Burn pit at Balad raises health concerns

Troops say chemicals and medical waste burned at base are making them sick, but officials deny risk

By Kelly Kennedy - Staff writer

An open-air “burn pit” at the largest U.S. base in Iraq may have exposed tens of thousands of troops, contractors and Iraqis to cancer-causing dioxins, poisons such as arsenic and carbon monoxide, and hazardous medical waste, documentation gathered by Military Times shows.

The billowing black plume from the burn pit at 15-square-mile Joint Base Balad, the central logistics hub for U.S. forces in Iraq, wafts continually over living quarters and the base combat support hospital, sources say.

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DISCUSS
And even though the military now has three clean-burning incinerators operating there, officials acknowledged that as of midsommer, the burn pit still was taking in 147 tons of waste per day — significantly more than half the daily output at Balad, home to about 25,000 U.S. military personnel and several thousand contractors.

Balad’s average daily output of almost 250 tons of waste is three times higher than the average of 83 tons per day generated by the city of Juneau, Alaska, which has a comparable population.

In a memo dated Dec. 20, 2006, Air Force Lt. Col. Darrin Curtis, former bioenvironmental flight commander for Joint Base Balad, wrote of the burn pit: “In my professional opinion, there is an acute health hazard for individuals. There is also the possibility for chronic health hazards associated with the smoke.”

Air Force bioenvironmental engineers are experts in occupational and environmental workplace hazards.

Most large U.S. installations in Iraq, as well as Afghanistan, have burn pits. A report recently released by the Rand Corp. think tank concluded that the military has no standard operating procedure or training policy for making sure those pits are operated properly.

The report said burn pits are one of a number of examples of improper waste disposal by the U.S. military in Iraq and Afghanistan. (For more on the report, visit http://www.militarytimes.com/news/2008/10/military_toxiciraq_100208w/)

The burn pit at Balad has consumed Styrofoam, unexploded ordnance, petroleum products, plastics, rubber, dining facility trash, paint and solvents, and medical waste, including amputated limbs, according to Curtis’ memo.

He said contaminants, many highly poisonous, that troops may have been exposed to include benzene, an aircraft fuel known to cause leukemia; arsenic; dichlorofluoromethane, or Freon; carbon monoxide; ethylbenzene; formaldehyde; hydrogen cyanide; nitrogen dioxide; sulfuric acid; and xylene.

“It is amazing that the burn pit has been able to operate without restrictions over the past few years,” Curtis wrote.

Air Force Lt. Col. James Elliott, former chief of aeromedical services for the 332nd Air Expeditionary Wing, was deployed to Balad at the time and co-signed Curtis’ memo.

Elliott wrote: “In my professional opinion, the known carcinogens and respiratory sensitizers released into the atmosphere by the burn pit present both an acute and chronic health hazard to our troops and the local population.”

‘PLUME CRUD’

After spending 4½ months working as a surgeon at the Balad Combat Support Hospital from September 2007 to February 2008, retired Air Force Lt. Col. Steve Bowers said his headaches got so bad that he sought an MRI when he returned home.

“You don’t just come out of that environment and recover,” said Bowers, a reservist who works as a surgeon at the University of Texas Health Science Center. “I had headaches for three months after I got home. Guys who spent 15 months there would have a harder health hit.”

He said virtually everyone on base had some version of “plume crud”: “coughing up black stuff,” sinus problems, nasal congestion, bad coughing and headaches.

“Everyone acknowledged that it was a problem,” Bowers said. “There was kind of a philosophy of, ‘just suck it up.’”

Army Sgt. Loyd Sawyer said he worked at the Joint Base Balad mortuary, about 400 yards from the burn pit. “They had to abandon the guard tower near [the pit] because they kept getting respiratory infections,” he said. “It was just a wall of fire above our unit. Guys were coughing up black stuff, coughing up blood. I had a steroid inhaler because I got bronchitis.”

