BAY AREA AIR QUALITY MANAGEMENT DISTRICT

BAAQMD

Draft Facility-Wide

Health Risk Assessment

Facility # A4134

Irvington Memorial Cemetery

May 28, 2020

Prepared by: Davis Zhu, Senior Engineer
Approved by: Daphne Chong, Toxicologist
Carol Allen, Assistant Manager
Sanjeev Kamboj, Manager, Engineering
Pam Leong, Director, Engineering

Table of Contents

Draft Facility-Wide Health Risk Assessment Report

Irvington Memorial Cemetery (Facility # A4134)
41001 Chapel Way, Fremont, CA 94538

1. Executive Summary

Irvington Memorial Cemetery (Air District Facility # A4134) has been operating a crematory located at 41001 Chapel Way in Fremont, CA since 1968. The current facility includes five cremation furnaces, and each furnace is equipped with an integral afterburner to reduce emissions. These crematory furnaces emit toxic air contaminants (TACs) due to the combustion of human remains, caskets, and natural gas. Based on the Air District's 2018 toxic emission inventory for this facility, the Air District determined that this facility was required to undergo a facility-wide health risk assessment (HRA) to assess the applicability of the Air District's Regulation 11, Rule 18 "Reduction of Risk from Air Toxic Emissions at Existing Facilities", or Rule 11-18.

The Air District conducted a facility-wide HRA for Irvington Memorial Cemetery based on the Air District's 2018 actual toxic emissions inventory for this site, the Air District's 2016 HRA Guidelines, and the Air District's 2020 HRA Modeling Protocol. The AERMOD air dispersion computer model was used to estimate maximum 1-hour and annual average ambient air concentrations. California Air Resources Board's Hotspots Analysis and Reporting Program Version 2 (HARP2) was used to evaluate health risks. Health risks from Irvington Memorial Cemetery are summarized in Table 1.

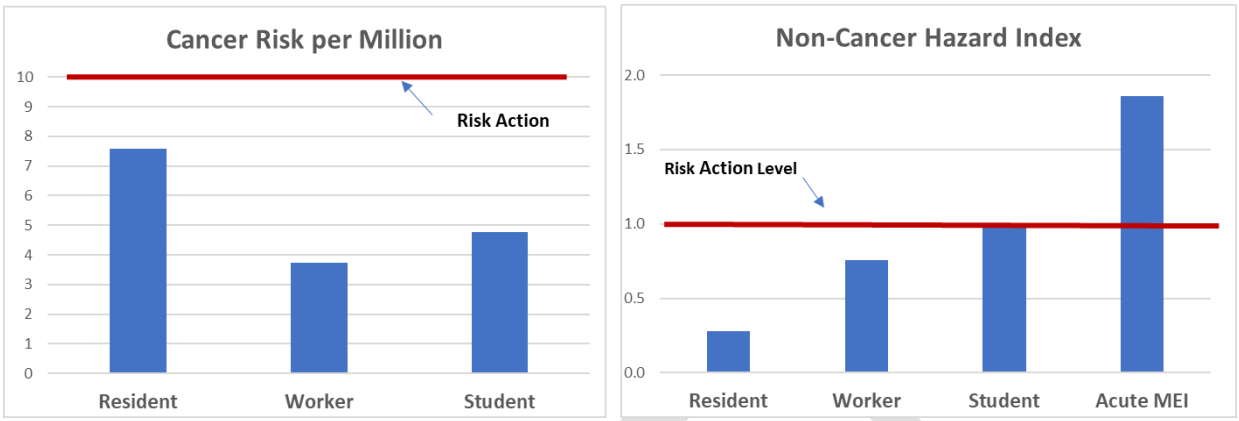
Table 1. Summary of Health Risks from Irvington Memorial Cemetery

	Resident	Worker	Student	Maximally Exposed Individual (MEI)
Cancer Risk per Million	7.6	3.7	4.8	7.6
Chronic Hazard Index	0.28	0.76	1.0	1.0
Acute Hazard Index	NA	NA	NA	1.9

For the maximally exposed individual (MEI), this facility-wide HRA identified a cancer risk of **7.6 in a million**, a chronic hazard index of **1.0**, and an acute hazard index of **1.9**. As illustrated in Figure 1, the facility-wide chronic hazard index and the acute hazard index will each exceed a final Risk Action Level (RAL) identified in Regulation 11-18-218.2.[1]

[1] The initial RALs are identified in Regulation 11-18-218.1. These initial RALs became effective upon adoption of Rule 11-18 on November 15, 2017. The final RALs, which are identified in Regulation 11-18-218.2, became effective on January 1, 2020. Since the Air District expects to publish the draft HRA for Irvington Memorial Cemetery after January 1, 2020, the health risks for this site are being compared to the final RALs.

