



Air Pollution Control Board

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October 21, 2009

COMMANDER NAVY REGION SW ENV DEPT (CODE N45)
AIR PROGRAM OFFICE
937 N HARBOR DR BOX 81
SAN DIEGO CA 92132-0058

ID: 4821A

**APPROVAL OF REVISED AB2588 "HOT SPOTS" HEALTH RISK
ASSESSMENT AND NOTIFICATION REQUIREMENTS FOR PUBLIC
NOTIFICATION AND RISK REDUCTION**

The District requested USN Air Station North Island to revise their health risk assessment (HRA) taking into account the District's provided comments. The District received USN Air Station North Island's revised HRA on August 25, 2009. In accordance with the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (California Health and Safety Code Section 44300), the San Diego Air Pollution Control District has reviewed the revised HRA. Taking into consideration the comments of the California Office of Environmental Health Hazard Assessment (OEHHA), the District hereby approves USN Air Station North Island's HRA with the following results.

Cancer Risk (residential receptor) = 13.5 in a million →
Cancer Risk (occupational receptor) = 2.0 in a million
Cancer Burden = 0.19

Chronic Health Hazard Index (residential receptor) = 0.035
Chronic Health Hazard Index (occupational receptor) = 0.023
Sub-Chronic Lead Exposure Risk = 0.0000465 $\mu\text{g}/\text{m}^3$

Acute Health Hazard Index (residential receptor) = 0.61
Acute Health Hazard Index (occupational receptor) = 0.72

The approved HRA results are used to determine public health risk notification and risk reduction requirements under District Rule 1210. The approved HRA results indicate that potential public health risks exceed the public notification levels specified in Rule 1210 Sections (d)(1) and (e)(1).

Therefore, within 45 days of receipt of this notice, your facility must submit a public notification plan that specifies the procedures you intend to use to notify the public of the results of the HRA. The required elements of the plan are described in District Rule

1210, Subsections (d)(5)(i) through (d)(5)(viii). In order to provide you with more information, a copy of District Rule 1210 and "Model Notification Letters and Attachments" are attached to this letter.

USN Air Station North Island is currently required to conduct biennial public notifications during calendar year 2009 based on their 1993/1998 HRA. However, per Rule 1210(d)(14), public notification shall be based on the most recently approved HRA. With the District's approval of the 2005 HRA, USN Air Station North Island is not required to conduct the biennial public notification for 2009. However, USN Air Station North Island will be required to conduct public notification during 2010 and biennial public notifications thereafter using the 2005 HRA until a more recent HRA is approved by the District.

If you have any questions regarding this matter, you may contact John Semerau at (858) 586-2749.

Sincerely,



ARCHI DELA CRUZ
Senior Air Pollution Control Engineer

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Enclosure: Review of Naval Air Station North Island (NASNI) Revised AB2588 HRA
District Rule 1210
Model Notification Letters and Attachments

**REVIEW OF NAVAL AIR STATION NORTH ISLAND (NASNI)
REVISED AB2588 HEALTH RISK ASSESSMENT (HRA)**

October 21, 2009

Facility ID: 4821A

Toxics Emissions Inventory Year: 2005

A revised Health Risk Assessment (HRA) was performed for Naval Air Station North Island (NASNI), Coronado, CA 92135 by The Alliance Compliance Group Joint Venture and submitted to the District for review on August 24, 2009. Along with the District's requested revisions described further below, the revised HRA incorporates modified emissions for the Jet Engine Test Cell LM2500 (District Permit 8201) received on October 2, 2009, approved in the revised 2005 Toxics Inventory Report.

Summary of Risk Assessment Results:

Maximum Individual Excess Lifetime Cancer Risk	20.5 in a million
Maximum Residential Excess Lifetime Cancer Risk	13.5 in a million
Maximum Occupational Excess Lifetime Cancer Risk	2.0 in a million

Maximum Chronic Noncancer Health Hazard Index	0.035
Maximum Residential Chronic Noncancer Health Hazard Index	0.035
Maximum Occupational Chronic Noncancer Health Hazard Index	0.023

Maximum Acute Health Hazard Index	1.14
Maximum Residential Acute Health Hazard Index	0.61
Maximum Occupational Acute Health Hazard Index	0.72

Sub-Chronic Lead Exposure Risk	4.65E-05 ug/m ³
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The High Exposure Scenario approval level is 0.12 ug/m³ in the Air Resources Board (ARB) Risk Management Guidelines for Lead, 2001.

