



DEPARTMENT OF VETERANS AFFAIRS
Veterans Benefits Administration
Washington, D.C. 20420

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Director (00/21)
All VA Regional Offices

In Reply Refer To: 211A
Training Letter 10-03

SUBJ: Environmental Hazards in Iraq, Afghanistan, and Other Military Installations

Purpose

This training letter will serve three main purposes. First, it will inform regional office employees on specific environmental hazard incidents that present potential health risks to service members and Veterans. Second, it provides guidance on handling claims for disabilities potentially resulting from exposure to environmental hazards while on active duty. Third, it provides “fact sheets” that may serve as valuable resources for VA examiners when they conduct Compensation and Pension (C&P) examinations associated with such exposure. The information and guidelines provided will ensure claims are processed in an objective and compassionate manner across all regional offices.

Background

Service members can be exposed to environmental hazards in the course of their military duties, which may result in adverse health effects. Numerous environmental hazards in Iraq, Afghanistan, and other military installations that could potentially present health risks to service members and Veterans have been identified. The hazards discussed in this training letter are as follows: (1) Large burn pits throughout Iraq, Afghanistan, and Djibouti on the Horn of Africa; (2) “particulate matter” in Iraq and Afghanistan; (3) a large sulfur fire at Mishraq State Sulfur Mine near Mosul, Iraq; (4) hexavalent chromium exposure at the Qarmat Ali Water Treatment Plant in Basrah, Iraq; (5) contaminated drinking water at Camp LeJeune, North Carolina; and (6) pollutants from a waste incinerator near the Naval Air Facility (NAF) at Atsugi, Japan. It is imperative that regional office personnel are aware of these environmental health hazards and are well-trained to handle disability claims from Veterans based on exposure to them.

Questions

Questions should be e-mailed to VAVBAWAS/CO/211/ENVIRO

/S/
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Director
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Enclosures

1. Description of environmental hazard incidents

A. BURN PITS THROUGHOUT IRAQ, AFGHANISTAN, AND DJIBOUTI

General Information: Throughout the current contingency operations in Iraq and Afghanistan (from approximately 2001 to the present), the U.S. Military utilized large burn pits to dispose of waste. Burn pits are located at every location wherein the military has positioned a forward operating base (FOB). This includes the major US military staging base in the country of Djibouti on the Horn of Africa.

Exposure to open burn pits has created significant concern among Veterans and their families. The most widely publicized of these is the burn pit at Joint Base Balad. The air base at Balad, also known as Logistic Support Area (LSA) Anaconda, is located in Northern Iraq approximately 68 kilometers (km) north of Baghdad and 1.5 km from the Tigris River. It occupies a 25-square kilometer site and is home to approximately 25,000 military, civilian, and coalition personnel.¹

According to the U.S. Army Center for Health Promotion and Preventative Medicine (USACHPPM), the amount of solid waste burned at Balad was estimated at about 2 tons of material per day in the early stages of troop deployment and increasing up to several hundred tons per day.²

The Balad burn pit occupies approximately 10 acres. The burned waste products include, but are not limited to: plastics and Styrofoam, metal/aluminum cans, rubber, chemicals (such as, paints, solvents), petroleum and lubricant products, munitions and other unexploded ordnance, wood waste, medical and human waste, and incomplete combustion by-products. Jet fuel is used as the accelerant. The pits do not effectively burn the volume of waste generated, and smoke from the burn pit blows over the Air Base and into living areas.³ DoD has reported to VA that as of October 2009, the Balad burn pits were shut down and incinerators were installed. Burn pits still operate at many other bases.

¹ U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) Report No. 47-MA-08PV- 08/AFIOH Report No. IOH-RS-BR-TR-2008-0001, May 08, pg 2.

² *Id.*

³ *Id.* at 3.

DoD has performed air sampling at Joint Base Balad, Iraq and Camp Lemonier, Djibouti. Most of the air samples have not shown individual chemicals that exceed military exposure guidelines. The air sampling performed at Balad and discussed in an unclassified 2008 assessment tested and detected all of the following: (1) Particulate matter; (2) Polycyclic Aromatic Hydrocarbons; (3) Volatile Organic Compounds; and (4) Toxic Organic Halogenated Dioxins and Furans (dioxins). Each of the foregoing is discussed below with the exception of particulate matter, which will be discussed later in this letter.

Polycyclic Aromatic Hydrocarbons. Polycyclic Aromatic Hydrocarbons (PAHs) are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances.⁴ Some of the PAHs that were tested for and detected are listed below. These results are from DoD testing at Balad from January through April 2007.⁵

Acenaphthene	Acenaphthylene
Anthracene	Benzo(a)anthracene
Benzo(a)pyrene	Benzo(b)fluoranthene
Benzo(b)fluoranthene	Benzo(g,h,i)perylene
Benzo(k)fluoranthene	Chrysene
Dibenz(a,h)anthracene	Fluoranthene
Fluorene	Indeno(1,2,3-cd)pyrene
Naphthalene	Phenanthrene
Pyrene	

Volatile Organic Compounds. Volatile Organic Compounds (VOCs) are emitted as gases from certain solids or liquids. They include a variety of chemicals, some of which may have short- and long-term adverse health effects. VOCs are emitted by a wide array of products numbering in the thousands. Examples include: paints and lacquers, paint strippers, cleaning supplies, pesticides, building materials and furnishings, office equipment such as copiers and printers, correction fluids and carbonless copy paper, graphics and craft materials including glues and adhesives, permanent markers, and photographic solutions.⁶ The following list reveals some of the VOCs that were tested for and detected at Balad.⁷ These results are from DoD testing from January through April 2007.

Acetone	Acrolein**
Benzene	Carbon Disulfide
Chlorodifluoromethane	Chloromethane

⁴ See Agency for Toxic Substance and Disease Registry, Department of Health and Human Services (retrieved Aug. 20, 2009, at <http://www.atsdr.cdc.gov/tfacts69.html#bookmark02>).

⁵ See USACHPPM Report No. 47-MA-08PV-08/AFIOH.

⁶ See U.S. Environmental Protection Agency Site at <http://www.epa.gov/iaq/voc.html>.

⁷ See USACHPPM) Report No. 47-MA-08PV-08/AFIOH.

Ethylbenzene
Hexachlorobutadiene**
Methylene Chloride
Propylene
Toluene

Hexane
m/p-Xylene
Pentane
Styrene

** Acrolein and Hexachlorobutadiene were occasionally detected far above the MEG ratio—once over 1800 percent above the MEG for Acrolein and over 500 percent above the MEG for Hexachlorobutadiene.

