Letter Health Consultation

WALT DISNEY STUDIOS

500 SOUTH BUENA VISTA STREET

BURBANK, CALIFORNIA

Prepared by the
California Department of Public Health

FEBRUARY 25, 2011

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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LETTER HEALTH CONSULTATION

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Prepared By:

California Department of Public Health
Under Cooperative Agreement with
U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry

State of California—Health and Human Services Agency
California Department of Public Health

MARK B HORTON, MD, MSPH
Director

EDMUND G. BROWN JR.
Governor

February 17, 2011

Susan Neurath, Ph.D., P.E.
CAPT, U.S. Public Health Service
Petition Coordinator
Agency for Toxic Substances and Disease Registry
4770 Buford Hwy NE
Atlanta, GA 30341

Dear Captain Neurath:

The California Department of Public Health (CDPH) received a request from your agency, the federal Agency for Toxic Substances and Disease Registry (ATSDR) for technical assistance in responding to community concerns relating to discharges of cooling tower waste water from the Walt Disney Studios, located at 500 South Buena Vista Street, Burbank, California. CDPH evaluated these concerns as part of a cooperative agreement with ATSDR. The findings of our evaluation were summarized in a letter sent to ATSDR, dated February 18, 2010. ATSDR made the letter available to the public as a Letter Health Consultation, dated March 22, 2010 http://www.atsdr.cdc.gov/HAC/pha/WaltDisneyStudios/WaltDisneyStudiosLHC3222010.pdf.

Since that time, the U.S. Environmental Protection Agency (EPA) has released new information for evaluating hexavalent chromium (CrVI) in soil. This letter will present a reanalysis of CrVI in soil from Pollywog Park, using data collected by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC).

Background
Pollywog Park, located at the south end of South Parish Place, was the site of settling ponds formerly used by Los Angeles (L.A.) Department of Water and Power, which received historic discharges from Disney's cooling towers. In 2006, DTSC conducted a soil investigation in response to community concerns about the potential presence of CrVI in soil. DTSC analyzed 22 soil samples from unpaved areas of Pollywog Park, at depths ranging from surface to 2 feet. The highest concentration of CrVI was measured in surface soil.

In the February 18, 2010 letter, CDPH evaluated CrVI in surface soil collected from Pollywog Park using the most current information available at the time, which was the California Human Health Screening Level of 17 mg/kg (see table below). CDPH concluded, on the basis of available data, surface soil in Pollywog Park does not contain levels of CrVI that would harm the health of nearby residents or people who recreate in the park.

Discussion

In May 2010, EPA released updated Regional Screening Levels (RSLs), formerly called Preliminary Remedial Goals (PRGs) ([1]). RSLs are risk-based concentrations that are considered to be protective of human health (including sensitive populations), over a lifetime of exposure. RSLs are used for screening sites to identify areas and/or contaminants requiring further evaluation. As part of the new RSLs, an oral cancer slope factor for CrVI that had been developed by the New Jersey Department of Environmental Protection was included. EPA used the oral cancer slope factor in the derivation of the RSL (0.29 mg/kg) for CrVI in soil.

CDPH compared the maximum concentration (0.94 mg/kg) of CrVI in surface soil to the RSL (see table below). CrVI concentrations do not exceed the non-cancer RSL of 230 mg/kg. However, CrVI concentrations exceed the RSL (0.29 mg/kg) for cancer health effects, so CDPH conducted further evaluation.

Summary of Hexavalent Chromium Results in Surface Soil Samples Collected in Pollywog Park, July 2006

Contaminant	Range of Results and (Average Concentration) mg/kg	Health Based Screening Value (Source) mg/kg
Hexavalent chromium (CrVI)	0.092-0.94 (0.27)	0.29 (RSL-cancer) 17 (CHHSL-cancer) 230 (RSL-non cancer)

RSL: US Environmental Protection Agency Regional Screening Level
CHHSL: California Human Health Screening Level – based on incidence of stomach tumors seen in mice. The CHHSL reflects a theoretical increased cancer risk of 1 in 1,000,000.
RSL-non-cancer: based on a study indicating diffuse epithelial hyperplasia of the duodenum in female mice.
RSL-cancer: based on tumor incidence seen in the small intestines of mice. The RSL-cancer reflects a theoretical increased cancer risk of 1 in 1,000,000.

