

Senate Democratic Policy Committee Hearing

Friday, November 6, 2009
10:00 a.m. to 11:30 a.m.
628 Dirksen Senate Office Building

“Are Burn Pits in Iraq and Afghanistan Making Our Soldiers Sick?”

Hearing Transcript

SEN. DORGAN: We're going to begin the hearing today of the Policy Committee. We'll be joined by several of my colleagues shortly, but I want to begin on time.

This is the 21st in a long series of hearings that we have held in the Policy Committee to examine contracting waste and fraud and abuse in Iraq and Afghanistan. A number of these hearings have focused on substantial abuses, which have put our troops' lives in danger. Others have focused just on waste, and some on fraud.

Today we're going to have a discussion at the hearing on how, as early as in 2002, U.S. military installations in Iraq and Afghanistan began relying on open-air burn pits disposing of waste materials in a very dangerous manner.

Those burn pits included materials such as hazardous waste, medical waste, virtually all of the waste, without segregation of the waste, put in burn pits. We'll hear how there were dire health warnings issued by Air Force officials about the dangers of burn-pit smoke, the toxicity of that smoke, the danger for human health.

We'll hear how the Department of Defense regulations in place said that burn pits should be used only in short-term emergency situations -- regulations, by the way, which have now been codified. And we'll hear how, despite all the warnings and all the regulations, the Army and the contractor in charge of the waste disposal, Kellogg, Brown & Root, made frequent and unnecessary use of these burn pits and exposed thousands of U.S. troops to potentially toxic emissions.

I want to show a couple of charts to show the seriousness of this issue. This first chart is a photograph showing the type of smoke plume from a typical burn pit being used by KBR in Iraq. That's what you would probably expect from a big old burn pit, a lot of black smoke. And as I indicated, in that pit, without any segregation of waste, was, we assume, medical waste, hazardous waste, things that would be harmful to human health if a soldier or a contractor employee breathed that kind of emission.

Here is a list of toxins on the next chart that, according to an Air Force briefing paper on the subject, would have been contained in a burn-pit smoke plume: Carcinogens, respiratory irritants,

asphyxiants, cardiovascular toxins, skin irritants, liver toxins, blood toxins and so on. Now, I think it's important to understand these burn pits were being used at some very large and populated, well-established bases in Iraq six years after we had invaded Iraq. I understand, in a war theater, sometimes things are done on an urgent basis to address the need at the moment.

But this is a chart that shows that the air base in Balad, Iraq is the largest U.S. base in the country. There are 20,000 troops based there, making it the equivalent of a small city. The base has good paved roads, two large swimming pools, diving wells, two PXs that look like big American-style supermarkets, five mess halls, full-service movie theater with Dolby Surround Sound and so on.

The point is, this picture shows -- this is one of the buildings of the base which houses a Subway sandwich shop. This picture shows these are bases that are big bases, have been around for a long while, very much like a city, and you would not expect someone to have a burn pit near an American city in which you are burning and putting into the air black plumes of smoke with toxic materials, hazardous materials, medical waste and so on, to expose those in that region.

Today we want to look at the practice of using the burn pits, examine whether it has endangered our troops and others who would have been exposed, and who is accountable for that and when will it change. Witnesses will include former military officials and KBR employees with first-hand experience of this problem, as well as a medical expert on the health consequences of burn-pit disposal; I should say the health consequences of burn-pit smoke.

The first witness will be Lieutenant Colonel Darrin Curtis, a former bioenvironmental flight commander of the Joint Base Balad from Arkansas, who wrote a 2006 memo for the Pentagon warning of the acute health hazards associated with the continued use of burn pits by private contractors. Mr. Curtis has a Ph.D. in Environmental Engineering and has conducted health-risk assessments for the Air Force for almost 20 years.

Rick Lamberth is a former KBR employee from Maryland who works on logistics and has helped KBR set up camps from Kuwait into Iraq. He's a long-time Army reservist who became a LOGCAP officer deployed to Iraq and who was exposed to burn-pit smoke.

Russell Keith served as a medic for KBR at Balad Air Force Base from 2006 to 2007 and at Basra from 2008 to 2009, currently residing in Alabama. Mr. Keith has treated many patients in Iraq who had respiratory problems.

And finally, Anthony Szema is an Assistant Professor of Medicine and Surgery at Stony Brook University. Dr. Szema is the Chief of the Allergy Section at the VA Medical Center in North Port, New York.

Have I pronounced your last name correctly, Doctor?

DR. SZEMA: Szema. (Clarifies pronunciation.)

SEN. DORGAN: Dr. Szema. Thank you very much.

I want to thank all of you for being willing to come and discuss publicly this issue so that we can understand what are the consequences of the issue, what has happened, and what might we do about it.

Let me say first, before we ask for the witnesses to begin discussing these issues, I think we're talking today about the health of soldiers, and it would be appropriate, I think, for all of us to say that our thoughts and prayers are with the soldiers yesterday who lost their lives in the Fort Hood -- they call it a massacre, and I guess it truly is when 13 people are killed and 30-plus people are wounded.

These are soldiers who were serving their country, willing to serve their country, I'm sure proud to serve their country, who lost their life on a base, a military base here in this country. And so our thoughts and prayers go out to all of them and all of their families in a very, very difficult time.

So, again, let me thank the witnesses who have agreed to come to Washington, DC. As I indicated, other colleagues will be joining me. But I want to begin with Lieutenant Colonel Darrin Curtis, retired, former Bioenvironmental Engineer, United States Air Force.

Mr. Curtis, you may proceed.

COL. CURTIS: Mr. Chairman, thank you for the opportunity to testify before you today. I am Dr. Darrin Curtis, a recently retired lieutenant colonel with the United States Air Force. I received a Ph.D. in Engineering and a Master's and Bachelor's Degree in Civil Engineering from the University of Arkansas. My graduate degrees included Environmental Research and Contaminant Transport. I am also a Professional Engineer in Utah and Arkansas.

I spent nearly 27 years in the United States Army and Air Force, serving the last 20 years as a Biomedical Science Corps Officer with the United States Air Force. In my capacity as an Environmental Engineer, I provided preventive-medicine service to service members.

I was deployed to Balad Air Base in Iraq from September 2006 to January 2007 as part of the 332nd Expeditionary Aerospace Medicine Squadron as an Environmental-Engineering Flight Commander. My responsibility was to assess hazards relating to the airmen and other personnel on base, in coordination with the Army Preventive Medicine Detachment.

There were more than 25,000 men and women stationed at Balad Air Base at the time. The base, which occupies a 25-square-kilometer site, is the largest and busiest airport operated in Iraq.

One of the very first things I noticed upon arriving at the Balad Air Base was the smoke from the burn pit. I arrived at night, and the weather conditions had caused the burn-pit smoke plume to hang close to the ground. The smell was noxious and looked like a very thick fog hanging low to the ground.

Shortly after my arrival, an inspector from the U.S. Army Center for Health Promotion and Preventive Medicine, CHPPM, told me that the Balad burn pit was one of the worst sites he had ever

seen, and that included ten years he had performed environmental cleanup at Army and Defense Logistics Agency sites.

The burn pit was the very first point of discussion I had with the Environmental Engineer I was replacing. He provided me with information on some past sampling that was inconclusive and mentioned that a large study, including air sampling, would be conducted during my rotation.

The sampling strategy for the study was finalized by me, members of CHPPM, the Air Force Institute of Operational Health and the Air Force Central Command's Bioenvironmental Engineer Forward. My team and I were only able to sample a few days of the sampling protocol before redeploying back to the United States. I handed off the rest of the sampling to my replacement.

Before my team started sampling, I thought it would be very difficult to capture the dynamic smoke plume from the burn pit with our sampling equipment. My concerns were validated during our sampling. I did not feel confident that we had captured the plume during our sampling. The dynamic nature of a smoke plume makes it highly unpredictable. I saw the plume move down-wind in unexpected ways, including when the plume would rise and come back to the ground nearly a mile away.

The sample results from the study were used for the CHPPM health-risk assessment published in May 2008 in which CHPPM stated that adverse health risks are unlikely. Since then, the Department of Defense has relied on this report to conclude that long-term health effects are not expected to occur from breathing the smoke at Balad Air Base.

Although some DOD officials are now saying that no hazard exposure was found in the sampling data, I do not feel that the air samples reflect the true exposure that the service members had experienced, and it is extremely difficult to predict the synergistic effects from multiple chemicals. It should also be noted that CHPPM did not consider measurements of particulate matter, PM10, PM2.5, and ultrafine PM levels in its risk assessment published in May 2008.

Although I wrote part of the sampling plan, coordinated all the sampling equipment and sampling media and sampled several days of the study, I was not contacted to provide input or to review the CHPPM report. Normally in scientific investigations, individuals who prepare the sampling strategy and take the samples are brought in as part of the team to write the report. It seems like it would be very difficult to write a report without the input of those who were at the site at the time.

