

Health Consultation

Review of Site Characterization and Risk Assessment
for the Colony Park Project

5599 Traffic Way, Atascadero, San Luis Obispo County, California

JULY 8, 2008

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR 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 which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

Review of Site Characterization and Risk Assessment
for the Colony Park Project

5599 Traffic Way, Atascadero, San Luis Obispo County, California

Prepared By:

California Department of Public Health
Under cooperative agreement with the
Agency for Toxic Substances and Disease Registry

Background and Statement of Issues

As a part of our cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), the Site Assessment Section (SAS), within the California Department of Public Health (CDPH), assisted ATSDR's investigation of exposure and health concerns related to the Colony Park Recreation Center in Atascadero, California. The CDPH evaluation was forwarded to the Regional Representative on February 6, 2008 (see Appendix B). This health consultation is being forwarded to ATSDR for purposes of workplan credits for the cooperative agreement.

ATSDR received a petition request from a concerned individual about the redevelopment of property at 5599 Traffic Way in Atascadero. ATSDR asked for assistance in looking into the concerns raised by the petitioner. As part of the petition, a health risk assessment dated September 8, 2005, was attached (*Human Health Risk Assessment – 5599 Traffic Way, Atascadero, California*, Mearns Consulting Corp.).

CDPH reviewed the September 2005 risk assessment as well as the following documents:

- *Human Health Risk Assessment for the 5599 Traffic Way Property, Atascadero, California*, McDaniel Lambert, Inc., August 29, 2006.
- *Results of Soil Sampling and Analysis, 5599 Traffic Way, Atascadero, California*, Avocet Environmental Inc., August 8, 2006.
- *Remedial Excavation Report, 5599 Traffic Way, Atascadero, California*, ATC Associates Inc., January 19, 2006.

CDPH staff gained additional information through discussions with the County of San Luis Obispo County Environmental Health staff and their consultant, and the City of Atascadero staff and mayor.

The Traffic Way Property is located approximately 100 to 400 feet east of Traffic Way, immediately north of downtown Atascadero (1-3). A partial asphalt roadway leads to the property. It is in a mixed light industrial, commercial, and residential area in the city. The property is bordered to the south by a National Guard Armory and Creekside Condominiums, to the northeast by the Atascadero Creek and open space, to the north by a skating facility (owned by the City) and commercial businesses, and to the west by Traffic Way (see Appendix C, Figures 1 and 2).

The Property historically operated as the sewage treatment plant for the city from 1937 to 1983 (see Figure 3)¹. Remaining infrastructure previously associated with the sewage treatment process was removed from the property in late 2005 (e.g., clarifiers and aeration tank). Other sewage treatment plant features (biosolids or sludge beds) were reportedly buried in-place. The property functioned as the City sewer lift station and Public Works Yard from 1980 to late 2005. An emergency unlined overflow catch basin for the sewer lift station exists on the northern portion of the property. This catch basin has only been used a few times during the history of sewer operations. Design plans are currently being developed to fill in the catch basin and replace it with an

aboveground storage tank located near the sewer lift station.

Several buildings existed near the center portion of the property, including a main office, mobile trailer office, paint shop (converted clarifier), and Dial-A-Ride storage shed (1-3). These buildings and structures were removed in late 2005. Asbestos and lead abatement, as well as disposal related to tiles and paint associated with these structures, were also carried out at that time. The sewage lift plant itself, located on the eastern portion of the property, consists of a pump house, turbine, and a water storage tank, and will remain on the property indefinitely. The former Transit Vehicle storage building on the southeast corner of the property will also remain; it is currently used as a City of Atascadero Public Works storage shed and garage. Two baseball diamonds are located on the western portion of the property.

The current City of Atascadero General Plan Zoning Designation (2002) for the property is "industrial and public facilities". Residential use would not be permitted under current zoning. The City Park Master Plan (2005) is to allow a 12.5 acre phased development designed to retain and expand the Traffic Way Property as follows: replace the existing vacant property with park development; construct a new outdoor recreation complex and a 19,000 square foot indoor recreational facility; reconstruct existing recreational sports fields and a 9,800 square foot indoor/outdoor skate and BMX area park (former metal industrial building); add two new batting cages, an indoor/outdoor skate park, an outdoor climbing wall, a water spray play area, two playgrounds, two basketball courts, an outdoor stage and amphitheater, a picnic and barbeque area, and a 123-space parking lot with a drop-off area; and designate a future aquatic swim facility. The plan also includes perimeter fencing; walking trail; safety lighting; and retains the existing public restrooms and sewer lift station facility. See Appendix C, Figure 2, for an aerial shot of the current conditions at the site. The recreational center was recently completed. Some of the proposed property developments will not happen until additional funding is obtained.

Soil Sampling

The property data used in this assessment was collected between November 2004 and July 2006, and is limited to soil samples, as groundwater has not been encountered on the property itself in any soil boreholes to maximum depths of 20 feet below ground surface. Standing surface water on the property has not been documented. A brief summary and timeline of property investigations is presented below. See Appendix C, Figure 3, for locations of the soil borings.

