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 SHUSHUFINDI-34 SITE VISIT

Sunday, June 7, 2015

Coca (Francisco de Orellana)
Republic of Ecuador

The Shushufindi-34 Site Visit convened at 10:10 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: Everybody ready?

Well, today is the first active day of the Site Visit. It's the 7th of June, and we're at Shushufindi-34, in accordance with the Tribunal's Order.

We give the floor to the Respondent.

OPENING STATEMENT BY COUNSEL FOR RESPONDENT

MR. EWING: Thank you, Mr. President and Members of the Tribunal. Welcome to Shushufindi-34 for our first day of the Site Visit.

Just to give you a quick overview, I will introduce Dr. Garcia, who will give a short introduction, and then Dr. Garvey and I will proceed with the rest of the more substantive aspects of the Site Visit.

So, without further ado, Dr. Garcia.

ATTORNEY GENERAL GARCIA CARRION: Good morning, Members of the Tribunal, Mr. Doe, Miss Wells, opposing counsel and support staff. I would like to give you a personal welcome to the Amazon and thank you for all the efforts deployed in organizing this Site Visit and traveling from so far to do so.

As you know, this Site Visit is a critical part of the arbitration and, for Ecuador, an essential element of our case. Chevron and Texaco have argued that the entirety of the Lago Agrio Litigation has been a fraud and that the

10:13 findings of the Judgment can only be explained through an unlawful and inappropriate actions. Nonetheless, the Plaintiffs' position regarding the contamination and their repeated rejection of their liability for pollution left and hid are proven false by the evidence that Ecuador's experts will explain to you in the next days.

We understand that the purpose of your visit is to see directly the pollution left and hid by TexPet. Although you won't be able to visit the vast majority of the affected sites, I hope that the four sites you will be visiting helps you in this important decision-making process.

Ecuador's experts and counsel will show you five main points:

First, that contamination still remains in Ecuador's sensitive ecosystem.

Second, that this contamination can be traced to TexPet. At each of these sites, the Republic's experts will identify the source of contamination, the migration of the contamination, and how it was caused by TexPet.

Third, Ecuador will demonstrate how, at each site, oil continues to migrate and seep into the pits that TexPet excavated and how, even to date, it reaches the streams and affects undergrounder water. In other words, the oil in these pits is not immobile, notwithstanding the Plaintiffs'

10:16 arguments to the contrary. Dispersion is evident. You only have to look at the topography of the sites that will be visited and the effect of heavy rain in these sites.

Fourth, the Republic will show why the problems at each of these sites have become common and constant at many of the sites where TexPet operated during the Concession Area.

Finally, we will show you how Chevron's theories, including, specifically, its theory regarding the fact that oil at these sites does not pose any risks to health of the persons who were exposed to it, is simply false in the light of the evidence. Ecuador will demonstrate how the residents, even to date, continue to be exposed to oil and how, without adequate remediation, will continue to face serious health risks.

You will remember that the Parties' Environmental Experts filed a large amount of evidence in their Reports and at the Hearing. I am conscious of the fact that many of the technical aspects of the evidence that was filed are difficult to understand and be placed in the correct context. I hope that this visit contributes for a better understanding of the experts' testimony. You will see firsthand, for example, how TexPet's oil continues to migrate and pollute lands and rivers and how the residents continue to be exposed to it.

10:19 I am sure that, in the light of this overwhelming evidence, Chevron will attempt to disclaim liability, arguing that Petroecuador is responsible for the contamination or that these sites are not part of TexPet's liability under the Remedial Action Plan (RAP). Nonetheless, the persons who reside close to these sites neither participated in the development nor the execution of the RAP. And this Tribunal has previously concluded that the Lago Agrio Plaintiffs rightfully sought for compensation of the Claimants for the harm caused to their individual rights. Nothing could be more individualized or personal than the protection of their health and their families' health.

Lastly, I would like to remind you that the Lago Agrio Plaintiffs or the persons that you will see in the next few days who live close to these sites are not parties to this arbitration; but these residents are the true victims of the Claimants' bad practices and their corporate acts. Thus, any decision that this Tribunal takes shall fundamentally affect them and the future of the Oriente and the Amazon River's basin.

The Republic of Ecuador considers this visit to be of great value to the Tribunal and, for that, has insisted on it. Now you will be able to see firsthand the contamination and so conclude that the Judgment is

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10:22 reasonable and juridically possible.
Thus, I give the floor to our counsel.
MR. EWING: Again, I'd like to welcome you to Shushufindi-34, and what we're going to be doing while we're here today is I will be presenting, along with Dr. Garvey. We will be giving the affirmative presentation.
We also have Dr. Strauss, who is here. She is not planning to provide an affirmative presentation, but if you have questions for her, she is available.
At each of the sites, I want to give you an overview of where we are and then walk through quickly why we selected the site, and then we will talk about some of the history, and then Dr. Garvey will discuss the results and what those impacts are on the environment and the people. So, it's sort of a general overview of what we're going to be doing at each of the four sites.
So, with that, we have our laminated map here.
This morning we started in Coca, which is the pink dot down at the bottom. We came up this main road through Sacha, which is the part of the first main city or the main city we saw on our way north. We took a right through Shushufindi, and then we took another right and then entered a dirt road and came out here to Shushufindi-34. And I would be remiss--I'm confident that this was the

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10:24 fastest we had ever done this route before, by far. So, it usually takes us quite a bit longer, but we had a lot of help today. So, that's generally where we are in the Concession.
This is the north end of the Concession, so we're sort of north central right now in the Shushufindi oilfield. We will be going to Aguarico-6 tomorrow, which is north of here, and Shushufindi-55, which is also north of here. And then the next day we'll be going to Lago Agrio 2, which is in the very north of the Concession, so to give you a bit of the lay of the land.
So, the next thing I'd like to start with is why are we here. Why are we at this site in particular? And one of the first and primary reasons that we're here is the simplicity of this site. Hopefully, it will seem that way soon for you as well, but this is a site that has--it was a TexPet-only site, so TexPet is the only company--only Operator--who has ever extracted oil from this location. So we know that any oil that we find here is related to TexPet's operations. And the corollary of that is, obviously, Petroecuador has never extracted oil from this location.
Another aspect of this simplicity is that this site is very typical of many that are in the Oriente. So, as you sit here, you can see sort of in front of you, a

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10:25 little bit to your right where the yellow tape is is where the wellhead is. And, as we walk to the next site, you'll be able to get up and see that a little bit--or next location, you'll be able to see that a little better.
So, the wellhead is in the middle of this cleared area, and this is the former platform. We have, straight in front of you which is marked with the yellow flags, one of the main pits at this site, and then to your right there's another pit. And then to your left is the pit that we drove past. And then we'll talk about another one that may be here as well. But those three pits are typical for a well site.
And let me explain sort of how the drilling process worked to see why these pits are--why this site is so typical.
When TexPet came and drilled oil, they set up their oil rig here where the hole in the ground is, and to get to the oil it's approximately 3,000 meters deep, so nine to 10,000 feet, is where the oil-producing layers are in this area. To drill down that far, there's a significant amount of rock and dirt that came out of the hole, and they had to have someplace to put that. Those are called cuttings pits or reserve pits. And this large pit over here to the side probably started off as a cuttings and reserve pit, so the debris would placed

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10:27 immediately to the side of the well.
When you're drilling a well, to get the debris to come out, you have to force drilling mud, which is a sort of a thick mud that, as you push it down, it pushes the rocks and the debris out, and to make drilling mud, you need a significant amount of water.
Christine, if we could have the--we can put that right on here.
This is a map of the site, and I want to direct your attention to this area here, which is sort of marked where the various pits are. This gray area, the lighter gray area, is the platform. The middle is where the well is--
ARBITRATOR GRIGERA NAÓN: Maybe if everyone can see from all corners. All right, thank you.
MR. EWING: So, this pit here, the large pit, is the pit that you see in front of you. This over here, it's a little ambiguous where the location of this pit is. Chevron has marked it with the checkered black-and-white flags. That may or may not be right. We have it a little over to the side. And then the pit that we will be spending most of our time with is up here. We just passed it on the road.
So, this is the pit where, as they dug the well, they would fill this pit with the rocks and debris.

We need the next one.

After the well was drilled and they reached the oil layers, this pit and these reserve pits would often end up filled with oil.

This is an aerial image of this site in 1975, and this you will see is at Tab 1 of Respondent's Packet; and, just to make sure the record clear, the first image I showed you is Tab 13, but this is Tab 1, and we can use this for now.

So, this pit here, the dark area to the side, is what you see in front of you in yellow, and this looks to be filled with oil at this point. This is where they would have dumped the debris and it looks to have also then been covered with oil. This is from 1975. This well was originally drilled in 1973, so this is relatively shortly after the well was drilled.

The pit that we will be heading to is north here, and there is potentially another pit over here. Interpretation of aerial images can be a little difficult, but in some of the other images you can see a pit location over here.

And one of the things I wanted to mention about this site in its simplicity is the fact that this is relatively obviously a pit in other aerial images, but if you--when you stand up and look behind where the bathrooms

are, you'll see it's pretty thick jungle. And last week we have walked back in here and we haven't been able to necessarily identify where this pit was, even though it shows up in aerial images. And it's difficult to get through the jungle. It's a thick jungle. It gets covered over, so it's a difficult process of finding pits.

In terms of where these pits currently stand in the status of their cleanup, this pit here was included in the RAP but was listed as "NFA." "NFA" is No Further Action. It was deemed "No Further Action" because it had water in it.

There is also this other pit was not included in the RAP that was to the south of us. It was remediated by Petroecuador in approximately 2007. And this pit was unknown and was not also remediated in the RAP or included in the RAP. No one knew about it. We thought no one knew about it until we found it in 2014, and this is then again where we will be spending most of our time today.

This well did not produce oil to an economical level for long. It was only open until 1983, so TexPet closed this well in 1983. The technical term is they "shut it in." And that means, as Mr. Connor said during the Hearing, you may remember, it's a temporary plug that's placed in the well that separates out the oil-producing layers from the ground, but it's removable so that you

could reuse the well, if need be. But no oil has been produced here since 1983.

And TexPet has not conducted any oil-production activities at this site, either. There have been no PIs, Pre-Inspections, as a part of the Lago Agrio Litigation. There are no Judicial Inspections at this site, and there have been no Petroecuador spills at this site. There have been no Petroecuador workovers at this site. This is very clearly a TexPet-only operation, which again is one of the main reasons we wanted to bring you here.

So, with a bit of background, I'd like to take you over to the second location, where Dr. Garvey will explain more of what LBG has found in this scene, but I did actually forget to mention, please at any point if you have questions, please do stop me, stop Dr. Garvey. This will be much more helpful, I think, if it's interactive, so please do.

PRESIDENT VEEDER: Could I stop you straightaway.

MR. EWING: Please.

PRESIDENT VEEDER: You mentioned in your summary Pits 1, 2, 3. Just go over which ones are the numbered ones.

MR. EWING: So, this is typically considered Pit Number 1, the large pit in front of us. This pit down to the south with the checker marks is most often considered

2, so this is 2.

Here. This might be easier to use.

This is 1, 2, and then 3. 3 is to the north, and 3 is the undocumented pit that we will be focusing on.

Anything else?

Excellent. We can stop here and we'll walk over.

PRESIDENT VEEDER: Okay.

(Pause.)

MR. EWING: Okay. We are now at Pit 3. This is the undocumented pit that LBG--we thought we had found in 2004; we did find in 2014. It turns out that Cabrera had also found that. We realized that later. I found this pit through aerial imagery, review of aerial imagery, but at the time we didn't realize that, so we were not actually the first to discover it--or rediscover it.

But again, this pit was dug in 1975. Before 1975, you can see on the aerial image. And, by 1985, it was covered over by the jungle that was here before, and some time after that, this area was cleared by the farmer so that he could plant the crops that you see around us.