In December 2006, after a year and a half before the CHPPM report was published, I wrote a report on the burn pits at Balad. In my report I stated that there's an acute health hazard for individuals. There's also the possibility for chronic health hazards associated with the smoke. The smoke hazards at Balad are associated with burning plastics, styrofoam, paper, wood, rubber, POL products, non-medical waste, some metals, some chemicals, paint solvents, et cetera, that make incomplete combustion byproducts.

Open-pit burning may only be practical when it is the only option available and should only be used in the interim until other ways of disposal can be found. This interim fix should not be

years, but more in the matter of months. It is amazing that the burn pit has been able to operate without restrictions over the past few years without significant engineering controls being put in place.

I wrote the memo because, despite the acute health hazards associated with the use of burn pits, it was evident that the construction of the incinerators at Balad was not moving forward. I was told that there were contracting and/or money problems associated with the construction of the incinerators.

Knowing that the incinerators could drastically reduce the service members' exposure to burn-pit smoke, I drafted the memo to document that there was a real health hazard associated with burn pits. I felt like my hands were tied when trying to deal with the constant complaints from service members exposed to the smoke. Most of these complaints, which included headaches, nausea, irritation of the eyes and upper respiratory complaints, were probably associated with the particulate matter.

My memo was strongly endorsed by the 332nd chief of Aerospace Medicine. It was sent to both the 332nd Expeditionary Medical Group commander and the Air Force Central Command's Bio-environmental Engineer Forward. I do not know how far the memo made it up the Air Force chain of command. I sent a copy of the memo to my counterpart in the Army at Balad, who then provided it to others.

Air Force leadership did get involved with the burn pits when the smoke hindered air operations at Balad. They would have the fires doused with water from the fire department to reduce the smoke so air operations would not be affected.

During medical redeployment briefings with each Air Force service member, the smoke from the burn pit was the issue of most concern for the airmen. These service members would request that the burn-pit exposure be placed in their medical records, because they were concerned about the long-term impact to their health associated with their exposures.

After my return, the one common experience I have noticed when talking to my fellow veterans who served in Iraq is burn pits. Everyone who served seems to have been near one.

I do not believe that CHPPM has the necessary data to make a determination that long-term health effects are not expected to occur from breathing the smoke at Joint Base Balad. I finalized the sampling plan and conducted some of the air sampling that was used to prepare the CHPPM report about the burn pit.

I understand the limitations of these samples and believe that CHPPM had overestimated the ability to adequately collect relative samples associated with the burn-pit plume. Although I have no data, I believe that the burn pits may be responsible for long-term health problems in many individuals who were exposed to the smoke plumes.

SEN. DORGAN: Colonel Curtis, thank you very much for your testimony. We appreciate that. And we'll have an opportunity to ask questions.

Next we'll hear from Mr. Rick Lamberth, a former employee of Kellogg, Brown & Root. He helped the company set up camps in Iraq. He's also a long-term Army reservist who became a LOGCAP Contract Officer deployed to Iraq and was exposed to burn-pit smoke. He currently suffers from certain pulmonary and neurological conditions, and he's a resident of Catonsville, MD.

Mr. Lamberth, thank you very much for being with us today.

MR. LAMBERTH: Honorable members of the committee, my name is Rick Lamberth. Beginning in 2003, I served in Kuwait, Iraq, and Afghanistan in both military and civilian capacities. While working for Kellogg, Brown & Root, I witnessed KBR employees dump nuclear, biological, chemical, decontamination materials, biomedical waste, plastics, oil, and tires into burn pits, in direct violation of military regulations, federal guidelines, and the LOGCAP Contract Statement of Work.

Since returning from Iraq in July of 2009, I have suffered from shortness of breath, spit up bloody mucus, had skin rashes, and have been diagnosed with non-organic sleeping disorders. I'm here today to share with you an eyewitness at the burn pits, how it has affected my health, and KBR's effort to keep this information from the public. I've worked for Kellogg, Brown & Root on the LOGCAP contract in different capacities since 2003.

I served in Kuwait in 2003 to 2004 as a KBR Operations Manager and occasionally crossed over into Iraq to work on LOGCAP III Task Orders 59 and 89. From July 2000 to July 2005, I served in the United States Army as a Contracting Officer's Representative in Tikrit, Iraq. Beginning in January, 2006 and ending in April, 2006, I served as a LOGCAP Support Officer in Afghanistan. From August, 2008 to July, 2009, I worked in Baghdad as a J-4 Logistician for Joint Task Force 134; was Direct Contact for the LOGCAP contract and Prime Contractor Kellogg, Brown & Root.

Under the LOGCAP contract, waste disposal of private contractors must comply with Army regulations, federal EPA, and the Defense Logistics Agency's regulations for waste and hazmat removal and disposal. The contract states that work must comply with federal, state, and local requirements concerning hazard identification and control activities. These activities include surveys, hazard assessments, training, medical monitoring, worker protection, occupant notification, and proper solid waste disposal.

Army regulations require that waste management at Army installations outside the continental United States must comply with the National Environmental Policy Act. These regulations require that facilities be designed, operated and maintained so as to protect the health and safety of service members, family members, civilian workforce, and contractors. Solid waste management at these facilities must be in accordance with the Solid Waste Disposal -- Disposable (sic) Act, SWDA, as well as applicable regulations and requirements of the EPA.

The LOGCAP contract Statement of Work outlined more specifically how waste was to be handled at military installations in Iraq and Afghanistan. The LOGCAP Statement of Work explicit-

ly conforms to Army Technical Bulletin 593, Guidelines for Field Waste Management, which allows for the use of burn pits only in emergency situations until approved incinerators can be obtained.

Additionally, the Statement of Work further provides that any surface burning or burn pits must minimize environmental effects on the base camp. It also requires that the contractor shall minimize any type of smoke exposures to the camp population. Certain hazardous waste materials are specifically prohibited from being disposed of in burn pits, including PCBs and nuclear, medical, and biological waste. The guidelines also prohibit disposal of petroleum, oil, solvents, and lubricants in burn pits.

I saw Kellogg, Brown & Root employees burn all of these items in burn pits in Iraq. From as close as ten feet away, I saw nuclear, biological and medical waste, including bloody cotton gauze, plastics, tires, petroleum cans, oil, and petroleum lubricants thrown into burn pits. Vermin, wild dogs, and jackals would roam the pits, carrying off debris. (Coughs.) Excuse me. I personally witnessed this type of activity occurring in Iraq at Camps Balad -- (coughs) -- excuse me, Taji, Tikrit, Kirkuk, Camp Bucca and -- (coughs) -- excuse me, Camp Cropper. In Afghanistan, at Bagram Air Field, Camp Phoenix, all among the largest bases we operate -- (clears throat) -- in the theater.

The burn pits emitted plumes of smoke and gave off a foul smell. You could see mile-high clouds of smoke coming from the pits. Sometimes the smoke was light, but mostly it was dark black. The ash that came from the pits looked like burned notebook paper and fell like a black sooty snowfall. The ash covered buildings and ground like pollen dust. Soot from the pits would cover your clothes and stick to the walls of buildings.

The burn pits varied in size and location. At Camp Speicher there were six burn pits while I was there. During 2004 and 2006, my estimation is that there were a minimum of 100 burn pits operating in Iraq, and at least 30 in Afghanistan. At Camp Speicher, one of the pits was approximately 25 feet by 25 feet, and about 50 to 60 feet deep.

KBR built the pit upwind from the living quarters, so all smoke traveled downwind where soldiers were living, which, in some cases, was as close as one quarter of a mile. This was in violation of the LOGCAP Statement of Work and Army regulations. KBR was supposed to site burn pits downwind from living quarters.

KBR routinely ignored this guidance. Instead of consulting a health and safety engineer, they would just choose a site out of expediency. If done right, it would have only taken a day to develop the proper wind-flow analysis.

By continuing to use these burn pits, and claiming that these sites are expeditionary, KBR is able to drag out the life of the LOGCAP III contract and continue to get taxpayer dollars. If KBR can convince DOD that the sites are still expeditionary, they get to roll over the existing LOGCAP III contract.

As a LOGCAP Operations Manager, it was my duty to report to KBR management when the

company was in violation of the guidelines and the contract statement of work. I witnessed burn pit violations on a weekly basis. Where I tried to report violations, I was told by the head of KBR's Health, Safety, and Environmental Division to shut up and keep it to myself. At one point, KBR management threatened to sue me for slander if I spoke out about these violations.

KBR was able to get away with this because the Army never enforced the applicable standards. KBR's project controls department also kept their information hidden. During one visit by a representative from the Defense Contract Management Agency, I heard someone from project control state that it was her job to keep the DCMA away from the books during the inspection.

KBR management would brag that they would -- they could get away with doing anything they wanted because the Army could not function without them. KBR figured that even if they did not get caught -- correction, if they did get caught, they had already made more than enough money to pay any fines and still make a profit.

Since returning home in July, I have suffered the health effects of burn pit exposure. Before this, I'd always been healthy. I joined the military straight out of high school, where I had played three different sports. Since returning home in July, I have suffered from a number of respiratory problems related to the exposure.

Now the military will not pay for my medical care. They claim that these conditions are "EPTS," standing for "existed prior to service." I am testifying here today to let you know that we cannot wait one more day to shut down these burn pits and give proper medical treatment to everyone who has been exposed. We must also stop this from ever happening again.

