MR. BRUCE BAIZEL: Hello, honorable judges of the Tribunal. I'm Bruce Baizel from Earthworks. I'm legal counsel for our organization and I'm also the director of our Energy Program. We have about -- well, I think we're up to about 24 staff on both energy and mining issues and with all of us based in the US but we work in many countries. And I'll come back to that in a moment.

I was admitted to the Bar in the US about 32 years ago and have been working full-time on oil and gas issues for the last 15 years.

With me today is Nathalie Eddy. She was admitted to the Bar in the United States 11-years ago. She's worked on air law, climate change, indigenous rights issues and transparency for the last 20 years. And that included a stretch with the Colorado Attorney Generals Office. We're both based in Colorado in the US.

Our organization has worked in many countries, both on mining and on energy issues and we usually do that in partnership with community partners. We are a civil society organization.
Our oil and gas work began in the 1990s so we have a couple of decades of experience with the impacts all across the production chain, from exploration through even some on the refining side and then export. So that's the basis from which we submitted our brief to you as the Tribunal. It was based upon that experience.

In my remarks I want to give you a little bit more context of why we arrived at the conclusions we did in our Brief and then Nathalie will give you some of the specifics for the exact reasoning and the evidence upon which we reach those conclusions. That will be the structure of the presentation here.

Certainly we welcome any questions that you might have during the presentation or at the end.

So we began our work in the US due to inquiries from communities saying they came and started drilling next to my house. My well went bad. The water turned black. Those kinds of issues. That's what got us started.

And then about 10 years in we would start to get some questions from people that would go along the lines, they started drilling next to us and these emissions came off the drilling rig, came across our house and I started experiencing skin rashes, nose
bleeds, sometimes loss of hair. Why is that happening?

So that brought us into the health impacts and that's been nearly 16-years of that.

So we began looking asking the companies and states regulators about information on chemicals that might be used, what was in the drilling fluid but at that time fracking originally was just vertical. There was no horizontal fracking. And we got no information back and the state regulators that we went to said we don't think there's any problem there. We don't have anything to offer you. No information.

So we had nothing to give to community members, complete lack of what was in that fracking fluid. Rule making hearings and so on.

Then the intensive shale development began in Texas about 10 years, 11 years ago and now it's spread in the US to the Marcellus, it's out here in Colorado, it's down in New Mexico, it's up in North Dakota, it's up in Alberta. And as you'll hear now down -- we've had requests and been down to Mexico and Argentina as well.

And with that shale development we had increased health complaints always and they seemed to be very similar across shale basins which concerned us. So about four years ago we were kind of running up against a brick wall on getting good chemical information,
trying to reform practices. And a technology put out by
a specific company, infrared technology, came on the
market and we knew we couldn't cover 100,000 different
oil and gas sites that are there on the North American
continent, let alone across the world.

And we also knew we couldn't be everywhere
that community members were. So we said let's try to
form some partnerships and we have this technology.
Let's see if we can't document some things.

So we started what we call Community
Empowerment Projects. We've done 97 trips, 15 states,
three countries, Canada, Mexico, Argentina, the US.
More than a thousand sites visited, 560 videos and so
on. And those numbers continue to grow.

So that's the basis on which we prepared the
Brief that we submitted to you. That's what you see
with the naked eye when you to go a site these days for
the most part. You don't see a black cloud usually,
although that's not always the case unfortunately.

So we take a photo with a regular camera and
then when you switch and go to the infrared here's what
you see at the same site. And what these cameras are
designed to do is capture a range of volatile organic
compounds, including methane, so it has relevance to
climate. And they are designed specifically for about
24 of these VOCs.

And these are the cameras that the industry uses when they're looking to find leaks. They're also the cameras that state regulators use if they're looking to do inspections. And we get the same training with our operators.

I think at this point probably the best thing to do is then to transition. That's what got us to the point of saying everywhere we go we see these emissions without exception. And so in terms of the queries of the Tribunal I think at least, in my experience, and I think as an organization, the question of what do you do about this?

We have not seen a safe, from a human health standpoint certainly and from a climate standpoint, we have not seen a safe site in the shale places we've been there. There are always emissions. There are always leaks and spills.