November 2004

Komex collected shallow soil samples within the current catch basin at the property. Based on the results of the investigation, Komex concluded that 1) no organic contaminants were detected above their respective method-reporting limits in any shallow soil samples, and 2) metals concentrations in soil samples did not exceed any U.S. Environmental Protection Agency, Region 9, Residential Preliminary Remediation Goals.

February 2005

Komex conducted a Phase I environmental assessment on the properties at 5493 and 5599 Traffic Way (1-3). They concluded that there was no evidence of any Recognized Environmental Conditions (RECs) at the 5493 Traffic Way Property, which is adjacent to the 5599 Traffic Way Property. For the 5599 Traffic Way Property, Komex concluded that the following property issues/features constitute RECs: 1) Gasoline may have been released from the former 500-gallon Underground Storage Tank, dispenser, and/or associated piping during fueling operations; 2) Materials associated with sewage wastewater or sewage treatment byproducts (biosolids or sludge) from the decommissioned sewage treatment plant may contain hazardous materials. These materials may have leaked from the plant and its associated structures, been buried in place, or been historically applied as sludge to soils, and impacted soils and groundwater (see Appendix C, Figures 1-3 for an overview of sewer plant features); and 3) Based on the age of the buildings, it is possible that asbestos-containing materials and lead-based paints are present, which may require assessment prior to demolition/renovation of property buildings.

July 2005

ATC Associates conducted a Phase II environmental assessment on the Traffic Way Property. The results of the soil sampling and analysis are discussed later in this Section. ATC Associates also assessed the buildings and structures on the property for lead and asbestos. Asbestos tiles (non-friable) were found, as was some lead-based paint. These structures were all removed in late 2005 following lead and asbestos abatement (personal communication, Jim Lewis Jan 18, 2008).

September 2005

Mearns Consulting Corp. conducted a screening human health risk assessment based on the soil data from the ATC Phase II assessment. The screening assessment reported an unacceptable cancer risk and recommended remediation.

December 2005

ATC Associates supervised a remedial excavation at the property to remove soil containing elevated concentrations of Aroclor 1260 and benzo(a)pyrene. Three different areas were excavated, with a total of 1,249 cubic yards of soil being removed. ATC Associates went on to collect 17 confirmation soil samples from the base and sidewalls of the excavated areas.

April 2006

The San Luis Obispo County Department of Public Health, Division of Environmental Health, conducted a review of the site-related documents listed above and recommended that a comprehensive post-remediation health risk assessment be conducted as the basis for site closure.

July 2006

At the request of the San Luis Obispo County Department of Public Health, supplemental soil sampling was performed at the catch basin and baseball fields by

Avocet Environmental. This additional sampling was undertaken to fill risk assessment data gaps (e.g., soil samples at depths greater than 1.0 feet in the catch basin area, and soil samples in the area where biosolids may have been applied in the past). Organic compounds, including polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and semi-volatile compounds were not detected in any of the supplemental soil samples analyzed. Metals were detected in soil at concentrations similar to previous sampling events.

Human Health Risk Assessment

The human health risk assessment evaluated the potential cancer risk and noncancer hazards to current and possible future property users, from chemicals of potential concern at the Traffic Way Property.

Exposure occurs when a chemical comes into contact with people and enters the body. For a chemical to pose a human health risk, a completed exposure pathway must exist. A completed exposure pathway consists of five elements:

- a source and mechanism of chemical release to the environment;
- a contaminated environmental medium (air, soil, or water);
- a point where someone contacts the contaminated medium (known as the exposure point);
- an exposure route, such as inhalation, dermal absorption, or ingestion; and
- an actual human exposure.

Exposure assumptions were developed for future proposed land uses: the adult recreational user, the child recreational user, and the outdoor worker. For each receptor, the risk assessment estimated exposure from incidental ingestion of soil, dermal contact with the soil, and inhalation of soil that becomes airborne. Appendix D, Table 1, which was taken from the Human Health Risk Assessment, summarizes the assumptions used.

Exposure points concentrations were calculated as the 95% upper confidence limit of the mean for soil samples taken up to 8 feet from the surface. A total of 33 sample results were used (see Appendix D, Table 2, which was taken from the Human Health Risk Assessment).

Table 1 summarizes the findings of the health risk assessment for both shallow and near surface soil. Cancer risks for potential receptors ranged from 9 in 100,000,000 (9×10^{-8} , intrusive construction worker) to 3 in 1,000,000 (3×10^{-6} , recreational user). For both recreational users and the intrusive construction worker, cancer risk at the property is driven largely by cadmium and benzo(a)pyrene in soil. The estimated noncancer hazards are below the level of concern of 1.0 for all receptors.

The blood lead levels calculated using the California Department of Toxic Substances Control LeadSpread model are below the California Environmental Protection Agency

and Centers for Disease Control action level of 10 micrograms lead per deciliter blood. Default receptors in the Leadsread model are residents.