Thank you for your time. I'm happy to answer any questions that you may have.

SEN. DORGAN: Mr. Lamberth, thank you very much for being here and for your testimony. I'm going to call on Mr. Keith. Let me make a note that Senator Udall has joined us from New Mexico.

Senator, welcome.

Mr. Russell Keith is a former Kellogg, Brown & Root medic who worked at Joint Base Balad from 2006 to 2007 and in Basra from 2008 to 2009. He observed hazardous and medical waste being improperly dumped into burn pits by KBR employees. He currently suffers from a number of health conditions which his doctors believe were caused by these -- environmental pollution in Iraq. He's a resident of Huntsville, Alabama.

Mr. Keith, thank you very much for coming to present testimony today.

MR. KEITH: Mr. Chairman, members of the committee, I thank you for the invitation and the opportunity to give my testimony before you today.

My name is Leon Russell Keith and I'm from Huntsville, Alabama. I've been a nationally-registered Paramedic for 17 years. I served as a Remote-Duty Paramedic with KBR from March,

2006 until July, 2007 at Joint Base Balad in Iraq. I deployed again to work for KBR from April, 2008 to June, 2009 in Basra.

I've been answering 911 calls for medic rescue calls in Houston, Texas and Northern Alabama for over 20 years. I'm here today because I'm concerned about the long-term health damage suffered by members of our armed forces, civilian workers, and support personnel as a result of exposure to toxins on the unregulated burn pits in Iraq.

While I was stationed in Balad, I experienced the effects of a massive burn pit that burned 24 hours a day, seven days a week. The ten-acre pit was located in the northwest corner of the base. An acrid, dark black smoke from the pit would accumulate and hang low over the base for weeks at a time. Every spot on the base was touched by smoke from this pit.

Everyone who served at this base was exposed to the smoke. Ash from the smoke would seep deep into the air conditioning systems, and in our living quarters -- would be covered with a coating of dark soot. Our rooms had what looked like dark-colored flowers spread over everything, including our beds, our clothing and the floor. We called this "the Iraqi talcum powder." You could often taste the smoke in the air at the base, both inside and outside.

There was nothing that KBR would not put in the burn pits. I have never heard of any KBR restrictions on what could be burned in the pit. The color of the smoke would change depending on what was being burned. Sometimes the smoke was a yellowish color, but the worst was when the smoke would be a dark green. On these days, the KBR medical clinic where I would work could expect an increased number of patients all complaining of burning throats, eyes, as well as painful breathing.

The acute symptoms of exposure to burn pit smoke included, but were not limited to, nausea, vomiting, lungs and sinus irritations, congestion, diarrhea, and associated dehydration with this, and even some cases of individuals coughing up blood.

At the KBR clinic, we provided these people with lung decongestants and oral steroids. Unfortunately, I had patients that were so sick from the smoke that we had to take them to the Air Force theater hospital or send them to Kuwait for advanced diagnostics and treatment. In my estimation, at least 30 percent to 40 percent of our total patient traffic at the medical clinic was generated by poor air quality. The medical waste generated by our KBR clinic included needles, gloves, bandages, and body fluids.

The waste was disposed of by turning it over to the Air Force Hospital at Balad, and since there were no incinerators at the time, when I was deployed at Balad from March, 2006, the only disposal option was to burn the medical waste in the burn pit. I was told on more than one occasion that the medical waste was soaked in jet fuel and then burned in the open air pits. There were staggering amounts of medications purchased by KBR at the Balad medical clinic, much of which would expire, so we were forced to throw away hundreds of bottles of still sealed medications.

Some of these medications were expensive non-steroidal, anti-inflammatory drugs like Celebrex

capsules, which retail here for approximately \$3 -- that's very conservative -- per capsule. I threw out tens of thousands of Celebrex, Penicillin, Amoxicillin pills, which I believe were burned in the burn pit. It is a travesty that these medications were wasted, but this waste pales in comparison to the harm that was being done to the residents of the base.

It was during this time that I began having difficulty moving the small finger on my left hand, and typing became more difficult. During my second deployment with KBR, I worked at the camp medical clinic at Camp Harper in Basra, which was under British control until June of this year. It is a small base with less than 100 KBR employees and I was responsible for their treatment. I noticed a vast difference between Basra and Balad when it came to disposing of waste. At Basra, we had a medical incinerator operated by third country nationals. The clinic at Basra had a noticeable decrease in respiratory complaints. There were days when we had no patients.

Most of my duties were involved in giving vaccinations and administering general care. Unfortunately, the wasteful medical purchases by KBR were similar to the situations at Balad. We had enough equipment, medications, and supplies to accommodate a huge base. I found myself having to toss out thousands of dollars' worth of supplies and medications every month due to the expirations of the expensive medicine and medical supplies.

When I was getting ready to take my R & R this past June, I advised KBR officials that I was experiencing difficulty with the functioning of my left leg and arm. Upon my arrival home, I visited my physician, which I normally did on each R&R. She immediately noticed tremors on my left side and sent me for a neurological exam. After a series of tests that included brain scans, nerve conductivity surveys, and MRIs, my neurologist advised me that I had suffered neurological damage and was exhibiting the signs and symptoms of Parkinson's disease.

He explained to me that in my particular case, it is atypical for several reasons. At the time of my diagnosis, I was 16 years younger than the usual age for the onset of non-traumatic Parkinson's. In addition, I have a large discrepancy in the functioning of my right and left sides, which suggests damage from toxins. I also have no family history, going back five generations, of Parkinson's disease. I was sent to the University of Alabama Birmingham Hospital, where experts concurred with my doctor's diagnosis.

It is my doctor's expert opinion that, due to the atypical nature of my neurological problems, my debilitating illness was most likely caused by exposure to one or more environmental toxins while I was in Iraq. I was approved for a medical leave of absence that lasted 70 days. Now I am medically disqualified from returning to Iraq because of my condition, and the medication that I'll have to take for the rest of my life. I've made a claim for compensation under the Defense Base Act, because I no longer have health insurance to cover the enormous costs associated with this disease.

The pain that I have from the muscular contractions can be excruciatingly tough at times. I'm here today after spending almost three years in Iraq. I'm disappointed in what I received in return for my service. As you might imagine, there's no need for a paramedic who is experiencing neurological problems and weakness on one side of his body. Please do not let the exposure to smoke at the burn pit become the next Agent Orange or Gulf War Syndrome. My health condi-

tion was preventable, and prompt action can prevent others from suffering a similar fate. I thank you for your time and attention. It's been my honor to address you today.

SEN. DORGAN: Mr. Keith, thank you very much for being willing to come and speak candidly about these issues. We appreciate that.

And finally, we will hear from Dr. Anthony Szema. Dr. Anthony Szema is Chief of the Allergy Section, Veterans' Affairs Medical Center. He is an Assistant Professor of Medicine at Stony Brook University in New York, and as I indicated, Chief of the Allergy Section at the V.A. Medical Center in Northport, New York. A resident of East Setauket.

DR. ANTHONY SZEMA: Setauket.

SEN. DORGAN: Setauket. East Setauket. We Northern Great Plains people have trouble pronouncing the titles of eastern cities. East Setauket, New York, I've got it. Dr. Szema, thank you for traveling to be with us today. And you may proceed.

DR. SZEMA: Good morning. My name is Anthony Szema. Thank you, Senator Dorgan, for the invitation to testify.

I am head of the Allergy Diagnostic Unit at Stony Brook University Medical Center in New York. I also serve as an Assistant Professor of Medicine, Surgery, at SUNY, Stony Brook School of Medicine, and the Chief of the Allergy Section at the Veterans' Affairs Medical Center in Northport, NY. I received my undergraduate degree in Industrial and Management Engineering from Rensselaer Polytechnic Institute in Troy, NY, and my medical degree from Albany Medical College in Albany, New York. I completed three fellowships at Columbia University, in pulmonary diseases, critical care medicine and clinical adult and pediatric allergy immunology.

I am testify today in my personal capacity and do not, in any way, represent the interests, beliefs or opinions of my employers. Smoke from any fire can affect health. There's an extensive body of research on the dangers of smoke inhalation. Trash should not be burned because it can cause harmful air pollution. The contents of smoke depend on the trash, temperature and oxygen available. There are short and long term health consequences with exposure to fire, smoke and fumes. The synergistic impact from the combination of burning chemicals is unknown, although our Stony Brook team reported a 50 percent increase in new asthma diagnoses among children near the fire, dust, and fumes at the World Trade Center.

This month, we published an article showing that asthma rates are persistently high in 29 percent of the entire elementary school population near Ground Zero. Soldiers who are routinely exposed to burn pits, like these school children and rescue workers in lower Manhattan, may very well have burning eyes and noses, nausea, headaches and asthma-like symptoms. Incinerators may provide a healthier alternative to burn pits in Iraq and Afghanistan, because they burn trash at higher temperatures, which create less harmful smoke than the burn pits.