When the jungle comes over a pit, it ends up sort of looking a lot like this because what happens is the leaves, the sticks, the branches, insects, everything else falls on top of the oil that's on a pit and slowly forms a later of leaf litter which eventually becomes soil that's

10:39 enough to support plants. It's also likely that where we're sitting or where you're sitting now is one of the walls of the pit that's sort of slouched or sloughed down, so that's how these pits eventually get covered.

What we are going to show you, though, is what we have found here, so I'd like to turn the floor over to Dr. Garvey to explain a little bit about what we're seeing.

Dr. Garvey.

DR. GARVEY: Good morning.

So, in discussing this particular area we investigated--this is not going to work with the headset on, and you'll appreciate my problem I'm sure--our goal was to investigate a limited area of the Oriente, given the schedule of Tribunal, and it was set out before us. We had a limited area, a limited time and, to some extent, limited resources that we could apply to investigating the Oriente. So, we investigated the Oriente with the intention of studying limited areas, not to try to be--what's called a "Remedial Investigation," where we might delineate the extent of contamination both horizontally and vertically. This was clearly a task that was beyond us given the schedule. But that's not to say that we couldn't conclude and define some very useful information even within the limited time that we had.

The problem here is, of course, if you would,

10:41 four-dimensional, three-dimensional in space, plus things vary over time. To understand how things are changing over time plus how things vary in a three-dimensional sense would require quite a bit of study.

To make the dartboard analogy, we had the opportunity to throw a few darts, if you would, 10, 20 darts, so to speak, not the hundreds or thousands of darts it would have taken to investigate even this small area here. If we wanted to delineate exactly where the contamination ended or began vertically or horizontally, we would have to do many hundreds of samples, if not thousands.

It would require probably several years as well to understand an area like this really in detail. Why? Because things change with time. Amount of rainfall: There is a dry season and a wet season. Some years are wetter than others. It causes changes in run-off, changes in the level of water within the ground. These things all will impact how the oil spreads, how the contamination may migrate with time.

So, anyway, and very typically with moderate groundwater, for instance, on a quarterly basis because it's subject to seasonal changes, and so, as a result of the amount of water that falls on the ground, the amount of water that percolates into the soil, concentrations in

10:42 groundwater will change with time. We're actually going to show you an illustration of that. We'll talk about how that might change.

So, anyway, so as a result of the limited time but recognizing that we needed to understand something about the Oriente, rather than try to do a delineation, if you would, we decided to test several of the hypotheses put forward by Chevron in their assertions regarding their responsibilities here, and I'll list them here. But we tested basically--we attempted to test in our investigation not just here, but in all of the Oriente that we investigated these five points.

The oil spilled or were present in the pits of the Oriente that were attributable to TexPet would become asphalt-like because of its age. Because so much time had passed, any oil that remained as a result of TexPet operations was now basically solidified, okay, and not available for transport, no longer mobile, really not posing any kind of health or ecological risk.

Okay. Therefore, if we found liquid oil in the Oriente, it could not be attributable to TexPet because their oil would have solidified. Okay. So, if we're finding liquid oil in the Oriente, that's clearly got to be Petroecuador's oil, not TexPet's oil.

A third point was that places where TexPet had

10:43 disposed of oil in the pits that you've seen around you, that the soils of the Oriente were sufficiently clayey, high in clay content, that they would prevent the migration of this material outside of the pits into the surrounding environment.

Fourth, that the oil, because these pits were contained by this clayey soil, that the oil was largely confined to these pit areas and, therefore, oil has not spread. TexPet oil now has not spread significantly beyond the perimeters of the pits.

So, in choosing this pit, it provides us with the opportunity to test several of these hypotheses. Specifically this pit was documented to exist long before any remediation occurred over there. So this pit was documented to occur in the 1970s, to be basically grown over by the jungle in the mid- to late Eighties, and so it's largely free of any post-1990 operations, okay? There's nothing in this particular pit area we think is attributable to Petroecuador.

Additionally, any kind of remedial activity that may have taken place to the other pits to the south, I guess, and west--south and east of us would not have influenced this area--well, it doesn't really make sense. You can see we're relatively far from those pits. You wouldn't go to through the effort of taking material out of

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10:44 those pits and disposing of it here. Okay. Plus there's no evidence to suggest that's happened. This pit seems to be physically, in terms of its dimensions, largely intact here. We don't see evidence of a large amount of construction equipment and the like in the area. Okay.

So, this pit then represents oil or represents a condition created by TexPet, operated by TexPet and no one else. So, whatever conditions we find here we can attribute solely to TexPet. So, that's a really unique kind of condition, if you would, relative to other sites where they've had--where both entities have operated. Okay.

So, we begin with this undisclosed pit. What does this pit show us? Well, first and foremost, we can find liquid oil here.

Shane McDonald, my associate from Louis Berger, if you wouldn't mind taking a sample of oil from the surface of this pit here and providing a sample to the Tribunal.

If you would, you can see in front of you there the sample of soil that we brought up. You can see that the soil is saturated with oil. It is not asphalt-like. It is oil. It's liquid. And, in fact, if we take a reading with our PID instrument--and I'll talk about what that means in a minute.

Now, this instrument, we call it a "PID." It's a

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10:46 photoionization detector. What does it measure? It measures hydrocarbons, relatively short-length hydrocarbons that are volatile. For the oil to emit short-length, small, volatile hydrocarbons, it has to be relatively fresh. Okay.

MR. McDONALD: SURE, that was 138 was the high one, and I'm going from zero, which I zeroed this morning; I calibrated this morning. And, as I put it here, it goes up over--that's 158 right there. 203. 116. It's going differently the closer I get to it. My hand is not entirely stable at this point.

It's up to 164 parts per million.

DR. GARVEY: So this is measuring concentrations in air in parts per million of relative short-length hydrocarbon molecules. Okay. In order for an oil to give off those molecules, that oil has to be fresh. If the oil has been converted to asphalt, if it's highly weathered, it's not going to have these volatiles because these are among the first compounds to be lost as a result of the weathering process. The fact that we can find oil here that can easily trip our PID, that can stain your fingers, smear on the plastic here is indicative of relatively fresh, unweathered oil contained in this pit.

So, we clearly can show by sample here, the pit that's only operated by TexPet, only used by TexPet, we

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10:47 still have liquid oil 30 years after this oil was disposed of here. Okay. So, we have 30 years of this oil in the environment and it's still liquid.

Okay. In some of the more recent reports, Chevron has changed some of its statements. In earlier statements it said all of the oil here would be asphalt-like, and in more recent statements they said oil within the pits might be liquid, but outside the pits it's not. Okay. As we will see in the next few days, even that statement isn't true, but we will start here again as a simple beginning to say: Here's a TexPet-only operation and we still find liquid oil.

Now, if we could, I need Respondent's Tab 14; which is the cross-section.

So, for this much oil to be present here at the surface, for us to find fresh oil at the surface 30 years after this oil was disposed of here, how is that possible? If we were to smear a thin veneer of oil on the surface, we would find that quickly that it would weather, that it would break down, become asphalt-like. We certainly find examples of that. However, we're finding here clearly that this oil at the surface of this pit is not asphalt-like. That means that it has to have been protected, if you would, for a long period of time. Okay.

This is a cross-section, if you would, through the

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10:49 pit basically from east to west here. Two of the borings here indicated by the flag--

PRESIDENT VEEDER: Stop for a second.

DR. GARVEY: Sure.

PRESIDENT VEEDER: That's not Tab 14.

MR. GARCÍA REPRESA: Second page of Tab 14.

PRESIDENT VEEDER: Second page, I've got it.

DR. GARVEY: It's okay. I forgot the page number. Okay.

So, this is a cross-section through the pit here. This is, if you would, a cartoon, if you would, of how we think things are. There is information that is absolute. These borings and the like are shown on here. These wellheads, these wells that were drilled just outside the pit as well as borings collected by Louis Berger. Okay.

We note here that in order for us to find oil present to the surface, the reservoir that's supplying this oil has to be quite large because it has to have been insulated from weathering for 30 years. Okay.

How was it insulated? Well, we have leaf litter falling on top of the pit. It prevents oxygen from penetrating into the underground; and, as a result, the oil here is effectively capped temporarily by this leaf litter and prevented from weathering.

What does that mean? Well, it means that a small

10:50 disturbance like the one that Shane created or perhaps that a farmer might make would very quickly release the oil back to the surface here. Additionally, a large change in the water table--I'll talk about what I mean by that, but the level of water within the ground could also push the oil upward above it. Okay. If the water table rises, it will displace the oil upwards, much the way you see it here. This may, in fact, be the reason we see oil at the surface here. Okay.

So, this indicates that the oil is persistent in this reservoir. It's been lasting for over 30 years. Therefore, it's present to contaminate soil. It's present to contaminate any plants that might be grown around here, livestock or birds, chickens and the like that might come through here; and, if a farmer walks through here, he's going to get this on his boots, track it home, bring it home to his family. Okay. And you can certainly see how you would get it on your boots if you walked around here. Hence, we're all wearing them.

So, the future use of this site, then, is significantly impacted by the presence of this oil here.

I just want to point out a few more things. We'll get back to that, but we're only here for the moment.

MR. EWING: I won't go far.

DR. GARVEY: Could I have Respondent's Tab 15, at

10:51 Page 1, which is the soil borings.

So, we've clearly found oil present here. Louis Berger undertook several borings in this pit to try to define the extent of contamination, just a limited extent, of contamination here just to get some idea of its level. That's good.

This is, if you would, a cartoon of what you're looking at here. Up is north. Which way is north here? That way? So this is--so where are we standing? We're sitting here. And this is south--no, north of that, but we're sitting here looking this way. Okay.

Anyway, what you notice here is the samples collected from within the pit are quite high--40,000, 140,000, 33,000 parts per million--of TPH as measured by our TEM method. Okay. That's the total extractable method. But even if you had measured these with 8015, you'd come up with numbers that were close to half of the values here. So, in any respect, concentrations of contamination within this pit are quite high, and they reflect the fact that this oil is essentially at the surface or close to the surface.

Those locations here are shown by this red square here, the triangle behind Shane there, and the other one right in front of us. Excuse me. Okay. Somebody moved it when I wasn't looking. Anyway, those are the locations we

10:52 found oil and found these high concentrations here. All right. Okay.

So, we note that the soils of this area are quite contaminated within the pit itself. The samples around here in general are lower in contamination; basically they're largely non-detect by Method 8015, low levels of detections by Method TEM with respect to soils. We'll talk about groundwater in a moment.

However, we also found total Polycyclic Aromatic Hydrocarbons, PAHs, here. The content in these samples here is over 600 parts per million PAHs in these soils. So there's clearly a toxic component to the TPH that's present here, to the petroleum wastes that are present here.

Finally, we find barium. In nine of the eleven samples around us, including surface soils outside of the pit, we find barium in excess of the Ecuadorian standard of 500 ppm. So it's well above background and in excess of the Ecuadorian standard for barium. Okay.

So, that summarizes our soil investigation.

We also conducted a groundwater investigation. At the perimeter of this site are four wells. You can't see them now, but we'll see them later on the walking around. There's small yellow posts just placed just outside the perimeter of this pit.

So, we found in those groundwater samples the

10:54 presence of petroleum hydrocarbon contamination, somewhere on the scale of 100 to 300 parts per billion. Two of the samples come in at 300 parts per billion. Respondent's Tab 15, Page 2, which is the groundwater map.

Again, we're showing you here, these are the groundwater stations. Notice they're all outside of the pit perimeter, and these two marked in red here are close to 300--are over 300 parts per million. These are on the scale of about a hundred parts per billion. I'm sorry--excuse me. These are over 300 parts per billion. These are about a hundred parts per billion. The drinking water standard is 325, so we're very close to this at these markers there. So, this is groundwater contamination now that's found outside of the perimeter of the pit. Okay.