Summary of Cancer Risk and Noncancer Hazard Calculated Using Soil Samples Taken Up to 8 Feet Below Ground Surface

Receptor	Soil Risk	Total Risk	Soil Hazard	Total Hazard
Recreational User Adult	2.85×10^{-6}	2.8×10^{-6}	0.008	0.008
Recreational User Child	Not applicable	Not applicable	0.08	0.08
Intrusive Construction Worker	8.65×10^{-8}	8.7×10^{-8}	0.02	0.02

In the risk assessment, the cancer risk and noncancer hazard were also developed using only samples collected at 2 feet and less. The results were found to be comparable to those at deeper depths (see Table below). Only 17 samples are available with data from less than 2 feet.

Summary of Cancer Risk and Noncancer Hazard Calculated Using Soil Samples Taken Up to 2 Feet Below Ground Surface

Receptor	Soil Risk	Total Risk	Soil Hazard	Total Hazard
Recreational User Adult	2.80×10^{-6}	2.8×10^{-6}	0.011	0.011
Recreational User Child	Not applicable	Not applicable	0.10	0.10
Intrusive Construction Worker	8.06×10^{-8}	8.1×10^{-8}	0.02	0.02

Microbiological Hazard

Given the use of portions of the property as a sewage treatment plant from 1937 to 1983, the presence of microbiologicals in soil, namely coliform and *Enterococcus*, was assessed (using standard methods 9221E and 9230B respectively). Fecal coliform was not present at detectable concentrations in any of the soil samples. Total coliform and *Enterococcus* were detected in several samples at concentrations (4 MPN *Enterococcus/gm*) near their respective Practical Quantitation Limits PQLs (2 MPN/gm), and similar to background soil samples. No soil regulatory criteria exist for these microbiologicals, but the analytical laboratory and ATC Associates concluded that the concentrations in soil were low and non-significant (1-3).

Discussion

The following is a summary of the findings of CDPH's review of the soil data and the final health risk assessment as it pertains to adults and children interacting with the soil:

Several rounds of targeted sampling were conducted on the former waste treatment facility. The sampling was targeted to areas where activities were suspected of causing contamination, such as where the transformer was located, the site of the former catch basin, an underground storage tank area which had been removed in the early 1980s, and the decommissioned sewage treatment plant. The samples were analyzed for metals, pesticides, semi-volatile organic compounds, volatile organic compounds, and PCBs. Many of the samples did not contain any detectable levels of organic compounds and most of the metals were present at background levels. Some of the samples contained chemicals at levels of potential concern if long-term exposure would occur. The chemicals of concern include arsenic, the PCB mixture Arochlor 1260, dieldrin, and several PAHs.

A risk assessment released in 2005 evaluated the data in the soil samples by assuming a person would be exposed via incidental ingestion, dermal contact, and fugitive dust inhalation of the contaminated soil from 24 hour a day, 350 days per year, for 30 years. The hazard index for such scenario was 1.57, and the total increased cancer risk was calculated to be 1.17 in 10,000. The risk assessment is the document that the petitioner supplied along with the petition letter.

In December 2005, 1,249 cubic yards of soil were removed from three locations. The areas with the elevated PAHs, Arochlor 1260 and dieldrin were removed. Seventeen confirmation samples was collected from the three excavation areas and analyzed for PAHs and PCBs. The fill material was analyzed before it was used at the site.

A health risk assessment released in August 2006 evaluated an adult recreational user, a child recreational user, and an intrusive construction worker on the site using the soil data from non-remediated areas on the site. In the risk assessment, the cancer risks for potential receptors ranged from 9 in 100,000,000 (9×10^{-8} , intrusive construction worker) to 3 in 1,000,000 (3×10^{-6} , recreational user). The estimated non-cancer hazards are below the level of concern of 1.0 for all receptors.

In August 2006 the county released the property for recreational development.

Child Health Considerations

ATSDR recognizes that infants and children may be more sensitive to exposures, depending on substance and the exposure situation, than adults in communities with contamination of their water, soil, air, and/or food. This sensitivity is a result of several factors: 1) children may have greater exposures to environmental toxicants than adults because pound for pound of body weight, children drink more water, eat more food, and breathe more air than adults; 2) children play outdoors close to the ground, which increases their exposure to toxicants in dust, soil, surface water, and ambient air; 3) children have a tendency to stick their hands in their mouths while playing without washing their hands, thus, they may come into contact with, and ingest, potentially contaminated soil particles at higher rates than adults (some children even exhibit an abnormal behavior trait known as "pica," that causes them to ingest non-food items, such as soil); 4) children are shorter than adults, which means they can breathe dust, soil, and any vapors close to the ground; 5) children's bodies are rapidly growing and developing; thus, they can sustain permanent damage if toxic exposures occur during critical growth stages; and 6) children and teenagers may disregard no trespassing signs and wander onto restricted locations. Because children depend completely on adults for risk identification and management decisions, ATSDR is committed to evaluating their special interests at sites such as the Colony Park Recreation Center in Atascadero.

As children are, and will be, using the park, a child receptor was evaluated in the risk assessment. The chemicals measured in the soil were found not to pose a non-cancer health hazard.

Conclusions

CDPH found the site characterization to be adequate, and the final risk assessment to be conducted in a health protective manner. Therefore, CDPH concurs with the county that the site as it now stands does not pose a health hazard for recreational use.

