

**REVIEW OF SYCAMORE LANDFILL FACILITY
AB2588 HEALTH RISK ASSESSMENT (HRA)**

October 29, 2020

Emissions Inventory Facility ID: 8719

Toxics Emissions Inventory Year: 2013

Review conducted by: Michelle Giron, SDAPCD

A Health Risk Assessment (HRA) was performed for the Sycamore Landfill facility, 8514 Mast Boulevard, Santee, CA 92071, by SCS Engineers and submitted to the District for review in December 2016 and entitled AB2588 Health Risk Assessment (Hot Spots HRA) for Sycamore Landfill. The summary report and associated modeling files comprising the HRA were submitted to the District for review on January 3, 2017 (Submittal HRA).

The District sent preliminary comments regarding the Submittal HRA on October 6, 2017. A revised HRA was not submitted by the facility, and the District completed a health risk assessment (District Modified HRA) that took into account the preliminary comments. The following are summaries of the District's estimated results of the revised HRA and the methods used.

Summary of District Modified HRA Results:

Maximum Individual Excess Lifetime Cancer Risk	388 in one million
Maximum Residential Excess Lifetime Cancer Risk	38.3 in one million
Maximum Occupational Excess Lifetime Cancer Risk	1.48 in one million
Maximum Chronic Non-Cancer Health Hazard Index	31.7
Maximum Residential Chronic Non-Cancer Health Hazard Index	2.90
Maximum Occupational Chronic Non-Cancer Health Hazard Index	1.98
Maximum 8-Hour Occupational Chronic Non-Cancer Health Hazard Index	0.103
Maximum Acute Health Hazard Index	3.81
Maximum Residential Acute Health Hazard Index	0.887
Maximum Occupational Acute Health Hazard Index	0.544
Population Excess Cancer Burden	0.200

The maximum sub-chronic 30-day lead concentration at the Maximum Offsite Concentration (MOC) is 0.11 ug/m³, which is below the Air Resources Board (ARB) High Exposure Scenario approval level of 0.12 ug/m³.

The facility's sources include:

- Landfill (area source)
- Stockpiles (area source)
- Quarrying (volume source)
- Cover application (volume source)
- Diesel engine (point source)
- Flares (point sources)
- Unpaved and paved haul roads (line volume sources)

Major Pollutant and Source Contributions for Selected Risks

Maximum Residential Excess Lifetime Cancer Risk

Pollutant	Contribution
Arsenic	88%
Diesel PM	7%
Lead	1%

Source	Contribution
Unpaved haul roads	71%
Stockpiles	10%
Diesel engine	7%
Cover application	5%
John Zink flare	3%
Landfill	3%
Perennial flare	1%
Paved haul road	1%
Quarrying	0.1%

Maximum Residential Chronic Non-Cancer Health Hazard Index

Pollutant	Contribution
Arsenic	70%
Silica, Crystalline	28%
Nickel	1%

Source	Contribution
Unpaved haul roads	79%
Stockpiles	12%
Cover application	5%
John Zink flare	2%
Paved haul road	1%
Perennial flare	1%
Landfill	0.3%
Quarrying	0.1%
Diesel engine	--

Maximum Acute Health Hazard Index

Pollutant	Contribution
Nickel	99%
Benzene	0.5%

Source	Contribution
Unpaved haul roads	63%
Cover application	34%
Stockpiles	2%
Diesel engine	0.4%
Landfill	0.4%
Quarrying	0.1%
Paved haul road	< 0.1%
John Zink flare	< 0.1%
Perennial flare	< 0.1%

Air Dispersion Modeling

AERMOD (Version 19191) and AERMET (Version 19191) preprocessed Kearny Villa Road 2014-2016 Ustar adjusted surface and profile meteorological data, rural dispersion coefficients, and flat terrain were modeled.