When Military Times contacted Curtis by telephone about his memo, he said he
wanted to see some light shined on the Balad burn pit.

He took e-mailed questions and sent responses to Barbara Fisher, public affairs.
Harmful to human health and environment and should only be burned in cases specifically approved by experts who have defined the burn pit as the “worst environmental site I have personally seen.”

Five weeks later, she released her responses, saying there had been “a massive overstatement of information” and that the CHPPM had conducted a joint assessment of the burn pit.

In his response, Curtis wrote that he did several days of tests on the plume and on one area near the burn pit “as a direct result of commanders’ concerns,” and that no one was ever going to cause problems, but they could not be directly tied to the burn-pit plume because such toxic heavy metals and carcinogens.

Since his assessment, he said, he has been contacted by several people stationed at Balad who “believe their current health problems are associated with their deployment.”

However, Air Force officials say no substantive health problems have been definitely linked to the burn pit plume, and they add that the situation has improved since Curtis wrote his memo.

Air Force Capt. Alysia Harvey, spokesperson for the 609th Combating Terrorism Space Operations Center Southwest Asia, said that last year, for example, two incinerators were installed at Balad, and a third one online this year.

Bowers said a memo “went out while we were there, saying the plume was sending off toxic levels of all kinds of pathogens, heavy metals and fecal coliforms. But I mean, what do you do?”

He said troops could tell what was being burned on certain days. “We took off a mean, what do you do?”

At a press conference in April at a meeting of the Defense Health Board.

Some of these other health risks from breathing chemicals and smoke were “Direct use of available data to estimate health effects to troops in Southwest Asia is not going to fly all that well,” he added.

Halperin admitted that the report does not discuss ultra-fine particulates or heavy metals that are formed in the incinerators.

On August 15, a memo written by Curtis led military leaders “to examine other options to dispose of waste,” according to a transcript of the meeting, William Halperin, chairman of the Department of Preventive Medicine at the New Jersey Medical School, noted, for the first time.

According to the Defense Health Board's meeting minutes, one such option was increased recycling.

Halperin did not respond to a Military Times request for an interview.

She said a “software error” had calculated Balad’s concentrated levels of dioxin — a contaminant associated with the defoliant Agent Orange that was widely used in Vietnam — at 1,000 times higher than it actually was.

Some of the other health effects, Harvey said, were “ultra-fine particulates are tiny bits of easily inhaled matter that can be made up of toxic heavy metals and carcinogens.”

Harvey said that although the military’s extensive testing in spring 2007 came up with “erroneously high levels of dioxin” in the burn pit smoke, that does not mean it was any risk.

Halperin argued that the only pollutant verified as being "potentially above the limits" at Balad was particulate matter, and that the levels were "no worse than most metropolitan cities" in the U.S.

Harper, who noted the burn pit has been in its current location "since before coalition forces assumed command of the base," acknowledged that there had been a concern for deployed service members, but she said Army and Air Force commanders "have been working to improve the situation since 2004."

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In early 2007, after Curtis’s memo had risen up the chain of command, CHPPM and the Air Force Institute for Operational Health conducted a joint assessment of the burn pit.

A draft executive summary, dated December 2007, showed dioxin levels at 51 times acceptable levels, particulate exposure at 50 times acceptable levels, volatile compounds at two times acceptable levels, and cancer risk from exposure to dioxins at two times acceptable levels for people at Balad for a year and at eight times acceptable levels for people at the base for more than a year.

Harvey said the draft summary contained “incorrect data” and was “prematurely distributed prior to a comprehensive review” by the Defense Department’s scientific community.

She said a “software error” had calculated Balad’s concentrated levels of dioxin — a contaminant associated with the defoliant Agent Orange that was widely used in Vietnam — at 1,000 times higher than it actually was.

Nevertheless, the report went out to military commanders in Iraq, who posted it for troops to see. That was when statements were added to medical records noting that Balad personnel had been exposed to the plume.

