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Statement of

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Before the

United States Senate

Committee on Veteran's Affairs

Subject:

Navy Medicine Health Risk Assessments at Naval Air Facility Atsugi, Japan

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Chairman Akaka, Senator Burr, distinguished members of the committee; I am Dr. Paul Gillooly, representing Navy Medicine, to address Navy Medicine's efforts in relation to potential health risks for U.S. Navy personnel and their families living and working on Naval Air Facility (NAF) Atsugi, Japan, from the operation of the adjacent, privately owned, Japanese Shinkampo Incineration Complex (SIC).

Navy Medicine conducted or sponsored three human health risk assessments, three epidemiological studies and a medical screening study.

Health Risk Assessments

At the request of the Commanding Officer (CO), NAF Atsugi, in 1994, the Navy Environmental Health Center (NEHC) conducted a screening human health risk assessment (HRA) with data collected in July, August and September 1994 by Naval Facilities Engineering Services Center (NFESC). The assessment was considered to be a screening assessment because the air quality data collected by NFESC was not intended for human health risk assessment purposes but for compliance purposes, as it was collected over a limited period of time, of short duration and air was the only medium sampled. Groups of chemicals sampled included Volatile Organic Compounds (VOCs); Polycyclic Aromatic Hydrocarbons (PAHs); Organochlorine pesticides and Polychlorinated Biphenyls (PCB); Dioxins and Furans; and metals and particulates. The screening assessment was released in October 1995 and can be found at http://www-nmcphc.med.navy.mil/downloads/ep/Atsugi/NAF%20ATSUGI%20SCREENING%20RISK%2095%20image.pdf. This screening HRA indicated that the air quality at NAF Atsugi could raise the additional lifetime cancer risk to levels higher than the U.S. Environmental Protection

Agency's (USEPA's) acceptable lifetime cancer risk range (i.e., 1 in 10,000 to 1 in 1,000,000 additional cases of cancer) for children (under the age of six) spending a normal three-year tour of duty at NAF Atsugi. This risk assessment is based on the interpretation of the National Contingency Plan 40 CFR Part 300 (2003) Subpart E – Hazardous Substance Response Section 300.430 Remedial Investigation/Feasibility Study (d) Feasibility Study (2)(i)(a)(2). Current EPA regulatory risk assessment procedures estimate cancer risks as additional lifetime incidence. The screening risk assessment also indicated concerns for non-cancer health effects, related to trimethyl benzenes and chromium

The Commander in Chief, U. S., Pacific Fleet (CINCPACFLT) requested NEHC to conduct another screening HRA with 1997 air quality data collected by Earth Tech under contract to Naval Facilities Engineering Command Pacific. The data was collected to address compliance issues, as a result of the SIC owner's request to the Government of Japan to modify the operating permit to allow for an increase in operating hours and throughput. The second screening HRA supported the first with regard to indicating a similar level of concern for calculated cancer risk and concern for non-cancer health effects in the exposed population. It can be found at http://www-nmcphc.med.navy.mil/downloads/ep/Atsugi/SCREENING%20LEVEL%20AIR_TECHNICAL%20MEMO%20NOV%2098.pdf

In October 1997, the Bureau of Medicine and Surgery (BUMED) was tasked by Commander in Chief U.S. Pacific Fleet, to conduct a comprehensive HRA. Sampling for the assessment was conducted from March 1998 until July 2000. Eight groups of air pollutants were monitored, including: acid gases; aldehydes and ketones; dioxins; PCBs and pesticides; particulate matter (PM10 and PM2.5) and heavy metals, mercury, VOCs, and semi-volatile organic compounds (SVOCs). In soil, sampling was conducted for metals; pesticides and PCBs; SVOCs; and dioxins. Sampling was conducted to collect representative data that is spatially and temporally distributed over various seasons and various weather and incinerator operating conditions. The results of the comprehensive health risk assessment were as follows: http://www-nmcphc.med.navy.mil/downloads/ep/Atsugi/Complete_Health_Risk_Assessment.PDF

• The cancer risk for children (under the age of 6) living on base for a 3-year tour of duty suggested that a child's exposure to contaminants from air and soil during a 3-year tour of duty could potentially result in an additional lifetime cancer risk of 1.1 per 10,000.

• The calculated cancer risk for adults living or working on base for a 3 or 6-year tour of duty suggested that an adult's exposure to contaminants from air and soil falls within the cancer risk range of 1 in 10,000 and 1 in 1,000,000.

