

## **Senate Democratic Policy Committee Hearing**

### **“An Oversight Hearing on Whether Halliburton Has Failed to Provide Clean Water to United States Troops in Iraq”**

**Friday, April 7, 2006  
10:00 a.m. to 11:30 a.m.  
138 Dirksen Senate Office Building**

SENATOR DORGAN: Good morning, my name is Senator Dorgan. I am chairman of the Democratic Policy Committee; I will be joined by other colleagues soon. We are in the middle of a vote on the floor of the senate, but nevertheless I do want to begin. We will also perhaps be interrupted by a vote, perhaps in a half an hour, at which point we will take a ten minute break, and then reconvene.

Today the DPC is holding the eighth in a series of hearings on contracting problems in Iraq. On January 23<sup>rd</sup> of this year, we heard testimony from two former Halliburton employees who alleged that Halliburton had supplied unsafe water to our troops in Iraq. This was contaminated water that our troops used to shower, washes their hands and faces, brush their teeth, wash their clothes, and sometimes to make coffee. The whistleblowers said that they informed the company of the problem, who failed to take action.

Shortly after the January 23<sup>rd</sup> hearing, Halliburton issued a statement, alleging that they had found neither contaminated water nor medical evidence to substantiate reports of illnesses at the base. The Pentagon referred the matter to the inspector General but said “the allegations appear to have no merit.”

I regret to say the denials but Halliburton and the Pentagon are directly now contradicted by internal Halliburton reports, a report that this committee has obtained, and also by information provided by an Army physician who is currently serving in Iraq. The report to which I refer was a May 13, 2005 report, produced by Will Granger, who was the company’s top Water Quality Manager. I’m talking about Halliburton and its subsidiary. Mr. Granger who worked for that company, in that report states the following: “No disinfection to non-potable water was occurring at camp Ar-Ramadi for water designated for showering purposes. This caused an unknown population to be exposed to potential harmful water, for an undetermined amount of time.” Understand again this is an internal Halliburton report, produced by a Halliburton employee. This event continuing to quote from the report, “should be considered a near miss as the consequences of these actions could have been very severe, resulting in mass sickness or death... The deficiencies at the camp where the event occurred are not exclusive to that camp,” -- meaning its not exclusive to Ar-Ramadi as a military camp. “All camps suffer to some extent from all or some of the deficiencies noted.”

This report made by an employee of the Halliburton Corporation to the Halliburton Corporation and previously not made available, establishes that there was severe contamination

of the water provided to our troops, not just at Ar-Ramadi but throughout the US military camps in Iraq.

Today, we will hear from witnesses who will shed further light on the consequences of Halliburton's failure to provide safe water to our troops.

Before we do that, I want to read an e-mail from a US Army surgeon who is currently serving in Iraq. She could not be with us here today obviously, but the email from US Army Captain Michelle Callahan, describes water contamination at another US facility in Iraq, and the resulting consequences to our troops. The email is long, and I will read only excerpts from it. She has been given permission by her commanders to provide it.

“Sir, I am the 101st Sustainment Brigade Surgeon (a family physician), currently serving in Iraq. I have read information on the internet about the situation you are investigating in Ar Ramadi. The situation here was almost identical. I am glad to know your office is looking into this. I find it concerning that even after KBR had gone through the investigation at Ar Ramadi they still provided doubly contaminated water to soldiers at our FOB (Q-West). In January I noticed the water in our Showering facility was cloudy and had a foul odor. At the same time (over a 2 week period) I had a sudden increase in soldiers with bacterial infections presenting to me for treatment. All of these soldiers live in the same living area (PAD 103) and use the same water to shower. I had 4 cases of skin abscesses, 1 case of cellulitis, and one case of bacterial conjunctivitis. On January 20th I asked our preventive medicine environmental science officer (1LT Simon Strating) to test the water at PAD 103. PM tests results of the PAD 103 water showed no chlorine residual and was positive for coliform bacteria.”

So here we have evidence of both contaminated water and health problems associated with bacterial infections. The email then describes how a Lieutenant determined that KBR was not properly treating non-potable water that was supplied to our troops. “During a discussion (on 1 Feb 2006) between LT Strating and a newly hired KBR water quality technician (Mr. Bill Gist) LT Strating mentioned the bacterial infections that I had been seeing in my clinic. Mr. Gist told LT Strating he had concerns that the ROWPU concentrate reject was being used to fill the water tanks at the PADs. After hearing this LT Strating investigated. He went to the water treatment site and followed the lines from the ROWPU concentrate drain to water trucks filling up with this water. He then followed this truck and observed it pumping the water into the water storage tank at PAD 206. The PM team tested the water at the ROWPU concentrate distribution point. The results are as follows: “Coliform Positive, E. coli Positive.”

Finally the email describes how when KBR was confronted with the facts that water was unsafe and in violation of military regulations, insisted that this is the way that KBR always treated the water. “After discovering that KBR was filling the water storage tanks with ROWPU concentrate, LT Strating gathered the base mayor (COL Grayson), The Q-West KBR site manager (Bernardo Torres), Rachel Vanhorn (KRB LNO), Mathew Wallace (KBR ROWPU Manager) and Bill Gist (water quality technician) to the ROWPU site and told them all at the same time that he had identified that KBR was filling the water storage tanks with ROWPU concentrate. Mr. Wallace stated that it has always been done this way and there is not a problem with it. LT Strating explained that it is against Army regulations (TB MED 577) to use

ROWPU reject for personal hygiene. Mr. Wallace argued that since the raw water from the Tigris is first filtered through carbon prior to going into the ROWPU that it is acceptable for hygiene. This argument is wrong. Charcoal filtration only removes particulate matter and binds some chemicals. All the bacteria and chemicals that make it though the charcoal are concentrated to twice the level as in the Raw water. This is the water with which the soldiers at Q-West have been showering, shaving, and brushing their teeth.” And that is the testimony of an Army Captain Physician, now stationed in Iraq.