CDPH calculated the theoretical increased cancer risk for nearby residents and community members who recreate in Pollywog Park, from exposure to the highest level of CrVI measured in soil. CDPH used high-end exposure assumptions, assuming a residential exposure scenario (i.e., exposure occurring 24 hours/day, everyday, for 30 years) (Appendix A). This high-end exposure is much greater than the exposure a person would receive from recreating in Pollywog Park. The theoretical increased cancer risk from incidentally ingesting soil and breathing dust from resuspended soil is estimated to be three in ten million. Soil ingestion is the main contributor to the risk. Cancer risks in this range are considered negligible. Thus, recreating in Pollywog Park is not expected to harm people's health from exposure to CrVI in soil.

The overall conclusions stated in the Letter Health Consultation (March 22, 2010) remain unchanged.

[1]. US Environmental Protection Agency. Regional Screening Levels (Formerly PRGs). 2010 Nov. Available online at: http://www.epa.gov/region9/superfund/prg/.

If you have any questions, please do not hesitate to contact Tracy Barreau at (510) 620-3670 or Marilyn C. Underwood, Ph.D., at (510) 620-3610.

Sincerely,

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Environmental Health Investigations Branch

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Chief, Site Assessment Section
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cc. Captain Susan Muza, RS, RHSP
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Appendix A
Exposure assumptions and equations used in cancer risk estimates

Conversion from soil to an ambient air concentration (2,3):

CA = concentration in air µg/mg^3 (7.14E^{-7}µg/m^3)
CS = concentration in soil (0.94 mg/kg)
PEF = particulate emission factor for PM-10 for residential or industrial no-excavation (1.316E^{+9} m^3/kg)
Equation: CA = (CS/PEF)(1000 µg/mg)

Exposure assumptions used in estimating increased cancer risk from soil ingestion (2,4):

CS = chemical concentration in soil (0.94 mg/kg)
IR = ingestion rate (100 mg/day)
EF = exposure frequency (350 days/year)
ED = exposure duration (30 years of exposure)
CF = Conversion Factor (10^{-6} kg/mg)
BW = body weight (kg) (71.8 kg: average of women and men)
AT = averaging time (days) – (365 days/year)(70 years)
Equation: [(CS)(IR)(EF)(ED)(CF)/(BW)(AT)](oral cancer slope factor: 5.00E^{-1})

Exposure assumptions used in estimating increased cancer risk from inhalation of soil particles (2,4):

CA = estimated concentration in ambient air (7.14E^{-7}µg/m^3)
IR = Inhalation rate 20 µg/m^3/day
EF = exposure frequency (350 days/year)
ED = exposure duration – (30 years of exposure)
CF = conversion factor 0.001 (mg/µg)
BW = body weight (71.8 kg: average of women and men)
AT = averaging time (days) – (365 days/year)(70 years)
Equation: [(CA)(IR)(EF)(ED)(CF)/(BW)(AT)](inhalation cancer slope factor: 5.10E+^{2})

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2. US Environmental Protection Agency. Risk Assessment Guidance for Superfund, Volume 1 Human Health Evaluation Manual. 1989 Dec.
3. California Department of Toxic Substances Control. Human Health and Ecological Risk Division. Human health risk assessment note number 1. 2005 Oct.
4. US Environmental Protection Agency. Exposure Factors Handbook. 1997 Aug.

Certification

This Walt Disney Studios letter health consultation was prepared by the California Department of Public Health under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It was completed in accordance with approved methodologies and procedures existing at the time the health consultation was initiated. Editorial review was completed by the Cooperative Agreement partner.

Charisse J. Walcott
Technical Project Officer, CAT, CAPEB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this health consultation and concurs with its findings.

Alan Yarbrough
Team Lead, CAT, CAPEB, DHAC, ATSDR