“The error was corrected, and it has been determined that no significant short- or long-term health risks, and no elevated cancer risks, are likely among personnel deployed to Balad,” Harvey said. “Until that clarification, ... airmen at Balad had incorrect data for dioxin annotated on their [exposure data worksheet] for a short time.”

However, that reportedly incorrect assessment showed only whether personnel had been exposed to dioxins — not heavy metals, other poisons or ultrafine particulate matter, some of which Curtis also cited as concerns in his 2006 report.

Ultrafine particulates are tiny bits of easily inhaled matter that can be made up of toxic heavy metals and carcinogens.

“When breathed in, these particles can reach deep into the lungs and cause various health effects,” a CHPPM information paper states.

Some of these other health risks from breathing chemicals and smoke were discussed in April at a meeting of the Defense Health Board.

According to a transcript of the meeting, William Halperin, chairman of the Department of Preventive Medicine at the New Jersey Medical School, noted, for example, that one substance used by pit operators to burn solid waste is jet fuel — exposure to which is known to increase the risk of leukemia.

Halperin said that although the military’s extensive testing in spring 2007 came up with “erroneously high levels of dioxin” in the burn pit smoke, that does not mean there is no risk.

“Risk assessment consists of hazard identification: Are the agents there potentially hazardous?” Halperin said. “The answer in this situation is yes.”

According to the transcript, Halperin also talked of how much information about the risks should be given to people who may have been exposed.

A risk assessment can “consist of uncertainties,” he said. “You’re only collecting a moderate amount of information. ... You can extrapolate either too high or too low and come up with something that’s beyond what you really should be predicting.”

Halperin did not respond to a Military Times request for an interview.

Mark Brown, director of the Environmental Agents Service in the Office of Public Health and Environmental Hazards for the Department of Veterans Affairs, attended the same DHB meeting.

“You couldn’t get away with this kind of waste disposal in the United States,” he said last winter. “It would not pass muster in any other part of the world. That is not going to fly all that well,” he acknowledged.

IN THE PIT

Ultrafine particulates are tiny bits of easily inhaled matter that can be made up of toxic heavy metals and carcinogens.

“Three days ago, I was putting a fire out here with a bulldozer and almost got hit by a propane tank that would have killed me if it would have hit me,” an Army

“...Our air-quality monitoring in this area is not showing any particulate matter by you know...”

http://www.armytimes.com/news/2008/10/military_bumpit_102708w/
Burn pit at Balad raises health concerns

2006 called the Balad burn pit the “worst environmental site I have personally visited,” according to Curtis’ December 2006 memo.

SOFTWARE ERROR

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“When breathed in, these particles can reach deep into the lungs and cause various health effects,” a CHPFP information paper states.

Some of them, such as metals, glass, coal, hair, lung fluids and smoke, can cause serious lung disease, which is online at http://deploymenthealthlibrary.fhp.osd.mil/PitBurning/GFII/319344/.

William Halperin, chairman of the Institutional Review Board at the New York University School of Medicine, raised concerns about the size of the potential health risks at Balad.

Brown said, adding that VA already has heard concerns about burn pits from returning veterans.

An incinerator for medical waste was not installed at Balad until April 2005, although only 17 are in full operation, Harvey said. Another 17 are being built, and seven await funding. Twenty-two more are planned.

An interview with Military Times, Kinnavan said engineers were working to find a more comprehensive solution to the open-air incineration, and come up with something that’s beyond what you really should be predicting. “You can extrapolate either too high or too low and come up with something that’s beyond what you really should be predicting.”

The Pentagon even issued a press release on the pit in 2004, lauding the pits as being “our first major effort to begin minimizing the harmful effect [of] the burn pit smoke.”

Studies in the U.S. and Europe show burn pits may increase the concentration of various pollutants at two or three times the level at that of the air in most American cities, said the Pentagon’s Air Force Environmental Health Laboratory.