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• Potential adverse non-cancer health effects that may be related to concentrations of chemicals in the air such as irritation of the eyes and upper respiratory system, headaches, and skin rash are

short lived and directly related to exposure. Health effects related to some of the individual chemicals that cause respiratory effects may be reversible when an individual leaves NAF Atsugi. However, there is some concern that repeated long-term exposure to chemicals, in combination with others, might result in long-term, non-cancer health effects.

• Because risk assessments use many assumptions and estimates, the final risk numbers always contain some uncertainty. Because of this, the numbers need to be interpreted with caution. The true risk numbers may be higher or lower; however, they are likely lower because there were many conservative assumptions and estimates used in the risk assessment to be health protective, as it was based on an upper bound risk. In the U.S., risk assessment results similar to those found at NAF Atsugi may, in some contexts, result in additional USEPA regulatory action. Legal and political action initiated by the U. S. Department of Justice eventually resulted in the closure of the Shinkampo Incinerator Complex in 2001.

Epidemiological Health Studies

To respond to NAF Atsugi community concerns, NEHC conducted three health studies, a Children's Respiratory Health Study (children at Yokosuka, Japan, and those on and off-base at Atsugi), a Pregnancy Loss Study for Women at NAF Atsugi, and a Retrospective Cohort Study of Disease.

Children's Respiratory Study

The Children's Respiratory Study was designed to determine if air pollutants from the Shinkampo incinerator were affecting the respiratory health of children. Between 7 May 1998 and 5 June 1998, 127 fifth and sixth grade children who attended Atsugi or Yokosuka DOD schools volunteers participated in a health study. The study can be found at: http://www-nmcphc.med.navy.mil/downloads/ep/Atsugi/Complete_Health_Risk_Assessment.PDF.

There were two primary goals of this study. The first was to determine if there were differences in respiratory health between children who live or go to school at NAF Atsugi and similar children who live at Yokosuka. The second goal was to identify whether the children who live or go to school at Atsugi have more respiratory symptoms on days when they were exposed to higher levels of pollutants from the SIC.

Given the limits of this study, we were not able to document differences in the respiratory health of children living on or off base at NAF Atsugi versus those at Yokosuka.

Pregnancy Loss Study

The Pregnancy Loss Study, designed to describe the rate of miscarriage at NAF Atsugi and other naval facilities in Japan, was conducted in the summer of 1998. The researchers examined hospital and clinic records for Navy personnel or their dependents who were pregnant and living in Japan at some point between June 1995 and May 1998. Information used to calculate the miscarriage rates came from three different sources, Delivery Logs at Naval Hospital Yokosuka (NHY), Pathology records at NHY and the Prenatal Log at the Atsugi Branch Medical Clinic. The study can be found at: http://www-nmcphc.med.navy.mil/downloads/ep/Atsugi/Complete_Health_Risk_Assessment.PDF.

A total of 1862 pregnancies with known outcomes from NHY (including Atsugi, Yokosuka, Sasebo and Iwakuni) were examined. There were 1701 live births and 130 miscarriages between June 1995 and May 1998. The corresponding miscarriage rate for this period was 7.1%. The rate at NAF Atsugi, determined from review of the prenatal log during the same period, was 8.8%. Statistically, there is no difference between the overall NH Yokosuka rate and the Atsugi rate. This rate was based on the examination of 353 total pregnancies, with 322 live births and 31 miscarriages.

Within study constraints, the results of the study indicated that the risk of miscarriage at NAF Atsugi was comparable to Yokosuka,

Retrospective Cohort Study of Disease

In March 2007, Navy and Marine Corps Public Health Center (NMCPHC), formerly NEHC, was requested by the Navy Bureau of Medicine and Surgery (BUMED) to investigate the long-term health effects that might be associated with exposure to SIC emissions. NMCPHC reviewed the HRA to determine the appropriate diseases to study based on chemicals identified in the environmental sampling results. Target organs and illnesses were selected based on published environmental exposure literature from USEPA and peer reviewed literature. Using this information, the Atsugi Health Study was designed to determine if incidence of disease associated with exposure to the emissions of the SIC significantly differ for residents of NAF Atsugi from 1985 to 2001 when compared to a similar population over the same time period. The study can be found at: http://www-nmcphc.med.navy.mil/downloads/ep/Atsugi/Complete_Health_Risk_Assessment.PDF.