To sum up, a U.S. military surgeon documents that water contamination, bacterial infection of our troops, the willingness of KBR to ignore how their equipment works and the resistance of KBR to fixing the problem. After the January 23<sup>rd</sup> hearing we notified Halliburton of the allegations of water contamination, we had also been in contact with the Pentagon about this issue. Yet as the email demonstrates, this was happening, during and after January of this year. Eight months after an internal report done by Halliburton, Halliburton failed to notify employees of proper procedures, and continued to resist attempts to solve the problem. The very practice that an internal Halliburton report documented at Ar-Ramadi, providing troops with concentrated waste water for use, was documented again at the base at Q-West. Now we would have liked to have had Capt. Michelle Callahan here today, but her current duties as a surgeon in Iraq don't permit that. She and her superiors did consent to having her email made public to us.

Today we're going to hear from several witnesses who will speak about the consequences of Halliburton's failure to provide safe water for our troops in Iraq. Dr. Jeffrey Griffiths is an Associate Professor of Public Health and Medicine at Tufts University School of Medicine where he the director of the Global Health Division. He is an expert in water distribution systems and waterborne parasites. Captain Matthew Harrison, retired, was a US Army dentist at camp Ar-Ramadi, who began experiencing gastrointestinal problems shortly after he arrived in Iraq, and has experienced them on a daily basis in the eighteen months since he has returned from Iraq. Richard Murphy of the Iraq and Afghanistan Veterans of America, a group that is gathering information of the risks that contaminated non-potable water poses to our troops.

I want to make an additional observation. It is not my intention to call people together for the purposes of tarnishing a company or tarnishing the reputation of anyone involved in this. It is my intention to help provide all that is necessary to help ensure the safety of the troops. We did not go and search for people that would tell us that the water being used at these camps is unhealthy, and detrimental to health. This came from people who were courageous enough to come forward as whistleblowers and say there's something going on here that is wrong and you should know about it and you should investigate it. We held a hearing, we did investigate it, and we found some issues that were very very troubling. We did invite Halliburton to participate; we had a letter late last night at 8pm from Halliburton. They sent us a copy of an internal Halliburton report, from February 2006. This is a report that contradicts their employees' internal report from 2005, and in their report is a report that essentially exonerates them. They say even in their report designed to exonerate them that 'KBR will act in organizational structure to ensure that water was being treated by army standards and its contractual requirements.' That's an admission in a report produced by the company to refute the employees of the company who alleged that this unsafe water was being provided to the troops. And finally they say that 'KBR's standard operating procedure was unclear as to the proper treatment as to the handling of potable

and non-potable water.’ They then described corrective actions that have been taken, but it is interesting that even as this report was being prepared, an Army Captain physician said she sent Lt’s out to find where this wastewater was being hauled to, and she discovered that it was being hauled into tanks that was being provided to the troops. This is pretty unbelievable to me, and no one wants to take responsibility, no one wants to take responsibility for anything in these issues, but I think what’s going on is wrong and needs to be stopped. Blowing the whistle on these practices is a public service and I thank those who have come forward, perhaps at the risk of their careers. After the previous hearing, both the Halliburton Corporation and the Pentagon denied the facts even existed. But we now know those denials were wrong, and Halliburton and the Pentagon would have known them to be wrong. It’s very troubling to me and my hope is that at some point we will get to the bottom of this to make sure that every soldier serving in Iraq will not have to worry about water quality.

As I indicated we have two votes occurring, and we’ll have some other colleagues joining us, but we’re going to proceed until the second vote happens, and then call a very brief recess.

We are joined by Dr. Jeffrey Griffiths who is a Professor of Public Health at Tuft’s School of Medicine. He is an infectious diseases physician and Associate Professor of Public Health and Medicine at Tufts University School of Medicine. He is an internationally known drinking water and diarrheal diseases expert with many years of national and international experience. Dr. Griffiths serves on the National Drinking Water Advisory Council and the Science Advisory Board of the Environmental Protection Agency. He attended Harvard College, Albert Einstein College of Medicine, and Tulane University, and completed his clinical training at Yale, Harvard, and Tufts. Well, Dr. Griffiths, regrettably everyone at Tulane knows about water; that college due to Hurricane Katrina was driven from its campus but is now open, and I’m sure you’re pleased. We welcome you here and we appreciate very much your coming here today.

GRIFFITHS: Good Morning, I am Dr. Jeffrey K. Griffiths, of Tufts University School of Medicine in Boston. I am an infectious diseases physician with an expertise in waterborne diseases here in this country as well as overseas, and that has bled over into regulatory oversight and input at the EPA on the National Drinking Water Advisory Council and the Science Advisory Board. I have worked in Bangladesh, Haiti, Ecuador, and Kenya, and am intimately familiar with the health effects of water contamination. Through my training and experience, I have direct knowledge of, and experience in, the treatment of these conditions. I appreciate this opportunity to testify today.

I was asked if I had any diagrams or photographs for the committee. With all due respect, I don’t think the things I would should you are very pretty, and I don’t think those pictures would be terribly appropriate.

I’d like to begin with the importance of not drinking sewage. I think that we all know that drinking, or washing with poop is bad for you. The reasons are so obvious we consider them common sense.

We use water to hydrate ourselves and to clean our bodies. When water is contaminated with pathogens, we become infected with bacteria, viruses, or parasites. These organisms can enter our bodies to cause mischief, including death when we drink them, or allow them to enter through cuts in our skin. People with inadequate or poor water develop diarrheal diseases, hepatitis and polio as they are also spread through water, skin infections, and eye infections.

