

## **Appendix I**

### **Glossary of Definitions, Selected Terms, and Acronyms**

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#### Definitions

**Acute Exposure:** One or a series of short-term exposures generally lasting less than 24 hours.

**Acute Health Effects:** A health effect that occurs over a relatively short period of time (e.g., minutes or hours). The term is used to describe brief exposures and effects which appear promptly after exposure.

**Adverse Health Effect:** A health effect from exposure to air contaminants that may range from relatively mild temporary conditions, such as eye or throat irritation, shortness of breath, or headaches, to permanent and serious conditions, such as birth defects, cancer or damage to lungs, nerves, liver, heart, or other organs.

**Air Dispersion Modeling:** Algorithms, usually performed with a computer, that relate a mass emission rate, source configuration, and meteorological information to calculate ambient air concentrations.

**Air District or District:** The Air Pollution Control and Air Quality Management Districts, as defined in Health and Safety Code section 39025, are the political bodies responsible for managing air quality on a regional or county basis. California is currently divided into 35 air districts.

**Airborne Toxic Control Measure:** Section 39655 of the Health and Safety Code, defines an “Airborne Toxic Control Measure” means either of the following:

- 1) Recommended methods, and, where appropriate, a range of methods, that reduce, avoid, or eliminate the emissions of a toxic air contaminant. Airborne toxic control measures include, but are not limited to, emission limitations, control technologies, the use of operational and maintenance conditions, closed system engineering, design equipment, or work practice standards, and the reduction, avoidance, or elimination of emissions through process changes, substitution of materials, or other modifications.
- 2) Emission standards adopted by the U.S. Environmental Protection Agency pursuant to section 112 of the federal act (42 U.S.C. Sec. 7412).

**Asthma:** A chronic inflammatory disorder of the lungs characterized by wheezing, breathlessness, chest tightness, and cough.

**Bioaccumulation:** The concentration of a substance in a body or part of a body or other living tissue in a concentration higher than that of the surrounding environment.

**California Air Resources Board (ARB):** The State's lead air quality management agency consisting of an eleven-member board appointed by the Governor. The ARB is responsible for attainment and maintenance of the state and federal air quality standards, and is fully responsible for motor vehicle pollution control. It oversees county and regional air pollution management programs.

**Cancer Potency Factor (CPF):** The theoretical upper bound probability of extra cancer cases occurring in an exposed population assuming a lifetime exposure to the chemical when the chemical dose is expressed in exposure units of milligrams/kilogram-day (mg/kg-d).

**California Air Pollution Control Officers Association (CAPCOA):** A non-profit association of the air pollution control officers from all 35 air quality districts throughout California. CAPCOA was formed in 1975 to promote clean air and to provide a forum for sharing knowledge, experience, and information among the air quality regulatory agencies around the state.

**CCR:** California Code of Regulations

**Chronic Exposure:** Long-term exposure, usually lasting one year to a lifetime.

**Chronic Health Effect:** An adverse non-cancer health effect that develops and persists (e.g., months or years) over time after long-term exposure to a substance.

**Cruise Ship:** A commercial vessel that has the capacity to carry 250 or more passengers for hire and has berths or overnight accommodations for passengers.

**Developmental Toxicity:** Adverse effects on the developing organism that may result from exposure prior to conception (either parent), during prenatal development, or postnatally to the time of sexual maturation. Adverse developmental effects may be detected at any point in the life span of the organism. Major manifestations of developmental toxicity include: death of the developing organism; induction of structural birth defects; altered growth; and functional deficiency.

**Dose:** A calculated amount of a substance estimated to be received by the subject, whether human or animal, as a result of exposure. Doses are generally expressed in terms of amount of chemical per unit body weight; typical units are mg/kg-day.

**Dose-response Assessment:** The process of characterizing the relationship between the exposure to an agent and the incidence of an adverse health effect in exposed populations.

**Endpoint:** An observable or measurable biological or biochemical event including cancer used as an index of the effect of a chemical on a cell, tissue, organ, organism, etc.

**Epidemiology:** The study of the occurrence and distribution of a disease or physiological condition in human populations and of the factors that influence this distribution.