So for us the question, the operative question becomes what kind of remedy can you fashion them if you can't do it safely. And that's our view.

Nathalie joined us to work with the communities and with our camera operators and now she'll continue with our presentation.

MS. NATHALIE EDDY: Great. Thanks Bruce TREMAINE & CLEMENS, INC. EUGENE, OREGON (541)343-8833
and thank everybody for this opportunity to be here and share with the Tribunal what we found.

I'm going to go ahead and open with a sort of dramatic video. This is something we took with our camera just a few months ago in the eastern US. We weren't even looking to take a look at this facility and stumbled across it.

And I share it because we think that if we hadn't documented it we doubt that either the operator or the state staff would have informed adjacent communities of what was going on in terms of the volume and type of emissions released.

So this first video is indicative, as Bruce was saying, of the risks that fracking poses to a healthy environment, to safe drinking water and to timely information, plenty and accurate information to impacted communities.

So what we have found and what we'll present to you today is that fracking breaches three fundamental human rights that are protected under international law; The right to a healthy environment; The right to safe drinking water; And the right to know and to participate.

We're framing it in these terms and with these three fundamental human rights that encompass many more
human rights because this is how we hear from impacted
community members that their families or their homes or
their water is being impacted.

They're not articulating their impacts in the
express language of the international human rights that
are implicated by fracking.

So we have found that the right to a healthy
environment is breached by fracking. And first I think
it's important to remind ourselves of what this means or
what types of provisions we have to protect these rights
in international law. So under the International
Covenant On Civil And Political Rights the UN
Declaration On The Rights Of Indigenous Peoples we
recognize the right of everyone to the enjoyment of the
highest attainable standards of physical and mental
health.

So our evidence shows that is not what
fracking provides. And is not possible, as Bruce said,
to achieve that highest attainable standard of physical
and mental health in life as a result of fracking.

There are two pieces that we want to talk
about. The first is this growing body of peer reviewed
scientific research linking adverse health impacts to
the proximity of fracking. And then the 13plus years of
Earthworks field work, and this includes hundreds of
community testimonials, many health impact assessments in different parts of the United States. And then documentation of emissions, including the FLIR videos, some of which we've already shared with you.

So more than a decade after shale development with this intensive fracking has really accelerated it's still left to us as a civil society to respond to these community health complaints and to try to understand what is going on with these fracking activities, what are the risks and what are communities being exposed to.

The industry denied its use of chemicals or responsibility and the state deferred to these industries' denial and so we've been working with academic researchers and health experts to develop this research.

And the summary that we're sharing with you is the work of Ph.D. scientists who we are working with right now to litigate over additional future proposed shale development.

So looking at the summary of the health expert research we see that study after study is finding that fracking impacts, respiratory issues, wheezing, shortness of breath, neurological issues such as headache and dizziness as well as skin, sensory, organ
irritation and other affects.

There's also been some recent studies on the impact on birth weights as well as infant health and significantly the closer that families were located to the fracking activities the greater the impacts. So more impacted was the birth weight or the more impacted was the infant's health. Specifically when they were within one kilometer was the most extreme of the impacts.

So moving from the scientific peer reviewed research into some of the field work of Earthworks this is what we see when we go into people's homes impacted by fracking. We can see rashes and bloody noses. This is what community members are sharing with us.

And in addition to these first hand experiences and testimonials we're also conducting health impact assessments in different areas in the US.

The first one we conducted in 2012 in the Marcellus shale in Pennsylvania had three key results. We found that contaminants that are associated with oil and gas development are present in air and water in areas where residents are experiencing health symptoms.

Consistent with such exposures we found there is a strong likelihood that residents who are experiencing a range of health problems would not be if
widespread gas development were not occurring. And by permitting this widespread gas development without fully understanding its impacts to public health and using that knowledge to justify regulatory inaction Pennsylvania, in the state of Pennsylvania and other states, are risking the public's health.

And then one of the key findings in that impact assessment was that quote that you see at the top that "When many people in many places where gas developments are occurring have similar health complaints something is clearly wrong." And we see that consistency in the scientific research as well, that peer reviewed research that we took a look at.