Just to speak to diarrheal diseases, these are intestinal diseases such as cholera and dysentery these were common in the United States a hundred years ago, primarily because of contaminated water. Ten percent of infants in Boston died in the summer-time primarily from diarrhea diseases. The long lifespan that we have now in the United States is primarily due to the provision of clean water, clean food, and sanitation. By sanitation I mean that our feces do not contaminate our water supplies. It is very straight forward. By clean water, and clean food, I mean that our food and water do not have feces in them. The key to these advances in our public health is that we do not drink, eat, or bathe with poop in it. The average person today can look forward to a lifespan of perhaps 78 years; a century ago it was 48, and of that thirty perhaps twenty is due to sanitation improvements, clean water, clean food. That is a predicate to understanding how critical it is to keep these pathogens out of our environment.

If we don't work to keep our water clean, primarily by keeping human wastes out, then we will return to the bad old days of a century ago. In the last ten years there have been multiple outbreaks of severe diarrheal diseases with many deaths in the United States and Canada because of break downs in the system we have for treating water. So, this should stand as a reminder for us that these are not only events that can occur only in Iraq, but they can occur wherever these same principles are ignored.

Now turning to Iraq, Cholera and dysentery are common diseases in Iraq. Before the first Iraqi war, the condition of the Euphrates river was described in military documents as "poor," with contemporaneous documentation of high rates of diarrheal diseases – including cholera and dysentery – from untreated water. In a 1991 a Central Command assessment of Iraqi water treatment stated that, "Iraq's rivers also contain biological materials, pollutants, and are laden with bacteria. Unless the water is purified with chlorine, epidemics of such diseases as cholera, hepatitis, and typhoid could occur." The situation deteriorated between 1991 and today, and modern accounts of the Euphrates describe the river as essentially an open sewer. Similar to parts of the US a century ago, rates of water borne diseases there are very, very high.

The committee should have no doubt that exposure of our troops to untreated river water in Iraq is highly hazardous to their health. By analogy, you could bathe and drink the water at your local town's sewage outfall and get a picture of what this would mean. That what the equivalent is.

Furthermore, by taking water below a sewage pipe outlet as was done at Ar-Ramadi, one ensures that the water is even more heavily contaminated with the pathogens that cause diarrhea and dysentery. Standard practice, for decades if not a century around the world has been to make sure that your source water for drinking is taken from a river far above the place where your wastes and sewage are discharged. To do otherwise flies in the face of common sense.

According to documents provided to me by Committee Investigators, water for our soldier's use was taken from the Euphrates River. According to an internal Halliburton/KBR report, water for the Ar-Ramadi base was "undoubtedly" obtained within two miles of sewage outfalls, thus maximizing the load of pathogens in the water. We are also informed that the water given to soldiers for bathing and other uses was the concentrated waste water from the osmosis units, which would have *increased* the pathogen levels that were derived from the Euphrates water, and that this water was not filtered to remove parasites, nor chlorinated to kill bacteria and viruses. At a minimum, this water should have been chlorinated, and filtered as well to remove the cysts of parasites like *Cryptosporidium*, *Giardia*, and dysentery-causing amoebas.

The amount of illnesses, their severity, and so on depend upon the amount of pathogens in the water and the degree of exposure that the people have. Most US citizens, for example, ingest some water while showering or brushing their teeth, and certainly inhale some of aerosolized water during showering. So, simply stating that shower water does not need to be treated in any way is disingenuous, I believe. Some viruses and bacteria lead to cramping abdominal pain, watery diarrhea, and dehydration, such as bacteria like cholera or Salmonella infections. Other pathogens lead to bacteria invading the body through the intestine, causing severe pain and intestinal bleeding; we call this pooping-of-blood dysentery. In many if not most wars, diseases like dysentery killed more soldiers than has combat. Diarrhea and dysentery require antibiotic treatment most of the time, as well as an attention to hydration status so people avoid dehydration. A minority of affected people will need more complex medical care, such as dialysis, to recover from these illnesses. Other relevant illnesses include common ones such as hepatitis A, an inflammation of the liver that causes jaundice, typhoid fever, which causes weeks of fever and intestinal bleeding, or ones like leptospirosis that come from rat urine and feces.

Showering with contaminated water exposes all of your skin to these organisms. Some pathogens can gain entry into the body through any cuts or abrasions in the skin, and some may gain entry through minor or involuntary swallowing of small amounts. Skin infections with fecal bacteria, or even the common ones such as Staphylococcus or Streptococcus, can occur. Some of these organisms are known as the "flesh-eating" bacteria, so these infections can be very significant.

Of importance, the use of contaminated water will lead to eye infections from both bacteria and viruses. Many viruses, such as adenoviruses found in sewage, are important causes of eye infections. A soldier that cannot see cannot defend himself or herself and cannot partake in his or her usual duties. I can just parenthetically mention that the information that Capt. Callahan provided is completely consistent with concerns around showering and skin infections and eye infections.

To summarize the medical consequences of this, they are easy to understand. The majority of people who shower will ingest some amount of the water, use some to clean their faces, and use it to wash out cuts and abrasions. Many of the ingested bacteria and some of the parasites will cause acute diarrhea, dysentery, and typhoid. These illnesses lead to significant disability and even death. The list of symptoms to be described for diarrhea alone include diarrhea, vomiting, nausea, stomach cramps, muscle cramps, headaches, fevers, and dehydration.

It can get worse from there, including bloody diarrhea and loss of one's intestines. Other illnesses include hepatitis and polio; luckily these are things which our armed forces immunize our so soldiers for. Water with poop in it that gets into the eyes will cause painful eye infections.