Figure 1. Comparison of Health Risks to Risk Action Levels



The Air District's preliminary conclusion is that Irvington Memorial Cemetery will be required to meet the Risk Reduction Plan (RRP) requirements identified in Regulation 11-18-301. Since the chronic hazard index and acute hazard index each exceed a final RAL, the RRP will need to demonstrate reductions in these two categories of health risk. For the MEI, mercury (94%) and cadmium (5.6%) are the major contributors to chronic hazard index, and mercury (99.8%) is also the major contributor to acute hazard index. For these non-cancer health impacts, chronic and acute hazard index, the target organ systems with the highest impacts are the kidneys and the reproductive system including developmental toxicity, respectively. For cancer risk, the major contributors are hexavalent chromium (47%), cadmium (31%), and dioxins (19%).[2]

The Air District has also determined that the following sources are significant sources of health risk, as defined in Regulation 11-18-222: S-1, S-2, S-4, S-5 and S-6 Cremation Furnaces with Afterburners. If the facility cannot reduce non-cancer health impacts to below the 1.0 hazard index RAL, the facility must demonstrate in the RRP that each of these significant sources is meeting best available retrofit control technology for toxics (TBARCT).

In accordance with Regulation 11-18-403, the facility was given 90 days to review and comment on a preliminary HRA. The Air District has made the necessary corrections to the HRA and is now making this draft HRA available for public review for a period of 45 days. The Air District will consider and respond to any comments received regarding this draft HRA before finalizing this HRA.

If the final HRA demonstrates that health risks exceed a RAL, the facility will be notified in writing that it is required to meet the RRP requirements identified in Regulation 11-18-301. A proposed RRP will be due within 180 days of this written notification.

The Air District evaluated several potential risk reduction measures for this facility. Increasing stack heights to at least 39 feet for each crematory retort and reducing the number of crematories firing at the same time from five to three, will result in health risks that are less than the risk action

[2] Dioxins refers to a group of compounds called polychlorinated dibenzo-p-dioxins (PCDDs). Health effects for dioxins and related compounds: polychlorinated dibenzofurans (PCDFs) and dioxin-like polychlorinated biphenyls (PCBs), are expressed as an equivalent to a specific compound called: 2,3,4,8-PCDD. In HARP2, this group of compounds is identified as 2,3,7,8-TCDD.

levels. The facility is considering these options and other risk reduction measures such as the replacement of two older crematory retorts with one new high efficiency crematory retort. The facility's detailed risk reduction plans would be contained in the RRP, if it is required.

2. Purpose

The purpose of this facility-wide HRA is to determine if the Air District's Regulation 11, Rule 18 "Reduction of Risk from Air Toxic Emissions at Existing Facilities", or Rule 11-18, applies to this facility. Rule 11-18 requires existing facilities to reduce health risk if any of the facility's health risks exceed a Rule 11-18 risk action level (RAL). The Rule 11-18 risk action levels are identified in Regulation 11-18-218 and are summarized below:

Table 2. Regulation 11-18-218 Risk Action Levels (RALs)

Health Risk Type	Final Risk Action Levels, Effective 1/1/2020
Cancer Risk per Million	$\geq$ 10
Chronic Non-Cancer Hazard Index	$\geq$ 1.0
Acute Non-Cancer Hazard Index	$\geq$ 1.0

If a facility-wide health risk level exceeds any of the three RALs, the facility must submit a Risk Reduction Plan (RRP) that demonstrates how this facility will either (a) reduce health risks below the final RALs, or (b) ensure that each significant source of risk is equipped with best available retrofit control technology for toxics, or TBARCT. If the facility-wide HRA demonstrates that Rule 11-18 applies, the HRA will also identify each significant source of health risk that could be subject to the rule's TBARCT requirements. The significant source thresholds and final health risk goals for Rule 11-18 are summarized below:

Table 3. Rule 11-18 Risk Reduction Goals

Health Risk Type	Significant Source Thresholds	Final Facility-wide Health Risk Goals
Cancer Risk per Million	$\geq$ 1.0	< 10
Chronic Non-Cancer Hazard Index	$\geq$ 0.2	< 1.0
Acute Non-Cancer Hazard Index	$\geq$ 0.2	< 1.0

3. Background

Irvington Memorial Cemetery (Air District Facility # 4134) has been operating a crematory at 41001 Chapel Way in Fremont, CA since 1968. The current facility includes five cremation furnaces; and each furnace is equipped with an integral afterburner to reduce emissions. These crematory furnaces emit toxic air contaminants (TACs) due to the combustion of human remains, caskets, and natural gas.

The Air District developed a toxic emissions inventory for this facility based on the number of cremations reported by the facility for 2018 and Air-District approved toxic emission factors. For 2018, this facility conducted 5003 cremations, which is about 60% of the maximum permitted throughput level for this site. The facility also used 155,852 therms per year (15,585 MM BTU per year) of natural gas in the cremation furnaces and afterburners. The toxic emission factors are based on source test data and default emission factors for cremation furnaces with afterburners. The facility-wide (TAC) emissions inventory is summarized below.

Table 4. 2018 Emission Inventory for Plant # 4134, Irvington Memorial Cemetery

Toxic Air Contaminant	Facility-Wide TAC emissions	
	Hourly Emissions (lb/hr)	Annual Emissions (lb/yr)
Acetaldehyde	6.5E-04	6.5E-01
Arsenic	1.8E-05	2.5E-02
Beryllium	9.4E-06	1.3E-02
Cadmium	2.7E-03	1.6E+00
Chromium, hexavalent	6.8E-05	6.8E-02
Copper	7.6E-04	8.7E-01
Formaldehyde	1.7E-04	1.7E-01
Hydrogen Chloride	3.6E-01	3.6E+02
Hydrogen Fluoride	3.3E-03	3.3E+00
Lead	8.9E-04	8.7E-01
Mercury	2.7E-02	1.9E+01
Nickel	3.1E-04	3.7E-01
Selenium	1.1E-04	1.1E-01
2,3,7,8-PCDD (equivalent)	5.3E-09	5.3E-06
PAHs (as B(a)P equivalents)	1.2E-07	1.2E-04
Manganese	8.9E-04	9.4E-01
Benzene	2.4E-05	3.2E-02
Toluene	3.9E-05	5.2E-02

The Air District uses a toxic emissions-based screening threshold called a “Prioritization Score” to determine if a facility needs to have an updated facility-wide HRA to assess Rule 11-18 applicability. Prioritization score calculation procedures are available on the Air District’s web

site.[3] For the purposes of determining Rule 11-18 HRA requirements, the Air District uses a proximity adjustment factor of 1.0 for all prioritization score calculations.

Based on the Air District's 2018 toxic emission inventory for this facility, the prioritization scores were 88 for cancer risk and 10.5 for chronic non-cancer. Under Phase I of the Air District's Rule 11-18 Implementation Procedures,[4] any facility with a prioritization score greater than 250 for cancer risk or greater than 10.0 for chronic non-cancer is required to have a facility-wide HRA conducted in accordance with the Air District's 2016 HRA Guidelines.[5] Since the chronic non-cancer prioritization score for Irvington Memorial Cemetery exceeded 10.0, this facility was required to undergo a facility-wide HRA to assess Rule 11-18 applicability.

4. Source List and Source Emissions

Irvington Memorial Cemetery has five cremation furnaces. Each furnace is equipped with an integral afterburner to reduce emissions. The capacities and 2018 throughput rates are summarized below.