Public Health Action Plan

The Public Health Action Plan is a collection of activities intended to ensure that this health consultation provides a plan of action to mitigate and to prevent adverse effects on human health. resulting from exposure to arsenic that could be avoided or mitigated. Some activities have already been taken by ATSDR, CDPH, and San Luis Obispo County Department of Public Health.

Actions Completed

1. CDPH and ATSDR talked about the petition and it was agreed that additional information was needed (November 7, 2007).

2. CDPH requested additional documents from the San Luis Obispo County Department of Public Health, Division of Environmental Health (November 8, 2007).
3. CDPH requested additional documents from the City of Atascadero (December 7, 2007).
4. CDPH met by phone with staff from San Luis Obispo County Department of Public Health, Division of Environmental Health, as well as a risk assessment consultant, to discuss their concerns regarding the 2005 risk assessment, and to get a better understanding of steps that have occurred since the review of the 2005 risk assessment (January 14, 2007).
5. CDPH spoke with the mayor of the City of Atascadero who wanted to make sure all material was being turned over and who expressed concern about the use of the park based on the information he was hearing from local citizens (January 16, 2008).
6. CDPH and ATSDR met by phone on February 6, 2008, to discuss the additional information that was obtained.
7. CDPH sent a letter to ATSDR on February 7, 2008, discussing the findings.

References

1. California McDaniel Lambert, Inc. Human Health Risk Assessment for the 5599 Traffic Way Property, Atascadero. August 29, 2006.
2. Avocet Environmental Inc. Results of Soil Sampling and Analysis, 5599 Traffic Way, Atascadero, California. August 8, 2006.
3. ATC Associates Inc. Remedial Excavation Report, 5599 Traffic Way, Atascadero, California. January 19, 2006.

Preparers of Report

California Department of Public Health Environmental and Health Effects Assessor

Marilyn C. Underwood, Ph.D., Chief
Site Assessment Section
Environmental Health Investigations Branch

Agency for Toxic Substances and Disease Registry Regional Representatives, Region IX

Susan L. Muza, R.S., R.H.S.P.
Libby Vianu
Gwendolyn B. Eng

Agency for Toxic Substances and Disease Registry Technical Project Officer

Charisse Walcott
Environmental Health Scientist
Division of Health Assessment and Consultation

Certification

The Review of Site Characterization and Risk Assessment for the Colony Park Project at 5599 Traffic Way, Atascadero, San Luis Obispo County, 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 Walcott
Technical Project Officer, Cooperative Agreement Team
Division of Health Assessment and Consultation
ATSDR

The Division of Public Health Assessment and Consultation, ATSDR, has reviewed this health consultation and concurs with the findings.



Alan Yarbrough
Lead Environmental Health Scientist
Division of Health Assessment and Consultation
ATSDR

Appendix A. Glossary

Adverse Health Effect

A change in body function or the structures of cells that can lead to disease or health problems.

ATSDR

The Agency for Toxic Substances and Disease Registry. ATSDR is a federal health agency based in Atlanta, Georgia, that deals with hazardous substance and waste site issues. ATSDR gives people information about harmful chemicals in their environment and tells people how to protect themselves from contact with chemicals.

Background Concentration

An average or expected amount of a chemical in a specific environment. Or, amounts of chemicals that occur naturally in a specific environment.

Cancer Risk

The potential for exposure to a contaminant to cause cancer in an individual or population is evaluated by estimating the probability of an individual developing cancer over a lifetime as the result of the exposure. This approach is based on the assumption that there are no absolutely “safe” toxicity values for carcinogens. U.S. Environmental Protection Agency has developed cancer slope factors for many carcinogens. A slope factor is an estimate of a chemical’s carcinogenic potency, or potential, for causing cancer.

If adequate information about the level of exposure, frequency of exposure, and length of exposure to a particular carcinogen is available, an estimate of excess cancer risk associated with the exposure can be calculated using the slope factor for that carcinogen. Specifically, to obtain risk estimates, the estimated chronic exposure dose (which is averaged over a lifetime or 70 years) is multiplied by the slope factor for that carcinogen.

Cancer risk is the likelihood, or chance, of getting cancer. We say “excess cancer risk” because we have a “background risk” of about one in four chances of getting cancer. In other words, in a million people, it is expected that 250,000 individuals would get cancer from a variety of causes. If we say that there is a “one in a million” excess cancer risk from a given exposure to a contaminant, we mean that if one million people are exposed to a carcinogen at a certain concentration over their lifetime, then one cancer above the background chance, or the 250,000th cancer, may appear in those million persons from that particular exposure. In order to take into account the uncertainties in the science, the risk numbers used are plausible upper limits of the actual risk based on conservative assumptions. In actuality, the risk is probably somewhat lower than calculated, and in fact may be zero.

Completed Exposure Pathway

See Exposure Pathway.

Concern

A belief or worry that chemicals in the environment might cause harm to people.

Concentration

How much of a substance present in a certain amount of soil, water, air, or food.

Contaminant

See Environmental Contaminant.

Exposure

Coming into contact with a chemical substance. (For the three ways people can come in contact with substances, see Route of Exposure.)

