



DEPARTMENT OF THE AIR FORCE

332D AIR EXPEDITIONARY WING

BALAD AIR BASE IRAQ

20 Dec 06

MEMORANDUM FOR 332 EAMDS/SGP

FROM: 332 EAMDS/SGPB

SUBJECT: Burn Pit Health Hazards

1. The burn pit at Balad AB (Logistics Support Area Anaconda) has been identified as a health concern for several years in numerous after action reports, Standard Form 600s (Environmental/Occupational Health Workplace Exposure Data (EOHWED), attached) in addition to other Bioenvironmental Engineering continuity documentation. During the Environmental Health Site Assessments conducted January – April 2006 by the US Army Center for Health Promotion and Preventive Medicine (USACHPPM), open burning of solid waste was identified as the number two most common environmental health finding. Balad's burn pit was quoted as being "the worst environmental site I have personally visited, and that includes 10 years working RCRA/CERCLA clean-up for the Army and DLA", by one of the assessment team members.
2. We have not yet been able to quantify contaminants that exceed the Military Exposure Guides (MEG) for most of the chemicals of concern. This data gap is a result of our inability to collect "worst case" data due to the dynamic nature of the burn pit's plume. Contributing to the difficulty of conducting a thorough scientific investigation are ongoing ground and air combat operations and the remoteness of the base. Army Technical Guide (TG) 230 specifically states that the guidance in TG 230 is not a "substitute for having trained preventive medicine personnel onsite or in theater".
3. The Air Force documents exposure to the burn pit for those stationed at Balad AB as an environmental health hazard by placing detailed information in each Airman's medical record during their post-deployment medical outprocessing. This is a permanent part of their medical record and is a mandatory document that assists the Air Force in complying with Presidential Review Directive 5. 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 would hope in the future that issues such as burn pits are identified early on and engineering controls such as incinerators would be used to mitigate these hazards. It seems that money has been the issue of why engineering controls are not currently in place.
4. The smoke hazards are associated with burning plastics, Styrofoam, paper, wood, rubber, POL products, non-medical waste, some metals, some chemicals (paints, solvents, etc.), and incomplete combustion by-products. A list of possible contaminants includes: acetaldehyde, acrolein, arsenic, benzene, carbon dioxide, carbon monoxide, dichlorofluoromethane, ethylbenzene, formaldehyde, hydrogen cyanide, hydrogen chloride, hydrogen fluoride, various metals, nitrogen dioxide, phosgene, sulfuric acid, sulfur dioxide, toluene, trichloroethane, trichloropropane, and xylene. Many of these chemical compounds have been found during past air sampling. Burn pits may have been an acceptable practice in the past, however today's solid waste contain materials that were not present in the past that can create hazardous compounds such as those listed above. Open pit burning may only be practical when it is the only available option 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 order of months.
5. 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; thus the information is being made a permanent part

of each Airman's medical record. I base this assessment on the data that I have reviewed and on-site smoke plume assessments (boots on the ground). My background includes a Doctor of Philosophy in Engineering (Environmental), registered and licensed as a Professional Engineer in Arkansas and Utah respectively and seventeen years of conducting health risk assessments.

6. I am writing this memo to translate what I see is an operational health risk to those that have been, are now and will be deployed to Balad AB (LSAA). It is my recommendation that engineering controls, such as the anticipated incinerators, should be *expedited* to solve this problem



DARRIN L. CURTIS, Lt Col, USAF, BSC
Bioenvironmental Engineering Flight Commander

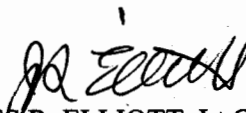
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332 EAMDS/CC

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MEMORANDUM FOR 332 EMDG/CC

I concur with Lt Col Curtis' risk assessment. In my professional opinion, the known carcinogens and respiratory sensitizers released into the atmosphere by the burn pit present both an acute and a chronic health hazard to our troops and the local population.



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cc:
CENTAF(F)/SG Bioenvironmental Engineer