So a quick contrast to what we're seeing in homes and the lives of community members are trying to lead next to fracking.

And then we go from the home and we go to the facility site. And this is a snapshot of the types of disrepair, visible dirty emissions, spills and general contamination that we encounter all the time at these facilities. Often, you can see, in that upper left photo right next door to someone's home.

So here is a testimonial from one of our partners that I'll go ahead and play.
MS. JANE WORTHINGTON: I have custody of my 12-year old granddaughter. Her name is Alexis and Alexis has been bezene exposed. It has impacted our entire life.

It happened, we believe, in 2011 she started with asthmatic conditions and from there it went into bloody noses. She has unusual and uncontrolled bruising. She's had bulls eyes. She has joint swelling. She has joint pain.

And in April of 2015 she was diagnosed with damaged growth plates. And at that point the pediatrician and the family doctor began to listen to our concerns of bezene.

MS. NATHALIE EDDY: And so then jumping to more recent health impact assessment we conducted in Texas I'll run through some of the results we find and the problems of impacts on community members living close to fracking.

We found that 75% of the interviewees with health issues reported neurological problems, such as migraines, memory loss, forgetfulness, confusion or lack of focus, silliness, numbness in extremities. 50% reported respiratory problems and 89 expressed some concern for their environmental impacts on their health.

And another testimonial from one of our dear.
friends of Earthworks who just passed away this year.

MS. HARRIET IRBY: At the commencement of drilling operations in my area I had pneumonia. I had to commence taking oxygen at night. Then, ever since then, I have been hospitalized once a year with what's called an exacerbation of COPD.

I've been breathing that for years and it's literally killing me. My pulmonologist has told me I will never get better. I will only get worse.

And at the present date he has dropped me as a patient because he can't do anything more for me.

MS. NATHALIE EDDY: So this kind of frustration from community members and searching for ways to take action and not sure of next steps is unfortunately common in our work.

Also last year we conducted air samples in Texas and found a mixture of compounds all of which are known to cause neurological, respiratory and immunological problems.

They were bezene, which is a known carcinogen, also classified as hazardous air pollutants. Hydrogen sulfide, a neurotoxic gas and can be fatal.

Cyclohexane, that is an eye, skin and respiratory irritant. And that can also affect the nervous system.

Napthalene which is hazardous to the liver, eyes and
nervous system and n-hexane as well as mixed xylenes. So
a fairly incredibly toxic mix.

So in given that this -- and recognizing what
this growing body of knowledge as well as testimonials
and community experience we see that the fracking
activities are very clearly impacting communities.

They are denying them and breaching their
right to a healthy environment. And certainly making it
impossible for that standard of the enjoyment of the
highest attainable standard of physical and mental
health as recognized under international law is very
clearly breached.

And here are a few more snapshots of other
case studies conducted in Texas. This is a finding of
16 chemicals above the states' screening levels and 61%
of the residents are experiencing effects that match
those as to those associated with chemicals detected in
the air.

And another hot spot in Texas where 65
chemicals were detected on a high school band field.
And 501 emission events in one year from a single
facility. So more than one a day at this point.

So the compilation of what we're presenting,
the peer reviewed research, our field work that is
comprised of community testimonials, FLIR video and
health impact assessments we see this breach again and again of the right to a healthy environment.

And now I would like to address the next fundamental right, which is the right to safe drinking water. This is a right that is protected under several international human rights instruments recognizing that water is fundamental for all of our survival. We can not live without water.

In 2005 Earthworks conducted a study to look at the risks that fracking poses to drinking water and, unfortunately, the findings and recommendations from 13 years ago still hold true. And drinking water, safe drinking water remains threatened by fracking.

The two key findings were that fracking fluids contain toxic chemicals linked to adverse human health impacts such as cancer, kidney, brain, respiratory and skin disorders, birth defects and other health problems. And that fracking chemicals are directly injected into drinking water aquifer.

So here is a testimonial from one of our partners speaking about water quality issues.