Toxic Organic Halogenated Dioxins and Furans. Dioxins are well known to VA because of their association with tactical herbicide use in Vietnam. Below is a list of the dioxins and furans detected at Balad from January through April 2007.

1,2,3,4,6,7,8 HPCDD	1,2,3,4,6,7,8 HPCDF
1,2,3,4,7,8,9 HPCDF	1,2,3,4,7,8 HXCDD
1,2,3,4,7,8 HXCDF	1,2,3,6,7,8 HXCDD
1,2,3,6,7,8 HXCDF	1,2,3,7,8,9 HXCDD
1,2,3,7,8,9 HXCDF	1,2,3,7,8 PECDD
1,2,3,7,8 PECDF	2,3,4,6,7,8 HXCDF
2,3,4,7,8 PECDF	2,3,7,8 TCDD
2,3,7,8 TCDF	octachlorodibenzodioxin
octachlorodibenzofuran	

Currently, VA is not able to determine what possible adverse synergistic health effects might be caused by a combination of (1) high levels of particulate matter; (2) numerous Toxic Organic Halogenated Dioxins and Furans; (3) known and unknown Polycyclic Aromatic Hydrocarbons; and (4) known and unknown Volatile Organic Compounds. For example, 22 of the foregoing toxins, not including dioxins and particulate matter, adversely affect the respiratory system; at least 20 affect the skin; at least 12 affect the eyes; and many others affect the liver, kidneys, central nervous system, cardiovascular system, reproductive system, peripheral nervous system, and GI tract.⁸ In at least seven of the foregoing toxins (VOCs and PAHs), dermal contact can significantly contribute to overall exposure.⁹ Many troops may have also ingested various amounts of these toxins through food sources because of smoke plume dispersion through base facilities.

Because of the widespread nature of the burn pits and the inability of military personnel records to identify all duty locations, the Veteran's lay statement of burn pit exposure generally will be sufficient to establish the occurrence of such exposure if the Veteran served in Iraq, Afghanistan, or Djibouti. Regional office personnel must also be aware that many Veterans suffering from illnesses such as, respiratory, cardiopulmonary, neurological, autoimmune, and/or skin disorders, may not associate such conditions

⁸ See USACHPPM Technical Guide 230, May 2003 (Jan. 2004 Addendum).

⁹ *Id.*

with burn pit exposure. Such exposure may have been an accepted fact of life inside the theater of operations. Further, if toxin exposure is raised by a Veteran, he or she will generally not be aware of what toxins were released by burn pits. Rating authorities must therefore be prepared to actively review such claims by recognizing potential exposure issues whenever they are reasonably raised by the record and then developing those claims in accordance with instructions herein.

B. PARTICULATE MATTER IN IRAQ, AFGHANISTAN, AND DJIBOUTI

General Information: "Particulate matter" (PM) is a complex mixture of extremely small particles and liquid droplets. PM is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. Although PM emissions from natural and manmade sources are generally found worldwide, the PM levels in Southwest Asia are naturally higher and may present a health risk to service members.¹⁰

There are generally two size ranges of particles in the air that are a health concern. These include particles with a diameter less than or equal to 10 microns (PM₁₀) and those with a diameter of 2.5 microns (PM_{2.5}) and smaller. The size of particles is directly linked to their potential for causing health problems, with the smaller particles being considered more harmful. Particles that are 10 micrometers in diameter or smaller are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these powder-like particles can affect the heart and lungs and cause serious health effects.

Primary sources of PM in Southwest Asia include dust storms and emissions from local industries. The DoD conducted a year-long sampling survey to characterize the chemistry and mineralogy of the PM at 15 sites in OIF and OEF. These results were published by the Desert Research Institute in 2008 and are being reviewed by the National Academy of Sciences Committee on Toxicology. The widespread existence of burn pits only exacerbates the high concentrations of PM in Iraq and Afghanistan. DoD stated in their 2008 Balad assessment, that emission from burns pits, among other things, "may increase localized concentration of 2.5 micrometer PM and other potentially toxic air pollutants."

Most studies relate PM exposure data to respiratory and cardiopulmonary health effects in specific susceptible general population subgroups to include young children, the elderly, and especially those with existing asthma or cardiopulmonary disease. Many variables influence the nature and probability of health outcomes. The key variables are the size-fraction and chemical make up of the PM, the concentration levels, the duration of exposures, and various human factors to include age, health status, existing medical conditions, and genetics. These variables combined with scientific data gaps limit the medical community's ability to estimate health impacts to relatively healthy troops. Another key factor is that most studies have been on older or less healthy groups. Several studies to determine potential health effects/outcomes are currently underway.

¹⁰ USACHPPM Fact Sheet 64-009-0708, *Particulate Matter (PM) Air Pollution Exposures During Military Deployments* (PM Fact Sheet).

DoD collected approximately 60 air samples at Balad from January to April 2007 and assessed for PM. The samples were taken from five different locations around Balad. The heaviest measured concentration of PM was taken in April 2007—the concentration level was 299 ug/m³ of PM₁₀ sized particles. In total, 50 of the 60 samples registered above the military exposure guidelines.¹¹

Although a Veteran who is claiming a disability may not specify the source of exposure as PM, employees handling such claims should be aware of PM exposure and its potential health effects. In certain cases, a statement of exposure may be appropriate to include in VA examination/opinion requests. In all cases involving PM exposure and potentially related disabilities, regional office personnel should ensure that the attached fact sheet is included with C&P examination/opinion requests. As C&P Service becomes more aware of the concentration levels of and health outcomes from PM exposure in Iraq and Afghanistan, we will notify regional office personnel accordingly.

C. SULFUR FIRE AT MISHRAQ STATE SULFUR MINE NEAR MOSUL, IRAQ

General Information: On June 24, 2003, a fire ignited at the Mishraq State Sulfur Mine Plant in northern Iraq. The Mishraq Sulfur Mine is the largest sulfur mine in the world. It burned for approximately 3 weeks and caused the release of roughly 42 million pounds of sulfur dioxide (SO₂) per day; hydrogen sulfide (H₂S) was also released.

Satellite imagery showed the smoke plume direction, length, and opacity varied throughout the timeframe. Field sampling data collected by a preventive medicine detachment and anecdotal reports of odors and irritation suggest levels of SO₂/H₂S were not solely located in the immediate vicinity of the fire. Levels were found at the Qayyarah Airfield West (Camp Q West), which is 25km to the south and is a major military supply airstrip and the primary area of deployment for the 101st Airborne Division. Satellite imagery also showed northerly movement of the smoke plume reaching approximately 50 km to the north up to the Mosul Airfield area. DoD estimates that several thousand troops were within the 50km radius from the sulfur fire to the Mosul airfield.