So, why does this matter? Well, it's an obvious human health risk. Okay. It's obvious that the farmer has used this area for agriculture. He's plowed this area over. Yet this pit area was completely obstructed by jungle for many years, so the use of the land in this area is very dynamic. It changes over time. We can expect that the farmers, the local people here are going to change the way they use the land. It may have been once been farmed. It may have once been forest. It's now farmland. At some point in the future it might be a homestead placed here. Might find somebody placing a groundwater well here. In

10:55 fact, we evaluated three different pathways for human risk here and found that all three of them exposed--presented unacceptable risks that would otherwise require remediation. Basically a farmer is exposed to these soils is an unacceptable risk. A homestead placed here that would have children would also have unacceptable risk at some point in the future. And if we use groundwater for domestic use from this area here, you would also have unacceptable risks to humans.

And also we didn't calculate it, but you could also see that given the number of plants here and the fact that livestock and chickens are also grown on these farms, that there is a potential for those pathways as well, that the plants may take up this contamination, the animals may take up this contamination, and then the farmers will ingest that as well. All right. So...

Okay. So, mind you, the farmer who works here works by hand. He's a subsistence farmer. This is not a machine system. Therefore, he's going to get these soils on his hands directly. He's not working with some machine that's going to isolate him from this material. He's going to plant his crops here manually. Okay. So he's going to come in direct contact with the soils here. All right.

Now, I want to make one more point before I conclude. The Claimants have asserted that our inventory

10:56 estimates are incorrect and that this particular site is a basis to say that our estimates are incorrect, they're basically misinformed. Let me give you an example.

If we were to attempt to estimate the heights of men in Coca, okay, Ecuadorian men in Coca, we could do a sample population, test a few hundred men, perhaps, and say, get a height that's probably around 5'4"; that's the number they have on the internet for the height of men in Ecuador, so it's a good place to start. Say it's about 5'4". Now, I decide I want to find out--I come into another--I run into another Ecuadorian man, let's say José over there.

José, would you raise your hand for me?

José is a little over 6-foot. Okay. Does that disprove that the average Ecuadorian man or the average man in Coca is 5'4"? No, it does not. Okay. He happens to be over 6-foot, but the average man is still 5'4". In the same way we used the average concentrations of soil contamination around the pits to estimate our inventory. The fact that this pit exists here and the area around it is relatively not contaminated does not prove that other samples that we've collected or that Chevron collected are not valid estimates of the average level of contamination outside of the pits.

So, simply testing a single point here, if you

10:58 would, is not a basis to dispute our model. If you wanted to undo our model or test it, you would have to do a whole series of pits and a whole series of investigative collections so that you could create an independent average, if you would, of the soil contamination that's found in the Oriente. Okay.

One final note on this.

Our best estimate of the inventory based on the TEM of what we think is our best estimate of oil present in the soils is three and a half million barrels. Chevron keeps quoting 660,000 barrels which is based on Method 8015. By their own methods, they show that that's an inadequate characterization of the total petroleum hydrocarbons in the soil.

So, to summarize, then, oil spilled at pits in Shushufindi-34 did not become asphalt-like. It's liquid. Okay. Liquid oil here can be directly attributed to Chevron, okay, not to Petroecuador. Okay. It's very clear. These pits are not comprised of clayey soils sufficient to prevent migration. The groundwater wells in the vicinity of these pits all contain petroleum hydrocarbon contamination. To suggest that oil is not contained within the pits or that it's contamination--the contamination led to oil spreading beyond the pits, therefore, the pit perimeters are not limiting the

10:59 contamination, and that human exposure is clearly in evidence here. Okay. You can see it all around you. This area is not a benign place that's buried in the woods where nobody is going to trip on it or stumble into it. It's clearly right in the middle of a farmer's field.

So, with that, I turn the floor back over to Greg.

MR. EWING: I want to make sure I don't step in the wrong place here.

We will quickly wrap up here and turn the floor over to Claimants as we are reaching the end of our time. There are a couple of just quick points I'd like to make before we do that, though.

As you look around here, Dr. Garvey mentioned these are plants. If you're curious, these are chocolate cacao plants that have been planted here. Since we have come here, these have been--grown up considerably. There used to be more papaya trees around; like this one is a papaya tree that you see in front of you. They didn't seem to be doing particularly well, and the farmer has clearly decided to move on to chocolate.

We mentioned that--

ARBITRATOR GRIGERA NAÓN: Excuse me.

MR. EWING: Yes.

ARBITRATOR GRIGERA NAÓN: So, these were planted by the farmer, or is it natural?

MR. EWING: The cacao are planted by the farmer. The papaya, my understanding is they are natural, and what happens when they clear areas like this is they find valuable trees like that and they leave them. So, when we came here, this had been more recently cleared and there were trees around, and you'll see obviously some behind that used to be there.

Any other questions?

We mentioned that this is an undocumented pit, and I just want to touch on that briefly.

As an undocumented pit, what I mean by that is that it was not included in the RAP, so TexPet did not disclose that this pit existed in the RAP. And our understanding is that means either one of two things. We know that TexPet dug this pit, so we know that at least sometime before 1975, TexPet knew this pit existed.

The fact that it was then undocumented in the RAP leads us to two possible conclusions. One is that TexPet had records of their pits and knew where all these pits were, they knew this pit was here, when the RAP was put together, when the list of pits were put together. They knew when these pits were here when we had done the Lago--or when they did the Lago Agrio Litigation. They knew these pits were here for this arbitration and they didn't disclose it. So, there is either that possibility,

they do have good records.

The second possibility--and it seems to be more likely, but I don't know--is that they covered these pits. They dug these pits, they covered them, graded them to ground level, as we found from internal Chevron or Texaco documents, and they then lost them, and they really just don't know how many pits there are like this around the Oriente and around the wells in the Oriente.

So, those are the two possibilities as far as we've been able to tell for how something like this could be here and be undocumented.

So, with that, I would like to turn the floor to Claimants. I--

PRESIDENT VEEDER: Just before you do that--

MR. EWING: Yeah, yeah.

PRESIDENT VEEDER: I have a question.

You said earlier that you rediscovered this pit, that Mr. Cabrera had discovered it, and so two things. You mentioned that he saw it from photographic records. Where did those records come from, and also is this pit here in the Cabrera Report?

MR. EWING: Yes.

To answer the question, Mr. Cabrera, as part of his analysis, analyzed aerial images, just like the ones we saw, many of which come from the Ecuadorian military over

the years. There are a few other sources, but it's one of the primary sources. And he analyzed and put into the record, it's my understanding, all of these images, and he did a sort of a summary of pits that he found that were--he considered undocumented such as this one. I think he called them "hidden pits." So, this pit was identified by Cabrera as a part of his list of hidden pits.

PRESIDENT VEEDER: Later on just give us the reference to his Report, but not now.

MR. EWING: Yeah. I don't know that offhand but I can do that.

Any other questions?

PRESIDENT VEEDER: Thank you very much indeed. Thank you.

ARBITRATOR LOWE: I've got one.

Do you know during the time when TexPet was operating here what, if any, on-site inspections were conducted by the Government into the way that the operations were progressing and the way that the site was being maintained?

MR. EWING: We don't have any evidence that the Government of Ecuador came and watched or evaluated the operations from TexPet. In fact, to the contrary, our understanding is that when Petroecuador--or when Ecuador knew there might be oil here, they brought in the American

Oil Company, who supposedly knew how to do--extract oil in a safe, efficient way, and that they brought in Texaco as that oil company to bring sort of a U.S. standard of production here. And Ecuador really didn't know how to do oil in the Sixties, and we have quite a few affidavits in the record, which I can also provide references for, but Texaco was brought in to provide their expertise and so to teach Ecuador how to do oil extraction, and so this is what they were taught.

PRESIDENT VEEDER: Thank you. Will you take over here, or do you want us to move?

MS. RENFROE: We're going to relocate.

PRESIDENT VEEDER: We're going to relocate, so you can stop filming.

(Pause.)

OPENING STATEMENT BY COUNSEL FOR CLAIMANTS

MR. BISHOP: Mr. President, I have been asked to give a few introductory remarks this morning, and I will be very brief, in the interest of the time that we have. After I finish, I will turn the floor over to Tracie Renfroe and John Connor and Dr. Tom McHugh, who will also be presenting for us at this site.

At the Hearing in Washington and throughout this case, in our Memorials and in the evidence we have presented, we have proved to you that the Judgment was

obtained by fraudulent and corrupt means and, therefore, was a violation of international law and a violation of the Bilateral Investment Treaty.

The environmental issues that have been raised by Ecuador are no defense to the claim that we have presented before you under international law. The only possible relevance by the environmental issues are that they confirmed the denial of justice that we have alleged by showing that the Judgment is factually absurd on its face.

Now, as to the environmental issues themselves as they have been raised by Ecuador, Ecuador, in its submissions, largely ignores the key legal issues. It ignores the Settlement Agreement, and it admits it ignores the Settlement Agreement. Its own experts have been instructed to ignore the Settlement Agreement. It ignores the legal and regulatory standards for the environment that might apply. And it ignores accepted, well accepted scientific methodology in the way it has presented its case and done its analysis. As a result, there are three questions that I think the Tribunal may wish to consider as you go through these Site Visits and hear the various presentations:

The first is: Whose responsibility is it? Well, we know that Petroecuador was the majority owner of the Concession. It owned 62-and-a-half percent of the

Concession. It had the controlling interest, the majority vote. And, as a result of that, when the Settlement Agreement was reached in 1995 with TexPet, TexPet was allocated certain sites, certain areas, certain pits for it to remediate. It did remediate each of those pits, each of those areas that was allocated to it. It did that. The Government and Petroecuador inspected and approved every single bit of remediation, and then they released TexPet of all diffuse environmental liability. Ecuador ignores that.

For the four sites that you're going to see in the course of these three days, there is only one pit--only one pit--that was allocated to TexPet in the settlement. Everything else was left as the responsibility of Petroecuador as the majority owner. So, what you're going to see, what you're being shown now and what you will be shown is all Petroecuador's responsibility, and that is ignored entirely by the Government.

Now, the second question you may want to ask is: What are the proper legal and regulatory standards that might apply? The present--the current standard is set in Decree 1215. That's largely ignored by Ecuador's own experts in their presentations. But if you apply it, what you find is that there are very limited impacts at these sites.

And the third question is: Is there an existing

risk to human health? The answer to that question is no, and we have brought Dr. Tom McHugh, who is going to address those issues with you.

And, with that, I'm going to stop the introductory remarks and turn the floor over to Tracie Renfroe.

MS. RENFROE: Thank you, Doak.

Members of the Tribunal, I'm delighted that Ecuador chose Shushufindi-34. It's an excellent site for us to make the point that for at least five major reasons that we've identified, this site illustrates why the Judgment is in denial of justice, and I'm going to walk you through those reasons, quickly and efficiently, I hope.

The first reason has to do with what Mr. Bishop said regarding the fact that the Judgment and now today in their presentation Ecuador completely ignores the role of the Settlement Agreement and the Remedial Action Plan or the RAP. But, indeed, I mean that very fact, the fact that they ignore that, in and of itself is a denial of justice, and I'm going to illustrate how that applies at this site.

But before I get into that in any detail, let me give you a little bit more of an orientation. I appreciate what Mr. Ewing said about where we were, but let's back out a little bit and understand exactly where we are in this oilfield and in this Concession.

Between leaving the Gran Hotel to Coca and driving

here, we passed, although you couldn't see them, but we passed over 300 producing-well platforms. We passed a number of production stations. You might have noticed the sign for the Sacha Central; that's a Production Station. And then we passed, as you may have seen along the road, numerous miles of oil conveyance and flowline pipelines. As you can see, and as I'm sure it was no doubt lost on you, that this is a very active oilfield that we are standing on. It is today and it's being expanded today as I'm going to comment shortly, but it was also at the time that TexPet handed over operations in 1990 to Petroecuador.