**Exposure:** Contact of an organism with a chemical, physical, or biological agent. Exposure is quantified as the amount of the agent available at the exchange boundaries of the organism (e.g., skin, lungs, digestive tract) and available for absorption.

**Exposure Pathway:** A route of exposure by which xenobiotics enter the human body (e.g., inhalation, ingestion, dermal absorption).

**Hot Spots Analysis and Reporting Program (HARP):** A single integrated software package designed to promote statewide consistency, efficiency, and cost-effective implementation of health risk assessments and the Hot Spots Program. The HARP software package consists of modules that include: emissions inventory, air dispersion modeling, risk analysis, and mapping.

**HSC:** Health and Safety Code of the State of California.

**Hazardous Air Pollutant (HAP):** A substance that the U.S. Environmental Protection Agency has listed in, or pursuant to, section 112 subsection (b) of the federal Clean Air Act Amendments of 1990 (42 U.S. Code, section 7412(b)).

**Hazard Identification:** The process of determining whether exposure to an agent can cause an increase in the incidence of an adverse health effect including cancer

**Health Risk Assessment:** A health risk assessment (HRA) is an evaluation or report that a risk assessor (e.g., Air Resources Board, district, consultant, or facility operator) develops to describe the potential a person or population may have of developing adverse health effects from exposure to a facility's emissions. Some health effects that are evaluated could include cancer, developmental effects, or respiratory illness. The pathways that can be included in an HRA depend on the toxic air pollutants that a person (receptor) may be exposed to, and can include inhalation (breathing), the ingestion of soil, water, crops, fish, meat, milk, and eggs, and dermal exposure.

**Hazard Index (HI):** The sum of individual acute or chronic hazard quotients (HQs) for each substance affecting a particular toxicological endpoint.

**Incinerator:** Any device used to conduct onboard incineration.

**International Maritime Organization (IMO):** A specialized agency of the United Nations which is responsible for measures to improve the safety and security of international shipping and to prevent marine pollution from ships. The IMO, along with other maritime nations, has developed standards which are set forth in the International Convention for the Prevention of Pollution from Ships (MARPOL).

**Industrial Source Complex Dispersion Model (ISC3):** Air modeling software that incorporates three previous programs into a single program. These are the short-term model (ISCST), the long term model (ISCLT), and the complex terrain model (COMPLEX).

**MARPOL:** A combination of two treaties adopted in 1973 and 1978 that has been updated by amendments over the years. MARPOL includes six technical annexes which include regulations aimed at preventing and minimizing pollution from ships.

**Meteorology:** The science that deals with the phenomena of the atmosphere especially weather and weather conditions. In the area of air dispersion modeling, *meteorology* is used to refer to climatological data needed to run an air dispersion model including: wind speed, wind direction, stability class and ambient temperature.

**Multipathway Substance:** A substance or chemical that once airborne from an emission source can, under environmental conditions, be taken into a human receptor by inhalation and by other exposure routes such as after deposition on skin or after ingestion of soil contaminated by the emission.

**Noncarcinogenic Effects:** Noncancer health effects which may include birth defects, organ damage, morbidity, and death.

**Office of Environmental Health Hazard Assessment (OEHHA):** An office within the California Environmental Protection Agency that is responsible for evaluating chemicals for adverse health impacts and establishing safe exposure levels. OEHHA also assists in performing health risk assessments and developing risk assessment procedures for air quality management purposes.

**Onboard Incineration:** The combustion or burning of any materials or wastes for the purpose of volume reduction, destruction, sanitation, or sterilization, aboard a cruise ship. Onboard incineration does not include incinerators which are only burning gas oil, marine gas oil, marine diesel fuel, fuel oil, or residual fuel oil for the specific purpose of maintaining a minimum temperature in the incinerator to minimize thermal cycling.

**PMI:** The off-site point of maximum impact. A location, with or without people currently present, at which the total cancer risk, or the total noncancer risk, has the highest numerical value.