Population Excess Cancer Burden	0.19
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Revisions requested previously by the District (July 7, 2009):

The following items were requested by the District and have been addressed as part of the revised HRA submittal.

- The District requested NASNI include the intermediate HARP *.ems file with the data submission.

The HARP database NAVY_2005_HRA.mdb and HARP Transaction File were provided and are appropriate for the District's review.

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REVISED AB2588 HEALTH RISK ASSESSMENT (HRA)**

- Sub-Chronic Lead Exposure Risk. With the concurrence of OEHHA, the ARB Risk Management Guidelines for Lead, 2001, should be used to estimate sub-chronic lead exposure risk based on annual lead emissions of 1.55 pounds. NASNI submitted an initial screening evaluation determining the maximum 30-day lead concentration based on annual emissions being emitted in 30-days. The reported results at the PMI of 2.84 ug/m^3 exceeded ARB's High Exposure Scenario approval level of 0.12 ug/m^3 . Therefore, the District requested a more refined evaluation requiring the maximum 30-day lead concentration at the PMI be averaged over a 1-square kilometer Maximum Exposure Area (MEA).

The Sub-Chronic Lead Exposure Risk was further reviewed and verified to be $4.65\text{E-}05 \text{ ug/m}^3$ at the PMI. Therefore, a refined evaluation over the MEA is not required.

- As part of the HRA submittal, NASNI evaluated health impacts using revised emissions from those approved in the 2005 Toxic Inventory Report for the Jet Engine Test Cell LM2500 (District Permit 30742 / NASNI HRA Source 88). The proposed emission factors for the Jet Engine Test Cell were not reviewed and approved by the District. The District requested that the emissions and emission factors reported in the approved 2005 Toxics Inventory Report be used in the revised HRA.

The HRA has been revised by the District to include modified emission factors and resulting emissions for the Jet Engine Test Cell LM2500 (District Permit 8201 / NASNI HRA Source 88) approved in the revised 2005 Toxics Inventory Report. The initial HRA submittal evaluated District Permit 30742 which has been corrected to District Permit 8201. Both District Permits 30742 and 8201 are located in Building 397 and evaluated as NASNI HRA Source 88.

Summary of Health Impacts:

Cancer risk is primarily due to exposure of Polycyclic Aromatic Hydrocarbons (PAHs) through oral exposure of dermal contact and soil ingestion, Benzene, and Hexavalent Chromium.

PAH emissions were appropriately evaluated as benzo[a]pyrene in accordance with the OEHHA Guidance Manual, *Speciation for Specific Classes of Compounds: Polycyclic Aromatic Hydrocarbons (PAHs)*, Section 8.2.3.

Cancer risk at the Point of Maximum Impact (PMI) is due to 22.2 pounds of PAHs (~96%) emitted from the Jet Engine Test Stands / Cells (Sources 15 and 88). In addition, annual hexavalent chromium emissions of 0.352 pounds from welding and painting operations contribute to (~1%) of the estimated cancer risk.

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The Maximum Exposed Individual Resident (MEIR) is due to 123 pounds of Benzene (~46%) in addition to PAHs (~39%).

The Maximum Exposed Individual Worker (MEIW) is due to PAHs (~85%) and hexavalent chromium (~5.5%).

The highest chronic risk to the respiratory system at the PMI is primarily due to arsenic (~72%).

Acute risk to the respiratory system at the PMI is due to nickel (~84%) along with sulfuric acid (~2.2%) and nitric acid (~8.7%).

The revised HRA concludes that cancer risk at residential receptors exceed the public notification level specified in District Rule 1210. Appropriately, a risk contour is included where off-site residential cancer risk (Northeastern Property Boundary along Alameda Blvd.) exceeds 10 in a million.