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They may also increase particulate matter levels, metals, and black carbon in the air. The American Thoracic Society said that even burning trash that can remain in the environment for a long time, such as plastic, paper, glass and wood, can create “disease-laden aerosols.” Wood, paper and glass, however, do not create a “risk profile” for metals.

Harvey said that Balad operations have not been included in the assessment of burn pit smoke, that does not mean there is no risk.

Medical or human waste can create “disease-laden aerosols.” Wood, paper and food, however, do not create a “risk profile” for metals.

There were no burns at Balad classified as “hazardous materials,” the AFIOH paper says. The materials commonly tossed in burn pits in Iraq are loaded with potentially hazardous materials.

Halperin admitted that the report does not discuss ultra-fine particulates or heavy metals.

According to several documents and witnesses, the base had no incinerators for medical waste, so everything from used needles to amputated limbs was tossed into the burn pit. HIV, malaria, syphilis and tuberculosis all can be spread by needles, blood and human organs — as well as by bloody bandages, culture dishes and lancets.

Harmful to human health and environment, and should only

http://www.armytimes.com/news/2008/10/military_bumpit_102708w/  
11/12/2008
be used until more suitable capabilities are established," states the paper “Open Pit Burning: General Facts and Information,” which is online at http://deploymenthealthlibrary.fhp.osd.mil/.

The materials commonly tossed in burn pits in Iraq are loaded with potentially hazardous materials, the AFIOH paper says.

Burning plastic water bottles creates elevated levels of “highly toxic dioxins,” which can contaminate food chains by landing on plants that are consumed by animals and in turn accumulating in fatty tissue.

Medical or human waste can create “disease-laden aerosols.” Wood, paper and garbage have been shown to cause “harmful effects to skin, body fluids and ability to fight disease” in animal studies. And hexachlorobenzene is a carcinogen that
can "remain in the environment for a long time, as it breaks down very slowly and sticks strongly to soil and vegetation."

IN THE PIT
Early in the Iraq war, troops worked down in the burn pit at Balad, moving the waste around with heavy machinery.

The Pentagon even issued a press release on the pit in 2004, lauding the personnel who pulled two-week rotations wearing respirators, goggles and body armor.

“Three days ago, I was putting a fire out here with a bulldozer and almost got hit by a propane tank that would have killed me if it would have hit me,” an Army enlisted engineer was quoted as saying in the news release.

According to several documents and witnesses, the base had no incinerators for medical waste, so everything from used needles to amputated limbs was tossed into the burn pit. HIV, malaria, syphilis and tuberculosis all can be spread by needles, blood and human organs — as well as by bloody bandages, culture dishes and lancets.

An incinerator for medical waste was not installed at Balad until April 2005, Harvey said.

To date, a total of 41 incinerators have been approved for use at U.S. bases in Iraq, although only 17 are in full operation, Harvey said. Another 17 are being built, and seven await funding. Twenty-two more are planned.

Kurt Kinnevan, division chief of the directorate of environmental integration at the Army Engineer School, said burn pits are one of the most visible signs that the military lacks a consistent policy on waste and environmental sustainability issues in Iraq.

“There’s not one commander I talked to in theater or preparing to go to theater [who] has any idea what he’s going to do with his waste other than take it to the burn pit,” Kinnevan wrote in a December 2007 “Defense Environmental Alert.”

In an interview with Military Times, Kinnavan said engineers were working to better train field troops.

He said there is certainly “more awareness” of the problem now, but much more can be done.

Meanwhile, defense officials continue to say burn pits do not pose serious health risks. In a statement dated Aug. 6, the Defense Department’s Office of Force Health Protection and Readiness had this to say:

“While exposure to burn pit smoke may cause temporary coughing and redness or stinging of the eyes, extensive environmental monitoring indicates that smoke exposures not interfering with breathing or requiring medical treatment at the time of exposure usually do not cause any lasting health effects or medical follow-up.”

CONTRIBUTE
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