Table 5. Cremation Furnaces and Afterburners – Capacity and 2018 Throughput Rates

	Maximum Permitted Capacity		2018 Throughput Rates	
Source	Cremations (bodies/year)	Natural gas (MM BTU/hour)	Natural gas (MM BTU/year)	Cremations (bodies/year)
S-1	S-1/S-2 combined 1371 *	1.4	2692.2	864
S-2		1.4	2638.4	847
S-4	S-4/S-5 combined 4670	3	3663.2	1176
S-5		3	3395.4	1090
S-6	2300	3	3196.0	1026
Total	8341	11.8	15,585	5003

* Although the total number of cremations for 2018 does not exceed the total limit for the facility, the number of cremations conducted at S-1 and S-2 (1711 cremations per year) exceeds the current limit of 1371 cremations per year combined for these two sources. The Air District's Compliance and Enforcement Division is investigating this matter.

Emission factors used in this HRA are based on site-specific source test data, if available, and default TAC emission factors if no site-specific test data is available. If a compound was not detected during source testing, the Air District used 50% of the detection limit to develop the emission factor used in this HRA. The source test emission factors, default emission factors, and

[3] http://www.baaqmd.gov/~/media/dotgov/files/rules/regulation-11-rule-18/documents/20171003_priorproc_1118-pdf.pdf?la=en

[4] http://www.baaqmd.gov/~/media/files/ab617-community-health/facility-risk-reduction/implementation-procedures-pdf.pdf?la=en

[5] http://www.baaqmd.gov/~/media/files/planning-and-research/permit-modeling/hra_guidelines_12_7_2016_clean-pdf.pdf?la=en

chosen emission factors are presented in Table 6. Emission factors for key pollutants are discussed in more detail below.

According to BAAQMD TAC Emission Factor Guidelines, site specific data is preferred to default factors. As shown in Table 6, emission factors (EFs) for arsenic, beryllium, cadmium, copper, lead, manganese, mercury, and nickel are derived from a February 9, 2007 source test at this facility on the S-6 Cremation Furnace. The average mercury emission factor from the three test runs was used for annual emission calculations, while the highest (1-hour) sampling data from the three test runs was used as maximum 1-hour emission calculations for this HRA.

The other emission factors are derived from default emission factors for cremation furnaces. Default emission factors for TACs emitted from cremation furnaces are determined using EPA's AP-42 Compilation of Air Emission Factors, fifth edition, Chapter 1.4, EPA's, Factor Information Retrieval (FIRE) database,[6] BAAQMD Permit Handbook Chapter 11.6,[7] and BAAQMD report, "Mercury Emissions from the Cremation of Human Remains", September 24, 2012.[8]

Default EFs for benzene and toluene due to natural gas combustion are derived from AP-42 Table 1.4-3, as shown below.

Benzene = (0.0021 lb/MM scf) / (1020 MM BTU/10^6 ft^3) = 2.06 x 10^{-6} lb/MM BTU
Toluene = (0.0034 lb/MM scf) / (1020 MM BTU/10^6 ft^3) = 3.33 x 10^{-6} lb/MM BTU

Per the BAAQMD Permit Handbook Chapter 11.6, default EFs for formaldehyde and acetaldehyde are calculated from the data in CARB's Test Report No. C-90-004, "Evaluation Test on Two Propane Fired Crematories Camellia Memorial Lawn Cemetery," October 29, 1992.

Annual and hourly TAC emissions are displayed in Table 7 for each source.

6 https://cfpub.epa.gov/webfire/
7 http://www.baaqmd.gov/~/media/files/engineering/permit-handbook/baaqmd-permit-handbook.pdf?la=en
8 "Mercury Emissions from the Cremation of Human Remains" September 24, 2012, by Jane Lundquist of BAAQMD