A roster of firefighters and support elements that participated in controlling the fire was prepared. It identifies individuals primarily from the 101st Airborne Division – 52nd Engineer Battalion, 326th Engineer Battalion, and 887th Engineer Battalion.¹² C&P Service is in the process of requesting this roster and other reports, risk assessments, etc., from DoD. USACHPPM has stated that it does not have the means to identify specific exposures; and that all exposed persons are not definitely known.

¹¹ See USACHPPM Report No. 47-MA-08PV-08/AFIOH, Pg 5.

¹² USACHPPM Fact Sheet 64-007-0707, *Health Assessment of 2003 Al Mishraq Sulfur Fire Incident*.

Both sulfur dioxide and hydrogen sulfide are gases that can produce irritation and reddening of the nose and throat, eye irritation/pain, and coughing. At high levels, sulfur dioxide can burn the skin and can cause severe airway obstruction, hypoxemia, pulmonary edema, and even death. Service members involved with suppressing this fire experienced irritation, minor burns, and effects such as blood-tinged nasal mucous. Some have been found to have long-term respiratory conditions such as “constrictive bronchiolitis.”¹³

In early 2007, USACHPPM medical personnel visited Ft. Campbell, Kentucky, which is the U.S. base for the 101st Airborne Division, and learned that from late 2004 through February 2007, 41 soldiers citing exposures to the sulfur fire and reporting unexplained shortness of breath on exertion, had been referred by the Blanchfield Medical Center to a pulmonary specialist at the Vanderbilt Medical Center. As of February 2007, nineteen (19) personnel had an open lung biopsy, and were all diagnosed with constrictive bronchiolitis. Constrictive bronchiolitis is an inflammatory and fibrotic lesion of the terminal bronchioles of the lungs. This diagnosis is very uncommon and has been associated with inhalation exposures, organ transplantation, certain drugs, and collagen vascular disorders. Individuals with this finding typically have shortness of breath on exertion, but may have normal chest X-rays and inconclusive findings on pulmonary function testing. Due to some similarities, symptoms of constrictive bronchiolitis may be wrongly attributed to asthma or chronic obstructive pulmonary disease (COPD).

Regional office personnel may have a difficult time rating disabilities in this population. In most cases, the affected soldiers are comfortable at rest and are able to perform the activities of daily living. They have normal or near normal pulmonary function tests, but, at the same time, become short of breath on slight physical exertion, cannot meet physical training requirements, and are considered unfit for deployment. This unique circumstance challenges those who must determine a disability rating. Pulmonary function testing is the usual standard for rating respiratory disabilities. Therefore, rating authorities should utilize an appropriate analogous code (*such as* 6600-6604) since the condition does not have its own diagnostic code, and consider extra-scheduler ratings in such cases when there is evidence that a Veteran’s employment is affected.

While individual exposure levels cannot be accurately determined, USACHPPM currently considers constrictive bronchiolitis (initially diagnosed as “bronchiolitis obliterans”) to be plausibly associated with exposure to the 2003 Mishraq State sulfur fire event. This health effect has been scientifically associated with high exposures to SO₂. While personnel exposures varied considerably, individual risk factors or susceptibility may play a role. Due to limitations in the military deployment tracking databases used in 2003-2004, the actual cohort of all exposed persons is not definitively known.

The Veteran’s lay statement of exposure to the sulfur fire is sufficient if his or her service records shows service in Iraq at Mosul Airfield or Qayyarah Airfield West (Camp Q

¹³ *Id.*

West) at any time during the 4-week period starting from June 24, 2003. Otherwise, verification of exposure should be made on a case-by-case basis with careful consideration given to the period of deployment together with duty locations. Contacting a military unit the Veteran served in at the time of Iraq deployment may be necessary to confirm the required location. C&P Service will notify regional offices if and when it receives the DOD list of personnel involved in this incident. In the meantime, a careful review of service treatment records, personnel records and other alternative evidence such as lay statements should be conducted in efforts to verify exposure. If the claim is for a respiratory condition possibly related to the sulfur fire exposure, consider requesting tests for "bronchiolitis" to be conducted in addition to other respiratory testing, while noting that many standard test results may be normal.

D. QARMAT ALI WATER TREATMENT PLANT IN BASRAH, IRAQ

General Information: From approximately April through September of 2003, Army National Guard (NG) personnel from Indiana, West Virginia, South Carolina, and Oregon served at the Qarmat Ali Water Treatment Plant in Basrah, Iraq, and were assigned to guard contract workers who were restoring the plant.¹⁴ During that time, sodium dichromate, a source of hexavalent chromium, which was previously used as a corrosion-preventing chemical by former Iraqi plant workers, was found on the ground and measured in the air. Hexavalent chromium, or Chromium VI (six), in sodium dichromate is a lung carcinogen through inhalation.

Chromium VI is also an acidic compound that can cause immediate irritation to the eyes, nose, sinuses, lungs, and skin. USACHPPM provided a medical evaluation for certain soldiers there at the time, which took place in October 2003. According to USACHPPM, 137 service members were evaluated. The results at the time showed some abnormalities in individuals, such as complaints of eye, nose, throat and/or lung irritation, or abnormal pulmonary function, kidney, or liver tests. However, the Army stated that it could not specifically trace these symptoms to chromium exposure.¹⁵

C&P Service has also begun researching the list of identifiable service members to determine who has filed claims for disability benefits for any condition potentially related to this toxin exposure. Research is ongoing and is primarily focused on, but not limited to, diseases of the skin and respiratory system. This assessment takes into consideration all identifiable members of the Guard who have previously filed disability claims for such conditions and who have claims currently pending for such conditions. It also assumes that such claims were filed after exposure, but not necessarily expressly related to exposure.

The Veterans Health Administration (VHA) has begun to augment the Gulf War Registry to reflect service at Qarmat Ali. VHA is verifying the numbers of these Veterans who have either enrolled in care or received a Gulf War Registry examination. The involved Guard members who have had an initial examination will be recalled to have a complete exposure assessment as well as a more targeted physical examination and ancillary testing to detect indications of health outcomes that may be related to hexavalent chromium. Those who have yet to enroll in the registry will receive this targeted exam initially, which includes a chest radiograph and pulmonary function test. This evaluation will be repeated periodically.