Ten pounds a day from a household burn barrel may produce as much pollution as a modern,

well controlled incinerator burning 400,000 pounds of trash a day. Harmful smoke may also be reduced by recycling -- plastic, paper, metal, glass, ink cartridges -- and by installing EPA, Environmental Protection Agency compliant, biohazard waste measures for medical waste. Burning anything leads to particulate matter, PM, which when inhaled, is toxic to the lungs and heart. The size of particulate matter is important to consider because the particles act as a carrier of various harmful chemicals in air.

The smaller the particulate matter, the deeper the particles are able to travel into the lungs. PM-10, ten microns in size, or one times ten to the negative six meter diameter, are larger particles which can be trapped in the nose. Whereas, PM-2.5 and ultrafine PM are able to enter the lung alveoli or air sacs. PM-2.5 and ultrafine PM are particularly harmful to human health. Not only is there a risk of asthma, bronchitis, and emphysema with ultrafine PM but there is also an association with respiratory and cardiovascular mortality. Death from inhalation of ultrafine particulate matter.

Particulate matter levels are especially bad if they are high, but particulate matter may even be worrisome if levels are low. The toxicity depends on the composition of the particulate itself. For example, is the particulate matter acting as a carrier of black carbon or arsenic? Particulate matter levels should always be considered when performing air sampling to measure air quality. The U.S. Army Center for Health Promotion and Preventive Medicine, CHPPM, apparently did not include data about particulate matter, PM-2.5 levels in their May, 2008 analysis of the air quality at Balad Air Base in Iraq.

PM-2.5 and ultrafine PM should have been a large component of CHPPM's analysis. CHPPM also evidently did not conduct comprehensive testing at any other bases using burn pits in Iraq and Afghanistan. So we do not have information about air quality at those bases. When I think of air pollution, the first thing I think of is the level of PM2.5, and the potential toxins these could be carrying. Inhalation of PM air pollution can lead to premature death from respiratory and cardiovascular causes, including strokes.

Inflammation and reduced lung function may even be seen in lung tissue from healthy adults. Year-round exposure to PM has been associated with small airway disease and risks of dying from lung cancer and cardiovascular disease. Reduction in PM2.5 by ten micrograms per cubic meter is associated with reduced mortality risks.

Individuals have reported uncontrolled burning of waste in the burn pits in Iraq, as you've just heard, Senator. The chemicals generated from slow, low-heat burning, present a variety of health risks. I am not a toxicologist, but from gleaning the literature, the type of plastic PVC number three used to make plastic bottles produces dioxin and hydrochloric acid when burned. These chemicals are associated with immune dysfunction, intellectual quotient deficit, and reproductive abnormalities.

Polystyrene foam cups can be a source of carcinogens, including dioxin, benzene, styrene, and furanes when burned. Chromated Copper Arsenates, CCA, treated wood contains pro-carcinogenic arsenic. Blister-colored paper, that is, toilet paper magazines contains harmful chemicals when burned. Bleached paper contains halogenated hydrocarbons and furanes asso-

ciated with leukemia and liver disease. Colored paper contains heavy metals like lead and Cadmia associated with blood, liver, and kidney disease.

Particleboard and plywood release formaldehyde when burned. This is associated with nose and throat cancer as well as liver and kidney disease and airway inflammation. Cardboard used for packaging of food stuffs may contain fungicides, which are associated with neurological disorders. The variety of materials burned at the burn pits in Iraq potentially produces an enormous array of chemicals, which may plausibly combine when burned, to produce unknown dangers. The location and time during which air sampling occurs can largely impact the results and reliability of those tests. I think of this as literally garbage in, garbage out. If the sampling equipment, location of testing and timing are not performed properly, one will not gather accurate information and will not be able to provide a confident analysis of the results.

The May 2008 CHIPPM report, included analyses based on testing conducted from January to April, 2007. Troops apparently did not wear personal PM2.5 monitors. This was partly conducted during Iraq's rainy season, and did not include any measurements from the summer. The results could not reflect a year-long exposure to the smoke from the burn pits because of the changing weather conditions. This would be like testing for snow in Albany, New York during the summer, testing will not detect any snow. But this does not mean it does not snow in Albany.

With regard to location, if the wind typically blows fumes away to the north, this does not mean a lack of detection in monitors placed to the south; it means that the air is safe to breathe. The timing of the testing is also relevant because numerous materials were burned in the pits. If you tested during a time when medical trash was not burned, then you would not detect the toxins emitted from this type of burning, including lead, mercury, and furantes.

The testing does not tell us anything about the air quality before or after the burning occurred. Individuals exposed to burn-pit fumes in 2004 may have experienced worse conditions than those in 2007. It is also important to analyze the ashes and dust in a burn-pit pile after materials have been burned. As we learned from Professor Paul Leowes' article about the World Trade Center dust, this dust may contain toxins that are not detectable by airborne collection methods.

In my practice as an allergist and pulmonologist at the Veterans Affairs Medical Center in Northport, New York, the demographics of the patients I typically see have changed since 1998. Until 2004, I mostly saw 80-year-old veterans. However, from 2004 to the present, I've begun seeing young women and men, who were previously healthy athletes capable of passing basic training and performing combat duty. Now, these individuals suffer from a variety of respiratory illnesses, including asthma and difficulty breathing during exertion and they are not fit for continued military duty.

This is an alarming trend since we reported double the rate of new onset adult asthma diagnoses among Iraq deployed versus stateside troops. The rhinitis or nasal congestion rates were twice control rates as well. It is important to understand that occupational asthma from phthalates, from spray paint is subtle and is not detected with PM monitors. It may be assessed by known exposure, clinical symptoms and physical examination of patient's physiology and skin testing.

Also, many of the tests typically given to determine respiratory illness, such as spirometry, a pulmonary function test, are insensitive and may not detect the true nature of the illness. Dr. Robert Miller, a doctor at Vanderbilt University, has performed a study of individuals exposed to a fire in Iraq in 2003. These individuals had normal CAT scans and pulmonary function tests. Only by performing a lung biopsy was he able to properly diagnose most of his patients with constrictive bronchiolitis, likely from exposure to toxic smoke fumes.

Additional funded clinical and basic research with more sophisticated testing is needed to fully understand the health implications for soldiers breathing the fumes from burn-pit smoke. In summary, you should not burn trash or inhale burning trash. There are short and long-term health consequences associated with exposure to fire, smoke, and fumes. During the question-and-answer session, I will relay my recommendations. Thank you.

SEN. DORGAN: Dr. Szema, thank you very much.

We've been joined as well by Senator Tester from Montana. Senator Tester, welcome. Let me ask a few questions and then turn to my colleagues.

Mr. Curtis, why did you decide to write the 2006 memorandum? And did anyone else at that point share your concerns about the health impact of burn pits?

MR. CURTIS: Yes, Senator. The Chief of Aerospace Medicine had the same concerns I did. The memo was initially written so that we could expedite the installation of the incinerators. From my understanding, there were spending limits of monies with health issues and not health issues. So I wanted to write the report to show that there are health issues associated with burn pits so that we could hopefully accelerate the installation of the incinerators.

SEN. DORGAN: Of the type of burn pit you saw in Iraq in 2006, that's some while after the war began, and infrastructure had been created and so on, except without incinerators. If something of that nature were occurring in a neighborhood here in Washington, DC, or any American city, what are the consequences of that?

MR. CURTIS: At least fines and possibly jail.

SEN. DORGAN: Because –

MR. CURTIS: -- of the regulations that are out there today.

SEN. DORGAN: Because it's a serious risk to human health?

MR. CURTIS: Yes, sir.

SEN. DORGAN: You say that when you arrived in Iraq, an inspector from the U.S. Army Center for Health Promotion and Preventive Medicine, which is CHPPM, told you that the Balad burn pit was the worst environmental site he had seen, and that included the ten years he had per-

formed environmental cleanup for the Army and Defense Logistics Agency. And yet, in your testimony you also say that CHPPM has done this study and says adverse health risks are unlikely. So you're talking about an inspector from CHPPM that says this is the worst I've seen, and then, a report comes out later from CHPPM that says adverse health risks are unlikely. Long-term health effects are not expected to occur from breathing the smoke -- a contradiction there and why?

MR. CURTIS: I think in any organization you're going to have people with differences of opinion.

But at CHPPM, I'm sure that was the same outcome there. I don't know if that individual still thinks --

SEN. DORGAN: Do you think the CHPPM assessment that has been relied on now is just wrong -- no adverse health effects?

MR. CURTIS: Senator, I think the hard line that there is no health effects is a very strong comment that we don't have the data to say. Do we have the data to say that it is a health risk, I don't think we have that either. But I do not think we have the data to say there is no health risk.

SEN. DORGAN: You are a Bioenvironmental Engineer. What is your own opinion? Without testing their data, you saw the burn pits, you were there. You hear the testimony of what went in the burn pits. You hear Dr. Szema's assessment. What is your assessment?

MR. CURTIS: I think we're going to look at a lot of sick people later on.

SEN. DORGAN: Dr. Szema, what's your assessment of what you've heard? You've not been in Iraq. You've not seen the burn pits. You've heard them described. You heard Mr. Lamberth and Mr. Keith describe what was thrown into the burn pits. What's your assessment of what we might see as a result of this? Is this a potentially serious threat to human health of those who were exposed?