Emission Sources included in the HRA:

Abrasive Blasting
Chemical Processing (Chromate Conversion) Tanks
Combustion of Diesel IC Engines
Combustion of Jet Fuel (Jet Engine Test Stands / Cells)
Combustion of Natural Gas Boilers, Engines, and Crucible Furnaces
Degreasing and Solvent Cleaning
Gasoline Storage and Dispensing
Metal Deposition via Plasma Arc and Flame Spray
Painting and Coating Operations
Welding Operations

Air Dispersion Modeling Components used in the HRA:

HARP, Version 1.4a, incorporating the Industrial Source Complex Short Term (ISCST3) Model.

Meteorology, San Diego Lindbergh Field 1991-1993.

The dispersion modeling included a two kilometer size grid, sensitive receptors, and 200-meter spacing refined to 50-meters for evaluating the zone of impact.

Fenceline impacts were modeled along property boundary using 50-meter spacing.

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Toxic Air Contaminant (TAC) Emissions:

The revised HRA was based on an approved 2005 Toxic Inventory Report with the following exceptions.

- The District noted diesel particulate matter (PM) annual emissions of 74.1 pounds did not include 1702 pounds of diesel PM from portable diesel engines (this includes subcontractor APCD / state registered / portable diesel engines). The Emission Inventory Guidelines for the Air Toxics "Hot Spots" Program, Section XI, Parts A and B, September 26, 2007 allows these diesel engines to be excluded from the HRA but will be required to be included in the HRA after 2010.
- Since ARB determined there are issues with the current test method for acrolein, the District's risk management policy allows acrolein emissions to be excluded from the HRA.

Risk Calculations:

The revised HRA was reviewed using HARP Version 1.4a along with the most recent Health Table updated on February 9, 2009.

- As part of the District's review and taking into account comments from OEHHA, revisions to the HRA incorporate updated health data as mandated by the Children's Environmental Health Protection Act of 1999. On June 18, 2008, the Scientific Review Panel approved OEHHA's Air Toxics Hot Spots Program Technical Support Document (TSD) for the Derivation of Noncancer Reference Exposure Levels (RELs). This resulted in new chronic, 8-hour, and acute RELs for acetaldehyde, acrolein, arsenic, formaldehyde, manganese, and mercury. The Consolidated Table of OEHHA / ARB Approved Risk Assessment Health Values was updated on February 9, 2009.
- In accordance with the OEHHA Guidance Manual, *Determination of Noninhalation (Oral) Cancer Risk*, Section 8.2.4, and *Noncancer Chronic Health Impacts from the Oral Route*, Section 8.3.2, cancer and chronic risk calculations included the minimum oral exposure pathways of dermal contact and soil ingestion.
- In accordance with the OEHHA Guidance Manual, *Criteria for Exposure Pathway Evaluation*, Section 5.2, the OEHHA default deposition rate of 0.05 meters per second for uncontrolled particulate matter was assumed to be appropriate for multipathway exposure.

**REVIEW OF NAVAL AIR STATION NORTH ISLAND (NASNI)
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- For calculating residential cancer risk, when inhalation is not one of the two dominant pathways, the ARB Derived (Adjusted) Analysis Method was used, incorporating the adult high-end breathing rate equal to 393 Liters/Kilogram-day.

**Zone of Impact (Northeastern Property Boundary along Alameda Blvd.)
Residential Cancer Risk
10.0 in one million**



October 2008

Dear Business Owner or Facility Manager:

This notice is being sent to inform you of possible exposures to toxic air pollutants.

State law requires that businesses and other sources of air pollution study possible public health effects from their emissions. A facility in your area has done such a study (called a health risk assessment). The results indicate that you may be exposed to toxic air pollutants from that facility.

FACILITY NAME has (describe activities) at its facility located in San Diego, California. FACILITY NAME releases chemicals (air pollutants) to the atmosphere that are considered toxic by the State of California.

The health risk assessment for the FACILITY NAME estimates that people in the area could face some increased risk of developing cancer due to the (describe activities) emissions. The estimated increased risk could range from zero to (?) in a million. The higher risk estimate is for a hypothetical person exposed while at work over an assumed 46 year duration.

The risk assessment study is intended to overestimate risks for the public so that decisions will be more likely to protect children and individuals more sensitive to toxic air pollutants. However, the study does not include the combined health effects from other nearby air pollution sources. These sources can include motor vehicles, paints, solvents, other industries, and household products.