DoD has confirmed with VA that NG personnel from Indiana, West Virginia, South Carolina, and Oregon served at the Qarmat Ali Water Treatment Plant in Iraq. Therefore, verification of individual exposure is not required for Veterans who served in

¹⁴ USACHPPM Fact Sheet 33-002-0908, *Update on Sodium Dichromate Exposure at Qarmat Ali Water Treatment Plant in 2003*.

¹⁵ *See Id.*

one of these NG units if their service in Iraq was between April through September 2003.

E. CONTAMINATED DRINKING WATER AT CAMP LEJEUNE, NORTH CAROLINA

General Information: From the 1950s through the mid-1980s, persons residing or working at the U.S. Marine Corps Base at Camp Lejeune, North Carolina, were potentially exposed to drinking water contaminated with volatile organic compounds. Two of the eight water treatment facilities supplying water to the base were contaminated with either trichloroethylene (TCE) or tetrachloroethylene (perchloroethylene, or PCE) from an off-base dry cleaning facility. The Department of Health and Human Services' Agency for Toxic Substances and Disease Registry (ATSDR) estimated that TCE and PCE drinking water levels exceeded current standards from 1957 to 1987 and represented a public health hazard. The heavily contaminated wells were shut down in February 1985, but it is estimated that over one million individuals, including civilians and children, may have been exposed.

There has been much public interest and media coverage of the potentially harmful health effects associated with the contaminated water supply at Camp Lejeune. The National Research Council of the National Academies of Science released a report in June 2009, which found that scientific evidence for any health problems from past water contamination is limited. The evidence for amounts, types, and locations of contamination were not well recorded at the time and cannot now be extrapolated. Therefore, conclusive proof of harmful health effects is unlikely to be resolved with any further studies.

In October 2008, the Department of the Navy issued a letter to Veterans who were stationed at Camp Lejeune between 1957 and 1987. The letter explained that the Navy had established a health registry and encouraged participation. For further information or to refer Veterans with questions regarding Camp Lejeune, the following websites have been established: <http://www.atsdr.cdc.gov/sites/lejeune/index.html> or www.marines.mil/clsurvey/index.html. Veterans may also call the Department of the Navy at (877) 261-9782.

Disability claims based on exposure to contaminated water at Camp Lejeune must be handled on a case-by-case basis. Actual service at the installation during the timeframe of water contamination must be established.

F. Waste Incinerator near Naval Air Facility in Atsugi, Japan

General Information: During the years between 1985 and 2001, personnel at NAF Atsugi were exposed to environmental contaminants. The source was an off-base waste incinerator business owned and operated by a private Japanese company. Known as the Jinkanpo or Shinkampo Incinerator Complex, the operation consisted of a combustion waste disposal complex equipped with four incinerators burning up to 90

tons of industrial and medical waste daily. The complex was located approximately 100 yards south of the NAF Atsugi perimeter and during the spring and summer months the prevailing winds would blow the incinerators' emissions over the NAF. Environmental assessment reports conducted during the years of incinerator operations stated that there was significant degradation of air quality at the sites sampled and identified the sources as incomplete burning of wastes in uncontrolled incinerators and evaporation of solvents poured onto outdoor waste piles prior to incineration. The identified chemicals of potential concern include: chloroform; 1,2-dichloroethane; methylene chloride; trichloroethylene; chromium; dioxins and furans; and other particulate matter.

Since the 1990s, the Navy has informed sailors and their family members about the possible long-term health effects of living at Atsugi. The Navy has also published various health information about Atsugi at the following website:

http://www-nmcphc.med.navy.mil/Environmental_Health/about_atsugi.aspx

The above-listed Navy website provides several recent studies of the Atsugi population. The first, a review and report by Battelle did not find sufficient exposures to warrant any additional surveillance testing for former residents of NAF Atsugi. However, this review does not offer conclusive proof that service members who were present between 1985 and 2001 were unaffected by the environmental contaminants. The second is a health study looking at health outcomes of the former residents of NAF Atsugi compared to a similar population assigned to NAF Yokosuka. Differences were found for atopic and contact dermatitis, both more likely in the Atsugi population. ATSDR reviewed Navy's efforts, and their opinion is noted in a letter provided on the website. This ATSDR review references two additional health outcome studies, respiratory disease and pregnancy outcomes, conducted during the incinerator's operations. Neither study found an increased risk for the NAF Atsugi residents.

Disability claims based on exposure to environmental airborne contaminants at NAF Atsugi must be handled on a case-by-case basis. Actual service at the installation during the timeframe of environmental contaminants must be established.

2. Claims Processing Policies and Procedures

A. Priority of Processing

Because of the potential of receiving claims due to exposure to environmental hazards from Veterans who served in Iraq and Afghanistan, employees should review VBA Letter 20-07-19 dated February 6, 2009, to determine if "priority processing" procedures apply.

B. End Product Control and Tracking

Upon receipt of service connection claims for disabilities due to exposure to environmental hazards or toxic agents, establish a standard end product, (e.g., 110, 010, 020). A special end product to control these issues is not necessary.

Employees involved in the development of these claims must choose the appropriate Special Issue identifier on the MAP-D Contentions screen. Currently, the only identifier pertaining to exposure claims is “Environmental Hazard in Gulf War,” which is only appropriate for exposure within Southwest Asia. As C&P Service updates corporate applications, (i.e., MAP-D, RBA 2000, etc.) to better track and identify these types of claims, we will notify the field accordingly. Therefore, so as not to dilute future data on hazardous exposure claims regarding Southwest Asia service, do not use the “Environmental Hazard in Gulf War” identifier for claims regarding Atsugi or Camp Lejeune service.

C. Development

By taking the following steps in the development process, raters will be well-equipped to make fair and equitable decisions on service-connection claims as a result of exposures to environmental hazards.

- Send the Veteran a standard Veterans Claims Assistance Act (VCAA) notification letter.
- If Veteran alleges exposure to environmental hazards during service, but does not claim service connection for a specific disability, inform the veteran that he/she must at least identify a symptom or cluster of symptoms since exposure in and of itself is not a disability.
- Ensure the claimant provides at least some general information about the exposure event. A follow-up letter or phone call to the Veteran may be required if the Veteran fails to provide sufficient information regarding exposure and/or disability claimed because of such exposure.
 - Notwithstanding the foregoing instructions, regional office personnel must actively review cases for *potential* exposure. While many service members who served in Iraq and/or Afghanistan may have been exposed, for example to burn pits and particulate matter, not all Veterans will be aware of such exposure or will associate such exposure with specific disabilities.
 - Therefore, regional office personnel must be vigilant in reviewing claims from Veterans with Southwest Asia service, especially when the claim is for service connection for disabilities *such as* respiratory, skin, autoimmune, neurological (except where clearly caused by injury), gastrointestinal disorders, etc. Many Veterans will simply be unaware of the possible link between such disabilities and the exposures discussed in

this training letter. In these cases, it may be necessary to invite or solicit a specific claim from the Veteran and undertake the development procedures explained in this training letter.