DR. SZEMA: (Off mike) -- first report, I didn't even know what a burn pit was. So we thought that the higher asthma rates we were seeing anecdotally were related to the shamal, the dust storms in Iraq, and possibly exposure to inhalational particles from improvised explosive devices.

And then we did our study, indicating that rates of asthma were twice that if you were Iraq-deployed versus stateside deployed. And only recently, when I learned about the burn pits, I knew that that could potentially plausibly be one of these explanations. We actually did have 2.5 data from CHPPM in one of our presentations at the American Thoracic Society Conference, the PM 2.5 levels were in the thousands.

Just for an example, in comparison, the Environmental Protection Agency standards in the United States are 35 micrograms per cubic meter. So if you're over 35 in the United States, that's air pollution, and they were measuring it in the thousands. And that's irrespective of what is actual-

ly in the concentration. So, in and of itself, there were clearly particles in the air. That was not included in the 2008 report. That was part of our poster presentation.

So, my concern is that what -- you're not supposed to be burning anything. Even if you were burning wood and cooking, we know that in third world countries, if we reduce the use of cook stoves and fires, we can reduce respiratory mortality by millions of people worldwide.

And, in fact, the American Thoracic Society is coming out with a position statement saying that even in the United States, if we roll back the EPA pollution standards a little bit, we will save millions of lives in the United States from air pollution. So clearly, I think, when you have uncontrolled burns, there will be a litany of health effects.

And we know that from the World Trade Center data, firefighters who were exposed to the pit, who spent more than 1,000 hours, have shrunken lungs and twitchy airways. So you can't have asthma if you're in the Fire Department in New York City, so I'm very concerned.

SEN. DORGAN: I'm going to ask in a bit your recommendations for CHPPM and us because my understanding is that while they're ramping up some incinerators, the fact is there are burn pits still there, still active, and so the question is, what do we do -- obviously, it seems to me, you begin to incinerate rather than use burn pits. We should have done that. We're seven, eight years into a war; we should have done that a long time ago.

But then the question will be, what advice would you have for CHPPM to go back and make a new assessment? If there's a judgment their original assessment is probably not accurate, what kind of a new assessment should be made? I'll ask that in a moment but I want to have my colleagues have an opportunity.

I have one question for Mr. Keith. Mr. Keith, you talked about throwing away a lot of medicine because there was substantial over-ordering of medicine in quantities that were not justified and not used therefore, and they were thrown into burn pits. Was that a chronic problem?

MR. KEITH: Everywhere that I was at over there, if you ordered it, you got it in vast quantities that would expire, that countries wouldn't be able to use much of this stuff.

SEN. DORGAN: Who was in charge of ordering?

MR. KEITH: It came out of Computer Medical Management in Baghdad. They actually -- we had a formulary medication, formulary list that we were allowed to give out for medications and dispense of them and they were responsible for keeping up the quantities and shipping them out all over theater.

SEN. DORGAN: Is that an Army action or a contractor action?

MR. KEITH: That's strictly contractor.

SEN. DORGAN: And so --

MR. KEITH: We were only responsible for the health of the contractors there, so we had no health implications or -- no health responsibilities for any military at all.

SEN. DORGAN: So the more the contractor orders, the more business they're doing? I mean -- all right. And so, you saw that -- you saw all those extra medicines --

MR. KEITH: I threw away a lot of medications.

SEN. DORGAN: -- thrown into burn pits?

MR. KEITH: Yes, sir, I threw away a lot of medications.

SEN. DORGAN: Mr. Lamberth, you described that KBR was motivated to continue to use burn pits so as to portray them as what is called expeditionary. I didn't quite understand that. If they are expeditionary, then what? And what does expeditionary mean?

MR. LAMBERTH: Sir, "expeditionary" is a phase where it's portrayed as being more austere and a more expensive environment to logistically support DOD forces and therefore justifying requests for more funds, more supplementals from Congress, needing more funds because to try and get to a sustainment phase or a more mature phase, which would -- that there is needed more money and funds to transition or transform to that phase, but yet corporately speaking they would never desire to get to the sustainment phase because that means the demobilizing and re-deployment of billable contractors back to CONUS, to the Continental United States and to a level to where there wasn't needed a high ratio of contractors to DOD-deployed personnel. So it boiled down to new business and increased as far as requirement of funds, Sir.

SEN. DORGAN: I'm going to call on my colleagues in a moment, but as you're speaking -- and, Mr. Keith, you as well -- I'm thinking of Henry Bunting who sat at this table. I started these hearings in 2004. The Congress should have put together a Truman Committee. When you're going to push hundreds of billions of dollars out the door in wartime, you've got to make sure it's spent well and it's actually in support of American troops.

But the Congress has not done what -- you know, what was done in World War II, creating a Truman Committee for \$15,000, and it saved \$15 billion and held 60 hearings a year for seven straight years. This is the 21st hearing I've done on these issues. And Henry Bunting came at sat at this table. He was a purchaser in Kuwait -- one of the first witnesses at one of the first hearings -- and he described -- he worked for Kellogg Brown & Root, then Halliburton as well -- and he was a purchaser and he described what he was told on how to purchase from his superiors: You buy it and the more it costs, the more money we make; don't worry about costs.

And he told us stories that were unbelievable. And the first story that I went to the floor of the Senate to talk about were the towels, little hand towels they were purchasing for the troops. It was the job of Kellogg Brown & Root, having gotten the LOGCAP contract to purchase hand towels.

And so Henry -- he's kind of an accounting-looking type guy, if there's an accounting look -- he said, well, I just ordered these towels, and my supervisor said, no, you can't do that. You just ordered plain towels. You've got to order towels with our logo, KBR, embroidered on the towels. Yeah, but, he said, that's going to cost three to four times more money. The supervisor said, well, that doesn't matter; the taxpayer is going to pay for that. It's cost-plus contract.

And so Henry brought me samples of the towels he was required to order that cost the American people four times more than it should have cost. And that little episode, blasted a thousand times in the next 20 hearings I've done, describes to me how unbelievably fleeced we have been by contracting, and also how soldiers' health and lives have been put at risk by practices, whether it's electrical contracting that was done by third-country nationals hired by KBR and soldiers died as a result, taking showers -- being electrocuted while in the shower. Unbelievable.

Well, I didn't mean to have a rant here about it but, you know, it is so disappointing to me that there is not a Truman-type committee with subpoenas to address these issues during wartime to make sure that we protect the health of soldiers and make sure we protect the American taxpayers. Perhaps someday we'll get that. It's not as if we haven't tried.

Senator Udall.

SEN. MARK UDALL (D-CO): Thank you, Senator Dorgan, and thank you for holding this hearing, and thank you for performing those services of a Truman committee. And I agree with you and I would like to work with you on finding a way to make sure that we have oversight of the way money is spent.

I think one of the biggest problems that's demonstrated here is we are contracting out a lot of the services we do. A recent article I think showed that the numbers of employees are in the thousands and thousands that are under contractors, and these are basic services that, in the past, were done by either the Department of State or Department of Defense, or other departments that are working overseas. So I think we should try to make sure that that oversight is there.

Mr. Lamberth, let me ask you, because you testified here earlier that one of the things that you were told when you made your claim, that they said these were preexisting problems. Now, I'm wondering, when you say "preexisting problems," what was your -- if you could get in a little more detail, what was your health before you went -- KBR. Were you having any health problems? Let's start there before you got into the situation where you went overseas. You talked about being a healthy athlete. Did you have any health problems at all?

MR. LAMBERTH: No, sir.

SEN. UDALL: You just -- there's nothing out there that you remember in any way?

MR. LAMBERTH: No, sir, not prior to the deployments.

SEN. UDALL: Prior to the deployments, and then you had these exposures. Could you talk a little bit more in depth, I mean, how long the exposures were and for what period of time?

MR. LAMBERTH: Well, sir, since 2003 I've been deployed as a contractor or Army reservist for three-and-a-half years. Daily breathing and inhalation from the burn pits –

SEN. UDALL: Over that three-and-a-half-year period of time?

MR. LAMBERTH: Yes, sir.

SEN. UDALL: Yeah, at various burn pits in Iraq and Afghanistan?

MR. LAMBERTH: Yes, sir.

SEN. UDALL: Yeah. Continue, please.

MR. LAMBERTH: As an operations manager with Kellogg Brown & Root I knew some of the senior managers and I spoke with them about taking proactive measures to become in compliance with EPA and federal regulations and Defense Logistics Agency regulations in response to hazmat and the MSDS, Material Safety Data Sheets, and things of that nature. Plus, it would save having to do, God forbid, a Superfund cleanup site in the future.

I was told to shut up, keep that to myself because that's future business. And I said, well, what about the health concerns of everyone, plus we're in a sovereign nation, even though that little territory will supposedly be coalition and American? And I was told, don't worry about the repercussions of that. And I was told if I persisted, that I would be terminated.