SENATOR DORGAN: I'm told that there's no time left on the vote, and I must present myself on the floor of the Senate to vote. You're in your conclusion I understand, and I will be back in about ten minutes, but we will recess this hearing for ten minutes.

(10 Minute Break)

SENATOR DORGAN: Dr. Griffiths thank you very much for being patient. You were just concluding your testimony and why don't I allow you to do that.

DR. GRIFFITHS: In concluding that particular little bit I just want to say that the Halliburton report said that the consequences of these actions could have lead to mass sickness and death as you pointed out earlier.

We also know now from science that many of the emerging pathogens found in water, such as *Cryptosporidium* and some of the *E. coli* bacteria, can infect us with amazingly low numbers of the pathogens. Thus, the use of concentrated water for purposes other than drinking can still mean that these bad pathogens can reside on your clothes or the surfaces you touch, and then be ingested via causal hand to mouth contact.

In summary, the source water used for our soldiers at Ar-Ramadi was basically dilute sewage; highly polluted and completely unacceptable by any standard for being used without robust treatment. In what appears to be a profound misunderstanding of the way a reverse osmosis unit works, concentrated untreated polluted water was provided to our soldiers for hygienic purposes that is highly likely to make them sick. They would have been better off being provided with water straight from the Euphrates River. Remedial action should have included filtration, solely chlorination, even though internal staff recommended its use.

The principles of drinking water treatment, and its association with human disease, have been known since the 1800s. The principles were ignored and exposed our troops to infectious diseases risks that are at times lethal. Because of a lack of monitoring and surveillance of the water systems, we do not know how long and how badly the water was contaminated, although the internal investigators at Halliburton/KBR supposed at least a year. Had we this knowledge, a proper epidemiological study to quantify and measure the effects of the water contamination could have been conducted. When water is as contaminated as this, we usually find that the people receiving the water have elevated rates of illness. I just want to make the point that sometimes this can happen without the appearance of an epidemic. That is because people that are exposed all of the time, not just some of the time, and there is no way to compare a low exposure period to a high exposure period.

I urge that these unhygienic, antiquated practices be stopped and that proper monitoring and surveillance for these illnesses be put into place. Thank you for your time.

SENATOR DORGAN: Dr. Griffiths thank you very much for coming to Washington today to give us your impressions of this epidemic. I have a number of questions to ask you, but I'm going to call on Dr. Harrison next. Dr. Griffiths, what you have said is that the non-potable water as the Army physician has described, that non-potable water is undiluted sewage?

GRIFFITHS: Yes, it is concentrated undiluted sewage. By going through that unit it is then concentrated.

SENATOR DORGAN: So it would have been better and less dangerous to have taken the water directly from the river?

GRIFFITHS: That is correct sir.

SENATOR DORGAN: Dr. Matthew Harrison who is a Retired Captain in the US Army dental core. He is a dentist in Rogers, Arkansas. While he is not with us in person he joins us today via the internet and we appreciate very much his patience and appreciate his being with us. From June 2002 until June 2005 he served as a Captain in the US Army Dental Core. In October 2003 he was assigned to the 101<sup>st</sup> forward support battalion of the 1<sup>st</sup> Brigade Combat Unit, 1<sup>st</sup> infantry Team out of Fort Riley, Kansas. December 2003 Dr. Harrison was assigned to camp Ar-Ramadi Iraq to replace the brigade dental surgeon. His deployment ended in September 2004, he separated from the Army in June of 2005. Dr. Harrison thank you for joining us. I believe that you are in Rogers, Arkansas at the moment, we can see you, and I believe we can hear you, so why don't you proceed with your statement?

DR. HARRISON: Thank you Senator Dorgan. Good Morning, my name is Matthew B. Harrison, and I served in the U.S. Army Dental Corps as a captain from June 2002 until June 2005. Like Senator Dorgan said, I was assigned to the 101<sup>st</sup> Forward Support Battalion of the 1<sup>st</sup> Brigade Combat Team, 1<sup>st</sup> Infantry Division out of Ft. Riley, Kansas, in October 2003. I arrived in Ar-Ramadi, Iraq on December 7, 2003 to replace the brigade dental surgeon that was originally assigned to the unit for the deployment.

The unit had been deployed to Iraq since September of 2003. By the time I arrived at Camp Ar-Ramadi, the permanent dining facility had been constructed, there were makeshift showers, portable toilets, and abandoned buildings in which to live. The water supply for our unit was provided by a "water buffalo" which is a portable water tank on a trailer and by a large rubber bladder that was situated behind our living quarters. This buffalo and bladder were refilled approximately once a week from a common water source used by the entire camp, to my knowledge.

On my arrival in Kuwait, en route to Iraq, we were briefed that all non-bottled water was non-potable. I never knowingly drank any water from any source other than bottled water during my deployment, although I did use the water buffalo water to rinse my mouth after brushing my teeth the first night I was in Ar-Ramadi. The dentist I was replacing suggested that I probably should not use that water to rinse, and I never used it again. I personally only used the non-potable water for showering, washing my face and hands, and laundering clothes. In our dental clinic, we used the non-potable water for scrubbing our instruments of debris before placing

them in the autoclave for sterilization. I estimate—conservatively—that I washed my hands an average of 10 to 15 times a day with this non-potable water. We never used the non-potable water for intra-oral procedures while we were working on patients or allowed patients to rinse with it. We did use bottled sterile water that we had shipped in for those procedures.