Summary of Changes in District Modified HRA

The following modifications, which address the preliminary comments to the Submittal HRA, were made in the District Modified HRA:

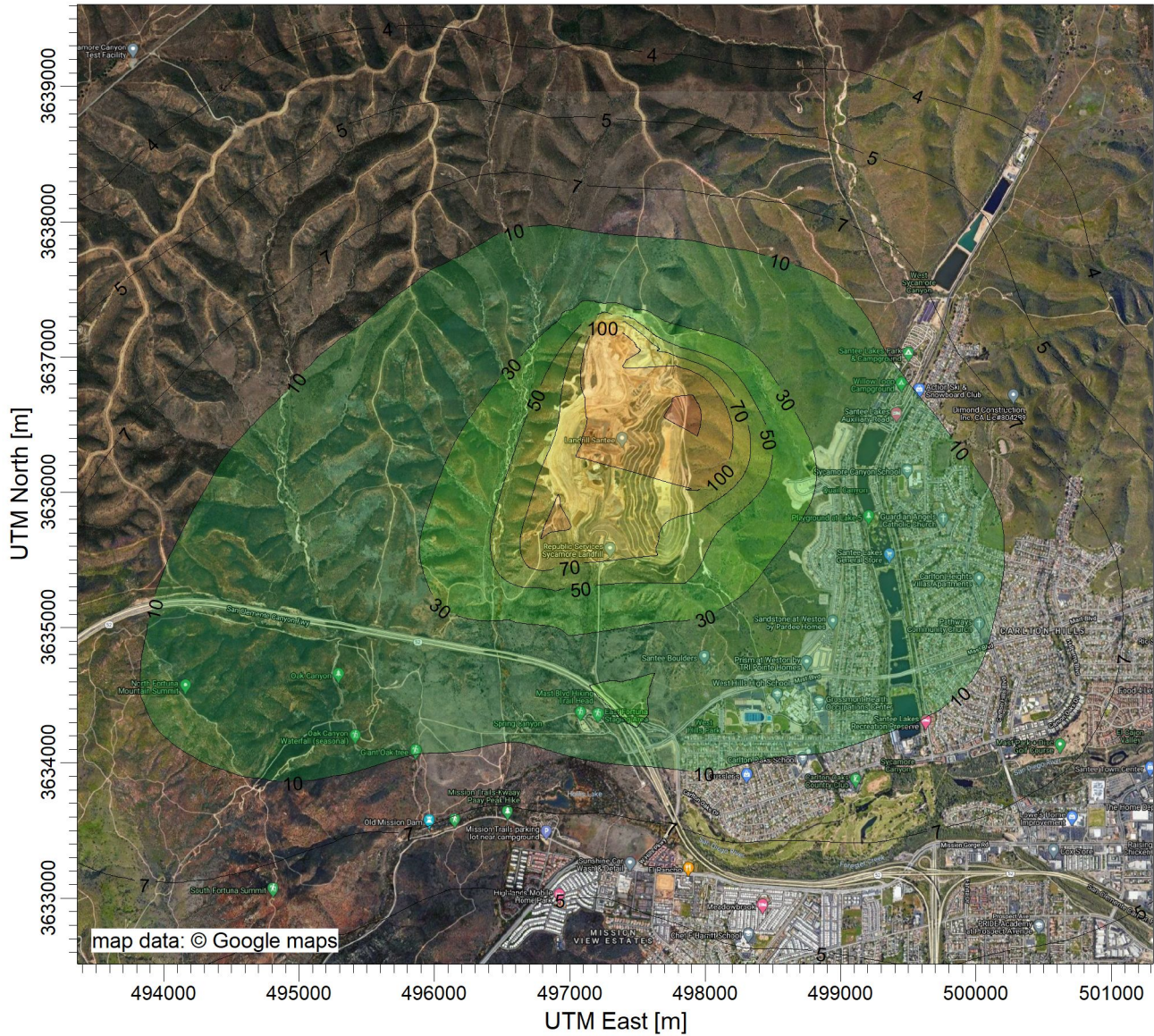
1. The model included additional sources (i.e., haul roads, cover application, diesel engine, storage piles, and quarrying).
2. Updated software was used: HARP version 19044 and AERMOD version 19191.
3. Line volume sources (paved and unpaved roads) were modeled as contiguous rather than separated line volume sources, according to District policy.
4. A 10-meter grid of receptors was added in populated areas and areas under development where maximum impacts were expected to occur.
5. Hour of day scalars were used for sources that are operated for a portion of the day (i.e., haul roads, cover application, diesel engine, and quarrying), according to a schedule of 6:00 am to 5:00 pm.
6. A plume height of 5.58 m and a plume width of 8.5 m were used for the unpaved and paved haul road line volume sources.
7. ARB Risk Management Policy (RMP) daily breathing rates (DBR) were used for the inhalation-based residential cancer risk. For the residential 30-year exposure duration, the RMP daily breathing rate uses the 95th percentile DBR for age groups less than 2 years old (3rd trimester through age 2) and the 80th percentile DBR for age groups greater than 2 years old.
8. For the residential cancer risk calculation, a fraction of time at home (FAH) was applied for the ages 16 to 70 bin. As in the Submittal HRA, the FAH was not applied to the 3rd trimester to age 16 bin.
9. The occupational cancer and non-cancer chronic risk calculations included dermal contact and soil ingestion pathways, in addition to inhalation pathways.
10. The cancer burden is based on census receptors within a one in one million isopleth.