Then as an Army reservist, out of concern for fellow soldiers and fellow DOD service members and contractors, I felt it was my duty to go up through the chain of command in trying to get them -- if nothing else, cease and desist to start a landfill, put down -- do an environmental survey, maybe put down rubber liners or things of that nature until the incinerators could be purchased and brought in, say from Western Europe or from the continental United States to increase the temperatures to burn off all of the human waste and residue that was left due to just daily logistical support of living persons.

And I was told that that wasn't a priority, stay in my lane. And even though I pointed out the Task Orders and Statements of Work, that was a contract line item number that Kellogg Brown & Root had endorsed and signed off of that they wouldn't be in compliance with.

So, repeatedly -- and then now the Veterans Administration -- I enlisted right out of high school -- has told me that these were EPTS, existing prior to service, these conditions, when out of high school -- and I've always been a runner and an athlete and I've never really suffered any major ailments that I'm aware of.

SEN. UDALL: Now, in the three-and-a-half years where you got this exposure, how much exposure would you describe it to be in that period of time? I mean, can you identify it on a daily basis, on a couple hours a day, or was it a constant thing day and night or –

MR. LAMBERTH: Constantly, day and night, sir.

SEN. UDALL: Constantly, day and night –

MR. LAMBERTH: The burn pits –

SEN. UDALL: -- downwind from the burn pits.

MR. LAMBERTH: Correct, sir. For whatever reasons, there wasn't done a wind analysis when it was established on the environmental baseline. And even though we had aviation units, who I recommended to the health safety and environmental engineer for Kellogg Brown & Root that we should do prevailing winds or predominant wind analysis in place, you could shut the burn pits down and relocate them downwind of persons. And –

SEN. UDALL: They didn't want to do that.

MR. LAMBERTH: Correct, sir.

SEN. UDALL: I would cost them too much.

MR. LAMBERTH: Correct, sir.

SEN. UDALL: Now, after this exposure over about three-and-a-half years, what health problems have you been diagnosed with?

MR. LAMBERTH: Non-organic sleep disorders, acid reflux, just mainly upper respiratory, sir.

SEN. UDALL: And I think you talked about, yeah, upper respiratory, so difficulty breathing, a cough, all of those -- all of those kinds of things.

Dr. Szema, does this -- his condition that he has and everything, does that sound very consistent to you with being in the air from a burn pit for this period of time?

DR. SZEMA: This is analogous to the symptoms experienced by residents and fire fighters near the World Trade Center. They had so-called World Trade Center cough. It may be a result of airway twitchiness, reflux, sinusitis, lung injury. The fire fighters found that the sarcoidosis cases skyrocketed in the year after 9/11 and then they since have then subsided. So it's basically a form of lung injury because we do not have magic brushes to clean the lungs.

SEN. UDALL: And you mentioned that you were seeing patients who were much older and now you've seen a change in that. Do you tie that to anything in particular?

DR. SZEMA: Right, well, if lung injury was not a concern even with deploying of young people, I should not be seeing them in my clinic. What I'm seeing is young soldiers -- you know, the typical case, one of my patients was an all-state football player in Garden City, New York, and was an athlete, and now he has asthma. So he's not as bad as some of the other cases but he

should not have asthma.

In fact, having asthma is an exclusion criterion for being in the Army, and in order to be deployed you have to pass basic training. You're in a room with tear gas, you have to go through physical fitness, and then you get deployed. So these are not unselected troops. These are healthy young people who should have no medical conditions limiting their ability to exercise and have good human performance.

SEN. UDALL: And you're seeing many of these returning from Iraq and Afghanistan.

DR. SZEMA: Right. Right. In Long Island there were -- between 2004 and 2007 there were 5,000 Long Island-based troops who were stationed stateside. During the same period, 900 of these Long Island troops went to Iraq. The asthma rates to date are about ten percent among those who went to Iraq and five percent among those who stayed stateside.

So even if you say, well, maybe the doctors are missing it when they enlist, the percentage should be five percent. It should not be double. And the rhinitis rates are similarly double in the Iraq-deployed versus the stateside troops.

SEN. UDALL: Mr. Keith, you talked about making a claim under the Defense Base Act. Have you had your medical expenses and all of that taken care of?

MR. KEITH: No, sir. It is a very expensive illness to have. I have, like I said, Parkinson's disease. It is similar to Mr. Lamberth's thing. They're saying that it's not -- they're claiming that it's not from me going over there, me being exposed. What I've found --

SEN. UDALL: They're fighting it all the way.

MR. KEITH: Right, they're fighting it. It's --

SEN. UDALL: So how have you paid for your health-care expenses?

MR. KEITH: I've gone through savings pretty rapidly -- gone through savings.

SEN. UDALL: You've had to pay out of your own pocket.

MR. KEITH: Yes, sir. As a matter of fact, my Parkinson's medication is expensive and my last one is tomorrow. I have to get some more before I go home. So it's being fought -- my claim is still being appealed and everything, as we speak, but it's going to be a very long process. It was not -- it's being fought by a company that -- I'm sure we all know who exactly I'm talking about. The taxpayers gave three-quarters of a billion dollars to them, and that's the company that's denying my claim.

SEN. UDALL: Well, thank you, all of you, today for your testimony. And, Senator Dorgan, I couldn't agree with you more. We need a Truman-like commission. We need some arm of the Congress to be looking into this. And I look forward to supporting you and others that are going

to try to put something in place like that. Thank you for doing this.

SEN. DORGAN: Senator Udall, thank you very much for being here.

Senator Tester.

SEN. JON TESTER (D-MT): Well, thank you, Senator Dorgan, and I'm going to start out by apologizing for not getting here at the beginning of the hearing. I was very much looking forward to this. Unfortunately, Senator Coburn has got a hold on S. 1963, which gives benefits to rural veterans so they can live as long as urban veterans, and I had to go to the floor and plead the case for him to remove that hold so he could get it out hopefully by Veterans Day. So if some of my questions were addressed in some of your testimony, I apologize ahead of time.

I kind of want to get an idea here of -- some of these questions were asked earlier and I'll kind of dovetail onto those, but I kind of got the impression that these burn pits were 24 hours a day. I think you said that, Mr. Lamberth. And I think, Mr. Keith, you said that there was plenty of medicine to dump into them because you got them by the boatload and it expired quickly. And I assume that there was plastic and paper and everything else that went into those.

How many burn pits -- can anybody tell me how many burn pits there were in Iraq? Are we talking about the one at Balad or were there others around that you were aware of?

MR. KEITH: The burn pit that I have specific knowledge with is Balad. It's the biggest one, so - they're all over the place.

SEN. TESTER: Can you give me an idea of what kind of physical size these burn pits were?

MR. KEITH: It's about ten acres. It's enough --

SEN. TESTER: Ten acres?

MR. KEITH: Yes, sir. They would use bulldozers to move materials in and out to --

SEN. TESTER: Okay, were they actually dug into the ground? Did they move soil so it was below ground level?

MR. KEITH: A lot of parts of it was below ground, yes, sir. A lot of was built up because of the large -- there was a lot of things in it that wouldn't burn, either. You know, they had old vehicles, things that were hit by IEDs and things like that, that they would take over there -- old buses, transit buses and things like that, that would be in there. They would just push them in and try to get as much burn out of them as they could.

SEN. TESTER: When I was over there when they took Cats and dug holes in the ground, the filled up with water almost immediately. Was that an issue with these?

MR. KEITH: The entire country is pretty much under -- the ground water is like --

SEN. TESTER: It's right there.

MR. KEITH: -- saltwater. Yes, sir. So, I don't know exactly the logistics behind that. I think Mr. Lamberth probably could answer that a little bit better than me. He knows more about the burn pits, as far as that goes.

SEN. TESTER: Okay. Well, I was curious. Mr. Lamberth, you said in one of your answers to Senator Udall that when you asked him about the burn pits, they said to keep quiet because that clean-up was future business. So there was -- I mean up until now, there's absolutely no liability by the folks who created this problem whatsoever? Is that your understanding or --

MR. LAMBERTH: Yes sir.

SEN. TESTER: Okay.

MR. LAMBERTH: Sir, I --

SEN. TESTER: Yeah, go ahead.

MR. LAMBERTH: -- I didn't understand the question by -- you mean by liability.

SEN. TESTER: Well, I mean the understanding is they could do whatever they wanted, and there's no ramifications.

MR. LAMBERTH: Correct, sir. What has been conveyed to me verbally, and that's the impression I've gotten from their demeanor.

SEN. TESTER: Okay. Lieutenant Colonel Curtis and Mr. Lamberth, all right, thank you. Mr. Lamberth and Mr. Keith, you were all exposed. How does the military, I mean, were you exposed as a military officer, Lieutenant Colonel? I assume that.

COL. CURTIS: Oh, everybody on base is exposed.

SEN. TESTER: Right. How about you, Mr. Lamberth? Do you work for KBR but you're a reservist. Were you in a capacity of a reservist or were you private sector when you were exposed?

MR. LAMBERTH: Both, sir. In 2003, I was Operations Manager for Kellogg Brown & Root, and then 2004 and 2005 as an Army reservist, that's when my unit was mobilized.

SEN. TESTER: You were mobilized there, okay. How about you, Mr. Keith?