At the time the Consortium, and that fact seems to have somewhat been neglected by Mr. Ewing in his presentation, of course it was the Consortium that operated this field. And at the time that the RAP investigation work was being done, there were field inspectors on behalf of HBT and representatives from Petroecuador and Ecuador as well as TexPet who were participating in the investigation of these sites.

This site, Shushufindi-34, under the Remedial Action Plan and the Parties' agreement, is a site where not one Remedial Action was assigned to TexPet, and let me show you that; but, before I do, I want to point out how our little mini-book works.

The mini-book, as I said last night, is drawn from

materials from our Site Packet. Though for convenience of reference we numbered consecutively the pages at the bottom of these documents, and on Page 3 is a map of the Shushufindi field, and the numbers on this map represent various wells, and within a 2-kilometer radius, there are 10 more wells that we're surrounded by. But when you turn within this mini-book to pages, I believe it's Page 18--Pages 17 through 30, you will find excerpts of the Remedial Action Plan, and I want to draw your attention particularly to Page 18, where you will identify at the bottom, and I believe Mr. Baca has it here, the soil. This is a blowup of it. This is what it looks like in your mini-book, and it's at Page 18 of your mini-book.

This is Table 3.1 of the Remedial Action Plan, and it identifies it's Shushufindi-34 Pit Number 1, and it says it was on the Abandoned Facility List. And then in terms of the remarks on the remediation plan it says: Used by local community.

And then when you turn a few more pages into--in your mini-book, if you will turn to Page 22, it looks like this. This is from the Appendix of the Remedial Action Plan, Page 22, and you'll see Shushufindi Pit Number 1, and it says "Remediation," and there's an X marked next to "no." This was what we call a "No Further Action Pit." And that means that TexPet had no remediation

responsibility for it.

What about the well? Well, if you turn to Page 25 of your mini-book, you will see the work page in the Remedial Action Plan Appendix addressing the well. And on this page, it states that the well plugged--in the category of whether the well should be plugged and abandoned, it says "no." There's an X next to "no," and that means that that was the requirement of Petroproducción. They did not want the well plugged and abandoned. Why? Turn back to Page 20 of your mini-book. Page 20 is an another table from the Remedial Action Plan itself where--it's Table 3.4--and here Shushufindi-34 is identified as a well that Petroecuador may use in the future. And so, for that reason, Petroecuador instructed TexPet not to plug and abandon this well.

So, when you look at the Remedial Action Plan throughout, you will find that TexPet was not assigned a single remedial action item at this platform. Now, that was no accident. Around us TexPet was assigned remedial action work at more than 35 well platforms nearby, but it was the agreement of the Parties they were to do nothing at this site. That's what the Parties agreed. And then when we look further in the mini-book towards--if you go to Page 27 through Page 30 in the mini-book, you will find the Approval Acta by the Republic and Petroecuador approving

that there was not to be any work done at Shushufindi-34, and you will see that on Page 34.

And then the very next page is the Final Release granted by the Government of Ecuador and Petroecuador, releasing TexPet for any liabilities. And so between this Final Release in September 30 of 1998 and the May 1995 Settlement Agreement and the Releases there, TexPet was fully released of all liabilities whatsoever for the site. The consequence of that is that Petroecuador retained all of the liabilities or all of the responsibility for any action at this site.

And then ultimately, eventually Petroecuador did remediate two pits at this site; and now let me orient you towards--if you have this legend, there was a little bit of misunderstanding by Mr. Ewing earlier. What we have represented in the yellow pennant flagging that says "NFA," over there on the platform, the yellow pennant flagging which I'm going to show you in a little while which says "NFA," that is the pit that TexPet had no responsibility to remediate but which, in 2006 and 2007, Petroecuador did remediate.

They remediated a second pit, and again, the suggestion by Mr. Ewing that there are four or more pits at this location is simply false. The only documentation showed us and the aerial photograph shows there's this NFA

pit that is over there off the platform, off the east of the platform with the pennant flagging that Petroecuador remediated. There's another pit over here that Petroecuador remediated. And how do we know that? In the large Site Packet, Tab 13, you will find pages from the PEPDA Remediation Program identifying two Shushufindi pits, 1 and 2. It's very small print. It's very hard to read, but there are two pits identified that Petroecuador remediated in 2006 and 2007. Here, I'm happy to hand this to you if you'd like to look at it.

And so, we know that the Contract Petroecuador has at least recognized that it has liabilities and responsibilities for remediating environmental liabilities at this site and, at least in the case of those two pits, they have taken that action. I'm not sure why Petroecuador didn't inform Mr. Ewing of the location of the second pit. Certainly, they would know where it is.

But, in any event, that's my first point, that the RAP--in the RAP and in the Settlement Agreement, TexPet was fully discharged for any liabilities whatsoever at this site, and all responsibility for any remediation, including the pit that you're looking at, lies solely with Petroecuador.

Second reason that this site illustrates why the Judgment is a denial of justice has to do with the

remediation criteria and the costs of remediation. As Mr. Bishop alluded to, then--well, in the Judgment, as you know, the Judgment applies a remediation standard of 100 parts per million for TPH. However, Ecuador's own Decree 1215 does not use 100. It uses three different standards for TPH, depending on the land use; and, in an agricultural area like this, the applicable standard for the permissible limit for TPH would be 2500 parts per million, not 100 parts per million as the Judgment calls for.

Now, we don't know what standard Petroecuador used when it remediated those two pits over there, but I can assure you they didn't use 100 parts per million, and they've not produced any documentation as to how they did it.

Now, as to costs--and by the way, Mr. Connor, in just a moment, is going to explain to you how the applicable and appropriate remediation criteria makes a difference with respect to the sampling points and the sampling result. He will explain to you what these flags mean in terms of red and green in just a moment. And if it's not clear, this yellow pennant here is simply puts the arms around this pit which was, of course, not assigned to TexPet.

And the cost of remediation, the second reason why the Judgment represents a denial of justice. Under the

Judgment, this pit would cost--or the Judgment awards $6.1 million against Chevron and TexPet to remediate this small pit. This pit is far, far smaller in dimension than what the Judgment assumes. The Judgment assumes 8400 cubic meters for every pit that has to be remediated, and you can see with your own eyes this represents nothing of the sort. So just this one illustration represents an example of why the Judgment is a denial of justice and simply untethered to the facts.

Now, on the criteria, I failed to mention, you heard Dr. Garvey talk about the remediation criteria and standards, I believe, and I think Mr. Ewing did, too. But you also remember at the Hearing, Dr. Garvey admitted that when he declared a sample to be contaminated, he was not honoring or even using Ecuador's Decree 1215. He declared samples to be contaminated only if they are over the detection limit, which is simply not the way Ecuador--it's not the rules in Ecuador, it's not the law in Ecuador, and it's not the practice in Ecuador.

So, moving now to my third point for why this site illustrates vividly why the Judgment is a denial of justice, we come to the fact about the limited extent of the impacts. Yes, we see that there is oil, remnants of oil in that pit. We certainly understand that. And, as we've told you at the Hearing and throughout our Expert

Reports and our Memorials, there are remnants of Consortium operation impacts in these oilfields, and that's because Petroecuador was assigned--had responsibilities to do remediation, and they haven't done it all. They've done it in some places, two pits at this site, but they haven't done this.

But, with all due respect, Members of the Tribunal, I suspect and predict that they will because they have intentions of expanding operations at this site. While they're not operating today, they have in 2013 published an environmental impact assessment that says they intend to expand that platform up there and build five new wells. And they've done that throughout this Concession. And when they do that, they tend to go in and clean up liabilities that are theirs that they have not previously addressed.

So, with that, I'll turn it over now to Mr. Connor to address the third point, which is the fact that the impacts to soil and groundwater at this site are limited and that in and of itself also illustrates why the Judgment is so flawed and a denial of justice. And then Dr. McHugh will address you, and then I'll tackle the fifth point.

MR. CONNOR: Hi. I'm John Connor. You heard me speak at the Hearing, and at the Hearing I said I was going to focus on the data, the thousands of datapoints we

collected out here at this site and many others, and that's what I'm going to do today, talk about the data from this site.

Now, at this site there is not a RAP, there was no work assigned to TexPet, so there is no RAP data, and there wasn't a Judicial Inspection here, so there's no Judicial Inspection data that could have been considered in the Judgment. But the Ecuador Experts have conducted an investigation here, and Dr. Garvey talked to you about their findings, and I'm going to talk about that data even more.

And the things I'm going to try to tell you with respect to that data are two things, principally: The extent of the impacts. That's where is the stuff? Where is it? And then migration. That's: Where is it going? So: Where do we have impacts in the oilfield operations and are they spreading or not?

And, at the same time, I'm going to try to explain why we have two different sets of experts standing out here today telling you very different things about the same data. I'll try to explain that. And as I said in the Hearing, there's a few fundamental issues that explain that differences: The first is the criteria, what criteria the Party is using. The second is the interpretation of migration. We're going to talk about weathering. We're

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11:35 going to talk about mobility of oil. And the third are certain aspects of the analytical testing program.

So I'm going to try to explain the extent of the impacts. I'm going to talk about migration. I'm going to talk about three differences: The criteria, interpretation of migration, and interpretation of data.

So, before I start that, I'm going to tell you something about the symbology out here. We have a surfeit of symbology, a cacophony of color. All right? And here you have it. It's pretty easy to follow. I think you guys got this. Well, it's actually not too complicated, I'm going to point that out.

So the first thing I'll point out is I believe that Ms. Renfroe told you that this yellow flagging is the flagging that circles a pit and indicates by its color whether or not it was in the RAP. So a yellow outline, these yellow flags mean that is was in the RAP.

This is my colleague, Ernesto Baca. He also is a Judicial Inspection expert. Ernie and I have been to, along with the other colleagues, about 160 sites out here, and I'll be talking about that experience as well along with him.

So, in the Hearing, we had this colored map that indicated if something was in the RAP or not. If it wasn't in the RAP, it's yellow, and if it is in the RAP, it's

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11:36 blue. So, at this site there's no blue. And you're only going to see blue flagging this week at one site, and that will be Lago Agrio 2. The other three sites that we're going to see--this site, Shushufindi-55 and Aguarico-06--had no tasks that were assigned to TexPet, so there's only yellow. All right? Yellow flag, not in the RAP.

Okay, other color flags. My colleague Danielle Kingham over there, and she is holding up a green triangle, doing the Vanna White thing. So, that flag means okay, it's based on the criteria, and the criteria we're using give us two colors of flags. They give us a green flag, which means it's below the criteria, it's okay. Criteria is like a speed limit, if you're under, it's okay, it's green. If you're above, it's not okay, it's red. Okay? So, I have a green flag there for soil, and then next to it, in that little triangle like that, that's soil, and then a triangle like this pointing down is groundwater.

So Dr. Garvey has conducted two types of sampling here. He sampled soils, and he sampled ground. So, that's our groundwater symbol. Every place that a groundwater sample has been collected, you'll see that triangle with GW on it. Can you all see that? And there is actually one right behind you, Dr. Lowe. It's right on the other side there. Okay. And there is the soil sample. Okay. And

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11:37 every place that you see a green flag, that's also a soil sample.

And then we have--you see down in the pit here there are several different red symbols. There's, I think--there's six. There's actually three borings inside the pit, and the triangles that are pointing to the side are the triangles that I asked to be put in, and they match exactly the maps that we presented to you before that you have in your packet. You have a trifold of this thing as well; right? Do you have one of those?

So, what we've done is we have taken that exact map and we put it on the ground. So, this is a map you're seeing here. Handy reference point. Also a tremendous lunch place mat, I want to tell you that.

So here, when you see these red symbols in the pit, that's those symbols down there, and then the green around here that we see around here, those are the green symbols. So we try to take this map and put it on the ground, so that's what we're looking at, and that's what Ernie is showing here.

Okay. So, that's the symbology. And to go back to the symbology is to talk about the criteria. The criteria that we're using that's legislated in Ecuador, that's set forth in the RAOH Regulations, called Decree 1215, are the criteria that we use to say red or green.