- Develop for service treatment records and any VA and/or private medical records that are noted by the claimant.
- Verify dates of military service and obtain military personnel records as per normal procedures.

D. Verifying Exposure to Environmental Hazards

Verifying and/or conceding exposure is one of the key elements in the adjudication process. VA is actively working with DoD to identify individuals who were exposed to specific environmental hazards while serving in the military. In most cases, it will not be possible to refer to a list of service members present at a specific location. It is critical that VA employees rely upon all available sources of evidence when verifying and/or conceding exposure.

Currently, C&P Service has only acquired a list for those who served at the Qarmat Ali Water Treatment Plant in Basrah, Iraq. For other incidents, if exposure cannot be verified through an official list provided by DoD, then personnel records should be reviewed for evidence that corroborates the Veteran's statement of exposure.

IMPORTANT: Service Treatment Records, to include the *Post-Deployment Health Assessment (PDHA)* and *Discharge Examination*, should be carefully reviewed for exposure information. The PDHA includes specific questions relating to exposure incidents.

Because military service records will not verify all incidents, if any, of exposure, alternative evidence such as personal statements, buddy statements, unit histories, news articles, or other lay evidence shall be considered in establishing whether the Veteran participated in or was affected by an in-service exposure incident. Exposure may be verified or conceded, if the statements provided by the Veteran and/or others are consistent with the facts, places, and circumstances of the Veteran's service. 38 U.S.C. § 1154(a); 38 C.F.R. § 3.303(a).

Because of the widespread nature of the burn pits, and the inability of military personnel records to identify all duty locations, the Veteran's lay statement of burn pit exposure generally will be sufficient to establish the occurrence of such exposure if the Veteran served in Iraq, Afghanistan, or Djibouti. For example, a Veteran who performed guard duty at a burn pit in Iraq would have been subject to potentially higher levels of toxic exposure than someone who did not perform such duty. The Veteran's service records will generally not provide that level of detail necessary to show that he/she performed that particular duty. Thus, if the statements provided by the Veteran and/or others are consistent with the facts, places, and circumstances of his or her service, then concede

them as a fact of record. See *Id.* (Do not confuse this section with the provisions found at 1154(b)—applicability of 1154(a) does not require evidence of combat).

Further, in applying section 1154(a) to concede a Veteran's exposure to burn pits and PM specifically, it is important to remember the information contained in section 1.A. and 1.B. of this Training Letter. Essentially, that VA is aware, primarily through cooperation with DoD, of the extent of potentially hazardous exposures (*i.e.*, elevated PM levels throughout Iraq, Afghanistan, and Djibouti; as well as burn pits located at all military FOBs in these same regions). Therefore, VA is aware of the "facts, places, and circumstances" of a Veteran's service in those regions. Going beyond section 1154(a) by requiring proof of exposure, such as by service personnel or unit records, could arguably violate section 1154(a). The resulting interplay between VA's knowledge of exposure and section 1154(a), results in easily conceding exposure without an actual "presumption" of exposure.

Note: Because Veterans generally will not possess the type of exposure information contained in this training letter, regional office personnel should be aware of the environmental hazards that may apply for Veteran claimants who served in Iraq, Afghanistan, or Djibouti, even if the claimants did not allege such exposure, (e.g., Particulate Matter exposure). Be aware also that more than one environmental hazard may apply when Veterans are alleging exposure to a specific event. For example, if a Veteran claims a disability due to exposure at the Qarmat Ali Water Treatment Plant, each pertinent Fact Sheet should be provided to VA examiners, as explained below, since the Veteran served in Iraq and could have been exposed to burn pit emissions and the same high levels of particulate matter as others in the Southwest Asia theater of operations.

E. VA Examinations and Medical Opinions

In claims for disability compensation, VA has the responsibility to assist the claimant by obtaining a medical opinion and/or examination when the opinion and/or examination is necessary to make a decision on the claim. 38 CFR 3.159(c)(4)

Reminder: Generally, VA examinations are ordered for all claims received within one year of separation from the military, unless the evidence is sufficient for deciding the claim. This includes a general medical examination and any specialty examinations deemed necessary.

In claims received more than one year after separation from service, a VA examination should be ordered for environmental-hazard claims when the evidence of record contains the following three elements:

- **Element 1:** Evidence of a current diagnosed disability or persistent or recurrent symptoms of disability.

- A claimant ordinarily lacks the medical training and experience to diagnose his/her own medical condition or offer a medical opinion. However, a claimant is competent to describe symptoms of disability that he/she is experiencing, (e.g., shortness of breath, coughing, fatigue, skin rash, etc.). Therefore, medical evidence of the claimed disability is not necessary to trigger the VA examination request as long as the claimant describes *persistent or recurrent symptoms of the claimed disability*.
- **Element 2:** Evidence that the veteran was exposed to an in-service exposure event or incident, including a Veteran's lay evidence. For the purposes of this element, exposure to certain environmental hazards can be conceded, on a case-by-case basis, as previously discussed.
 - See section of training letter on Verifying Exposure to Environmental Hazards
- **Element 3:** Evidence that the claimed disability or symptoms may be associated with the in-service exposure event.
 - In determining whether a claimed condition may be associated with an in-service exposure incident and therefore warrants a VA examination or opinion request, you must consider the information herein to determine if the Veteran's symptoms may be representative of an illness or disease linked to a specific exposure. Because the scientific studies to identify health effects of exposures are in the preliminary stages, C&P Service is providing general guidelines as to what type of symptoms trigger a VA examination or opinion. If in doubt, regional office personnel should err on the side of the Veteran when determining if a VA examination or opinion is needed. If that doubt exists in any degree, then evidence of a current disability (or symptoms of a disability) is sufficient to request a medical examination and medical nexus opinion if the proper service is verified and no evidence exists of subsequent cause for the disability.
 - Regional office personnel should carefully review lay statements that may provide evidence that shows continuity of symptoms from service to the present. In cases where evidence showing continuity of symptoms is strong, medical examinations/opinions may not be necessary. In others, it may serve as evidence that a claimed condition *may* be associated with an in-service exposure event(s). Ultimately, VA employees should remember that the threshold bar for requesting an examination/opinion is very low, but if existing evidence is satisfactory to decide the claim, then a VA examination is not necessary.