MR. KEITH: Strictly contractor for KBR.

SEN. TESTER: Okay. So -- and you may have addressed this earlier, and the military has said

that the exposure was inconsequential. So I would assume that if you start developing respiratory problems as you said you did, Mr. Lambert, you go to the VA and they just deny it? Or are you still in the reserves, so you go to the DOD? Who do you go to?

MR. LAMBERTH: Sir, I just returned this past July from my third tour in Southwest Asia, and I'm still working with the VA at this time through my demobilization physical at Ft. Dix, New Jersey. They were denying that some of the upper respiratory ailments and organic sleep disorders and coughing spells that I'm experiencing were -- now existed prior to my service, and that -- and all the time that I've spend in Southwest Asia did not lead to that, sir.

SEN. TESTER: Okay, okay.

MR. LAMBERT: I'm still in negotiations with the Veterans Administration trying to get some assistance, sir.

SEN. TESTER: Okay. Mr. Keith, what are your options?

MR. KEITH: My option is the Defense Base Act. If I was approved or my claim was approved, I would get a weekly wage coverage and I'm also -- but the main part would be my insurance.

They would have to cover my health for my Parkinson's.

SEN. TESTER: Have you been denied by -- you have been denied.

MR. KEITH: They're contesting it, yes sir, they're fighting it. And usually when they do that, it takes like a year and nine months to get that -- come to a conclusion and they're already, you know, saying that it had nothing to do with my exposure to the burn pit.

SEN. TESTER: Okay. Well, I'll just first of all appreciate your service, appreciate your honesty, and being able to come to this hearing. I'm going to echo what Senator Udall said that was started by Senator Dorgan and that is that a Truman Commission or a commission to take a look at what has gone on may not only help in wasting a whole lot of taxpayer dollars but also may help in figuring out what's going on with you guys from a health standpoint. And so I think that there's some real positive things to do that, and I just want to thank you for being here. Thank you, Senator Dorgan for holding this hearing.

SEN. DORGAN: We've been joined by Senator Lincoln. Senator Lincoln, welcome.

SEN. BLANCHE LINCOLN (D-AR): Thank you, Mr. Chairman. And thank you, gentlemen, for your willingness to be here today and to really bring forward some alarming issues that we really should have a better handle on and a better idea of what we're going to do about it. And it's my understanding, is that correct -- and I'm sorry I missed the first part of the hearing -- I was visiting with the Secretary of HHS -- but is it my understanding that these burn pits continue? That's correct? (No audible response.) Right. And I would like to welcome Lieutenant Colonel Curtis. I know he's got roots in Mountain Home, Arkansas. We're proud of that and grateful to your service, to all of your service and we appreciate that.

Just tagging on to the last question, Mr. Lamberth, so you didn't have -- if what they're claiming is that this perhaps was a pre-existing condition before your service or before your exposure there, you didn't have any kind of review -- health review which we are now requiring of our Guard and Reserve or will start requiring in terms of their health status before they are deployed. You didn't have any of that, did you?

MR. LAMBERTH: Yes ma'am.

SEN. LINCOLN: Oh, you did?

MR. LAMBERTH: Every -- approximately every five years, we're required a physical. Correction, I think it's over age 40, you're required a physical every five years. And then we did a pre-health assessment prior to deployment.

SEN. LINCOLN: Right. And nothing was found then?

MR. LAMBERTH: Correct, ma'am.

SEN. LINCOLN: Right, so -- and I guess one of the other questions that I'd really like to ask to any of you all, but I again am very grateful to Lieutenant Colonel Curtis. I know his background in bioenvironmental issues as a flight commander there at the base. Are there any guidelines in terms of the number of troops stationed at a particular camp, at a particular camp for a given amount of time that require the installation of the incinerators that are not being used on incinerators for waste? Are any of you all aware of any kind of requirements there?

DR. SZEMAN: DOD has some guidelines, but contingency operations are exempt from those.

SEN. LINCOLN: Okay, so they're exempt from any guidelines that would require incinerators for certain numbers of individuals and certain locations and all those kind of things. The comment made about the fact that these were used because there's potential future business. Is it the typical business of KBR and others for hazardous waste clean up?

MR. LAMBETH: What do you mean, ma'am, by the --

SEN. LINCOLN: I mean if there's potential business of, you know, what you're creating, it sounds like what we're creating to what many of us have lived through up here which are Superfund sites and other, you know, hazardous waste clean-up, and is that a business that the current contractors actually have or can facilitate?

MR. LAMBETH: Yes ma'am, it's currently a contract line item in the number in the Master Statement of Work. And what they'll do is if they don't have the expertise in-house, they'll turn around and subcontract it out. When I left July 2009, I left Baghdad, they had subcontracted that out to Ecolog. Yet, when you talk to them, they act like they're absolved of all responsibility, and I tell them negative, that you are still responsible -- you being the prime contractor, you're still responsible for compliance of EPA and DOD regulations in defense logistics agency regula-

tions which is really in charge of the DOD HAZMAT is defense logistics agency and they would want to deny that. They say no, Ecolog is doing that now. And I said no, regardless, you're still, you being the prime, you're responsible.

SEN. LINCOLN: Right. Well, of course that's a whole different issue, I suppose, in terms of spending our U.S. taxpayers dollars to clean up things that the same contractor actually created. The most important thing is we've got people, particularly service men and women whose health is being compromised in those circumstances. I just want to applaud all of you all for being here. I applaud you for being willing to bring forward the issue, and I certainly applaud Senator Dorgan for his efforts. He is always tremendous in terms of bringing forward issues that oftentimes people would like to sweep underneath the carpet and forget about and not pay attention to, and he really brings them to our attention and makes that effort so that we can become much more aware. And I hope that we'll all work together to really realize not only how we can save taxpayers' money in these types of instances, but the most important thing is to ensure that our men and women in uniform are safe, that they're operating in the safest environment that we can possibly provide for them.

Knowing that the danger and other things that they face is one thing. But to self-create a hazardous environment for them is just absolutely beyond all comprehension. So we very much appreciate what you all do and what you are doing and certainly look forward to being able to work with you and figure out really how we can do a better job in shedding light but more importantly correcting the problem.

SEN. DORGAN: Senator Lincoln, thank you very much. Dr. Szema, having heard what you have heard today and understanding some about the circumstances of burn pits, albeit in the middle of a war things are done that perhaps would not be done that same way in other circumstances, and yet when a war continues for a good many years and you developed effectively a city atmosphere -- by that I mean a lot of people living in close quarters -- one would expect these things to change even in war time.

But given what you have heard, what are your recommendations for CHPPM and the Department of Defense and the Veterans Affairs?

DR. SZEMA: I would propose a national deployment health research institute with six points. These would be based as independent university sites with annual United States Senate oversight akin to the Truman Commission. One center would be a coordinating lead university, and this would be analogous to the current ongoing World Trade Center Monitoring Program which is operated by the National Institute of Occupational Safety and Health, NIOSH.

Point number one, to conduct a study of pre-deployment controlled soldiers match for ages between 18 and 40, for example, in Long Island white male non-smokers and use more sophisticated testing than we do at our university.

For example, we use something called Excell Breath Condensate nitric oxide, so it's literally a bad breath test. You blow into a straw. Rather than me sticking a bronchoscope down your airways, it can measure airway inflammation noninvasively.

This was not done in the CHPPM report. We use impedance oscillometry. The pulmonary function tests that were even conducted at Vanderbilt are based on very old technology. The impedance oscillometry, which is a newer technology, measures small airways dysfunction and in the distal airways because it's sending 10,000 wavelengths of sound down the airways and it can measure resistance or obstruction. And normal barometry cannot pick that up.

There are also tests called methocholine challenge where 90 percent of asthmatics, when they inhale this chemical, will drop their lung function, whereas 90 percent of healthy people will not drop their lung function. There is also something called cardio-pulmonary exercise testing for those Yankee fans, Derek Jeter's in the Gatorade commercial. He runs on a treadmill and he's got a thing in his mouth. That measures physical fitness.

And we look at Long Islander hockey players, in season or out of season. If they're eating potato chips, we'll know that their oxygen consumption is down. So there are a variety of tests, as well as even DNA methylation. A recent study came out of Italy showing that foundry workers in Italy, even in the most modern factories, will have methylation of their genes, of their DNAs, after being there -- after a week of work. In addition, there are high resolution CAT scans, sinus CAT scans, nasal endoscopy, skin prick testing, and immunoCAP testing for allergens.

One of the original studies, which I never received data for, was a request in 2004 from CENT-COM, which was approved but never delivered to me to study dust mite antigen concentrations in the containerized housing units in Iraq. And I was told that a defense contractor purchased Dust Busters and they've been sitting in a room with my name on it.

SEN. DORGAN: Would you see us after this hearing and we'll see if we can make sure you get that.

DR. SZEMA: (Laughs.) All right. So point number one is a pre-deployment and post-deployment study, as I've just mentioned, and then stratify the database on your length of deployment and proximity to the burn pit to look at the data.