**Potency:** The relative effectiveness, or risk, of a standard amount of a substance to cause a toxic response.

**Potency Slope:** A value used to calculate the probability or risk of cancer associated with an estimated exposure, based on the assumption in cancer risk assessments that risk is directly proportional to dose and that there is no threshold for carcinogenesis. It is the slope of the dose-response curve estimated at low exposures.

**Proposition 65:** The Safe Drinking Water and Toxic Enforcement Act of 1986, also known as Proposition 65. This Act is codified in California Health and Safety

Code Section 25249.5, et seq. No person in the course of doing business shall knowingly discharge or release a chemical known to the state to cause cancer or reproductive toxicity into water or into land where such chemical passes or probably will pass into any source of drinking water, without first giving clear and reasonable warning to such individual.

**Reference Exposure Level (REL):** An exposure level at or below which no noncancer adverse health effect is anticipated to occur in a human population exposed for a specific duration. An REL is virtually the same as the terms Reference Concentration (RfC) for inhalation or Reference Dose (RFD) used by U.S. EPA, only it may be for varying amounts of time rather than lifetime only. It has been given a different name so that the values estimated by the State Office of Environmental Health Hazard Assessment can easily be distinguished from those developed by the U.S. EPA. RELs are used to evaluate toxicity endpoints other than cancer.

**Reproductive Toxicity:** Harmful effects on fertility, gestation, or offspring, caused by exposure of either parent to a substance.

**Risk:** The (characterization of the) probability of potentially adverse effects to human health, in this instance from the exposure to environmental hazards.

**Risk Assessment:** The characterization (in the present context) of the probability of potentially adverse health effects to people from exposure to environmental chemical hazards.

**Threshold, Nonthreshold:** A threshold dose is the minimally effective dose of any chemical that is observed to produce a response (e.g., enzyme change, liver toxicity, death). For most toxic effects, except carcinogenesis, there appear to be threshold doses. Nonthreshold substances are those substances, including nearly all carcinogens, that are known or assumed to have some risk of response at any dose above zero.

**Toxic Air Contaminant (TAC):** An air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health (HSC Section 39655(a)). Substances, which have been identified by the United States Environmental Protection Agency as hazardous air pollutants are also identified by the Board as toxic air contaminants.

**United States Environmental Protection Agency (U.S. EPA):** The Federal agency charged with setting policy and guidelines, carrying out legal mandates, for the protection, and national interests in environmental resources.

**Variability:** The ability to have different numerical values of a parameter, such as height or weight.

## **Acronyms**

AB	Assembly Bill
ARB	Air Resources Board
Annex V	Regulation 9 of Annex V of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978
Annex VI	Protocol of 1997, Annex VI – Regulations for the Prevention of Air Pollution from Ships
APHIS	U.S. Department of Agriculture, Animal and Plant Health Inspection Service
APCD	Air Pollution Control District
AQMD	Air Quality Management District
ATCM	Airborne Toxic Control Measure
Cal/OSHA	California Occupational Safety and Health Administration
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CPF	Cancer Potency Factors
CSLC	California State Lands Commission
Districts	Local Air Pollution Control and Air Quality Management Districts
HAP	Hazardous Air Pollutant
HRA	Health Risk Assessment
HSC	Health and Safety Code
IARC	International Agency for Research on Cancer
ICCL	International Council of Cruise Lines
IMO	International Maritime Organization
OEHHA	Office of Environmental Health Hazard Assessment
MARPOL	International Convention for the Prevention of Pollution from Ships
MEIR	Maximum Exposed Individual Resident
MEIW	Maximum Exposed Individual Worker
NOAA	National Oceanic and Atmospheric Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCDD	Polychlorinated Dibenzodioxin (dioxin)
PCDF	Polychlorinated Dibenzofuran (furan)
PM	Particulate Matter
PMI	Point of Maximum Impact
REL	Reference Exposure Level
SB	Senate Bill
SRP	Scientific Review Panel on Toxic Air Contaminants
Survey	Cruise Ship Onboard Incinerator Survey
TAC	Toxic Air Contaminant
USDA	United States Department of Agriculture
U.S. EPA	United States Environmental Protection Agency