What to Include in a VA Examination or Medical Opinion Request

When requesting medical examinations, inform the examiner of the Veteran's service along with the location and nature of the environmental hazard in which the Veteran was exposed. When requesting examinations/opinions, always forward the claims file to the medical examiner (or appropriate material to the contract examiner) and direct him or her to review the medical and other evidence in the claims folder and provide a rationale for his or her opinion. Fact Sheets explaining the various environmental hazards are attached to this training letter. The pertinent Fact Sheets must be made available to the VA medical examiner for review. The examiner should state whether it is more likely, less likely, or as likely as not that a Veteran's claimed condition is related to the hazardous environmental exposure. The fact sheet(s) must subsequently remain in the record.

Note: The Fact Sheets are not meant to influence examiners rendering opinions concerning the etiology of any particular disability, but rather to ensure that such opinions are fully informed based on all known objective facts. It is imperative that examiners utilize this information objectively and together with other evidence, (e.g., lay statements) in the Veteran's record.

In some cases, an opinion based on record review only may be sufficient. In other cases, a current examination may be required. When an opinion only is initially requested, the examiner should be informed that an examination will be scheduled if the examiner believes it is necessary in order to render the requested medical opinion.

When the opinion is completed and returned to the regional office, rating personnel should ensure that the examiner has identified the specific evidence reviewed and considered when forming the opinion, provided a rationale for the opinion, and stated his/her conclusions using one of the legally recognized phrases.

Ref: M21-1 Part VI, 1.05(b), Exhibit A.

F. Rating Principles

When rating a disability due to an in-service exposure event, it is imperative that raters adhere to the principles relating to service connection set forth in 38 CFR § 3.303. Because scientific studies regarding health effects from exposures are in the preliminary stages, raters should carefully review the nature, dates, and locations of the Veteran's military service, and apply the law under a broad and liberal manner, consistent with all available facts and circumstances. Claims should be evaluated on a case-by-case basis with evidentiary weight given to medical examinations and opinions from both private and VA physicians. In all cases, the benefit of the doubt shall be given to the Veteran. 38 CFR § 3.102.

Claims based on Southwest Asia Service (38 CFR § 3.317)

Regulations governing claims based on undiagnosed illnesses, and medically unexplained chronic multisymptom illnesses that were promulgated following the initial 1990-1991 Gulf War continue to be in effect for any Veteran with Southwest Asia

service. Regional office personnel are reminded that the provisions of 38 CFR § 3.317 should be applied when rating claims for disabilities due to environmental hazards in the Southwest Asia theater, if the following applies:

- The Veteran claims a disability due to an environmental hazard while serving on active military, naval, or air service in the Southwest Asia theater of operations from August 2, 1990, through a date yet to be finally determined;
- The medical evidence reveals an undiagnosed illness, or a diagnosed condition without conclusive etiology; and
- The medical evidence does not provide a sufficient link to Veteran's military service.

If the above scenario is presented, the claim should be developed under the Gulf War and Southwest Asia service procedures outlined in Training Letter 10-01, released February 4, 2010. (**See** "What to Include in a VA Examination or Medical Opinion Request" in section 2.E.).

Independent Medical Opinions (§3.328)

If there are complex or controversial medical issues involved in the rating of disabilities claimed as a result of environmental exposures, an advisory opinion can be obtained from non-VA medical experts. Requests for this type of opinion are initiated by the regional office and submitted through the Veterans Service Center Manager to C&P Service for approval. The request must detail the reasons why the opinion is necessary.

Note: These are special requests and not the same as requesting a VA physician to express an opinion on a VA examination.

FACT SHEET
Burn Pits in Iraq, Afghanistan, and the Horn of Africa

NOTICE TO VA EXAMINERS
VA Considers this Veteran Exposed to Burn Pit Toxins

Large burn pits have been used throughout the operations in Iraq and Afghanistan to dispose of nearly all forms of waste. It is estimated that such pits, some nearly as large as 20 acres, are or have been located at every military forward operating base (FOB). The pit at Joint Base Balad, also known as Logistic Support Area (LSA) Anaconda, has received the most attention. The burned waste products include, but are not limited to: plastics, metal/aluminum cans, rubber, chemicals (such as, paints, solvents), petroleum and lubricant products, munitions and other unexploded ordnance, wood waste, medical and human waste, and incomplete combustion by-products. Jet fuel (JP-8) is used as the accelerant. The pits do not effectively burn the volume of waste generated, and smoke from the burn pit blows over bases and into living areas.

DoD has performed air sampling at Joint Base Balad, Iraq and Camp Lemonier, Djibouti. Subsequently, DoD has indicated that most of the air samples have not shown individual chemicals that exceed military exposure guidelines (MEG). Nonetheless, DoD further concluded that the confidence level in their risk estimates is low to medium due to lack of specific exposure information, other routes/sources of environmental hazards not identified; and uncertainty regarding the synergistic impact of multiple chemicals present, particularly those affecting the same body organs/systems.

The air sampling performed at Balad and discussed in an unclassified 2008 assessment tested and detected all of the following: (1) Particulate matter (PM-10) (and PM 2.5); (2) Polycyclic Aromatic Hydrocarbons (PAHs); (3) Volatile Organic Compounds (VOCs); and (4) Toxic Organic Halogenated Dioxins and Furans (dioxins). Each of the foregoing is discussed below.

Some of the PAHs that were tested for and detected are listed below. These results are from DoD testing from January through April 2007.

Acenaphthene	Acenaphthylene
Anthracene	Benzo(a)anthracene
Benzo(a)pyrene	Benzo(b)fluoranthene
Benzo(b)fluoranthene	Benzo(g,h,i)perylene
Benzo(k)fluoranthene	Chrysene
Dibenz(a,h)anthracene	Fluoranthene
Fluorene	Indeno(1,2,3-cd)pyrene
Naphthalene	Phenanthrene
Pyrene	

The following list reveals some of the VOCs that were tested for and detected at Balad. These results are from DoD testing from January through April 2007.

Acetone
Benzene
Chlorodifluoromethane
Ethylbenzene
Hexachlorobutadiene*
Methylene Chloride
Propylene
Toluene

Acrolein*
Carbon Disulfide
Chloromethane
Hexane
m/p-Xylene
Pentane
Styrene

* Acrolein and Hexachlorobutadiene were, although seldomly, detected far above the MEG ratio—once over 1800 percent above the MEG for Acrolein and over 500 percent above the MEG for Hexachlorobutadiene.