Within the first two months of being at Camp Ar-Ramadi, I developed a gastrointestinal disorder. Prior to my deployment, I had not experienced any gastrointestinal problems, other than the occasional stomach virus that everyone contracts occasionally. In Ar-Ramadi I began to have multiple daily “loose” stools with periodic diarrhea, roughly four or five times a week. I experienced no pain, no weight loss, or any other symptoms. After a few weeks, I mentioned my symptoms to the medical staff, and they suggested that my problems were related to the change in diet and environment that I was experiencing. I accepted this diagnosis as a plausible cause for my symptoms. However I continued to have the loose stools, but the diarrhea became much less frequent. These symptoms continued throughout the rest of my deployment, which ended in September of 2004. I do not know if any other soldiers at Ar-Ramadi experienced the same problems. But since we did share the same portable toilets, I can guarantee that I was not the only person who was sick.

When I returned to the U.S., I continued to have the same symptoms of multiple, daily loose stools. I did not worry about it for two to three months because I assumed that it would take time for me to adjust to the change in diet/environment upon my return from deployment. I did mention my symptoms to a nurse during a doctor’s visit for another issue. She said it was probably just change in diet but that something else, like a parasite, could be causing my problems. After the symptoms continued, the medical clinic at Fort Riley performed a test to check for blood in my stool. The test result was negative, so they ruled out any bleeding in my gastrointestinal tract and no further tests were done. A colleague of mine in the dental clinic at Fort Riley also experienced the same symptoms as me. He had served in Baghdad as a dentist from April 2003 until December 2003. The medical clinic at Fort Riley told him that he probably just had Irritable Bowel Syndrome, and no tests were done. Like me, his symptoms continue even now.

I separated from the Army in June 2005. I am still afflicted with the same daily loose stools, three to four times a day, with occasional diarrhea, four to five times a month, sometimes verging on uncontrollable. I do not have any other medical conditions or post-war problems of any kind. I saw a local physician several months ago, and he did a cursory exam and checked for blood in my stool. All of his findings were normal, and he recommended no further tests. My condition at the present is not debilitating. It is more accurate to characterize it as a daily annoyance, but one that I had not experienced until I deployed to Ar-Ramadi. I had just learned to live with my condition until I saw an article in the local paper that suggested that the water supply in Ar-Ramadi might have been contaminated while I was stationed there. I think that this is a possible explanation for my condition due to the timing and nonspecific nature of my symptoms, especially considering my hand washing and hygiene routine. Although I did not knowingly drink the non-potable water, it is impossible to completely stop it from entering the body through the nose, mouth, or mucous membranes while performing normal daily tasks such as showering or washing your face. I am uncertain if my condition is a result of the water I used at Camp Ar-Ramadi or if my symptoms were caused by something else. I do know that, if there

is a chance that the water was contaminated, I would like the opportunity to be tested to determine if I was exposed to something in Ar-Ramadi that has made me sick. I would obviously prefer not to live the rest of my life with this condition, and I fear that my symptoms could worsen over time. Thank you.

SENATOR DORGAN: Thank you Dr. Harrison. Richard Murphy is with the Iraq and Afghanistan Veterans of America. Following the attacks of September 11, 2001. Richard Murphy took a leave of absence from George Washington University Law School to enlist in the Army Reserves, Serving with the 372<sup>nd</sup> Military Police Company of Cumberland, Maryland. In February 2003 he was sent to Iraq where his unit was assigned to conduct combat patrols, law and order operations, and to train Iraqi Police Recruits. His company later ran a prisoner of war detention facility, and he has a great amount of Army experience. Mr. Murphy thank you for being with us on behalf of the Iraq and Afghanistan Veterans of America, you may proceed. We're now joined by my colleague, Senator Pryor. Which you wish to say anything or would you prefer to wait?

SENATOR PRYOR: I'll be glad to wait.

MURPHY: Senator Dorgan, Senator Pryor, thank you for allowing IAVA to take part in this testimony today. My name is Richard Murphy, I am an Iraq War Veteran, and I am here on behalf of IAVA, the nation's first and largest organization of Iraq and Afghanistan Veterans, and the civilian supporters of those troops and veterans. The mission of IAVA is to ensure the enactment of policies that properly provide for our troops and veterans, keep our military strong, and guarantee our national security for the purpose of a stronger America. We uniquely empower Iraq and Afghanistan Veterans to use their credibility and experiences to speak truth to power, shape public opinion, and place a priority on issues of national security. Our Follow the Money Project is investigating where the money appropriated for the Iraq and Afghanistan wars is going. We are here today because of our deep concerns over KBR's water quality problems in Iraq. As this Committee and others have shown, KBR appears to have been derelict in its duty to provide clean and safe water to our troops, not just at Ar-Ramadi where this problem was first identified, but, as according to the "Granger Report," to all the sites where KBR was paid to provide clean water. I served fifteen months in Iraq from 2003 to 2004, and could have been exposed to the problem that is being discussed today. I never imagined that I would have had to question the quality of the water at our bases in Iraq. Our Follow the Money Project's Chief Investigator, Dina Rasor, has been working closely with Ben Carter, the courageous KBR employee who first identified this problem and then went public when his superiors at KBR tried to hide the problem. We are glad that this committee and now the DOD Inspector General are continuing to investigate this problem. We will be following the progress to insure that KBR permanently fixes the problem and that the government recoups any money where KBR failed to perform its contractual duties. We are extremely disappointed that this has happened to our troops, especially considering that KBR's LOGCAP contract averaged \$425 million a month last year.

IAVA is here today to address the aftermath of this problem. Although the extent of the problem is not thoroughly known because of the lack of documentation by KBR, there is a possibility that a widespread group of troops could have been exposed to this contaminated water. IAVA is gathering information to see what contaminants were in the water, and we have

posted some preliminary information on our website, [www.iava.org](http://www.iava.org), to help inform the Troops and their families. We will add to that information as more is known.