Contours for Selected Risk Calculations

Contours for selected risk calculations are on the following pages.

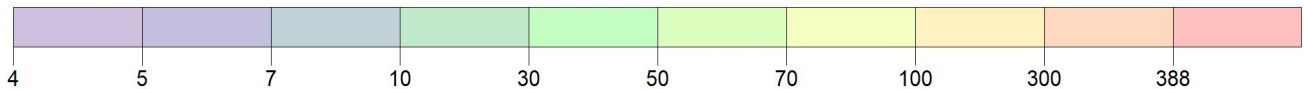
PROJECT TITLE:

**Resident cancer risk
10 in 1 million isopleth**



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

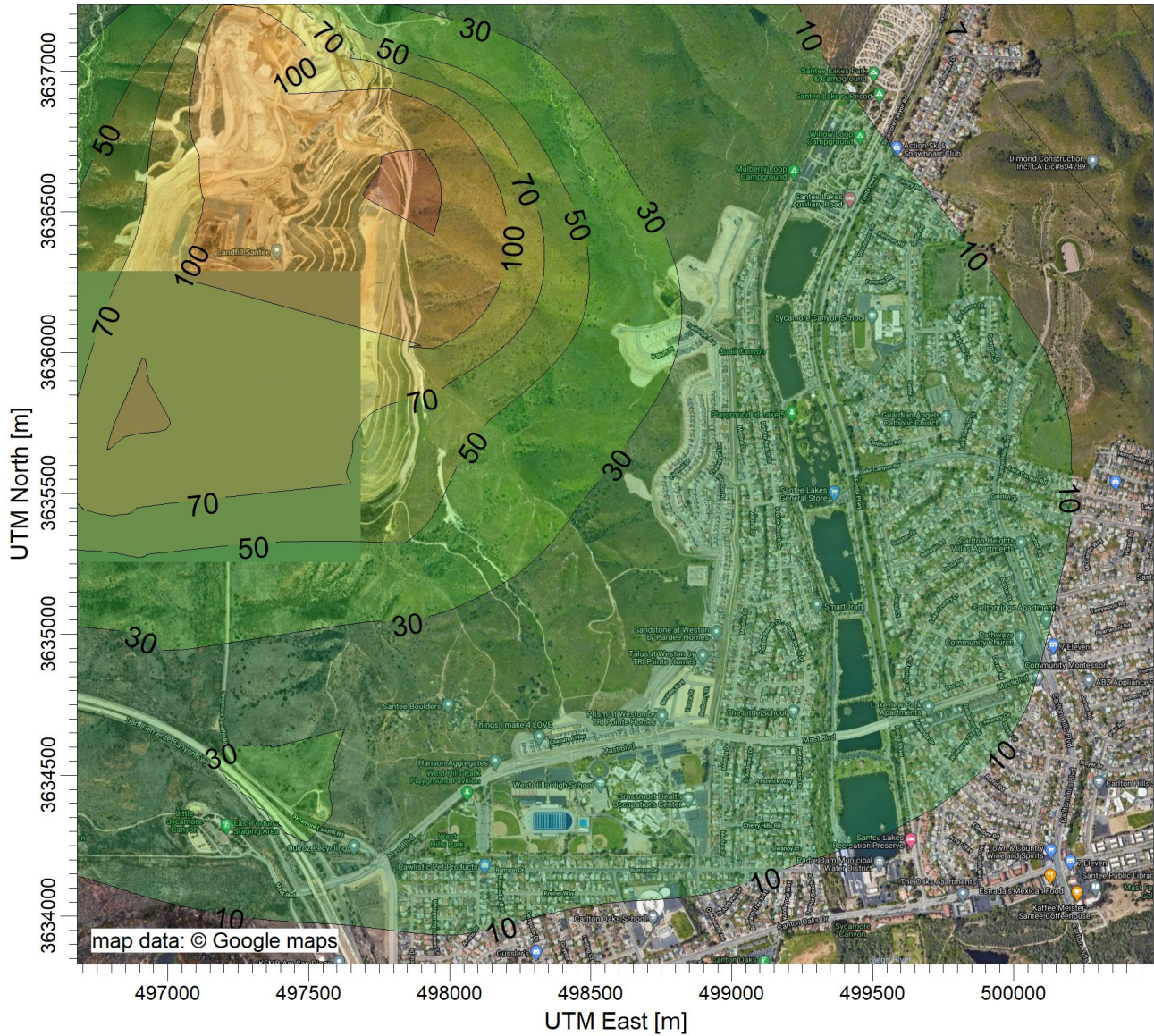
1/1e6



COMMENTS:	MODELING OPTIONS:	COMPANY NAME:	
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	387.74	1/1e6	10/16/2020
			PROJECT NO.:
			Sycamore 2013

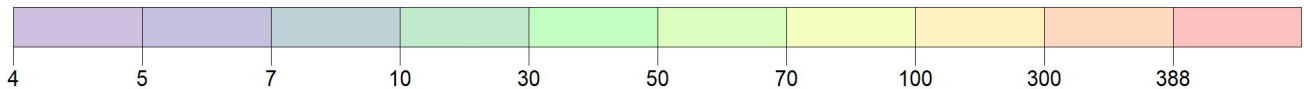
PROJECT TITLE:

**Resident cancer risk - detail
10 in 1 million isopleth**



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

1/1e6



COMMENTS:

MODELING OPTIONS:

COMPANY NAME:

**MODELING, OPTIONS, USED:
NONFAULT, CONC, FLAT,
RURAL, ADJ_U***

MODELER:

OUTPUT TYPE:

RECEPTORS:

SCALE:

1:24,000

Concentration

13644

0 0.5 km

MAX:

UNITS:

DATE:

PROJECT NO.:

387.74

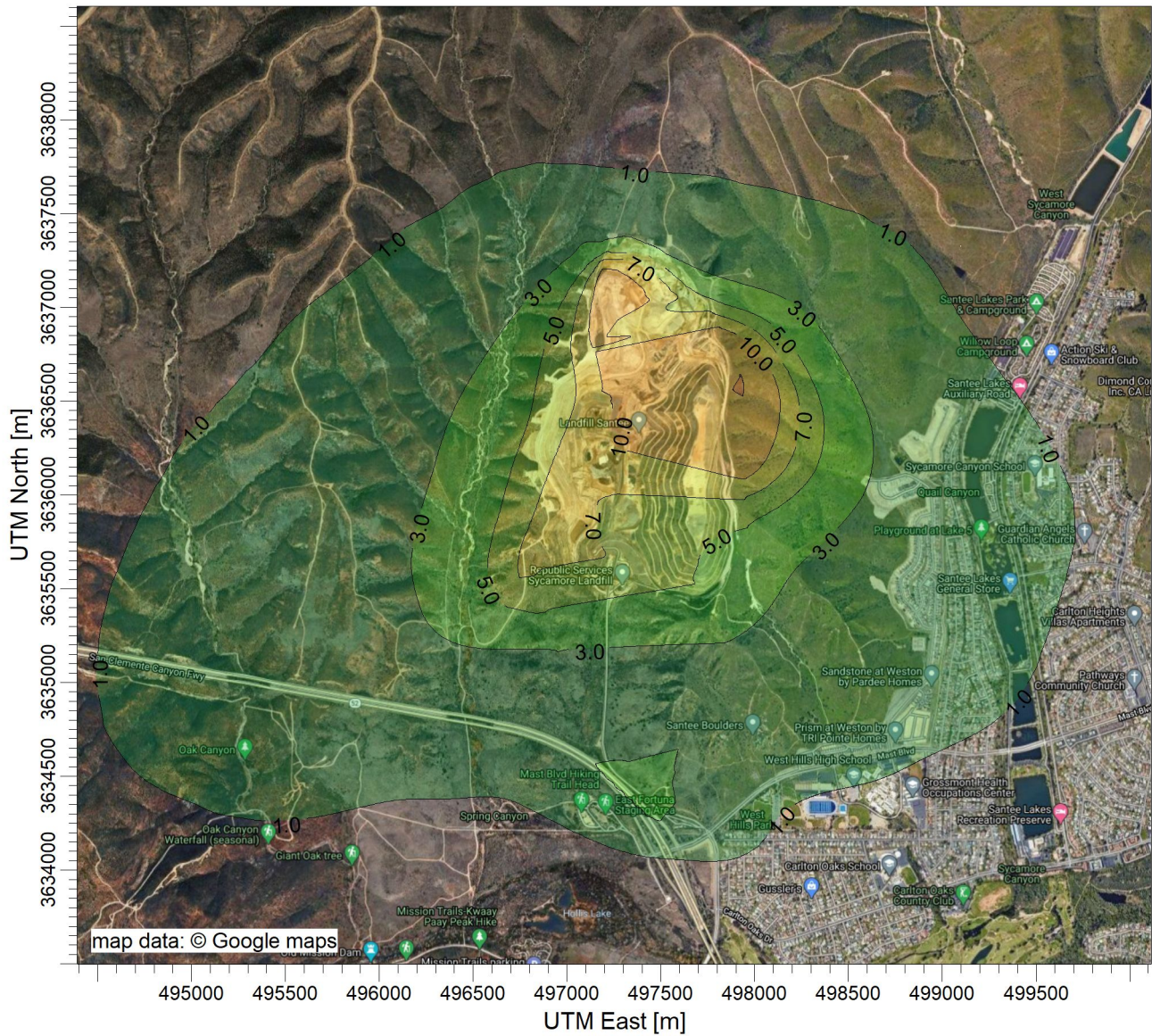
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10/16/2020

Sycamore 2013

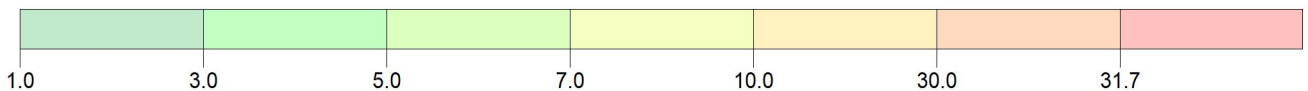
PROJECT TITLE:

Resident chronic noncancer health hazard index



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

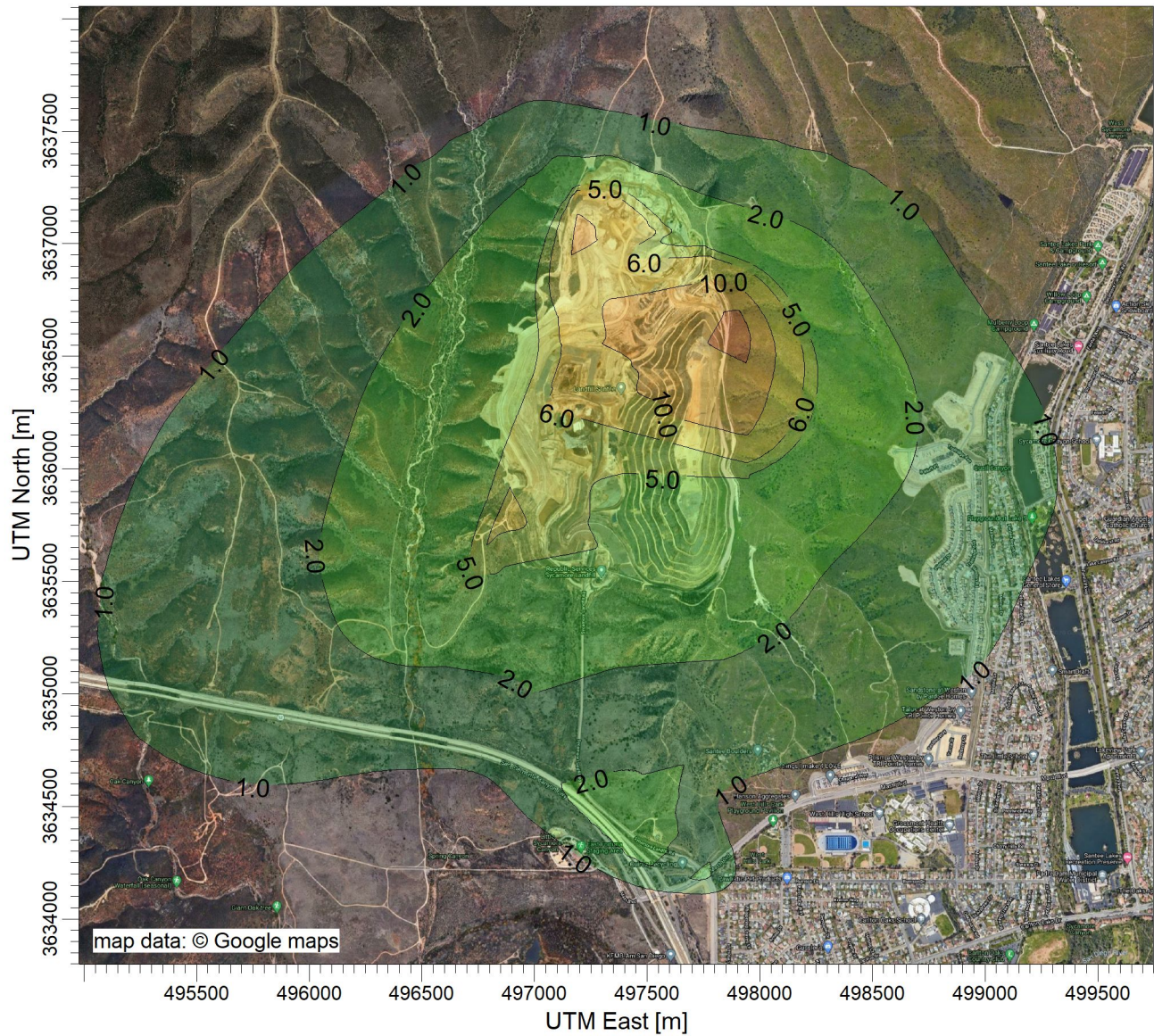
hhi



COMMENTS:	MODELING OPTIONS:	COMPANY NAME:	
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MAX:	UNITS:	DATE:	PROJECT NO.:
31.744	hhi	10/26/2020	Sycamore 2013

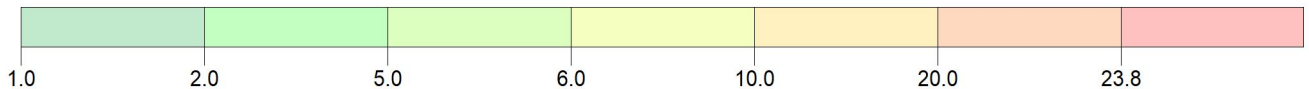
PROJECT TITLE:

Worker chronic noncancer health hazard index



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

hhi



COMMENTS:

MODELING OPTIONS:

COMPANY NAME:

**MODELING, OPTIONS, USED:
NONFAULT, CONC, FLAT,
RURAL, ADJ_U***

MODELER:

OUTPUT TYPE:

RECEPTORS:

SCALE:

1:30,000

Concentration

13644

0

1 km

MAX:

23.771

UNITS:

hhi

DATE:

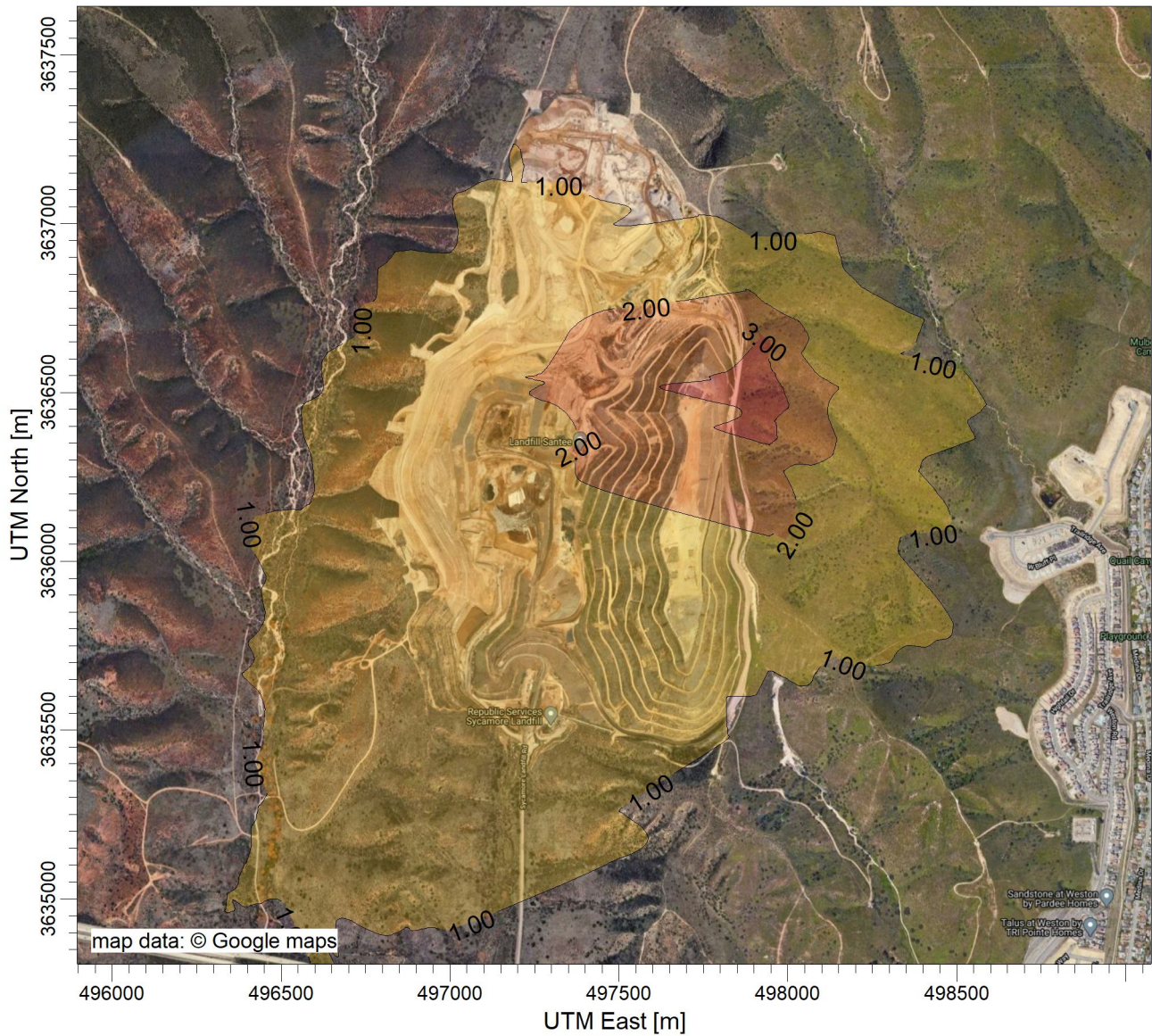
10/26/2020

PROJECT NO.:

Sycamore 2013

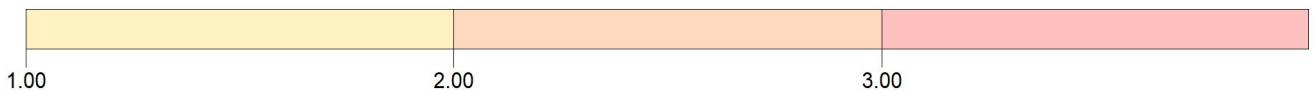
PROJECT TITLE:

Acute noncancer health hazard index



PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: ALL

hhi



COMMENTS:	MODELING OPTIONS:	COMPANY NAME:	
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