Table 6. TAC EFs for Irvington Memorial Cemetery Cremation Furnaces

Toxic Air Contaminant	Default EFs		2007 Source Test: S-6 Cremation Furnace		EFs Used for TAC Emission Inventory	
	Average Emission Factor (lbs/body)	Max. 1-Hr Emission Rate (lbs/hr)	Emission Factor (lbs/body)	Max. 1-Hr Emission Rate (lbs/hr)	Emission Factor (lbs/body)	Max. 1-Hr Emission Rate (lbs/hr)
Acetaldehyde	1.3E-04	1.3E-04	N/A	N/A	1.3E-04	1.3E-04
Arsenic[1]	1.5E-05	1.5E-05	5.0E-06	3.5E-06	5.0E-06	3.5E-06
Beryllium[1]	1.4E-06	1.4E-06	2.7E-06	1.9E-06	2.7E-06	1.9E-06
Cadmium	1.1E-05	1.1E-05	3.2E-04	5.5E-04	3.2E-04	5.5E-04
Chromium, hexavalent	1.4E-05	1.4E-05	N/A	N/A	1.4E-05	1.4E-05
Copper	2.7E-05	2.7E-05	1.7E-04	1.5E-04	1.7E-04	1.5E-04
Formaldehyde	3.4E-05	3.4E-05	N/A	N/A	3.4E-05	3.4E-05
Hydrogen Chloride	7.2E-02	7.2E-02	N/A	N/A	7.2E-02	7.2E-02
Hydrogen Fluoride	6.6E-04	6.6E-04	N/A	N/A	6.6E-04	6.6E-04
Lead	6.6E-05	6.6E-05	1.7E-04	1.8E-04	1.7E-04	1.8E-04
Mercury	3.4E-03	1.3E-02	3.8E-03	5.4E-03	3.8E-03	5.4E-03
Nickel	3.8E-05	3.8E-05	7.4E-05	6.3E-05	7.4E-05	6.3E-05
Selenium	2.2E-05	2.2E-05	1.7E-05	1.7E-05	2.2E-05	2.2E-05
Dioxins (as 2,3,7,8-PCDD equivalent) [2]	1.1E-09	1.1E-09	N/A	N/A	1.1E-09	1.1E-09
PAHs (as B(a)P equivalent) [3]		2.4E-08	N/A	N/A	2.4E-08	2.4E-08
Manganese	N/A	N/A	1.9E-04	1.8E-04	1.9E-04	1.8E-04

1. For the 2007 Source Test, the emission factors listed here for arsenic and beryllium are based on ½ of the reported detection limits. However, the EPA FIRE emission factor for arsenic is also reported as a detection limit rather than a measured value. For arsenic, the Air District chose to use ½ of the lower detection limit for these two arsenic tests, which is the facility's 2007 source test.
2. For Dioxins, default emission factors from the Air District's Permit Handbook were updated here to reflect OEHHAs 2015 updates to the Toxicity Equivalency Factors (TEFs) for Dioxins. In addition, investigation into the EPA FIRE data for Dioxins found that this data was based on detection limits rather than measured values. In accordance with Air District conventions, the emission factor for Dioxins will be based on ½ of the reported detection limits.
3. For PAHs derivatives, an investigation into the EPA FIRE data found that the emission factors were based on detection limits rather than measured values. In accordance with Air District conventions, the emission factor for PAHs will be based on ½ of the reported detection limits.