This should not be construed as an attempt to raise the alarm unnecessarily, but we do believe that any soldier suffering persistent gastrointestinal problems or infection should consider the possibility that these problems are related to his or her exposure to contaminated water. We have posted a 1991 DOD report that lists the health threats in Northern Iraq, including a list of potential pathogens that the troops might have encountered due to their exposure to KBR's water. We have also posted a DOD technical bulletin on sanitary control and surveillance of Field Water Supplies and the KBR Granger Report that is referenced today. We want the troops and veterans to educate themselves as to potential problems, what may have caused these problems, and what procedures should have been followed by KBR.

While we are not trying to give out medical advice, we do believe that any troop seeking medical treatment for unexplained gastrointestinal or infection problems should be aware of the fact that he or she could have been exposed to extremely contaminated water.

We will continue to update our website as we get more detailed information that can help the troops and their families with this problem. We are also asking troops and veterans of OIF/OEF to send us any stories of unusual or persistent gastrointestinal illness or infection so that we can continue to assist in the investigation of this negligence. This exposure should not have happened, and IAVA urges Congress and the Executive Branch to demand a greater level of accountability from KBR and all other private contractors who work on behalf of our troops and veterans in Iraq and across the globe. We at IAVA will continue to search for information on this disturbing problem, and we will share our findings with the government. I am happy to answer any questions. Thank you very much.

SENATOR DORGAN: Mr. Murphy, thank you very much. As you indicated none of us are intending to disclose what we know now in order to cause alarm or to inflame passions about this. We want to protect the health of people whose health would be affected by this sort of behavior and I don't think that there is any alternative but to attempt to follow this to the end of the string and find out who did what, what were the circumstances, who was effected by it, and has it been corrected?

Let me go to the Granger Report. This was the Report from the 13<sup>th</sup> of April, 2005. The whistleblowers, the folks who came forward from KBR/Halliburton talked about the Granger report. I now have a copy of the Granger report. It says KBR on the top of it. Mr. Granger was in charge of water quality, he was the water quality manager for all of the operations in Iraq. Here's what he says, "No disinfection of the non-potable water was occurring for the water designated for showering purposes." We know non-potable water was for showering, washing hands, and some days brushing teeth; even coffee. I am quoting now, "This caused an unknown population to be exposed to potentially harmful water for an undetermined amount of time. The consequences of this particular event are understood to be minimal at the time of this report, the greatest impact will be realized if documentation of chronic related sicknesses surface, or if this matter is brought to arbitration of litigation. This event should be considered a "near miss" as

the consequences of these actions could have been very severe, resulting in mass sickness or death.” Finally. I’ll continue to quote, “The likelihood of the recurrence of this problem in a similar event is considered high if no actions to correct widespread program deficiencies are taken. The deficiencies of the camp where the event occurred are not exclusive to that camp, meaning that country-wide, all camps suffer to some extent from all or some of the same deficiencies noted.”

This from the employee of Halliburton who is in charge of water quality for all of the camps in Iraq. We received this morning from the Halliburton Corporation the following. “I would note that the Granger report, which we understand that the DPC has obtained, represented Mr. Granger’s personal conclusions, and is not an official company report. KBR believes that much of the report is incorrect as demonstrated by the subsequent Allen report.” They’re saying that this report by the KBR employee in charge of the water quality in all of Iraq, with KBR at the top of the report, is now no longer belonging with the company, it is the personal conclusions of their employee who was in charge. That is almost unbelievable to me.

I want to finally go back to the charts that I described earlier. Even if you set aside the problems at Ar-Ramadi from the Granger Report, from the person from Halliburton who is in charge of water; the physician, the Army Captain who is in Iraq today, say this in her email to me: “During a discussion on the 1<sup>st</sup> of February, between Lieutenant Strating and newly hired KBR water quality technician Mr. Gist, Lieutenant Strating mentioned the bacterial infections that I had been seeing in my clinic. Mr. Gist told Lieutenant Strating that he had some concerns that the reverse osmosis water purification unit concentrated reject was being used to fill the water tanks at the pads.” Everyone understand, this is the KBR employee who is telling the Army Lieutenant that he had some concerns that the concentrate reject was being used to fill the water tanks. After hearing this Lieutenant Strating investigated, he went to the water treatment sight and followed the lines from the concentrate drain to the water trucks that were filling up with this water. He then followed the truck and observed it pumping the water into the water storage tank at PAD 206. The PM team tested the water concentrate distribution point; the results were coliform positive and e. coli positive. And finally, and I will conclude with this again, the quotes from the army physician now serving in Iraq whose email we just received says “After discovering that KBR was filling the water storage tanks with this concentrate, Lieutenant Strating gathered the base mayor, the KBR site manager, and Bill Gist, the KBR employee to the site, and told them all at the same time that he had identified that KBR was filling the water tanks with this waste concentrate. Mr. Wallace stated, “It has always been done that way and there is not a problem with it.” Lieutenant Strating that it is against Army regulations to use waste rejected for personal hygiene. Mr. Wallace argued that since the raw water from the Tigris is first filtered through carbon prior to going in it is acceptable for hygiene. The Doctor then responded, “This is wrong.”

Let’s start with you Dr. Griffiths, I have just read this, you have got Halliburton saying, “this is fine, we just run it through carbon, so this is perfectly acceptable for hygiene”, your response?

DR. GRIFFITHS: Well Senator, its nonsensical, it’s complete idiocy; the idea that you could take waste water and put it through carbon and that this will render it safe is nonsense. We

know that, its standard treatment, any water engineer in the US knows that, even a physician who doesn't get trained in water testing and stuff like that knows that. Captain Callahan knew that too. You have to do other things to water besides run it through charcoal.

SENATOR DORGAN: What are we to make of an Army physician who sends us an email saying that I have gone to a website, and I have seen that there are concerns about this water quality, and I assigned a Lieutenant to go follow the water lines, and follow the truck and here is my conclusion. Do you find that credible?