The District will implement/encourage steps to reduce emissions, and will re-study FACILITY NAME emissions every four years.

Enclosed is more detailed information about the FACILITY NAME study and the Air Toxics "Hot Spots" program. If you would like more information, please complete and return the enclosed survey form. If you would like to attend a public meeting about this notification, please indicate this on the form.

For answers to your questions, please call the District's Public Information Office at (858) 586-2707 or (FACILITY NAME Contact Information) at (619) ???-????.

ROSA MARIA S. ABREU, Assistant Director
Air Pollution Control District

Enclosures

PUBLIC NOTIFICATION OF PUBLIC HEALTH RISKS
UNDER THE AIR TOXICS "HOT SPOTS" PROGRAM

Businesses should distribute this notice to employees or post it in an area where it can be viewed.

Why this notice:

You are receiving this notice because the FACILITY NAME located in San Diego, California, releases chemicals (air pollutants) to the atmosphere that are considered toxic by the State of California. Under a state law called the Air Toxics "Hot Spots" Information and Assessment Act of 1987, facilities that emit toxic air pollutants are required to study possible health effects from their emissions.

FACILITY NAME has prepared a report evaluating possible health effects resulting from estimated public exposures to the toxic air pollutants emitted from its facility. This report is called a public Health Risk Assessment and is available at the Air Pollution Control District for review.

This Health Risk Assessment is based on estimated levels of these pollutants in the community, not on actual measurements of pollutant concentrations. Emissions from FACILITY NAME were estimated for (calendar year ?). Computer models approved by the state were then used to estimate the concentrations of these pollutants in the air. The procedures used are designed to overstate potential pollutant levels to prevent public health risks from being underestimated. Therefore, your actual exposure to these contaminants may be less than the Health Risk Assessment predicts.

What chemicals are emitted by FACILITY NAME?

The chemicals that the facility emits include (list chemicals). These emissions typically occur while (describe operation).

What are the potential health effects?

The Health Risk Assessment for FACILITY NAME estimates that people in the area could face some increased risk of developing cancer due to emissions. The estimated increased risk could range from zero to (?) in a million. The higher risk estimate is for a hypothetical person exposed while at work for an assumed 46 year duration.

The risk assessment study is intended to overestimate risks for the public so that decisions will be more likely to protect children and individuals more sensitive to toxic air pollutants. However, the study does not include exposures to toxic air pollutants for which there are no established health effects values, nor the combined health effects from other nearby air pollution sources. These sources can include motor vehicles, paints, solvents, other industries, and household products.

How serious is this risk?

To help put these estimated health risks into perspective, consider that about four out of ten people get cancer for one reason or another during their lifetime. In other words, the odds of getting cancer in your lifetime are about 400,000 in one million. The average risk of contracting cancer from breathing toxic air contaminants in the ambient air in San Diego County is about 143 to 169 chances in one million. The majority of this risk is due to motor vehicle emissions.

Diesel particulates also contribute significantly to ambient risk levels. Although a method does not exist to directly monitor diesel particulate concentrations, ARB has suggested methods that can be used to estimate diesel concentrations. Based on ARB estimates, diesel particulate emissions could add an

additional 420 in one million to the ambient risk levels, in San Diego County. ARB estimates that risk from diesel particulate has decreased by about 50% from 870 in one million since 1990.

Based on the health risk assessment estimate, this background risk could be increased by from zero to between (?) chances in a million as a result of exposure to emissions from FACILITY NAME.

What are FACILITY NAME and the District doing about this risk?

You will receive this notice every two years until the estimated health risks are below prescribed levels. In addition, the District will restudy the FACILITY NAME emissions every four years, and each time any new or modified equipment that emits toxic air pollutants is proposed.

What can I do about these health risks?

If you would like more information or would like to attend a public meeting about this issue, please complete the enclosed survey card and mail it back to the District. You can call the District's Public Information Office at (858) 586-2707 or the facility contact (FACILITY NAME Contact Information) if you have questions, want to discuss this notice, or have comments or requests for either the District or the facility.