Below is a list of the dioxins and furans detected, all reportedly at low doses.

1,2,3,4,6,7,8 HPCDD	1,2,3,4,6,7,8 HPCDF
1,2,3,4,7,8,9 HPCDF	1,2,3,4,7,8 HXCDD
1,2,3,4,7,8 HXCDF	1,2,3,6,7,8 HXCDD
1,2,3,6,7,8 HXCDF	1,2,3,7,8,9 HXCDD
1,2,3,7,8,9 HXCDF	1,2,3,7,8 PECDD
1,2,3,7,8 PECDF	2,3,4,6,7,8 HXCDF
2,3,4,7,8 PECDF	2,3,7,8 TCDD
2,3,7,8 TCDF	octachlorodibenzodioxin
octachlorodibenzofuran	

For examination purposes, 22 of the VORs and PAHs, affect the respiratory system; 20 affect the skin; at least 12 affect the eyes; and others affect the liver, kidneys, central nervous system, cardiovascular system, reproductive system, peripheral nervous system, and GI tract. In at least seven, dermal exposure can greatly contribute to overall dosage. Therefore, when considering total potential exposure, please consider the synergistic affect of all combined toxins, primarily through inhalation and dermal exposure, but also through ingestion.

This information is not meant to influence examiners rendering opinions concerning the etiology of any particular disability; but rather to ensure that such opinions are fully informed based on all known objective facts. Therefore, when rendering opinions requested by rating authorities for a disability potentially related to such exposure, please utilize this information objectively and together with the remaining evidence, including lay evidence, in the Veteran's record.

Adjudication Authority

FACT SHEET
Particulate Matter throughout Iraq and Afghanistan

NOTICE TO VA EXAMINERS
VA Considers this Veteran Exposed to High Levels of Particulate Matter

"Particulate matter" (PM), is a complex mixture of extremely small particles and liquid droplets made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The PM levels in Southwest Asia are naturally higher than most of the world and may present a health risk to service members. There are two sizes of particles in the air that are a health concern—particles with a 10-micron (PM₁₀) diameter or smaller, and those 2.5 microns (PM_{2.5}) and smaller. The size is directly linked to potential for causing health problems. Once inhaled, 10-micron sized particles or smaller can affect the heart and lungs and cause serious health effects.

Primary sources of PM in Southwest Asia include dust storms and emissions from local industries. The DoD conducted a year-long sampling survey to characterize the chemistry and mineralogy of the PM at 15 sites in OIF and OEF. These results were published by the Desert Research Institute in 2008 and are being reviewed by the National Academy of Sciences Committee on Toxicology. DoD stated in their 2008 Balad assessment, that emission from burns pits, among other things, "may increase localized concentration of 2.5 micrometer PM and other potentially toxic air pollutants."

Most studies relate PM exposure data to respiratory and cardiopulmonary health effects in specific susceptible general population subgroups to include young children, the elderly, and especially those with existing asthma or cardiopulmonary disease. Many variables influence the probability of health outcomes. The key variables are the size-fraction and chemical make up of the PM, the concentration levels, the duration of exposures, and various human factors to include age, health status, existing medical conditions, and genetics. These variables combined with scientific data gaps limit the medical community's ability to estimate health impacts to relatively healthy troops. Another key factor is that most studies have been on older or less healthy groups. Several studies to determine potential health effects/outcomes are currently underway.

DoD collected approximately 60 air samples at Balad from January to April 2007 and assessed for PM. The samples were taken from five different locations around Balad. The heaviest measured concentration of PM was taken in April 2007—the concentration level was 299 ug/m³ of PM₁₀ sized particles. In total, 50 of the 60 samples registered above the military exposure guidelines.

This information is not meant to influence examiners rendering opinions concerning the etiology of any particular disability; but rather to ensure that such opinions are fully informed based on all known objective facts. Therefore, when rendering opinions requested by rating authorities for a disability potentially related to such exposure,

please utilize this information objectively and together with the remaining evidence, including lay evidence, in the Veteran's record.

Adjudication Authority

FACT SHEET
Sulfur Fire at the Mishraq State Sulfur Mine Near Mosul, Iraq

NOTICE TO VA EXAMINERS
VA Considers this Veteran Exposed to Sulfur Dioxide and Hydrogen Sulfide

In June 2003, a fire ignited at the Mishraq State Sulfur Mine in northern Iraq. The sulfur mine is the largest in the world and resulted in the largest manmade sulfur fire in recorded history. It burned for approximately 3 weeks and caused the release of roughly 42 million pounds of sulfur dioxide (SO₂) per day; hydrogen sulfide (H₂S) was also released.

In early 2007, medical personnel from the U.S. Army Center for Health Promotion and Preventative Medicine visited Ft Campbell, Kentucky, which is the U.S. home base for the 101st Airborne Division. Members of the 101st were firefighters at the Mishraq State Sulfur Mine fire. The medical personnel learned that from late 2004 through February 2007, 41 soldiers, citing exposures to the sulfur fire and reporting unexplained shortness of breath on exertion, had been referred by the Blanchfield Medical Center to a pulmonary specialist at the Vanderbilt Medical Center. As of February 2007, nineteen (19) personnel had an open lung biopsy and were all diagnosed with constrictive bronchiolitis. Constrictive bronchiolitis is an inflammatory and fibrotic lesion of the terminal bronchioles of the lungs. This diagnosis is very uncommon and has been associated with inhalation exposures, organ transplantation, certain drugs, and collagen vascular disorders. Individuals with this finding typically have shortness of breath on exertion, but may have normal chest X-rays and inconclusive findings on pulmonary function testing. Due to some similarities, symptoms of constrictive bronchiolitis may be attributed to asthma or chronic obstructive pulmonary disease (COPD).

Examiners may have a difficult time evaluating this population. In most cases, the affected soldiers are comfortable at rest and are able to perform the activities of daily living. They have normal or near normal pulmonary function tests, but at the same time they become short of breath on slight physical exertion, cannot meet physical training requirements, and are considered unfit for deployment. This unique circumstance challenges those who must determine a disability rating.

While individual exposure levels cannot be accurately determined, DoD considers constrictive bronchiolitis (initially diagnosed as “bronchiolitis obliterans”) to be plausibly associated with exposure to the 2003 Mishraq State sulfur fire event. This health effect has been scientifically associated with high exposures to SO₂.