DR. GRIFFITHS: Yes I do. This is a basic epidemiological investigation. This is someone who noted a cluster of illnesses, in time that was not expected, she figured out that one of the ways that people could have gotten that was through the water, and they investigated and what do you know? We find out that they are getting sewage for water. It is a straight forward investigation.

SENATOR DORGAN: Now you are an expert in water quality, is this much ado about nothing? Or is this serious? Let's assume the worst case that what the physician said was accurate and that the whistle blower was accurate and that we have this waste contaminate which makes water into a much more dangerous category, waste contaminate being poured into these tanks and then being used for non-potable purposes, showering, shaving, perhaps brushing teeth, perhaps making coffee and so on. Is that a serious problem that a group should be concerned about?

DR. GRIFFITHS: Well, I sure think so. What is happening is the troops could, for example, come down with epidemics of dysentery. This would be terrible. The number of bacteria that you would need to pull off water for dysentery may be as few as 10. I just want to make a point that if you want to get cholera it may take millions of them to drink, but for dysentery its only 10. So that's few enough to just touch your face and get it. So there is a route of exposure here. If they happen to be taking water at some point when people up-river had dysentery then they are all going to be exposed to dysentery also. It is very catchy, it is very hard to get rid of, and you can wipe out that unit's effectiveness immediately. You can anticipate a number of deaths, even with antibiotic treatment.

SENATOR DORGAN: My purpose certainly isn't to scare anybody or raise false alarms, but it is to say lets follow the leads here and if there is some thing happening here that is wrong lets by God correct it. Its horribly unfair to troops in the field to find that someone in charge of producing good water for them is allowing contaminants in that water to make that water dangerous as it is being delivered to the troops. If that is happening we cannot allow it to happen. There is very substantial evidence that is happening despite the public denials that the company and the Pentagon at this point. Now, Dr. Harrison, I didn't mention, we see it of course on our portrayal, but Dr. Harrison is from Arkansas, your State Senator Pryor. Dr. Harrison, you don't know that a gastrointestinal issue that you have came from you r service in Iraq or not. You're not alleging that you know that, but you're simply saying that you served there and that you have a gastrointestinal condition, after you came back. You have understood that there are some water issues and that is the purpose for your testimony, is that correct?

DR. HARRISON: Yes sir, that is correct. I don't know that what I have is related to being in Ar-Ramadi, but there appears to be a possible connection.

SENATOR DORGAN: Dr. Griffiths, I am not going to ask you to make a diagnosis here, but I would assume that it is fairly plausible that there are a lot of troops who might have been exposed to non-potable water that might have been contaminated, doubly contaminated, in this case could have minor or not so minor gastrointestinal infections that have been hanging on for some while but go unreported until they see that someone else has experienced the same problem.

DR. GRIFFITHS: Yes, Senator Dorgan, that is correct. In fact, I would just relate to Dr. Harrison that I can think of four parasites that could have caused his illness, and he did not describe that anyone had done the proper work up or work for any of those symptoms for which he mentioned. So, if you ask me, here's a guy that goes there healthy, he gets something while he is there, so we have a temporal and spatial association which is what you need for epidemiology. Where does it happen and when does it happen in terms of the onset? So this began while he was in Iraq and it has continued after that. So, maybe offline Dr. Harrison, I have a couple of suggestions for you.

SENATOR DORGAN: We have had experience of people in the United States Senate diagnosing illnesses on the record, on the floor of the Senate.

GRIFFITHS: It is a very dangerous thing, sir.

SENATOR DORGAN: You may visit following this. Mr. Murphy, we appreciate very much your being here, and we think that your purpose is a noble purpose and if there are others who are experiencing problems such as this we should know about it, and you should know about it in order to respond to it. My understanding is that your tour was extended for three months in Iraq? And you were assigned to guard civilian truck convoys? I just wanted to ask you a question outside of this water matter before I call on my colleague Senator Pryor. We had a hearing on contract waste, fraud and abuse not just about Halliburton, although admittedly Halliburton was a significant part of it, because the LOGCAP contracts that were given to Halliburton were no bid, sole source contracts, and there is massive waste and abuse. I think some fraud involved, there were substantial investigations. But, one of the witnesses talked to us about brand new trucks 80-90 thousand dollar trucks having a flat tire and then being left by the side of the road to be torched. Did you experience or see any of that?

MR. MURPHY: Yes sir.

SENATOR DORGAN: Tell me about it just to amplify what we have heard in other hearings.

MR. MURPHY: We were conducting convoys from the South, from a base called Taleel and moving up North to Baghdad on a road in the middle of the desert, just about as safe as you can get in Iraq. At one point, one of the trucks, one of the civilian trucks got a flat tire and they did not have the proper wrench to change the tire so the decision was made to torch the truck.

SENATOR DORGAN: Was it a new truck?

MR. MURPHY: Yes Sir.

SENATOR DORGAN: So they did not have the proper wrench to change the tire so they made the decision to burn the truck?

MR. MURPHY: Yes, that was the story.

SENATOR DORGAN: I have heard that before but you actually saw the truck?

MR. MURPHY: Yes Sir, I saw the truck.

SENATOR DORGAN: It is unbelievable to me that that sort of thing goes on. But, that's for another day I guess. I appreciate you amplifying what we have heard. Yours is a first-hand observation of what we have heard others describe. What kinds of outreach are you doing for other Iraq and Afghanistan veterans?

MR. MURPHY: Well, right now we are doing outreach to our 50,000 members to see if anybody does have these gastrointestinal problems. We want to make it known to this committee and get them the treatment that they need. We are also working on increasing funding for the VA, and making sure that they are appropriately funded considering that many soldiers are coming back with mental health issues.