Exposure Assessment

The process of finding the ways people come in contact with chemicals, how often and how long they come in contact with chemicals, and the amounts of chemicals with which they come in contact.

Exposure Pathway

A description of the way that a chemical moves from its source (where it began) to where and how people can come into contact with (or get exposed to) the chemical. ATSDR defines an exposure pathway as having five parts:

1. Source of Contamination
2. Environmental Media and Transport Mechanism
3. Point of Exposure
4. Route of Exposure
5. Receptor Population

When all five parts of an exposure pathway are present, it is called a Completed Exposure Pathway.

Public Health Hazard

The category is used in PHAs for sites that have certain physical features or evidence of chronic, site-related chemical exposure that could result in adverse health effects.

Public Health Hazard Criteria

PHA categories given to a site which tell whether people could be harmed by conditions present at the site. The categories are:

1. Urgent Public Health Hazard
2. Public Health Hazard
3. Indeterminate Public Health Hazard
4. No Apparent Public Health Hazard
5. No Public Health Hazard

Route of Exposure

The way a chemical can get into a person's body. There are three exposure routes:

1. Breathing (also called inhalation)

2. Eating or drinking (also called ingestion)
3. Getting something on the skin (also called dermal contact)

Source (of Contamination)

The place from which a chemical comes, such as a landfill, pond, creek, incinerator, tank, or drum. Contaminant source is the first part of an Exposure Pathway.

Special Populations

People who may be more sensitive to chemical exposures because of certain factors such as age, a disease they already have, occupation, sex, or certain behaviors (like cigarette smoking). Children, pregnant women, and the elderly are often considered special populations.

Toxic

Harmful. Any substance or chemical can be toxic at a certain dose (amount).

Toxicology

The study of the harmful effects of chemicals on humans or animals.

Appendix B. Letter from the California Department of Public Health (CDPH) to the ATSDR Petition Coordinator, Summarizing the CDPH Review of the Site Characterization and Risk Assessment for the Colony Park Project (Dated 2/8/07)



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



MARK B HORTON, MD, MSPH
Director

ARNOLD SCHWARZENEGGER
Governor

February 8, 2008

Sue Neurath, PhD, PE
Petition Coordinator
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
1825 Century Blvd, Atlanta, GA 30345d

Dear Dr. Neurath,

As a part of our cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), the Site Assessment Section (SAS), within the California Department of Public Health (CDPH), is sending this letter to assist you with addressing concerns related to exposure and health concerns for the Colony Park Recreation Center in Atascadero, California.

ATSDR received a petition request from a concerned individual about the redevelopment of property at 5599 Traffic Way in Atascadero. ATSDR asked for assistance in looking into the concerns raised by the petitioner. As part of the petition, a health risk assessment dated September 8, 2005, was attached (*Human Health Risk Assessment – 5599 Traffic Way, Atascadero, California*, Mearns Consulting Corp.).

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CDPH staff gained additional information through discussions with the County of San Luis Obispo County Environmental Health staff and their consultant, and the City of Atascadero staff and mayor.

The following is a summary of the findings:

Several rounds of targeted sampling were conducted on the former waste treatment facility. The sampling was targeted to areas where activities were suspected of causing contamination, such as where the transformer was located, the site of the former catch basin, an underground storage tank area which had been removed in the early 1980s, and the decommissioned sewage treatment plant. The samples were analyzed for metals, pesticides, semi-volatile organic compounds, volatile organic compounds, and polychlorinated biphenyls (PCBs). Many of the samples did not contain any detectable levels of organic compounds and most of the

Sue Neurath, PhD, PE

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A risk assessment released in 2005 evaluated the data in the soil samples by assuming a person would be exposed via incidental ingestion, dermal contact, and fugitive dust inhalation of the contaminated soil for 24 hour a day, 350 days per year, for 30 years. The hazard index for such scenario was 1.57, and the total increased cancer risk was calculated to be 1.17 in 10,000. **This risk assessment is the document that the petitioner supplied along with the petition letter.**

In December 2005, 1,249 cubic yards of soil were removed from three locations. The areas with the elevated PAHs, Arochlor 1260, and dieldrin were removed. Seventeen confirmation samples were collected from the three excavation areas and analyzed for PAHs and PCBs. The fill material was analyzed before it was used at the site.

A health risk assessment released in August 2006 evaluated an adult recreational user, a child recreational user, and an intrusive construction worker on the site using the soil data from non-remediated areas on the site. In the risk assessment, the cancer risks ranged from 9 in 100,000,000 (9×10^{-8} , intrusive construction worker) to 3 in 1,000,000 (3×10^{-6} , recreational user). The estimated noncancer hazards are below the level of concern of 1.0 for all receptors.

In August 2006, the county released the property for recreational development.

CDPH found the site characterization to be adequate, and the final risk assessment to be conducted in a health protective manner. Therefore, CDPH concurs with the county that the site, as it now stands, is appropriate for recreational use.