You can also contact the FACILITY NAME to discuss how and when it will reduce its emissions of toxic air pollutants. Many facilities have already taken voluntary steps to reduce their emissions of toxic air pollutants as a result of this program.

Besides the emissions from the FACILITY NAME, there are many other sources of toxic air pollutants, including motor vehicles, paints, solvents, household products and other industries. Federal, state and local programs are reducing emissions from these sources, but you can help by reducing your driving by carpooling, combining errands, and keeping your car tuned and maintained, and by reducing use of paints and products containing solvents.

There are many other causes of cancer (smoking, diet, overexposure to the sun, etc.). The San Diego Chapter of the American Cancer Society can provide you with information on how to reduce your overall risk of cancer. They can be reached at (800) 227-2345.

Where can I review the Health Risk Assessment for FACILITY NAME?

Health Risk Assessments are available for public review at the District's offices located at 10124 Old Grove Road, San Diego. Please call (858) 586-2707 to make an appointment.

Air Toxics "Hot Spots" Program Fact Sheet

What is the Air Toxics "Hot Spots" Program?

The Air Toxics "Hot Spots" Information and Assessment Act is a state law requiring facilities to report emissions of toxic air contaminants to the Air Pollution Control District. The program is designed to quantify the amounts of potentially hazardous air pollutants released, the location of the release, the concentrations to which the public is exposed, and the resulting potential public health risk. Based on an examination of these reports, the District may then require specific facilities to prepare a public health risk assessment to describe possible health effects of exposure to toxic air contaminants.

What is a toxic air contaminant?

Toxic air contaminants are gases, liquids, or particles which are emitted into the atmosphere that may cause adverse health effects. Adverse health effects can range from relatively mild temporary conditions such as minor eye or throat irritation, shortness of breath or headaches, to permanent and serious conditions such as cancer, birth defects, or damage to lungs, nerves, the liver, the heart, or other organs. For purposes of the Air Toxics "Hot Spots" program, toxic air contaminants are approximately 800 listed compounds that have been determined to have potential adverse health impacts.

What is a health risk assessment?

A health risk assessment is a report that estimates the possibility of adverse health effects from emissions of toxic compounds to the air. Public health risk estimates are not based on actual measured air concentrations of toxic compounds. Instead, computer models are used to estimate risk. Each assessment is prepared using procedures developed by the State of California and the Air Pollution Control District and based on approved emission estimates. Risk assessments are reviewed and approved by the District and the California EPA Office of Environmental Health Hazard Assessment.

How accurate is the health risk assessment?

By their nature, health risk assessments cannot be completely accurate. Scientists don't have enough information on actual public exposure and on how toxic contaminants affect people. When information is missing or uncertain, risk analysts make assumptions that tend to overestimate the potential risk. This provides a margin of safety in the protection of human health. An example of this is the assumption that residential exposures occur 24 hours per day for 70 years, even though people typically are not at their residences 100 percent of the time for 70 continuous years. However,

some factors that may tend to underestimate risk are difficult to evaluate. These include the cumulative effect of emissions from other nearby facilities and the potential for complex mixtures of toxic air contaminants to create an additional health problem by their combined reaction to each other.

How are adverse health effects expressed?

Adverse health effects are reported as "excess lifetime cancer risk", or as a "total hazard index".

Excess cancer risk is the maximum estimated increased risk of contacting cancer (*above normal background levels*) caused by chronic exposure to a chemical suspected of being a human or animal carcinogen. Excess cancer risk is expressed as the probability of a person contracting cancer over a lifetime of exposure to chemical emissions. To calculate this, the health risk assessment follows a conservative formula which defines lifetime exposure as 24 hours per day, everyday for 70 years.

Non cancer risk is based on the health impact on a single organ in the body from toxic air contaminants for acute (short) and chronic (long-term) exposure which are calculated as fractions. These fractions or hazard indices are the maximum acceptable public exposure level to a toxic air contaminant. The acceptable exposure level is generally the level at (or below) which no adverse health impacts are expected. The sum of these hazard indices is called the total hazard index and is an indication of the likelihood of experiencing chronic or acute (non cancer) health effects. A total hazard index of less than one (1.0) is not likely to result in adverse health effects including sensitive individuals. With a total hazard index above one, there is a greater potential that adverse health impacts may result.