SENATOR DORGAN: You know, soldiers in Iraq have plenty to worry about. They need to be concerned about their safety and the safety of troops they serve with and so on. The last thing that I want soldiers to have to worry about is the safety of their drinking water, the safety of the water that they use for showering or brushing teeth. That is not what we should burden soldiers with. They ought to expect that these contracts are completed with people that know what they are doing, that the water that is delivered to them is good quality water and that it is not going to endanger their health. I find it unbelievable that we hear today that the so called Granger Report is now judged by this corporation to be Mr. Granger's personal conclusions. That report has the company's name on it. This was the guy that was in charge of producing water for all of the bases in Iraq, and now they disown the employee that still works for them. It is unbelievable to me that we can't seem to get to the truth. But I will say this, the physician, the captain that is in Iraq today, who has sent us an email to say here is what I observe, it is pretty hard to destroy that person's credibility because we are describing following the water lines, to the tanks, to the trucks. That is pretty credible in my judgment. Senator Pryor?

SENATOR PRYOR: Dr. Harrison I would like to say that it is great to see you, I don't know if you can see us but we can see you, thank you for joining us. Let me ask, could you just tell the committee very briefly what your condition is?

DR. HARRISON: My condition while I was in Ar-Ramadi about 2 months after I arrived, and since as I have described is just multiple daily loose stools with 4 to 5 rounds of diarrhea a

week. It continued on for a few weeks, I brought it to the attention of the medical staff in Ar-Ramadi who attributed it to probably a change of environment and diet. I did, in my opinion, get a little bit better because the diarrhea decreased in frequency, but even to this day I do have multiple loose stools daily.

SENATOR PRYOR: Ok, and since you have been back Stateside have you been tested at either a VA facility or an Army facility or even your personal physician?

DR. HARRISON: After a few months after my redeployment I was tested strictly for blood in my stool, which came back negative. Once again, they thought it was just a change in diet and environment. Since I have separated from the Army and relocated back to Arkansas I did see another physician here and basically the same test was done just to rule out blood in the stool and no further tests were recommended. That is all that has been done.

SENATOR PRYOR: But you still are experiencing some problems?

DR. HARRISON: Yes Sir.

SENATOR PRYOR: Now, given the timing of the development of your symptoms in Iraq, do you suspect that impurities in the water are to blame?

DR. HARRISON: It is possible, but I cannot tell you that it is.

SENATOR PRYOR: What about others that you have served with in Iraq? Did other have problems similar to yours?

DR. HARRISON: Its not something that we discuss. I do know that one of my colleagues, a dentist at Fort Riley, was at Baghdad a few months before I was actually in Iraq and he had the same problems and still does now. While I was in Iraq we all shared the same toilets, though I did not discuss it with anybody, I could tell that there were other people that were sick as well, with GI disturbances.

SENATOR PRYOR: Was bottled water available to you at all time in Iraq?

DR. HARRISON: Yes sir, we ran low one time but I don't think that we ever ran out.

SENATOR PRYOR: Thank you for your time. Dr. Griffiths, you just heard the witness talk about his symptoms and generally just symptoms that other people were going through. Again not to ask your medical diagnosis, just what is your impression after hearing that?

DR. GRIFFITHS: This description is screaming a more chronic parasitic infection that would have been acquired while being in Iraq. I am a member of the American Society of Tropical Medicine and Hygiene. This is classic training in infectious diseases that people who are in this kind of environment with this kind of exposure might develop things like these chronic parasitic infections. The testing that Dr. Harrison mentioned would, of course, not have shown any of that, you would have to do specific testing for it.

SENATOR PRYOR: If a patient were to show up in your office with these complaints what would your advice to them be?

DR. GRIFFITHS: I would immediately ask for some stool samples to look for these parasites that I have just mentioned. We do occasionally see some bacteria that cause this type of chronic infection also but almost always they are parasites. These by the way would be parasite that would be ones that would be present in the waste water from an RO unit for example.

SENATOR PRYOR: Mr. Chairman I think that is about all that I have and I want to thank you for continuing on this issue because I think that it is very important.

SENATOR DORGAN: Senator Pryor, thank you, once again I want to say that our objective here is to make certain that if something is happening that is wrong, that has any danger for our troops, that it gets corrected and gets corrected quickly. My great frustration is and concern is that it seems to me like all the people involved in this and all of them are more interested in trying to avoid responsibility than to determine how this gets fixed. I'm concerned that even now we may not have adequate protections to make certain that the water that is being delivered in these camps is safe for troops to use. Now, I'm not talking about drinking water, I'm talking about the potable water, which is used for non-drinking and that Dr. Griffiths talked about showering in and what happens when you shower and have an open cut or brush your teeth or have coffee with this kind of water. I think that this is a very serious issue and we take seriously the admonitions of the Army captain who sent us an email and others who have contacted us, and we wanted to have a follow up hearing. Again I am surprised that the company that we are paying as government, that the company that we are paying to do this work seems to be using reports to undermine its own employee's conclusions. It seems to be producing reports that are at odds with the conclusions of an Army physician that is on the scene and on the ground in Iraq.

We will continue to inquire about these issues as we continue to be in touch with Pentagon. We invited Halliburton Corporation to be present to testify today, we invited representatives from the Pentagon as well and they chose not to be here, but we will continue making this inquiry. Let me say Dr. Harrison thank you for spending your time this morning being with us from Arkansas. Dr. Griffiths, thank you, you have a very impressive background and we appreciate you lending your expertise to us today. And Mr. Murphy thanks for the work that you're doing on behalf of the Iraq and Afghanistan Veterans. Thank you for your service to your country as well, I will say that as well to Dr. Harrison.

This hearing is adjourned.