or if, you would, bound the problem. The problem wasn't every time they would do this, they would find a high value on one side, then they'd find a high value on the other and they'd find a whole bunch of cold ones in between. That's why we could use this information and say, well, what's the average concentration in each of these concentric rings? It doesn't mean that every point that they placed in these various rings came out cold nor did every part come out

hot. Most of them, in fact, came out cold, but there were a sufficient number of hot ones to calculate and estimate the inventory that we're talking about.

This is a case in point. Here we have, if you would, hot point, a very large one but yet a hot point. But I'm quite certain that if we were to sample in a concentric circle around the rest of the pits to the side here, we would come up with relatively cold points because the chances are these hillsides are not contaminated because the feature that's driving this area of contamination may or may not be functioning to the sides. So this is, again, an integration process. It's creating an average based on data that Chevron collected to try to integrate--to try to find a clean boundary. In their design of their clean boundary sampling, they created a dataset that says we can characterize, in general, the level of contamination in each of these rings. Okay.

I think that's all.

MR. EWING: I have about two minutes of conclusion and then we will get out of here.

DR. GARVEY: One more. I'm sorry, my bad.

One last point, I apologize for forgetting this.

The stream points that we've looked at, they are relatively clean, the entirety of them. We don't dispute that at all. We do get some higher levels by TEM, but in

general we would agree that this stream is not impacted by this area here, by the flow coming uphill. Why not? There's a topographic high between us and the stream. You noticed it perhaps when you were down by the blue point down there that we were in a low point; we were in a swamp. The area that comes down--the water that comes down off of this hill here enters this swale and then drains to the north before it joins the stream. What we did, unfortunately, because we were working in that very thick woods that you saw there, we didn't have a sufficient topography to understand how the water flowed off of this hill, we basically took a lot of upstream samples.

So, they came back clean, which is good, which means that this general area is clean, but we actually have no data that we would really characterize the impacts of this area to the stream down--to the area downstream with the exception of one point, the very last point in the sequence.

What we've talked about, and what we will talk about again this afternoon, the problem with using a single point to try to bound or characterize an area--okay?--it's difficult to do. It's very haphazard. Even with all of the samples that are in here, there are still some samples in here that are very, very low in contamination. So when you go out and sample, sometimes you get the high values,

sometimes you get the low values. That's why you throw a few darts.

At this point, with respect to the stream, we have one dart. And, in fact, it's in an area of the stream that we don't think is collecting sediments. We think it's an area where the stream is eroding its bed; therefore, it would not retain any contamination that might come off of the site, and that's my last point.

MR. EWING: Before Dr. Garvey goes, are there any questions?

PRESIDENT VEEDER: No, thank you.

MR. EWING: Then let me now do my approximately two minutes to wrap up.

Claimants have now largely conceded the factual case underlying the Lago Agrio Litigation. Remember, we are here because, in Track 2, Claimants have said that the Lago Agrio Litigation, that the factual basis for the Lago Agrio Litigation is factually absurd. Claimants have conceded that contamination exists. They've conceded that this oil was placed here by TexPet, and they've conceded that this oil and this contamination comes into contact with people, and they've conceded that the evidence of this is in the Lago Agrio Record.

So, Claimants have now--we now have contamination attributable to TexPet, we have an exposure to people, and

that is what the Lago Agrio Litigation was based on, and that is why we wanted to bring you here to see this.

Claimants have made a number of assertions that this site has shown us to not be true. One is that clay contains the pits. We have contamination down here without evidence of contamination on the surface. That contamination has gotten here somehow. If it's not on the surface, it must be coming underground.

Claimants have said that there is no movement of contamination; we have, again, coming from the pits down to here. Claimants have claimed that there is no impact on groundwater. We know that these groundwater samples are impacted.

So, that is exactly why we wanted to bring you here.

So, with that, I will wrap up--I will turn the floor back over to Dr. Garvey.

DR. GARVEY: I want to show you one last exhibit, sorry. This is Respondent's Plate Number--Christine, Plate 20. No--

MR. EWING: Tab 20, Page 2, I think.

PRESIDENT VEEDER: Please continue.

MR. EWING: 19, Page 2.

DR. GARVEY: Thank you.

This is a cross-section through the area that you

see below you here. These are just several of the points that you see marked out here. Basically they form a straight line, more or less straight down the hill, not in the direction of groundwater flow. So, this is not an image of how groundwater is moving through the system but rather just a record of how these wells were installed and where we observed the visual contamination.

In particular what I'd call out to you is these areas shaded in brown here. There's three of them. Two of them have--one has contamination visible in the shallow segment of the core. It was not noted here at depth. The groundwater level here is about 600 parts per billion. But in the other two wells on this side of the diagram, we note that the interval of visual contamination that was identified by the geologists is actually quite deep, several meters in this instance here, about a half a meter here, but more than a meter below the surface. So, this is not surface contamination that we are seeing here. We would not expect to see this depth of contamination in this particular well as a result of overland run-off. This is a result of underground-type contamination. And this is not the only well where we saw this. There was another one in this area here as well, another boring; we saw this as well.

I just wanted to bring this to your attention that

the boring information that we have, the visual information that we have from those borings, indicates that there are significantly thick sections of contamination within the ground there, it's not all limited to the surface commensurate with an overland-type transport.

One last point to make about the human health-risk assessment issues, and that is that the growing of corn in this field with all of this oil present at the surface means that these materials can be taken up into the corn and then people can ingest that corn, and there's another root of exposure for that. So this represents a very vivid and ongoing exposure to the locals that live here.

I think that's everything.

MR. EWING: If you would like to see the rest of LBG's boring logs, they're in the record in their Site Investigation Reports. I think Claimants have just selected a few. The rest are in Site Investigate Reports.

So, unless there are any questions from the Tribunal, I will end our affirmative presentation and just talk logistics very quickly.

PRESIDENT VEEDER: Please talk logistics.

MR. EWING: So we are going to leave from here, go up to the cars and grab our lunches and, to try and make things a little quicker, we are going to eat lunch in the car. Hopefully that may even actually be a bit more

comfortable because it will be air conditioned. And we are now going to Shushufindi-55. So, if we can relatively quickly go, I think it will make everyone happy to get back sooner today.

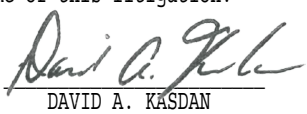
Thank you. And please do be careful.

(Whereupon, at 12:40 p.m., the Aguarico-06 Site Visit was concluded.)

CERTIFICATE OF REPORTER

I, David A. Kasdan, RDR-CRR, Court Reporter, do hereby certify that the foregoing proceedings were stenographically recorded by me and thereafter reduced to typewritten form by computer-assisted transcription under my direction and supervision; and that the foregoing transcript is a true and accurate record of the proceedings.

I further certify that I am neither counsel for, related to, nor employed by any of the parties to this action in this proceeding, nor financially or otherwise interested in the outcome of this litigation.



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