Sincerely,



Marilyn C. Underwood, Ph.D., Chief
Site Assessment Section
Environmental Health Investigations Branch

Appendix C. Figures

Figure 1. Aerial Photo of the 5599 Traffic Way Property When It Was Being Used as a Wastewater Treatment Facility, Colony Park Project Atascadero, San Luis Obispo County, California



Figure 2. Aerial Photo of the 5599 Traffic Way Property with Recent Improvements Drawn, Colony Park Project Atascadero, San Luis Obispo County, California

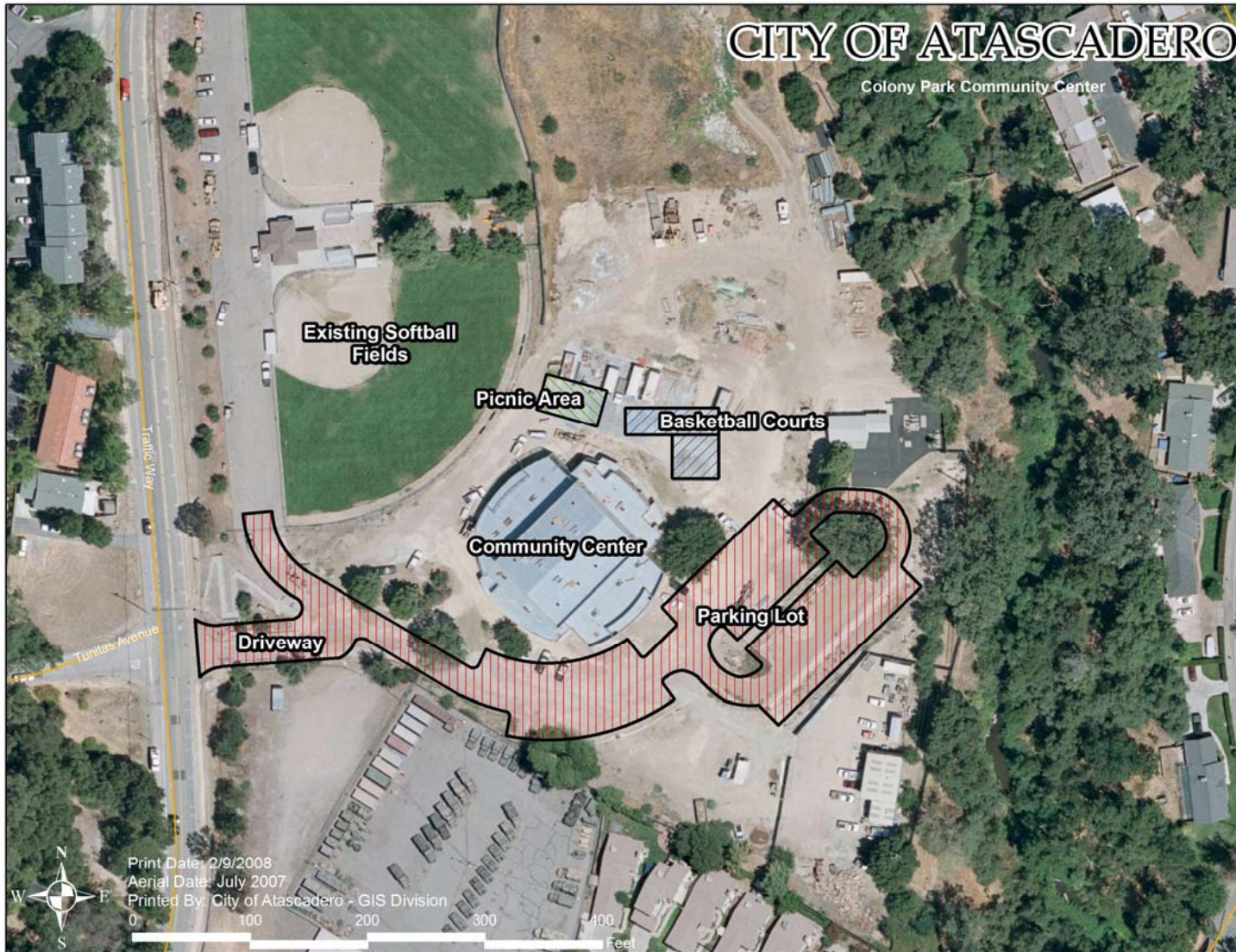
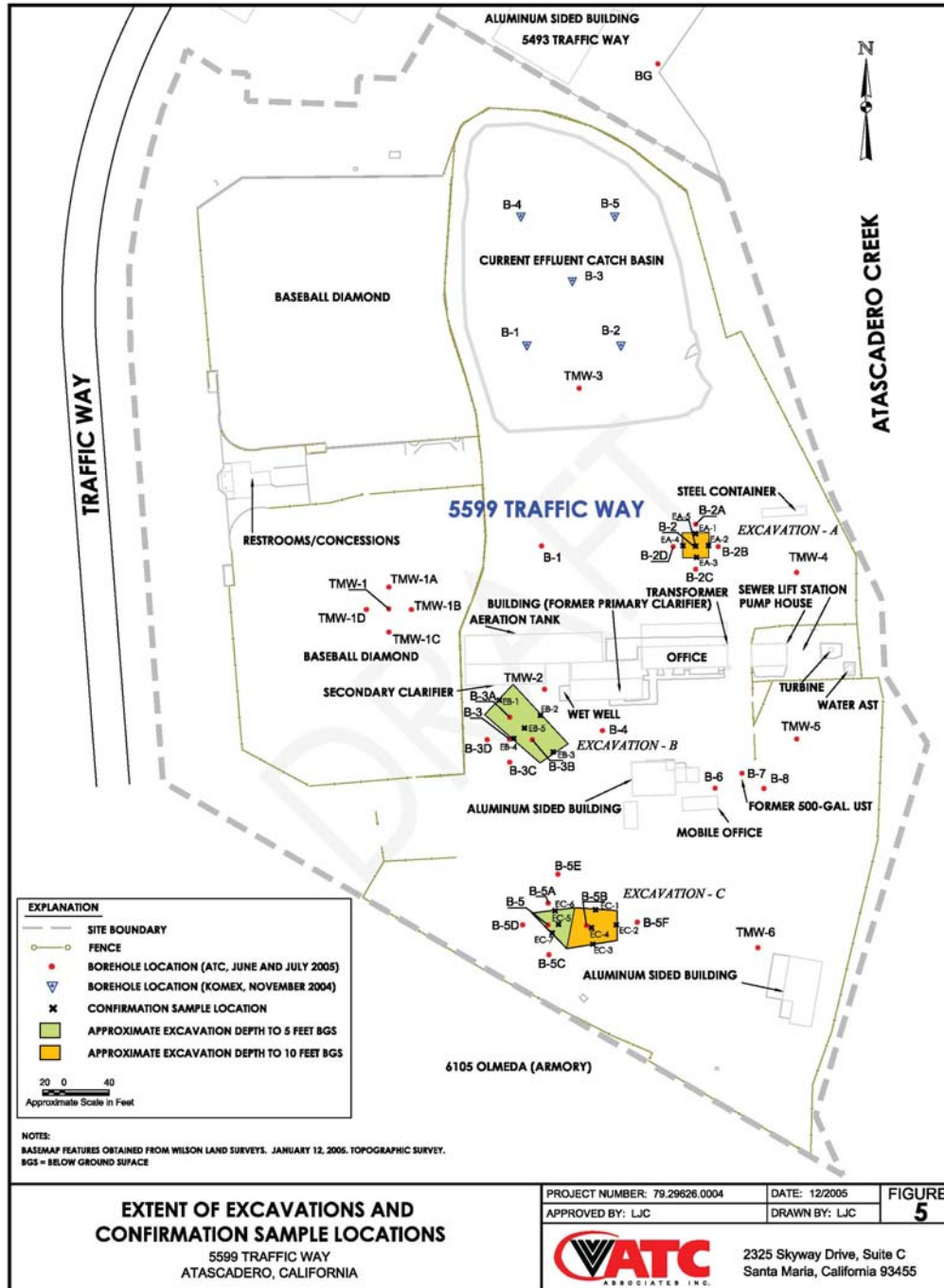