The study included over 5,600 active duty and over 11,000 family members in NAF Atsugi former-resident cohort. Current medical information was available for 24 % of active duty and 28% of dependents compared to 19% and 25% for comparison population. Outcomes were studied for 11 cancer types and noncancer outcomes for ocular, dermal, and respiratory disorders.

The results of the study found a significantly higher risk for dermal complaints, a non-cancer health effect, in the Atsugi population when compared to the Yokosuka population. No other area of analysis found significant differences in disease and illness incidence or health complaints. None of the types of cancer considered as possible associated with exposure to SIC pollution had significantly different risk ratios between the populations.

Medical Screening Study

Navy Medicine, via the Navy and Marine Corps Public Health Center, requested Battelle Memorial Institute, an external private agency, independent from the Navy, to review the health risk assessment data and make recommendations for possible additional medical screening. Battelle Memorial Institute was requested to answer a specific question with supporting evidence: “For those who lived aboard NAF Atsugi during the time of incinerator operation, what, if any, additional population-based medical screening might be indicated? Provide the medically supported basis for that determination.” Furthermore, if additional population-based

medical screening is indicated, recommend screening parameters, include the standard used and the expected outcome such screening would have on the population's health.

As background for those not familiar with population-based medical screening, the U.S. Preventive Services Task Force (USPSTF), established in 1984 under the U.S. Department of Health and Human Services, has routinely published recommendations for primary care practitioners on what medical screening or testing should be provided to apparently healthy persons based on age, sex and risk factors for disease. These are general medical screening recommendations that are appropriate for any and all members of the U.S. population that are in the recommended screening group. These provide early detection of diseases ranging from cancer to mental health conditions. The recommendations can be accessed at: http://www.ahrq.gov/clinic/prevenix.htm.

From the Battelle report's Executive Summary: "The conclusion of all previous evaluations are remarkable for their consistency: residents of NAF Atsugi were exposed to ambient air and soil contaminants [based on chemicals analyzed for the 2002 human health risk assessment], due primarily to emissions from the SIC, that were sufficient to produce an incremental increase in lifetime risk of cancer and increase the risk of respiratory non-cancer health effects. However, since the incremental risk was relatively small, it would not be scientifically meaningful to provide broad medical screening for all potentially exposed personnel." Because of the authors' opinion that there is no epidemiologic study protocol, with or without medical testing, capable of detecting the small number of cancers that could possibly have been caused by an environmental exposure from the incinerator against the normal background of cancer incidence in the human population, no additional screening or testing is recommended for disease that is not already evident.

Communications

Communication with NAF Atsugi Population

In April 1998, at the direction of Assistant Secretary of the Navy for Manpower and Reserve Affairs (ASN(M&RA)), NEHC developed a comprehensive risk communication and health consultation program. This was coordinated with the Bureau of Medicine and Surgery, NAF Atsugi, Branch Medical Clinic Atsugi, Commander Naval Forces Japan, Bureau of Naval Personnel and Commander in Chief, U.S. Pacific Fleet. The plan established procedures for providing formal risk communication to everyone onboard NAF Atsugi and personnel with orders to Atsugi. One-on-one health consultations were conducted for all adults extending for more than six years on station, all adults who had children under the age of six, those with chronic respiratory conditions and pregnant or nursing women. A standard entry was made in medical records that described potential exposure conditions at NAF Atsugi.

The program required that Navy Detailers mention the air quality issue and refer military members to medical and base points of contact for further information. It required overseas medical screeners discuss the health risks and provide a focused health consultation for individuals with orders to NAF Atsugi and a provide a fact sheet addressing potential risks of living and working at NAF Atsugi. A phased approach was established to inform individuals of potential risks to adults and children living or working at NAF Atsugi.

A Health and Environmental Risk Communication Plan addressed the means for providing information to the community (e.g., base newspaper articles, public availability sessions, fact sheets, web sites, library repositories).

Several different medical record forms were used at NAF Atsugi to respond to concerns from NAF Atsugi military personnel and their families about medical documentation and full disclosure of their potential exposure and possible health effects. All forms were placed in personnel and family permanent health records. Branch Medical Clinic Atsugi, with Bureau of Medicine and Surgery's approval, developed a medical record form that listed the maximum sampling concentrations measured in 1994 for 12 chemicals exceeding USEPA or New York State ambient air quality standards during the air quality study. These chemicals included: sulfur dioxide, nitrogen dioxide, hydrochloric acid, carbon tetrachloride, benzene, dioxins, cadmium, mercury, nickel, chromium, arsenic and respirable particulates. (http://www-nmcphc.med.navy.mil/downloads/ep/Atsugi/Appendix_A_appendices.pdf)
Cancer risks were also provided on this form. Beginning 1 March 1996, this form was inserted in medical records of all individuals that requested the documentation.