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11:39 And those criteria for all field operations are specifically laid out on Page 6 on this rule. It's actually, I'm sorry, Table 6, Table 6 in this rule. And Table 6 in this rule are the cleanup standards for soils that are contaminated by oilfield waste materials. Okay?

And for oil it sets forth different standards based on different land uses: Industrial, agricultural, or sensitive ecosystem. "Sensitive ecosystem" means it's a designated national park or preserve, and it has to be designated by the Ministry. There aren't too many oilfield sites in those facilities. None of the oilfield sites in the Judicial Inspection are in places like that. This is not a sensitive ecosystem. This is clearly an agricultural area, as we see.

So, in an agricultural area, our TPH--it's Total Petroleum Hydrocarbons oil criteria--is 2500 parts per million or milligrams per kilogram. They're the same thing, so 2500 parts per million.

So, if these flags out here, if I'm above 2500 parts per million, a measurement that was made by 8015, a method that's approved in this regulation in Annexure 5, 8015 is approved, then we color it red, just like on the maps. If it's below, it's colored green.

So, those criteria from my flags are red and green, according to this document. Now, this is the same

document that's used by every oilfield operator in Ecuador today, since 2001, and it's used by Petroecuador, and it's approved by the Government.

So, in our Report, we provided you with a big stack of our Remediation Reports by Petroecuador and others, showing that they used this document. There is no one that uses the color system that has been presented here by the Ecuador experts.

So the differences in the colors, you'll look out here. You'll see an orange flag. You'll see a yellow flag. Those aren't yellow or orange in accordance with Decree 1215. They're yellow or orange with respect to a different symbology, a different criteria system that appears on Dr. Garvey's maps, and it's consistent with that system that he's presented, but it's not consistent with the regulations that are used by all oilfield Operators and approved by the government in Ecuador. So there is our symbology, and that covers criteria as well.

So, now let's talk about where we are. And I'm going to start there and then I'm going to talk about extent--where is it--and I'm going to talk about migration, where is it going.

So, where we are is at the edge of an oilfield pit. I don't know if you notice that there's a little--you all are sitting on what's somewhat of a berm. This pit is

excavated by a big--you know, one of these backhoes. It you reached out here and claws opens the hole and the dirt that you're sitting on was pulled out of the whole, and it creates this berm. You can really see the berm extending around this pit; right? And so in this pit, dug into the clayey soils here are placed oily waste. It's a waste container, much like a waste basket. So we had pits like this. This is a way--this is where the wastes were supposed to be placed. It's required that you use a pit.

And there's also a procedure for closing a pit that's set out; right? How to remediate a pit. We talked about that in the Hearing, that when this pit is remediated, as it was remediated by TexPet, they would come out with that backhoe again and they would scrape at this material to scrape up all that oily stuff until they saw clean soil. And they saw clean soil usually within that distance from the walls of the pit, right? I believe Dr. Garvey had a diagram that was a very useful diagram.

Dr. Garvey, is it possible to get that cross-section diagram handy? Is that okay?

MS. RENFROE: And, Mr. Connor, let me just caution you: You've got about ten minutes left.

MR. CONNOR: Okay, well, never mind. We'll take it on.

Okay. So, in that diagram, what they said in the

RAP is it only goes about that far in the ground, and that's typical. We've tested a lot of pits around this area. We don't find material seeping into the ground. And why not? Well, let's look at some of this material here and try to understand why this stuff doesn't move through the soil. And I will back up and talk about weathering.

So, here is this material, and Dr. Garvey showed this to you, and he said there is some liquid material in there so it can't be weathered; right? And I think what we have is a misunderstanding in nomenclature, and let's clarify that.

When we say "it's weathered," we mean that it's lost a lot of its chemical consistency; it's lost a lot, and specifically in the oilfield, there is a specific breakdown. They're called the SARA test, S-A-R-A, saturated aromatics, resins and asphaltenes. And when we say it converse to resins and asphaltenes, we mean that the saturated aromatics are gone. Well, we know they're gone from this this because we tested aromatics and we tested saturates. They're called GRO in the laboratory. They're called "BTEX" in the laboratory. There's none in here. They've been tested. It's not in here.

So, yes, it's weathered; yes, it's weathered. And look at the consistency if it. It's sticky. It's oily. It smells like hydrocarbon--you can take my word for

that--it has a hydrocarbon smell and has vapors coming off of it. Are those vapors, as we saw with the PID, do they indicate the saturated aromatics? No. You have vapors that come off of diesel. Diesel is a middle-range hydrocarbon. You have naphthalene. There's many vapors that will still be in this material that you can smell them but it doesn't mean that it's unweathered. And the fact that it's liquid, that there's liquid fraction to it, that doesn't means it's unweathered either. You could have resins and asphaltenes that are still liquid, but they have been converted. The asphaltenes are tiny particles dissolved within the resin. So, what we are seeing here is resin with asphaltenes in it.

Now let's look what's outside the pit.

Danielle, if you could bring me a sample.

What we have done is we drilled a boring immediately adjacent to the soil boring SB-06 that Dr. Garvey completed here, and he drilled down to--we've drilled down to exactly the depth where sample SL008 was collected, and here is what we have. Here it is.

So, there is the soil. This is a natural soil. It's not black. It doesn't smell like hydrocarbon. It doesn't look like oil. It's not oil; all right? That's natural dirt. You see that? And it's got a little bit of sheen to it because that's water in there. You can mold it

into a shape. That means it's clay--mostly clay--has some silt in it. If you feel it, it has a little bit of sand in it. Well, this is a natural clay. This is a natural soil. So, that's why it's clean. Every place outside this area, we found this. So that's what we're talking about.

Okay. So, now let's talk about extent. Has the material in the pit moved outside the pit? Here it is. Has it moved outside the pit? No. It hasn't moved outside the pit. Why not? Because the water can go through soil when oil can't, especially resins and asphaltenes. And what is going on there? Well, soil is made up of tiny pores, like a spaghetti strainer, and you can shake a spaghetti strainer and have water come through, but the pores are too small. This sticky stuff can't get through there. That's why it stays in these pits. That's why the soil outside is clean. And we know it's clean. We know all the way around this pit, how far does it extend? It doesn't come outside the pit. Did it migrate? Did it migrate? This pit has been here for 30 or 40 years. Look at the edge of the pit with the yellow flagging and look where Danielle is standing. That could be 2 meters. It hasn't gone that far. Look over here at the groundwater flag. It's maybe 4 meters. It hasn't gone there. All the way around this area we have groundwater wells, we have soil borings, none of them have been impacted.

So, that tells us that it hasn't migrated; right? That's what we mean by "migration." We don't mean that is it--can it move here. There's a little bit of liquid in it. We mean, can it move outside the pit? And that's what matters to us. We know what's in it that we care about what's outside the pit.

So, that covers extent. It covers migration. And now let's talk about one other thing--actually two other things, if I have time.

MS. RENFROE: I think you do.

MR. CONNOR: Why thank you.

MS. RENFROE: You're welcome.

MR. CONNOR: We're going to talk about analytical methods. Okay. There is a big discussion about analytical methods, and I think, as Mr. Ewing said, they're pretty complicated--maybe that was Mr. Attorney General. They're right. They're pretty complicated, so we're going to try to make that simple.

These soil samples that are outside the pit, all the green ones, all of them but one are non-detect by 8015. 8015 is the standard accepted standard method for this type of work; okay? It's actually accepted method according to Annexure 5 of Decree 1215. It's the standard method that we use at every oilfield site I investigated in my career.

And it's important you use standard accepted

methods. Why? Because to give us reliable, consistent results. If you don't use standard methods that give you reliable, consistent results, you could make a mistake; right?

Now, TEM is one of those methods that are not a standard, reliable method. I've never used it on an oilfield site. And, in fact, Decree 1215 tells you not to use it on an oilfield site. Now, why do people not use it? Because you'll make a mistake. Right there where we take this sample where Danielle is standing, we took it from the same exact depth as Sample SL-00-8, and 1215 says there is no oil in here. We can see that this is a natural soil.

MS. RENFROE: Can you show the Tribunal where SL-00-8 is on the map, please, Mr. Connor.

MR. CONNOR: This is the water map, Ernie, so slip it over.

So, SL-00-8, Ernie, is right here on the edge of that, you see that? Yeah. It's where Dannie stands. It's on the southwest corner of the pit.

So, but TEM tells us that this soil right here has 1700 parts per million of oil in it--1700 parts per million. If it had 1700 parts per million, it would have a dark color. If it said 1700 parts per million, it would smell like oil. 1700 parts per million is enough to change the color and smell of this sample, but the sample doesn't

contain that oil.

So that's the danger of using a nonstandard, nonaccepted protocol for sampling. That's why it was such a big deal in the Hearing. And it may have been complicated, it may have been difficult to follow--I don't know--but this is what we're talking about. This is oil, this is not, and you can do tests that confuse that. On paper, it will tell us something that our eyes tell us is wrong. So, the right method tells us that there is non-detect oil around here. There is only one sample that has a trace level, and Dr. McHugh will talk more about that.

Now, I'm going to talk about the calculation.

MS. RENFROE: And you've got about two minutes.

MR. CONNOR: I have two minutes to talk to you about the calculation, okay? The calculation tells us--do we have the pin-up map, Ernie? I am going to show you this illustration. I'm going to try to re-create the calculation that was done by...I'm going to take my time to talk about this--

MS. RENFROE: But not too much.

(Laughter.)

MR. CONNOR: --today.

Okay. This map here is--I'm trying to illustrate how that calculation works, to the best of my

understanding. It was documented in Dr. Garvey's reports and I tried to re-create that to a degree we could.

So, the idea is that you draw different radial distances around a pit. So, here you draw 0 to 50 meters, so we would go out, oh, beyond all these flags. We'd go beyond the road over there; okay, beyond the vehicles, 50 meters away. And then you would go another radial distance from 50 meters to a hundred meters to be way--to would be all far out in that palm plantation over there. And here you'd probably be to those trees behind you. That's where you would go. And then you would go another hundred meters, out to 200, so way beyond those trees, way beyond the oil platform--

MS. RENFROE: Mr. Connor, just for clarity of the record, are you talking now about the mass calculation or the inventory that Mr. Garvey mentioned earlier?

MR. CONNOR: Yes, I am. I'm talking about the mass calculation and the inventory that Dr. Garvey mentioned earlier. Yes, yes.

So, that's the methodology.

And the results of that methodology told us a couple of things, that we need to reality check. The first reality check: Does this calculation have any bearing on the decision for remediation? We need bearing on the Judgment. We need bearing on the need to clean up. No.

The rules for cleaning up are in Decree 1215, and they're based on concentration. So, when Petroecuador, or any other party, comes out to this pit or any site, they base it on the concentration that they find in this soil. This soil exceeds this limit and clean it up. You don't do a calculation of mass.

So, fundamentally, the calculation is not relevant to any decision for cleanup. That's reality check number one.

Reality check number two is this calculation tells us that, on average, that 90 percent of the oil is outside the pit. Well here, reality checking at 100 percent of the oil is in the pit; right? There is no the oil outside the pit. So, the calculation doesn't work here, and it doesn't work at the other sites we're going to see, and it doesn't work at any of the sites that I know of that I visited because the concept is that you have radial contamination going out in directions over a great distance. But you don't. You don't. There is no contamination out here, and we know that because we have surrounded this--this is surrounded with green points.

The final reality check is the idea that you need to have many, many sites that, on average, will tell you what's going on. Well, if you need many, many sites, on average, the calculation has to make sense at a site, and I

haven't seen a site where it makes sense. I don't believe that you all will see a site where it makes sense. So it doesn't--if we can't find a site where it makes sense on average, then it doesn't make sense. And I think they explained that in the Hearing and explained to you that the vast amount of oil that was calculated only exists in that calculation. You won't find it out in these sites.