MS. TERRI SHOEMAKER: We have a pipeline running behind our property. We got a lot of run off that came down into our pond and filled our pond with a lot of sludge and oily powdery matter. We find residue
on our vehicles. We do have a good bit of run off and
intestinal issues, shortness of breath and different
things.

MS. NATHALIE EDDY: And then finally I'd
like to look at this third broad category of human
rights which is the right to know and participate.
So we're coming full circle to where we
started and the situation first described in which
Earthworks was looking for that information and we
didn't have the research and we weren't yet connected to
the communities.

And industry refused to admit the depth and
scope of these dangers and also government failed to
control this industry to limit these impacts and these
damages.

This right includes a right to know, a right
to participate and a right to free prior informed
consent.

So this just in the last year communities in
Mexico and Argentina have reached out to Earthworks in
an effort to learn more about the fracking activities in
their communities.

So this photo here is a picture of the civil
society members who joined Earthworks in Veracruz,
Mexico. And then I would like to show the video, or a
piece of the video, of what they found.

[Video presentation].

And this sort of template that you see here is how we compile all of our videos in advance of submitting our complaints so it's clear where the facility is. The signage so we know which facility we're talking about. Standard camera photos.

And then this is as we see zoom in we see this community in Mexico discovered about the fracking activities in their area. And you can see the extent of the emissions, some of the exposed toxic fluids.

So why the camera is moving around is to actually track just how far that trail of emissions is coming out, what that plume looks like and that indicates the volume and strength of those emissions.

I'll go ahead and pause that.

And then finally I want to close with another testimonial of one of our partners just reminding us of the significant repercussions of drilling and fracking and how impossible it is to go back once it's happened.

MR. TIMOTHY CHITO: What has happened isn't fixable, okay. You can't unfrack a well.

They've put these things in 800-feet, 300-feet, 500-feet from peoples houses. How is the user going to [indiscernible].
Air quality, water quality, all this it's a reality. It's here. It can't be fixed. These regulators they don't have gas wells in their backyards. If they did they would understand the point of people like me.

MS. NATHALIE EDDY: So what we've seen in this field is not the highest attainable standard of physical and mental health, not safe drinking water and a lack of information about the many risks of fracking and the dangers to communities living in proximity.

So drawing on these findings and this growing body of peer reviewed scientific research we find that fracking denies communities their right to a healthy environment, their right to safe drinking water and the right to information and to participate.

Thank you.

Are there questions or discussions from judges?

MR. FRANCESCO MARTONE: I have just a quick question because these -- you also mentioned the right to free prior informed consent, right, as one of the potential international standards that you found being violated.

My understanding is that that actually applies mostly to indigenous peoples communities. So is there
any case that you have been working on that involves
indigenous organic peoples communities, native or first
nations or whatever they call them, in different
countries and if so have you been noticing also the
capacity of those organizations and communities to
mobilize themselves or, you know, was there a difficulty
for them to -- further difficulty for them to access
information and access procedural rights?

MS. NATHALIE EDDY: Great. Thank you.

Bruce, are you able to unmute yourself? Do
you have some --

MR. BRUCE BAIZE: I've worked on, with
Navaho communities in the US for many, many years and
currently we are -- in fact Nathalie was just out last
week with some communities in northeast Arizona where
it's both oil and helium that is being extracted from
the same field essentially.

And one of the things -- so this is the
second time we've had the camera out there and they
initially had signs warning that there was hydrogen
sulfide gas, one of the air toxins that Nathalie
mentioned that if you breathe a sufficient amount of it,
it will kill you.

The company took those signs down and has
refused to put them back up. And yet when we went out
with both the camera and a meter in it the gas is still there.

So the communities have not been able to get tribal government to intervene and the companies actually try to block access, even though it's traditional usage grounds for livestock, grazing and home sites for the Navahos living. This is sort of on the side of a mountain, I guess would you say, and they live -- in the winter they live down in the valley. But their summer camps are up in this area. So that's one instance.

And then in Argentina part of the invitation came from a Mapuche community down there and they have some existing oil and gas development in the area but with the push to go to shale there is considerable discussion among the federal government in Argentina about expanding, even though that might put Argentina at risk of not meeting it's Paris climate goals.