During health risk communication and consultation at NAF Atsugi, which began in June 1998, a revised form was completed for every individual at NAF Atsugi and those with orders to NAF Atsugi. This new form documented full disclosure of potential exposures and possible health effects, related to environmental conditions, for each military member and family member based upon their medical history. The new form was signed by each adult family member (18 years and older) to acknowledge receipt of risk communication. The sponsor or spouse signed the new form for children under the age of 18. Additionally, all service members and family members over the age of 17 indicated that they received a risk communication briefing by signing an "Administrative Remarks NAVPERS 1070/613 (Rev. 10-81)," commonly referred to as a "Page 13" entry to be retained in their military record. Prior to detachment from NAF Atsugi, another medical form was completed to document arrival and departure dates and locations of residence, schools attended and employment, while assigned to NAF Atsugi.

Communication with the Department of Veterans Affairs (VA)
The primary process followed by the DoD and Navy Medicine to ensure the VA is aware of individual hazardous exposures is to ensure all individual exposure-related information is entered into individual medical records of those affected so it is available to the VA at the time of treatment or claims adjudication. This process was initiated for NAF Atsugi base residents beginning in the 1995-1998 timeframe and continued until the incinerator closed in 2001. Navy Medicine follows the DoDI 6055.05, "Occupational and Environmental Health," Paragraph 2.c., "Data Sharing," which requires DoD to share hazard and exposure data with the VA to assist in adjudication of veterans' disability claims. However, there is no specific policy that identifies the conditions or circumstances that require notification to the VA of possibly harmful exposures.

Presently, Navy Medicine, through the Navy and Marine Corps Public Health Center (NMCPHC) has developed a website that provides all publicly available documents related to NAF Atsugi and a Frequently Asked Questions (FAQ) section as means of providing information to former Atsugi residents, their health care providers, and the VA. These documents include the

two health risk assessments from 1995 and 1998 and the final comprehensive health risk assessment from 2002, which along with other studies and reviews, provides the necessary information from which the VA can adjudicate filed claims from military members stationed at NAF Atsugi. The website also has a link allowing any VA medical care provider the opportunity to contact a Navy physician directly for any additional information on health issues related to the NAF Atsugi exposures.

For several years, DoD and VA have collaborated in the DoD/VA Deployment Health Working Group, which focuses on post-deployment health of Service members and veterans. This working group has a major focus on environmental and occupational exposures, and it discusses these issues at nearly every monthly meeting. These issues have specifically included the Atsugi incinerator. In the case of the personnel who were stationed at Atsugi, Japan, the DoD-VA Deployment Health Work group received a briefing on the incinerator-generated exposures in June 2009 by the BUMED Occupational Medicine Program Head.

In June 2009, following a brief by Navy Medicine, the DoD-VA Deployment Health Working Group agreed the VA would receive a list of all affected Active Duty personnel stationed at NAF Atsugi from 1985-2001. These data come to the Navy and Marine Corps Public Health Center from the NAF Atsugi Retrospective Cohort Study of Disease, a cohort epidemiology investigation that utilized personnel records from the Defense Manpower Data Center to assemble the two cohorts for analysis. There were 5,635 Active Duty service members identified from the Defense Manpower Data Center personnel records as being stationed at NAF Atsugi from 1985-2001. This collection of information will aid in any future outreach or surveillance activities for this population as indicated.

Medical Surveillance

After the Shinkampo Incinerator Complex shut down in 2001, outreach and health consultation activities centered on the specific environmental health exposures for the NAF Atsugi base population, were discontinued. The final health risk assessment performed by the Navy Environmental Health Center (NEHC), forwarded for release in 2002, did not reveal any major changes in the types of materials that posed risk to base residents nor the potential consequences to their health as determined in the 1995 and 1998 health risk assessments. Excess cancer risk was considered to be one new cancer above baseline per 10,000 individuals who as adults stayed more than 6 years at NAF Atsugi or as child under six years of age stayed longer than 3 years. For perspective, this excess cancer risk is approximately the same for adults who live in Denver as opposed to another city at sea level due to increased exposure to naturally occurring ionizing radiation at the higher altitudes.

Mr. Chairman, distinguished Members of the Committee, thank you for the opportunity to share with you Navy Medicine's efforts in relation to exposures at NAF Atsugi.