I think that completes everything I needed to say, and I thank you for your time, and I thank everyone else here for your patience.

MS. RENFROE: Members of the Tribunal, before we move to our fourth point, do you have any questions for Mr. Connor, or would you like to reserve those as well?

PRESIDENT VEEDER: No questions.

MS. RENFROE: Thank you.

Then let me move, then, to the fourth point and let me see if we can move this out of the way, Mr. Baca, if you could.

So, the fourth point that I'd like to make, and the reason why Shushufindi-34 again illustrates why the judgment is a denial of justice is that you may remember the Judgment awards $1.4 billion for a healthcare system to provide for all the residents in the Oriente. It awards $800 million for an alleged excess cancer risk that has not been proven, and then it awards $150 million for a potable

water system for various locations in the Oriente. And, in the Judgment, all of those awards are not connected in any way whatsoever to oil-and-gas operations of TexPet. That, in and of itself, is a denial of justice and proves that the Judgment had no basis in fact.

But, in addition to that, the sampling that has been done here by LBG also illustrates that there is no basis for any health risk whatsoever, any health impacts now, or any health risk to residents in the future. And, for that point, I would like to ask Dr. Tom McHugh to address the data.

MR. McHUGH: Thank you.

I'm Tom McHugh. You may remember me from the Hearing. I'm a toxicologist, and so I'm here to address the health-risk issues at these sites that we're going to visit.

At this site I'm going to address three points and address the point that the residents here have a safe source of water that's free of petroleum. The conditions here are not a health risk for the residents, and the conditions here are not a health risk for livestock, and I expect to address these points at each of the sites that we visit.

So the first point is the safe source of water, the water that's free of petroleum. At this site, the

residence right over here uses a rainwater catchment system as their source of water. A rainwater catchment system is an engineered system that's designed to capture rainwater and then store it for domestic use. And, as you leave the site, you will be able to see on your left over there a white plastic storage container, and that's what captures the rainwater and stores it for their use.

These rainwater catchment systems are commonly used within the Concession Area. As you drive to and from the sites, you will see examples of them, and you'll see them at residences that are close to wells and you'll see them at residences that are not close to wells. There are lots of reasons why residents choose not to use groundwater as their drinking water. It has nothing to do with petroleum operations.

The rainwater catchment system, it's easier to manage bacterial situation. That's one thing. Here, in your Lago Agrio 2 large packet from Chevron, there is a photo of the rainwater catchment system that you will be able to see when we visit Lago 2. So, that's the source of water for the residents here.

Next I'm going to return to the health concerns. I'm going to start with groundwater.

LBG, in their investigation, they installed four groundwater monitoring wells. These flags were pointed out

to you earlier, and they tested the water in these wells, and they found that the water at every location meets Ecuadorian groundwater standards. That's why there are those green flags at each one of the wells.

Their testing also showed that the groundwater met USEPA drinking water standards and World Health Organization drinking water standards. That means it's safe to drink.

You heard the Government of Ecuador representatives tell you that petroleum was detected in each of the four wells. They didn't tell you that they tested the wells, each of the wells, using three different methods to look for petroleum. And, at each of the wells, two of the methods showed no petroleum in those wells. The third method, 8015, when applied to groundwater improperly, it's susceptible to picking up plant materials. And when Dr. Greg Douglas testified in D.C., he talked a lot about the difficulty of finding plant material in water and soil samples, and he explained how, with 8015, you can review the chromatograms and, by looking at the chromatograms, you can distinguish between petroleum and plant matter. I can't go into the technical details, but the chromatograms for these monitoring wells are in the large booklet that you have for this site in Tab 21 of that large booklet.

And, in that booklet, you'll see a chromatogram

for a soil sample taken from the pit, and you'll see these chromatograms from the water wells, and you'll see that the pattern is completely different. The water wells are characterized by a single large peak. That's not indicative of petroleum. It's indicative of plant material. And so the analytical results, when taken as a whole, clearly show that there's not petroleum in any of the groundwater wells that were installed here.

So, moving on to soil, the soil inside the pit contains petroleum. It contains petroleum at concentrations above the Ecuadorian standards for agricultural land. That means that it should be managed in accordance with the Ecuadorian regulations.

But an exceedance of the Ecuadorian regulations is not the same as a health risk. And so, in talking about the health risk, it inevitably gets a little bit more complicated. But Dr. Strauss, when she testified in D.C., she testified that the risk assessment cannot be used to identify actual risks for the local residents, that the risk assessment can only be used to identify locations where a cleanup is appropriate or should be considered.

And why is that? Why is the risk assessment appropriate only for evaluating cleanup? It's because of the exposure assumptions that are built into the risk assessment. In Dr. Strauss's risk assessment, she only

included two of the samples. Of all of the samples collected out here, she only evaluated risk based on two samples. One soil sample, the red triangle there, was the highest petroleum concentration they found in any sample. And the risk assessment was based on the assumption that a resident would be exposed at that location every single day. And it's not just walking across it. You guys were down in the pit, and you were not exposed to petroleum while you were just walking or sitting in the pit. It assumes intimate interaction with the soil every day in order to come in contact with that material, every day for 30 years.

And, as we also asks discussed in D.C., Dr. Strauss evaluated the risks using six different calculation methods and she came up with six different risk cancers. And I tried to explained that only one of those evaluation methods was conducted in accordance with a defined Regulatory Protocol and that the other five methods all deviated to one degree or another from that defined Protocol.

Using the one method that was done consistent with the Regulatory Protocol, even assuming that daily contact with the soil right at that red triangle there, she calculated that it was not a risk concern. It was only when she deviated from that standard accepted Protocol that

she came up with numbers that were above risk level concern, and her highest calculation was 180 times the safe level, which really illustrates how her calculations that deviate from the regulatory process give you some numbers that just don't make sense.

Her calculations for the groundwater are particularly illustrative because, as I said, the groundwater tested at these locations meets the EPA and World Health Organization drinking water standards. And, when she applies again the calculation conducted in accordance with the regulatory process, she also finds that the groundwater is safe to drink. It's only when she uses the results that falsely treat petroleum--or falsely treat petroleum material as petroleum and then overestimates the toxicity of that petroleum that she finds a risk.

It's also illustrative to look at the one groundwater sample that she included in her risk assessment. LBG indicated that the groundwater below ground here is starting from the banana trees over there and it's flowing under the pit in this direction and then heading out over the street that way. The one location where they found the highest amount of plant matter that they said was petroleum is the one that is upflow of the pit, so it's the water coming from the banana trees over there before it gets to the pit is where they found the

highest concentration of material, and that's where Dr. Strauss did her risk assessment and found the risk when she deviates from the Regulatory Protocol.

MS. RENFROE: Before you move on from that, can you comment about why--can you explain a little bit more of your point about--or the significance of the fact that that sample point is upgrading of this pit?

MR. CONNOR: Yes.

So, the petroleum is in the pit here. As LBG illustrates in their Report, the groundwater is flowing in this direction. If petroleum was leaking down to the water, when it hit the water, it would flow that way away from the pit. It would not migrate upstream or upriver to that well over there.

Okay. Dr. Strauss also calculated cancer risks at each of her locations that she evaluated, and there are a lot of concerns also with the cancer evaluations that she did, and I talked about those in D.C.

But, at this location, the important point is that the cancer risk that she calculated is in the medium level. She had three levels of cancer risk: Low, of no concern; medium indicates only that some further evaluation is required; and her cancer risk did not fall in the high range that she identifies as more significant.

I'm going to close out by talking about risk to

livestock. In LBG's submittal, they indicated that this pit was a concern for livestock, based on concentrations exceeding screening values for livestock. However, the conclusion was based on two flaws in the way they did that evaluation. One is that they used their TEM results for that comparison; and, as you've had a lot of discussion, the TEM measures a lot of material that's not measured by the true TPH method. And so the TEM is simply a different scale. It's like having a standard for temperature in Celsius and then taking Fahrenheit measurements to evaluate whether or not you're exceeding it. Using the TEM results to identify exceedances simply doesn't work.

In addition, the livestock screening values are intended to be applied when you have contamination that's throughout a grazing area. They're intended to be safe when the livestock is continuously exposed to that level of contamination. Here, this level of petroleum is in a very isolated location, and you can have much higher concentrations of petroleum in this isolated location before it would be a concern. And they have only one location that exceeds, and if you properly apply the livestock screening criteria, then you identify no life stock risk.

In their presentation, the Government of Ecuador representatives suggested that uptake of petroleum into

plants would be a concern. This is simply not the case. The weathered petroleum, the scientific literature is clear whether petroleum stays in the ground, the roots can't take up the material.

And even the volatile constituents, which the laboratory testing showed was not present here, but the volatile constituents, when they do go into plants, they quickly exit through the leaves. They do not build up in the fruits. So, harvesting fruits, even if there was volatile constituents in the ground, the fruits would not contain petroleum, and there is extensive literature that documents that.

And I think that is the points that I had to cover.

MS. RENFROE: Thank you, Dr. McHugh.

Members of the Tribunal, according to our time count, we have eight minutes left, and to make our final point we respectfully ask you to return to the platform where we can show you the last point.

(Pause.)

MS. RENFROE: Thank you very much for walking over here with me. If you have this legend handy, I would like to draw your attention to it as I talk about the fifth point as too why Shushufindi-34 illustrates our position that the Judgment is a denial of justice. And, to

12:15 understand the legend, we are standing now in front of two different types of pennant flagging, and I told you earlier, and I'm going to show you now, the yellow with the NFA is the water pit that you see right here that was not assigned to TexPet for remediation work. But ultimately Petroecuador remediated it in 2006 and 2007, as I showed I earlier. But you can see, with the yellow flagging, the size of that pit had been remediated.

Now, I want to clarify a misunderstanding by Mr. Ewing. He suggested that the black-and-white checkered pennant flagging would indicate the location of another pit. That's completely wrong. The black-and-white pennant flagging represents Petroecuador's planned expansion of the platform and its intention to drill five new wells. You're actually sitting on the platform, on the old platform. It's been cleared for purposes of this Site Visit, and Mr. Ewing pointed out the old wellhead over there.

But when you look at your mini-packets, Page 35 and 36, and 37, I am going to show you where Petroecuador intends to drill to expand this platform and drill five new wells. So, if you can relate the pennant flagging and then turn to Page 37 of your mini-packet--actually it's Page 36, 37, and 38--and it looks like this. And, if you turn to the next page, to Page 38, you will see we've highlighted in yellow in the mini-packet, and then we highlighted in

12:16 black--actually it's Petroecuador who has highlighted it in black. This is where they planned to expand this platform and drill five new wells. And that area is very large and we couldn't pennant flag all of it, but you see how far it goes this side and it goes deep into the jungle in that direction. Tab 22 in the large packet and Page 38 in mini-packet.

Now, what does this matter and how is this relevant? Well, as we told you at the Hearing and has been discussed in a number of our Expert Reports, and is my fifth reason for why this site illustrates that the Judgment is untethered to the facts and that is that the Judgment completely ignores the role and responsibilities of Petroecuador. And so we know, we heard Mr. Ewing say earlier that this is a TexPet-only site. That's not true. While it may be true that the Consortium is the only company so far that has produced oil at this site, since 1990, Petroecuador has had sole control of this site, of this platform, and it has come on to the platform and remediated two pits and done who knows what else. We don't know, and I'm not here to suggest what they have or haven't done, but I do know they've remediated two pits and we do know from their own records that they intend to expand this platform and drill five new wells.

And we do know that they at least recognize their

12:18 responsibility under the Remedial Action Plan to remediate Consortium impacts that were not expressly assigned to TexPet, and that's why they remediated this pit here and another pit approximately right here, approximately behind the restrooms.

So, the reason that I thought it was important for you to see what Petroecuador has done and intends to do is to make our point that this is not a TexPet-only site. It's inappropriate and it simply ignores the facts to say that oil-production activities are the only activities that can impact a site. That's not true.