Figure 3. Map of 5599 Traffic Way Property Indicating Approximate Sampling Locations, Areas of Excavation, and Current and Former Structures/Features, Colony Park Project Atascadero, San Luis Obispo County, California



Appendix D. Tables

Table 1. Summary of Exposure Parameters, Colony Park Project Atascadero, San Luis Obispo County, California

Description	Parameter	Units	Recreational User		Construction Worker	Source
			Adult	Child		
Particulate Inhalation						
Air Inhalation Rate	InhR-air	m ³ /hr	1.6	0.81	2.5	See footnote a
Exposure Time	ET	hr/day	4	4	10	Site specific; McDaniel Lambert, Inc. 2004
Exposure Frequency Outdoors	EF	days/year	156	156	90	Recreational users (3 days per week) and construction worker (3 months) site specific, McDaniel Lambert, Inc. 2004
Particulate Emission Factor	PEF	m ³ /kg	1.32E+09	1.32E+09	4.40E+08	USEPA 2004a; Construction worker - USEPA 2002a
Dermal Soil Contact						
Surface Area - soil ^b	SA-soil	cm ²	5700	2800	5700	USEPA 2004b and USEPA 2002a
Absorption Coefficient	ABS	unitless				see Table 5-3
Adherence Factor	AF	mg/cm ²	0.07	0.2	0.3	USEPA 2002a
Exposure Frequency Outdoors	EF	days	45	156	90	See footnote c
Soil Ingestion						
Soil Ingestion rate	IngR-soil	mg/day	100	200	330	USEPA 2002a
Bioavailability Factor	BF	unitless				See Section 3.4 and Table 5-3
Fraction Soil Contaminated	FI	unitless	1	1	1	Health protective assumption
Exposure Frequency Outdoors	EF	days/year	156	156	90	Same as particulate air inhalation exposure frequencies
Common Parameters						
Exposure Duration	ED	years	24	6	1	USEPA 2002a; Construction worker site-specific
Body Weight	BW	kg	70	15	70	USEPA 2002a
Averaging Time, Carcinogen	AT _{carcinogens}	days	25550	25550	25550	Based on life expectancy of 70 years - USEPA 2002a
Averaging Time, Noncarcinogen	AT _{noncarcinogens}	days	8760	2190	365	Based on Exposure Duration
Conversion Factors						
Conversion Factor-1	CF	kg/mg	1.00E-06	1.00E-06	1.00E-06	

Notes:

^aAdult recreational user inhalation rate is the mean value for moderate activity (USEPA 1997); Child recreational user based on heavy activity inhalation rate (0.9 L/min/kg; Cal/EPA 2000); Construction worker rate is the mean rate for outdoor worker heavy activity (USEPA 1997).