Point two would be the actual sample of the dust because all the current data has been air pollution data. Nobody's gone into the pit and analyzed the actual stuff that's come in the pit and analyze that for chemicals, as well as indoor and aeroallergens, geologic analysis of the dust size, the coarseness, the mineral/calcium content, which is an upper airway irritant, culture for bacteria and fungi. So point two is analysis of the dust.

Point three is to test animal models of asthma because even for regular asthma that we have in the United States, FDA-approved medications do not treat long-term asthma. There's a component of it called airway remodeling. We don't have a cure for airway remodeling, so that to use different animals, genetic models will tease out the genetic component and you can give PM 2.5 to mice in the standardized fashion as well as aeroallergens, and test current drugs and novel drugs to, you know, develop new medicines to treat these new diseases.

Point four -- establish a pulmonary function testing laboratory in Camp Anaconda Balad because

that's where you get exposed and that's where you should see the disease.

Point five. For other sites where they -- at the site where we'll have university sites, develop an asthma bus so you can go to multiple sites as a mobile testing and data collection station to many different military bases.

And the final point is, this is the first war where we've seen young women and we know from the World Trade Center data that women who were pregnant on 9/11 had intrauterine growth retardation or smaller, lighter babies, and whether or not that's stress-related or exposure to toxins is unknown, but this has been published. And this is the first war where we're actually seeing women veterans. And the long-term reproductive health effects are concerning because of the nature of the chemicals that are in the pile.

SEN. DORGAN: Dr. Szema, thank you for that analysis. It's very helpful. Colonel Curtis, have you talked to the folks at CHPPM or do you have a dialogue with them? Did you when you came back? Do you now?

COL. CURTIS: No, sir. I was not contacted from CHPPM after I redeployed to the United States.

SEN. DORGAN: But you're well aware of CHPPM. You are an Environmental Engineer, right, working for some 20 years in the military. You're well aware of CHPPM and you say to us that CHPPM -- let me find your -- CHPPM inspectors -- or inspector tells you that the Balad burn pit "was the worst environmental site he had seen," et cetera, et cetera. And then two paragraphs later you say, "The sample results from the study say that adverse health risks are unlikely."

From all that I can tell about your statement today is you felt that was not anywhere near on the mark, given the fact that you saw the burn pits, you knew what was going in the burn pits, you understood the potential damage to human health and so then CHPPM comes out in May of last year that says this is -- "adverse health risks are unlikely. Long-term health effects are not expected to occur from breathing the smoke at Balad Air Base." That seems way outside of the range of your judgment about what has happened on the ground. Is that correct?

COL. CURTIS: Yes, Senator. I believe CHPPM, you know, looked at the hard data that was produced by the sampling. However, with boots on the ground over there, you would see right off that that plume moves and it moves in manners that you cannot follow and sample. I don't know how much sampling you could do to capture the true exposure to the deployed personnel over there.

SEN. DORGAN: And, in any event, they were not evaluating the less than 2.5 ultrafine particle levels. Is that correct, as Dr. Szema indicated? And so, but CHPPM, I assume -- I don't know what the hierarchy is at CHPPM. I assume it's got a lot of people working over there. They've got a lot of titles -- Bioenvironmental Engineers, right?

COL. CURTIS: It's an Army organization, so they don't have Environmental Engineers. That is strictly in the Air Force, but they have similar people in the Army.

SEN. DORGAN: But why would we not expect CHPPM, as an organization, to have the kind of strata of professions and people, perhaps well-regarded, well-educated, to have knowledge of what has happened there, having seen some of it on the ground? They have inspectors on the ground and so on. Why would we not expect them to have a test that is released that is accurate? Let me say it another way. That was kind of a convoluted question.

The implication of all of this is that in May of last year CHPPM sent out a report that says, you know what? Things are just fine. I've had some experience with this, by the way, on water quality to the military installations which turned out to be inaccurate despite the fact that DOD said, no, no, no, you're wrong, Senator Dorgan, and KBR is right and the military is right. It turns out after the Inspector General did the report, they said, no, no, no, the military and KBR are wrong and these soldiers had non potable water that was more contaminated than raw water from the Euphrates River, so I've had some experience with this before.

But why should we not expect CHPPM to put out a report that says adverse health risks are unlikely and it's a report that we should not question? I mean, shouldn't we just say CHPPM has a lot of folks that are as smart as you are. I assume many of them have been on the ground. In your testimony you say that CHPPM inspectors are there when you're there. So what's disconnected here?

Any of you have a guess of what's disconnected or should we say, you know what? The weight of evidence here's on the side of CHPPM, no adverse health effects? Dr. Szema, what do you think?

DR. SZEMA: I know that Dr. Colleen Weis at CHPPM was interested in getting laptop-based spirometers to measure lung function in Iraq, and they were never able to successfully implement a program to do something like that, and part of that may have to do with deployment issues or just the nature of being, you know, in the middle of the war.

SEN. DORGAN: Are you saying maybe they don't know? But they issued a report that said "adverse health effects unlikely." Let me also mention to you that CHPPM is the same organization that said that there was not a problem with sodium dichromate at the facility in Iraq, Karmad Ali. Yeah. That facility was red, literally red with bags of sodium dichromate that had been spread around, and originally CHPPM indicated that is not a problem.

Well, it turns out that is a huge problem. A huge problem. And there was a movie Erin Brockovich made about the carcinogenic properties of sodium dichromate and we've held two hearings on that subject, but it just -- and I'm not trying to indict CHPPM here. I'm just trying to understand what on earth is going on.

COL. CURTIS: Senator, I think that they need something to go off of and they have their standards and they have the data and they're putting those standards with the data. However, that data is hard to get, and I just think that they're not taking into account, I mean, common sense. For one thing, when you're standing and you're breathing smoke you know it's not good for you and not only from the standpoint of acute or chronic health hazards, just from a quality of life

standpoint that these troops are going through every day having to breathe this smoke.

SEN. DORGAN: But you did a report a year before the CHPPM report came out. You did a memo or a letter in December 2006, and so you wrote a report as a member of the military on the ground and you said, "There's acute health hazard for individuals. The possibility of chronic health hazards associated with smoke, burning plastics" -- and so on.

So it's not as if someone shouldn't have been aware, "Look, something's happening here."

And so then the question is, how is it tested? Is it tested with the efficacy of testing methods that would produce a real result, so that you really understood what are the consequences here? And I think what you're saying is the testing method -- I think that Dr. Szema is saying the same -- the testing methods will not necessarily produce the results of what may really be taking place with respect to its impact on human health.

COL. CURTIS: Well, probably the correct testing methods to get it really good would probably cost more than any incinerator would to actually be put in place.

SEN. DORGAN: And to Mr. Lamberth and Mr. Keith, you have given us descriptions, perhaps more vivid descriptions, even, of what happens on the ground, what's actually dumped into the pits. Medicine, of course, is full of chemicals; in many cases, that's what medicine is; toxic materials, medical waste. You talked about blood products.

All of that is put in burn pits and then burned. And the plume from a pit like that, Dr. Szema, with, you know, plastics, and medical waste, those kinds of things, that plume, I assume, is not allowed to happen in a major American city because it would be devastating to human health. Is that correct?

DR. SZEMA: That's correct. You can't burn medical waste. You'll probably go to jail if you burn medical waste in the United States. It's like if you're a dry cleaner and you throw out the stuff without proper disposal, you'll probably go to jail.

SEN. DORGAN: Why?

DR. SZEMA: Because it's against the law.

SEN. DORGAN: Why is it against the law?

DR. SZEMA: It releases carcinogens and toxins to human health. And in hospitals in the United States, we have sharp containers. We have biohazard red-bag containers. And they go to different vendors who dispose of them properly.

SEN. DORGAN: Do others have additional questions? If not, you know, I know that all of you have traveled to come here, and you could just as easily have said, "I served; I've got health issues," or "I served and I'm concerned," and leave it at that. But instead you were willing to travel and speak about an experience.

You know, I've been to Iraq and Afghanistan, and I understand we've got a lot of great people working. We've got great people working as contractors, as a matter of fact, that do a good job every day. We've got a lot of soldiers who are very brave and expose themselves and their lives every day.

And so the intention of hearings like this is not to try to tarnish anything. It's just to understand what's happening. Are there people who are at companies that are taking shortcuts that actually put soldiers at risk? I think there are in some areas; certainly true with the sodium dichromate issue, certainly true with the water contract.

I think there are real serious questions with respect to the issue of burn pits and how they've been handled. And Mr. Lamberth, I think it was you that described, again, the question of how they are categorized so that you can continue the same old contract, which would have been the LOGCAP contract, and not have to have rebid or anything like that. I mean, that's an incentive that's perverse, because it hurts taxpayers and it also hurts soldiers, in my judgment.

So I appreciate very much your willingness to spend part of your Friday coming here. I think the development of this set of records -- and this is the only place where it will have been developed -- will be helpful to us as we go forward now to try to evaluate what additional information can and should we get. And how can we make certain that open burn pits that are now continuing to operate in Iraq are shut down and incinerators are used instead?

Because that really is the way to protect human health of our soldiers and contractors as well.

Thank you so much, and this hearing is adjourned.