Both sulfur dioxide and hydrogen sulfide are gases that can produce irritation and reddening of the nose and throat, eye irritation/pain, and coughing. At high levels, sulfur dioxide can burn the skin and can cause severe airway obstruction, hypoxemia, pulmonary edema, and even death. The firefighters involved with suppressing this fire experienced irritation, minor burns, and other effects such as blood-tinged nasal mucous. Some have been found to have long-term respiratory conditions such as “constrictive bronchiolitis.”

Note: If the claim is for a respiratory condition possibly related to the sulfur fire exposure consider requesting tests for “bronchiolitis” be conducted in addition to other respiratory testing, while noting that many standard test results may be normal.

This information is not meant to influence examiners rendering opinions concerning the etiology of any particular disability; but rather to ensure that such opinions are fully informed based on all known objective facts. Therefore, when rendering opinions requested by rating authorities for a disability potentially related to such exposure, please utilize this information objectively and together with the remaining evidence, including lay evidence, in the Veteran’s record.

Adjudication Authority

FACT SHEET
Qarmat Ali Water Treatment Plant in Basrah, Iraq

NOTICE TO VA EXAMINERS
VBA Considers this Veteran Exposed to Hexavalent Chromium

From approximately April through September of 2003, Army National Guard (NG) personnel from Indiana, West Virginia, South Carolina, and Oregon operated at the Qarmat Ali Water Treatment Plant in Basrah, Iraq. They were assigned to guard contract workers who were restoring the plant. During that time, sodium dichromate, a source of hexavalent chromium was found on the ground and measured in the air. Hexavalent chromium, or Chromium VI (six), in sodium dichromate is a lung carcinogen through inhalation. Chromium VI is also an acidic compound that can cause immediate irritation of the eyes, nose, sinuses, lungs, and skin.

DoD provided a medical evaluation for certain soldiers there at the time, which took place in October 2003. Accordingly, 137 service members were evaluated. The results at the time showed some abnormalities in individuals, such as complaints of eye, nose, throat and/or lung irritation, or abnormal pulmonary function, kidney, or liver tests. However, the Army stated that it could not specifically trace these symptoms to chromium exposure.

The Veterans Health Administration (VHA) has begun to augment the Gulf War Registry to reflect service at Qarmat Ali. VHA is verifying the numbers of these Veterans who have either enrolled in care or received a Gulf War Registry examination. The involved Guard members who have had an initial examination will be recalled to have a complete exposure assessment as well as a more targeted physical examination and ancillary testing to detect indications of health outcomes that may be related to hexavalent Chromium. The Veteran, whose case you are reviewing, may or may not have completed this type of examination. Therefore, please be sure to review any such records if they exist in the VHA health record system for this Veteran.

This information is not meant to influence examiners rendering opinions concerning the etiology of any particular disability; but rather to ensure that such opinions are fully informed based on all known objective facts. Therefore, when rendering opinions requested by rating authorities for a disability potentially related to such exposure, please utilize this information objectively and together with the remaining evidence, including lay evidence, in the Veteran's record.

Adjudication Authority

FACT SHEET
Contaminated Drinking Water at Camp Lejeune, NC

NOTICE TO VA EXAMINERS
VBA Considers this Veteran Exposed to Contaminated Drinking Water

From the 1950s through the mid-1980s, persons residing or working at the U.S. Marine Corps Base at Camp Lejeune, North Carolina, were potentially exposed to drinking water contaminated with volatile organic compounds. Two of the eight water treatment facilities supplying water to the base were contaminated with either trichloroethylene (TCE) or tetrachloroethylene (perchloroethylene, or PCE) from an off-base dry cleaning facility. The Department of Health and Human Services' Agency for Toxic Substances and Disease Registry estimated that TCE and PCE drinking water levels exceeded current standards from 1957 to 1987 and represented a public health hazard. The heavily contaminated wells were shut down in February 1985, but it is estimated that over one million individuals, including civilians and children, may have been exposed.

There has been much public interest and media coverage of the potentially harmful health effects associated with the contaminated water supply at Camp Lejeune. The National Research Council of the National Academies of Science released a report in June 2009, which found that scientific evidence for any health problems from past water contamination is limited. The evidence for amounts, types, and locations of contamination were not well recorded at the time and cannot now be extrapolated. Therefore, conclusive proof of harmful health effects is unlikely to be resolved with any further studies.

This information is not meant to influence examiners rendering opinions concerning the etiology of any particular disability; but rather to ensure that such opinions are fully informed based on all known objective facts. Therefore, when rendering opinions requested by rating authorities for a disability potentially related to such exposure, please utilize this information objectively and together with the remaining evidence, including lay evidence, in the Veteran's record.

Adjudication Authority

FACT SHEET
Naval Air Facility, Atsugi, Japan

NOTICE TO VA EXAMINERS
VBA Considers this Veteran Exposed to Incinerator Emissions

The Department of Defense (DoD) has indicated that during the years between 1985 and 2001, personnel at Naval Air Facility (NAF) Atsugi, Japan were exposed to environmental contaminants. The source was an off-base waste incinerator business owned and operated by a private Japanese company. Known as the Jinkanpo or Shinkampo Incinerator Complex, the operation consisted of a combustion waste disposal complex equipped with four incinerators burning up to 90 tons of industrial and medical waste daily. The complex was located approximately 100 yards south of the NAF Atsugi perimeter and during the spring and summer months the prevailing winds would blow the incinerators' emissions over the NAF.

Environmental assessment reports conducted during the years of incinerator operations stated that there was significant degradation of air quality at the sites sampled and identified the sources as incomplete burning of wastes in uncontrolled incinerators and evaporation of solvents poured onto outdoor waste piles prior to incineration. The identified chemicals of potential concern included: chloroform; 1,2-dichloroethane; methylene chloride; trichloroethylene; chromium; dioxins and furans; and other particulate matter.

Since the 1990s, the Navy has informed sailors and their family members about the possible long-term health effects of living at Atsugi. The Navy has also published various health information about Atsugi at the following website:

http://www-nmcphc.med.navy.mil/Environmental_Health/about_atsugi.aspx

This information is not meant to influence examiners rendering opinions concerning the etiology of any particular disability; but rather to ensure that such opinions are fully informed based on all known objective facts. Therefore, when rendering opinions requested by rating authorities for a disability potentially related to such exposure, please utilize this information objectively and together with the remaining evidence, including lay evidence, in the Veteran's record.

Adjudication Authority