But specific to the impacts there the Mapuche were given no information about the emissions coming off those sites. And we haven't finished processing all the videos or we could have included one here, but it's at least as bad as we saw in Mexico.

And there's no -- no fencing around those sites. You know, anybody can go right onto the sites so
that you're right in the emissions. So we see the same
thing in both of those indigenous, sets of indigenous
communities where information is not provided, risks are
not communicated and to be honest the practice is,
unfortunately, no different than any other oil and gas
sites we've seen whether it's near indigenous
communities, whether it's near Spanish speaking
communities, whether it's near English speaking
communities.

MR. GILL BOEHINGER: Bruce, I just
didn't get who originally put up those signs that were
taken down by the company?

MR. BRUCE BAIZEL: I believe the lease
rights were recently transferred. So now it's a new
company to the area but not the companies that
originally drilled those wells to produce and they're
building a processing plant for the helium actually.
They don't care that much about the oil these days.

So it's a new company that took the signs
down, new to the area, but they hold the leases.

MR. GILL BOEHINGER: The previous company
had put up the sign?

MR. BRUCE BAIZEL: Yes. We have some
photographs of -- it's a white sign with red lettering
you know. Danger. Hydrogen sulfide gas.
And we went back this time, Nathalie and Pete, our operator, the community people said they've taken those signs down. And they put berms across -- dirt berms across the roads to try to keep people out because a Navaho nation reporter had written a story about our first trip out there and they got upset.

MR. GILL BOEHRINGER: Thanks.

DR. THOMAS KERNS: I have a question, Bruce.

To me the deployment of this FLIR technology where you're basically making the invisible visible I would have guessed that it would have enormous impact, or at least the potential for real impacts, on policy making and bringing cases and so on. So I am curious about what your experience has been.

You've been doing this for a few years now and quite a few different communities and what kind of effects has it had?

MR. BRUCE BAIZE: Well, it's still new to the regulatory agencies. Nathalie has a number of stories where she has gone and dialogued with inspectors for the agencies and they say well, we don't have those cameras. Or can you show us your video because we can't get out in the field because of budget reductions,

resistance from the companies.

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So it's been a very uneven entry into trying to reduce emissions. I would say Colorado, as a state, has a rule now in place for four years that if you see emissions you fix them. It doesn't matter what level of emission. If you see them you have to fix them.

We're still finding out whether they will respond to the videos we submit but certainly if their staff see emissions they require the company to fix them. So we do think it is reducing emissions somewhat.

I would note that Colorado is still -- that area of Colorado is still in non-attainment for ozone and greenhouse gas emissions have not -- they're not increasing as much but they are not decreasing from 1990 levels, 2005 levels.

So I would say it's at the margin that we're seeing it make a difference in the aggregate. For specific facilities it can make a huge difference, absolutely.

You know, those -- the video from Mexico those are tanks that the community members say they bicycle by there. That's an easy fix. You can replace those pressure valves.

And then people going by there on a daily basis would not be subjected to those emissions. It wouldn't get rid of all emissions but it could help with...
the acute short-term impacts. But that's very
l lokalized.

You know, the US has close to a million oil
and gas sites. We've got three cameras. It is
spreading but it's slow and if you're looking at it from
a climate standpoint we don't have that time.

MS. NATHALIE EDDY: I would just add at
the community level in Red Valley we're working with
some of the Navaho members it has had a significant
impact. So we went there in January and those videos
were shown at chapter meetings and as a result two
different chapter houses passed resolutions calling for
more information about the impacts on health from the
oil and gas extraction going on.

And so I think you're right that seeing is
believing made a big difference in galvanizing that
community to take action.

One other piece of it is that the cameras are
costly. So they cost $100,000.00 and they require very
specific training. And so we've also been in meetings
with the BLM field office last Friday, and this is true
of other regulatory agencies, they might have a camera
but no one left in the office who is certified to use it
now and so it's very underdeployed for various reasons.

And those are some examples.
DR. THOMAS KERNS: Thank you.

[youtube.com/watch?v=GkUALkbdmgQ]