^bSurface area assumes head, hands, forearms, and lower legs.

^cDermal soil exposure frequencies are based on best professional judgment and Cal/EPA (1994) assumption that residential adult is exposed only 30% as often as the child.

NA = Not Applicable

Sources:

Cal/EPA 1994 - Preliminary Endangerment Assessment Guidance Manual

Cal/EPA 2000 - Technical Support Document for Exposure Assessment and Stochastic Analysis (Air Toxics Hot Spots Program Guidance Manual, Part IV Technical Support Document).

McDaniel Lambert, Inc 2004 - Human Health Risk Assessment for the SLO Tank Farm

USEPA 1989a - RAGS Volume 1 Part A

USEPA 1997 - Exposure Factors Handbook

USEPA 2002a - Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites

USEPA 2004a - Region IX Preliminary Remediation Goals

USEPA 2004b - RAGS Volume 1 Part E

Table 2. Summary Statistics for Chemicals of Potential Concern, Colony Park Project Atascadero, San Luis Obispo County, California

Analyte	Sample #	% Detect	Minimum Detected	Maximum Detected	Minimum Non-Detect	Maximum Non-detect	Median	Arithmetic Mean	Standard Deviation	Distribution	UCL Calculation Method	95% UCL (mg/kg)
Cadmium	33	63.6%	1.2	14	1.0	4.0	1.5	2.1	2.6	Non-parametric	95% Chebyshev (Mean, Sd) UCL	4.1
Chromium	33	100.0%	13	64			35	33	11	Non-parametric	95% Student's-t UCL	36
Copper	33	100.0%	9.7	86			23	27	14	Gamma	95% Approximate Gamma UCL	31
Lead	33	100.0%	3.3	77			8.7	11	12	Non-parametric	95% Student's-t UCL	15
Nickel	33	106.1%	16	75			46	42	15	Normal	95% Student's-t UCL	47
Selenium	33	12.1%	8.1	9.3	1.0	20.0	10	6.6	4.3	Non-parametric	95% Chebyshev (Mean, Sd) UCL	9.8
Silver	33	3.0%	2.9	2.9	1.0	4.0	0.50	0.66	0.54	Non-parametric	95% Student's-t UCL	0.82
Acenaphthene	60	0.0%			0.010	1.0	0.050	0.059	0.084	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Acenaphthylene		0.0%			0.010	1.0	0.050	0.059	0.084	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Anthracene	60	0.0%			0.010	1.0	0.050	0.059	0.084	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Benz(a)anthracene	60	1.7%	0.20	0.20	0.010	1.0	0.050	0.062	0.086	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Benzo(a)pyrene	77	6.5%	0.032	0.20	0.0050	1.0	0.050	0.051	0.079	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.090
Benzo(b)fluoranthene	60	1.7%	0.10	0.10	0.010	1.0	0.050	0.060	0.085	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Benzo(g,h,i)perylene	60	1.7%	0.20	0.20	0.010	1.0	0.050	0.060	0.085	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Benzo(k)fluoranthene	60	1.7%	0.10	0.10	0.010	1.0	0.050	0.062	0.086	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Chrysene	60	3.3%	0.10	0.20	0.010	1.0	0.050	0.062	0.087	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11

Analyte	Sample #	% Detect	Minimum Detected	Maximum Detected	Minimum Non-Detect	Maximum Non-detect	Median	Arithmetic Mean	Standard Deviation	Distribution	UCL Calculation Method	95% UCL (mg/kg)
Dibenz(a,h)anthracene	60	0.0%			0.010	1.0	0.050	0.059	0.084	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Fluoranthene	60	3.3%	0.10	0.20	0.010	1.0	0.050	0.062	0.087	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Fluorene	60	0.0%			0.010	1.0	0.050	0.059	0.084	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Indeno(1,2,3-cd)pyrene	60	1.7%	0.20	0.20	0.010	1.0	0.050	0.060	0.085	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
2-Methylnaphthalene	60	0.0%			0.10	1.0	0.050	0.083	0.088	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.13
Naphthalene	60	0.0%			0.0050	1.0	0.050	0.033	0.066	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.071
Phenanthrene	60	0.0%			0.010	1.0	0.050	0.059	0.084	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Pyrene	60	3.3%	0.20	0.20	0.010	1.0	0.050	0.064	0.088	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.11
Aroclor 1260	84	9.5%	0.020	0.60	0.016	0.2	0.010	0.023	0.067	Non-parametric	95% Chebyshev (Mean, Sd) UCL	0.055

All units in mg/kg