And to illustrate this even further, we don't have the records of how Petroecuador remediated this yellow pit here. They haven't produced those records to us. We don't know exactly what remediation standard they used. But we do know from the PEPDA Program records that they followed Decree 1215. The Judgment, on the other hand, as I explained earlier, requires remediation to 100 parts per million. That's not what Decree 1215 does.

And so, to the extent that Petroecuador remediated this pit and the pit on the other side of the platform in accordance with Decree 1215, as I expect they did because that's their practice, then the Judgment holds TexPet responsible for degrees of TPH, or Total Petroleum Hydrocarbons, left in these pits that was the actions of

12:19 Petroecuador, perfectly appropriate at the time. But it illustrates the point, I hope, that the Judgment is seeking to hold Chevron and TexPet responsible for actions, even remediation actions, taken by Petroecuador. So, that's why this characterization of the site as TexPet only because TexPet is the only company that produced oil, it simply misses the facts and it misses the point.

So, I'd say that this site provides us an excellent reality check on the fact that the Judgment is not based on facts. It's not based on the legitimate facts in the record. It's not based on the legitimate data. As we said earlier, there was no JI data from this site that the Judgment could have relied upon.

And, when you do consider the data at this site, which, according to Mr. Ewing says is fairly typical--he says this site is fairly typical of the rest of the sites in the area--that's up for you to decide or to conclude. But, if indeed this site is typical, then it makes our point even more that the Judgment is a denial of justice because there simply is no environmental catastrophe at this site. There is no widespread contamination here. There is, as we have said, limited impacts that are solely the responsibility of Petroecuador to remediate according to the Parties' Contract and the releases executed by the Republic of Ecuador and Petroecuador. And, with that, I

12:21 will submit, unless there are any questions.
PRESIDENT VEEDER: We have no questions. Thank you very much.
MS. RENFROE: Thank you.
MR. EWING: Members of the Tribunal, unfortunately I'm going to ask you to walk back over to the pit. We're going to the closer corner of the pit this time, so we will try and wrap things up there.
PRESIDENT VEEDER: Okay.
MR. EWING: So we should have a tent and seats for you set up again, and we'll meet you there.
(Pause.)
REBUTTAL ARGUMENT BY COUNSEL FOR RESPONDENT
MR. EWING: Members of the Tribunal, I want to briefly wrap up our rebuttal here. We have 30 minutes. Hopefully, we can get this done maybe even quicker than that and get out of the heat.
The simplest reason I didn't address many of the points that Ms. Renfroe brought up is that that's not actually why we brought you here, to talk about the regulations and what you can read in a book. We brought you here to show you this. But I want to address some of the points quickly while we're standing here since they have been brought up.
One of the significant points that I think

12:27 Mr. Connor said is that this pit does not demonstrate or support the Judgment dollar amount, the $6 billion amount. And by no means are way saying that this pit should cost $6 billion to clean up, but here is the fundamental problem here.
The Judgment looked at all of Oriente, which is all of the sites that it had seen, the sites that are in the record, the documents in the record, and it tried to determine what an average pit size was. It never identified individual pits and set individual sizes of what need to be cleaned up. So, it tried to find an average. And, as Dr. Garvey had mentioned with the height analysis, if we took this crowd and we randomly selected people, if we selected, for instance, Ms. Silver, my colleague, we might think the crowd is approximately 5'5"; or if we selected Eric Bloom, we might think the crowd is 5'5"; but if we instead selected myself or Dr. Garvey or any of the rest of us who are a little taller, you might think the crowd is 6'2". None of those will give you the average. This pit will not give you the average pit and is not going to. It, in and of itself, doesn't prove or disprove the Judgment. It's an average amount.
And one further point on that is if you look again at this cross-section from LBG, when they did their boring holes, the dark outlining around the boring indicates that

12:28 the soil is contaminated and visually contaminated when they did the boring. And, as you can see, the bottoms of the boring and the bottoms of the visual contamination are the same. They never found the bottom of the contaminated soil. So we don't really know where the bottom of this pit is.
So, the bounds of this problem are not known horizontally. They're not known vertically. So we don't know really what the extent of the problem is here, even just looking at the soil.
And they mentioned--I mean Ms. Renfroe mentioned the 2-kilometer rings and that there are approximately, I think, ten other wells in this region. I'm not sure exactly why that's relevant other than to potentially imply that those other wells may be affecting this area or somehow contaminating the area around. But I did not think that Claimants' position was that every well has a 2-kilometer radius of influence; but, if it were two, we actually did some calculation, and that would be 987 square kilometers, which is approximately three times larger than the Kuwaiti oil spill, if we consider every well to have a 2-kilometer radius impact. We don't that it's a 2-kilometer radius impact, but that seems to be what's the implication of those 2-kilometer rings that you have in your binders.

12:30 Let me touch quickly on the RAP. We heard a lot about the RAP this afternoon or this morning. In the introduction to the RAP--and this is Exhibit R-610--Woodward-Clyde, a Texaco contractor, was the sole identifier of pits that were to be included in the RAP. During the environmental audits for this site, only one pit was identified for inclusion in the RAP, and that is the pit we were just sitting in front of. That was marked as NFA. But that was the only pit that was identified here. We know that there are at least three. Ms. Renfroe says that my calculation of four is false. I'm not quite sure since we know there are at least three--and I said there may be a fourth--three or four, whichever way it goes. There were two pits here that were not included in the RAP. So 30 percent success rate it seems that Woodward-Clyde had here.
So, even in that pit that was marked as NFA, as a water pit, Woodward-Clyde, TexPet's contractor for the RAP, noted there was s half a meter of--I'm not very good at estimating meters but half a meter of sludge, of oil at the bottom of that pit, and that's potentially the oil that was originally put in there when we showed you the aerial image. It was black and then it had been filled with water on top, and that oil had sort of formed a sludge at the bottom. That pit has been remediated by Petroecuador, but

that's irrelevant to this pit or potentially even another pit.

But, at the end of the day, Claimants' defense for the RAP doesn't work in Track 2. Claimants' attempt to conflate the Parties, which is the first problem, to say that the Lago Agrio Plaintiffs and the Republic of Ecuador are the same. We aren't. We've made that point over and over, and I won't belabor it any further. But when we are in Track 2, and the reason why we're here in Track 2 is because the Claimants said in their denial-of-justice case when they added the denial-of-justice claims that the Judgment itself was a factual absurdity, that it did not support the Court's factual finding, and that if you came to the Oriente, that finding that there is environmental contamination is a factual absurdity.

So, we brought you here to demonstrate that point, that is not a factual absurdity. But, more fundamentally, Claimants can't use Track 1 as a shield to protect them to a finding that there is TexPet contamination in the region that continues to pose a very real and present health risk to the residents now that we are in Track 2 addressing the factual questions of the Judgment.

And, secondly, the Court, the Lago Agrio Court, had before it a case by local residents, people who lived in the area, and Chevron. Those local residents, the

people who live around these well sites had a legal right, as this Tribunal found in its Track 1(b) Decision, to seek relief from either tortfeasor, any tortfeasor responsible for the conditions that threatened them harm, subject only to the right of the Defendant to seek contribution from the other tortfeasor. So, the Lago Plaintiffs were entitled to bring their claim against Chevron. There's really, at the end of the day, a fundamental problem with reliance on the RAP as a defense.

Quickly, I want to address two points that were covered in Dr. Strauss's Expert Report and one from Dr. Short's Expert Report. Dr. Strauss is here, but I will speak for her for a moment.

Dr. McHugh mentioned that the residents here use rainwater for their water supply. That's true. Dr, Strauss actually interviewed them, but, first, that's not very effective in the dry season. It doesn't rain as much for periods of time here. That may not be easy to believe, but it doesn't rain here. And, as a result, the residents told Dr. Strauss that they are forced to buy water to supplement their water supply.

It's our position that the residents that live around these wells should not be obligated to go out of their way to not be able to use a local resource such as putting in a groundwater well here, which they could not do

as it's not safe.

Another point to clarify, Dr. Strauss didn't use the highest number in here. She actually used the median value. If she had used the highest, her health-risk assessments would have been even worse. If she had used the average even, it would have been significantly worse. So, she used a median value in here, just to clarify a simple point.

I think it was Mr. Connor who addressed this soil sample over here, SL-00-8, and reference to Dr. Douglas's analysis that that is natural organic material, or NOM. Dr. Short, who the Claimants did not call at the Hearing, would have testified, and did testify in his Report, that when he analyzed that chromatogram, it is not natural organic material. Instead it seems to be some kind of petroleum-based chemical but not a natural--it's not from the plants is what Dr. Short came to a final conclusion of.

And before I turn the floor back to Dr. Garvey to conclude for us--or to conclude his portion of this, we just spent some time sitting in front of some checkered flags, which, in your map show an alleged plan, Petroecuador's plan to expand this platform. I would submit to you that's absolutely irrelevant to what we're looking at here because what is going to happen in the future and may happen in the future is irrelevant to what

the Judgment found exists here and is currently a problem for these people.

And maybe more fundamentally, in terms of what was represented, the Judgment did not ignore the RAP or did not ignore Petroecuador's responsibility in any of the contamination that may exist here. Instead, where possible, the Judgment tried to allocate responsibility between the two Parties. It's difficult in a pit where both Parties dump oil into something or where a pit remains open for a period of time, but the Judgment did attempt to distinguish between those two.

And again, this is why legal systems around the world had developed joint and several liability, so that the Plaintiff does not have to make its own determination of who would be liable, but the Defendants can then fight that out in subsequent types of actions.

So, with that, I would like to turn the floor briefly to Dr. Garvey, and then I will wrap up for about 30 seconds after that.

DR. GARVEY: Thank you for looking at me again.

A couple of points I wanted to make about the nature of groundwater here and contamination in this site. As Greg indicated here, these borings in the middle of a pit here did not hit the bottom of contamination. We have no idea how deep this pit is with respect to the

12:38 contamination it contains. We have, in fact, seen in other areas contamination down 4 meters below grade in pits like this. So, while we have measured it down as far as 1.8 meters, we really don't know how far down it goes. So this is a sketch--that's why that dashed line has question marks in it. It's really just speculation at to what this...

And why is that important? Well, if you note here, this is the indication, this green line here on my chart here, is the indication of the water table. The water table is what? Water table is the level in the ground where all the airspace has been displaced by water. The soil is completely saturated with water; okay?

This water table isn't constant. It varies seasonally in response to rainfall, the amount of percolation that can occur and the like. This map is based on our conditions as we measured them in June 2014. This water table is approximately 5 meters below grade drawn here.

We were here last week, and we took some measurements. We measured all the well heights and water heights in these wells. We found that the water table had come up 2 meters in response to--in response to different weather--rainfall amounts, so the water table is significantly higher, most likely in contact with the

12:39 bot--really closely in contact with these cores or the materials that they represent, perhaps little more than a half-a-meter separation between what we measured in terms of the cores and the top of the water table. It's getting quite close, and again, we don't know how far down it is.

Why is that relevant? Well, in June 2014 we measured the soil gases with that PID instrument on top of all these four wellheads here, and we got basically non-detect readings in all four of them. We come back last week and we measured the 4 of them again, but this one in particular, instead of giving us non-detects on the PID, it was 200 PPM. So, it beeped as loudly as it did when we placed it over the oil sample that we saw, that we dug up for you a few minutes ago because of the--we've seen here in this well--now soil gases representing oil contamination as high as 200 parts per million arising in this wellhead. We measured that last week. We measured it yesterday. It was 100 parts per million. We measured it today, this turns out zero, okay? It varies. Why? Because the water table varies, because conditions vary. It's a mistake to think that we can characterize everything in a snapshot and say we know where all the problems are, we know where everything is going.

With a pit like this, groundwater flow is going to move away radially, not just downstream, because it

12:40 represents a catchment. It feeds the groundwater. It's going to feed flow underneath the groundwater, underneath the soil because it catches water and forces it in as opposed to being able to run off elsewhere. There is no place for the water to escape that bowl effect. It has to circulate downward. This well, and the fact that we've gotten as high as 200 parts per million in soil gas, is indicative of the fact that some of the groundwater has moved this way, not just down that way.

So, our point is not simply that we know it always goes this way or we know it always goes that way, but we know that things change, and to be able to say that we don't have a problem here at all when we can get 200 parts per million out of this wellhead is really misreading.

Okay. I want to make a short statement about Method 8015 versus our Method TEM.

We can go back and forth as to the different local issues, but suffice it to say, 8015, when concentrations get high, is truly biased low. If you take a pure oil sample and you analyze it by Method 8015 or you analyze it by Method TEM, if you have a hundred percent oil, you'll get a hundred percent by TEM. You only get 50 percent by Method 8015, so it clearly misses a portion of spectrum, and recognizing that, basically both methods are useful.

Okay, to understand what's going on, 8015 can

12:41 avoid some of the plant materials that we'd pick up with TEM. We also know that 8015 is biased low because it doesn't pick up all of the petroleum hydrocarbons. So you kind of have to blend the two of them to understand what's going on. You can't just say I can rely on 8015. You have to recognize--that's why we did in our inventories, we used all three metrics that we have. If they're up, you use this method, you get this much. If you use another method--if there's something between, use TEM, you have 3.5 million-barrels of oil. Our understanding is just--it's somewhere in there. We think it's toward the higher end because we think that the TEM Method is capturing a majority of the oil when the concentrations are high.

I think that's everything I wanted to conclude.

Oh, sorry. Yes, there was one other point. All right. Okay.

When we've studied this area, we installed these groundwater wells, in addition to just installing the wells, we conducted what's called a "hydraulic conductivity" test, basically the ability of water to move through this formation, so you can take a specimen of soil, hold it in your hand and say, I think it's pretty tight or I think it's going to be--I think water is going to go through easily or it's not. The real proof of the pudding,

so to speak, is when you take a well like this and you test the system in place--so you put water in the well, you watch how fast it drops, you take water out of the well, you watch how fast it still drops--those are different ways to tell how well the formation passes water.

It turns out with the wells that we have here, the formation passes water as if were a silt to a silty sand to even a sand. Okay? That it's not a tight clay. And just to illustrate what that means in terms of soil, this I'm going to show you here are some--this is a boring we just did a while ago here from the berm. Okay? This material here is the type of soil material here. It has silt. It has clay. It has sand in it, but it's not a very tight formation. While I can do that to it (gesturing), I can't do the classic test of rolling this material up into a nice little ribbon to indicate that it's a very clay-rich soil. It does have some in it, but it's not sufficiently tight to prevent water from moving through it. And the case in point, as I said, is the fact that we did the groundwater tests.

Now, to contrast that, we have a couple of samples here that we collected in Aguarico-06. Okay? These are clay-rich samples, very, very clay-rich soil. And if I roll these into a ribbon, these will form the classic clay test. Shane is better at this than me, if you want to take

a piece of it. But, suffice it to say, this material, which we'll see some of tomorrow, is the type of soil that will bind and prevent water from moving through it. Okay? That's not what we have here. As I said have, our groundwater tests of the percolation to exactly document that--there we go.

MR. McDONALD: This is the actual ASTM method? I don't know. Elasticity in the--thank you.

DR. GARVEY: Okay. Anyway, I'm the geothermosist and geologist.

Okay. Anyway with that--sorry. Is there anything else?

(Discussion off microphone.)

DR. GARVEY: All right. I will turn the floor back over to my colleague.

MR. EWING: Just to briefly tie this all up and then we can--we have lunch waiting for us and then we can head back to the hotel for showers and whatnot. This will be brief.

I've got four main conclusions that I think we will come back to at each of the sites.

One: We know the contamination exists. The number of pits at every site may not be known. We happened to find this one because the farmer cleared it and made it accessible to us. There may be another one in the woods

that we haven't been able to identify. There are three--there may be four pits at the site. We don't know exactly how many pits there are.

And it will take further investigation really to understand the contamination here. As Dr. Garvey said, these--contamination at these sites are very seasonal. It changes with the rain. Every time I think I've been to these sites, they are all different. Even in the last week, the amount of water that's on the path, on the road changes dramatically. The farmer has cleared this field, looks like a week or two ago before we were here. You know, it changes. These sites are always constantly changing, so it takes further investigation really to understand what needs to be done here.

And this is why we asked you to come because showing you videos or pictures, I don't think you can really understand or capture what we really have present here and how close in proximity people live and work on a daily basis with the contamination that TexPet left in the Oriente.

And second conclusion is that the contamination we're looking at is attributable to TexPet. No one disagrees with that. It was in aerial photos. It was placed here at least as early or as last as 1975, and there is no indication that anyone else has ever used this pit.

In fact, by 1985 it was covered by the jungle.

Third, we have exposure to people. We have exposure in the pit. I wouldn't want to play in there and I definitely would not let my girls play in there, and that is something that the people around here deal with on a daily basis. And even if that is the only exposure here, even if this pit is the only opportunity for people to be exposed to TexPet's oil, they should not have to avoid using their own land. He should not have to avoid planting his cocoa plants in this area. He should not have to kept his kids out these areas. And you will see at the different sites, these are--pits and locations are on private land and they should not be forced to avoid those areas to avoid health risks.

But we know that that is not the only exposure pathway. We know that these wells are contaminated. As Dr. Garvey said, they vary. This one any be higher today and that one may be higher tomorrow. The water level and the way that contamination is going, it changes. So, we know that there is exposure in the groundwater, so we have two exposures here.

And then the fourth conclusion, that this site allows us to make is that Chevron makes significant misstatements about the conditions in the Oriente. One, they say that--they assert that there is no movement of

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12:48 contamination, but we know that we found oil contamination in these monitoring wells. It has varying levels, of course, and it has various degrees of contamination. But there is no doubt that there is oil contamination outside of the pit. Dr. Connor said look how far this has gone. It's only 6 meters.

We don't know how far it has gone is really where this comes down to. We know this point here and we know that point there. We don't know how far it goes that way or that way or that way. So, we just don't know the extent of the problem here.

And, secondly, and this is sort of a problem in terms of the drinking water, they assert that it doesn't affect the drinking water, that the contamination doesn't get into the groundwater. But these wells again have shown that there is oil contamination in the groundwater. It's not just in the soil. It's not just in the pits.

And why is Chevron so emphatic that the oil contamination is contained in these pits? Well, I think they're so emphatic because if they can contain the contamination inside of the pits, it's more limited exposure, but once it gets into the groundwater, we don't know how far it goes.

I mentioned at the beginning that this is a simple site, and you'll notice that there aren't really any

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12:49 streams nearby. There is one we think over that way in the woods or the jungle. We hiked through there and couldn't find it, but really there is not a stream close to this. The rest of the sites that we're going to have streams and sedimentary contamination. And, as Dr. Hinchee testified, once the contamination get into a stream, it can go for who knows how far.

So, we're looking here at a simple site, where we're just looking at soil and groundwater, and you can see that there's a problem with movement. When we get to these other sites that have rivers and sediment, it's just even a more significant problem.

So, with that, I think I will wrap up, unless you have any questions.

PRESIDENT VEEDER: Nothing here.

MS. RENFROE: Mr. President, I have--are you finished, Mr. Ewing?

MR. EWING: I have a procedural question that we need to hopefully address relatively quickly.

MS. RENFROE: And I have a procedural objection.

PRESIDENT VEEDER: Why don't you start with your request first and then we'll hear your objection.

MR. EWING: I had worked around these sites with members of Claimants' team on a couple of different days, and we had discussed trading off so that we would all do

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12:51 our presentations on the platform, we would all do our presentations at the pit, we would all do our presentations here, and we'd all do our presentations here, to minimize the back and forth. And this is a flat site, so it's not a big deal today to have done it the way we sort of originally envisioned. But at a couple--at the rest of the sites, the walking distances are further and much more strenuous, and we would be happy to make life easier for you and sort of do everything up on the platform, do everything down the hill, do everything at the next location and sort of work together on that. But Claimants said this morning they can't tell us which sites they want to do separately, like we did today, or which ones they want to do sort of a chess clock approach. So, we just ask that we know. We can work with either way, but if we could have an agreement about making life easier for everyone, I think we would all benefit. But we need to know either one way or the other.

PRESIDENT VEEDER: Okay. And the objection?

MS. RENFROE: So, the objection, Members of the Tribunal, it goes back to the Protocol. In the Protocol, we said that the only thing that could be discussed in the Site Packets and during these presentations was limited to evidence in the record.

Now, Dr. Garvey just a few minutes ago talked

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12:52 about new measurements of soil-gas and groundwater levels. That was the first I'd heard about those. I don't think they matter very much, but I certainly do not want us going forward to have a precedent that we deviate from the Protocol and have either witness or lawyers talking about materials that are not in the BIT record.

So, I would take exception and place an objection for the record to the new measurements that he talked about, but more importantly I want to urge that counsel and witnesses confine themselves to what is in the BIT record as the Protocol requires.

PRESIDENT VEEDER: Let's sort that out. Was that already in the record?

MR. EWING: The PID measurements that we took today that--Dr. Garvey--obviously could not have been in the record, but we have taken PID measurements here before and have given those results before.

And maybe to clarify what the Protocol says, the Protocol says we are not to take samples for laboratory analysis. If you would rather, we can just show you the oil and let you smell it. My understanding is your nose is just as able to detect petroleum as a PID. It won't give you a real number, but, of course, the numbers we look at today are not in the record. Anything you look at is not in the record already, so...

MS. RENFROE: With all due respect to Mr. Ewing, he missed my point. Let me clarify. My point is that Dr. Garvey talked about groundwater measurements that he took two weeks ago and soil-gas survey updated results. We haven't seen that. They're not in the BIT record. That's what I was talking about. The Protocol does permit auguring, which is what both Parties did today--it permits that--but what it doesn't permit is reference and discussion about new sample results and groundwater measurements such as what Dr. Garvey said, so it's not in the BIT record.

(Pause.)

PRESIDENT VEEDER: Okay. Don't deal with events today because that's, I think, not the problem. We're dealing with the Dr. Garvey data of two weeks ago.

MR. EWING: So maybe--I think Dr. Garvey was just trying to provide--you know, this is what we looked at two weeks ago. We can avoid talking about what we saw a week ago, which is, I think, the only new datapoint that he mentioned today. And the soil-gas survey is what they did originally and then that is in the record. So, there has been no different results other than Dr. Garvey did a PID test here a week ago, but we can avoid talking about that if that would make things easier.

PRESIDENT VEEDER: I think it would.

That solves your problem?

MS. RENFROE: It does solve that problem, and then I have just one last point--again a caution. We all had to identify our presenter, our experts and lawyers. And again, with all due respect to Mr. Ewing and Dr. Strauss, Ecuador chose not to identify Dr. Strauss as a presenter, and so it would be inappropriate and it would be a deviation from the Protocol if she is called upon to present or answer questions.

PRESIDENT VEEDER: I think you speak for Dr. Strauss, don't you?

MR. EWING: I said that very explicitly.

PRESIDENT VEEDER: We haven't seen her yet.

MS. RENFROE: Okay.

PRESIDENT VEEDER: If there is a problem we will come to it.

Anything else?

MS. RENFROE: No.

PRESIDENT VEEDER: Well, thank you very much. Unless you have another point.

MR. EWING: Well, the question is still how are we dealing with tomorrow? Are we doing--

PRESIDENT VEEDER: You're going to talk to your colleague, and you will tell us the happy agreement which you have reached after lunch.

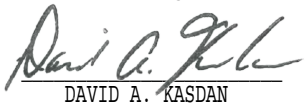
MR. EWING: After lunch? Perfect. I like the timeframe.

(Whereupon, at 12:56 p.m., the Shushufindi-34 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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