Table 7. Source-Specific Annual and Hourly TAC Emissions

Toxic Air Contaminant	S-1 Cremator TAC emissions		S-2 Cremator TAC emissions		S-4 Cremator TAC emissions		S-5 Cremator TAC emissions		S-6 Cremator TAC emissions	
	Annual Average Emission (lb/yr)	Hourly Emission (lb/hr)	Annual Average Emission (lb/yr)	Hourly Emission (lb/hr)	Annual Average Emission (lb/yr)	Hourly Emission (lb/hr)	Annual Average Emission (lb/yr)	Hourly Emission (lb/hr)	Annual Average Emission (lb/yr)	Hourly Emission (lb/hr)
Acetaldehyde	1.1E-01	1.3E-04	1.1E-01	1.3E-04	1.5E-01	1.3E-04	1.4E-01	1.3E-04	1.3E-01	1.3E-04
Arsenic *	4.3E-03	3.5E-06	4.2E-03	3.5E-06	5.9E-03	3.5E-06	5.4E-03	3.5E-06	5.1E-03	3.5E-06
Beryllium *	2.3E-03	1.9E-06	2.2E-03	1.9E-06	3.1E-03	1.9E-06	2.9E-03	1.9E-06	2.7E-03	1.9E-06
Cadmium	2.7E-01	5.5E-04	2.7E-01	5.5E-04	3.7E-01	5.5E-04	3.4E-01	5.5E-04	3.2E-01	5.5E-04
Chromium, hexavalent	1.2E-02	1.4E-05	1.1E-02	1.4E-05	1.6E-02	1.4E-05	1.5E-02	1.4E-05	1.4E-02	1.4E-05
Copper	1.5E-01	1.5E-04	1.5E-01	1.5E-04	2.0E-01	1.5E-04	1.9E-01	1.5E-04	1.8E-01	1.5E-04
Formaldehyde	2.9E-02	3.4E-05	2.9E-02	3.4E-05	4.0E-02	3.4E-05	3.7E-02	3.4E-05	3.5E-02	3.4E-05
Hydrogen Chloride	6.2E+01	7.2E-02	6.1E+01	7.2E-02	8.5E+01	7.2E-02	7.8E+01	7.2E-02	7.4E+01	7.2E-02
Hydrogen Fluoride	5.7E-01	6.6E-04	5.5E-01	6.6E-04	7.7E-01	6.6E-04	7.1E-01	6.6E-04	6.7E-01	6.6E-04
Lead	1.5E-01	1.8E-04	1.5E-01	1.8E-04	2.0E-01	1.8E-04	1.9E-01	1.8E-04	1.8E-01	1.8E-04
Mercury	3.3E+00	5.4E-03	3.2E+00	5.4E-03	4.5E+00	5.4E-03	4.2E+00	5.4E-03	3.9E+00	5.4E-03
Nickel	6.4E-02	6.3E-05	6.2E-02	6.3E-05	8.7E-02	6.3E-05	8.0E-02	6.3E-05	7.6E-02	6.3E-05
Selenium	1.9E-02	2.2E-05	1.8E-02	2.2E-05	2.6E-02	2.2E-05	2.4E-02	2.2E-05	2.2E-02	2.2E-05
Dioxins (as 2,3,7,8-PCDD (equivalent) *	9.2E-07	1.1E-09	9.0E-07	1.1E-09	1.3E-06	1.1E-09	1.2E-06	1.1E-09	1.1E-06	1.1E-09
PAH's (as B(a)P equivalents) *	2.1E-05	2.4E-08	2.1E-05	2.4E-08	2.9E-05	2.4E-08	2.6E-05	2.4E-08	2.5E-05	2.4E-08
Manganese	1.6E-01	1.8E-04	1.6E-01	1.8E-04	2.2E-01	1.8E-04	2.0E-01	1.8E-04	1.9E-01	1.8E-04
Benzene	5.5E-03	2.9E-06	5.4E-03	2.9E-06	7.5E-03	6.2E-06	7.0E-03	6.2E-06	6.6E-03	6.2E-06
Toluene	9.0E-03	4.7E-06	8.8E-03	4.7E-06	1.2E-02	1.0E-05	1.1E-02	1.0E-05	1.1E-02	1.0E-05

* Emissions data is based on ½ of the detection limit for arsenic, beryllium, dioxins, and PAHs.

5. Air Dispersion Modeling

The AERMOD air dispersion computer model (Version 18081) was used to estimate annual average and maximum 1-hour ambient air concentrations. Model runs were made with 4 years of NUMMI meteorological data (2005, 2006, 2007 and 2009). Although the Air District prefers to use five years of meteorological data, the NUMMI data set only had four years of meteorological data that met the data quality requirements. The Air District determined that four years of meteorological data is acceptable for the purposes of this HRA. BAAQMD meteorology staff used AERMET (Version 16216) to prepare the NUMMI meteorological data. Upper air data coincident with the local met data was taken from the Oakland International Airport station. Land use parameters including surface roughness length, albedo, and Bowen ratio were evaluated using the USEPA AERSURFACE tool.

Dispersion coefficients for air dispersion modeling were selected based on the land use classification scheme proposed by Auer (Auer, 1978).[9] The classification determination involves assessing land use by Auer's categories within a 3-km radius of the facility site. USEPA's AERSURFACE tool (version 13016) with USGS National Land Cover Data (NLCD92) was used to summarize the land use classifications within a 3-km radius of the facility.[10] The land use was determined to be rural, because Auer Urban land use categories made up less than 50% of the total area (44.8%). Therefore, the AERMOD runs were made with rural dispersion coefficients.

The model is referenced in NAD 83 UTM coordinates and uses 10-meter resolution terrain data from Alameda County (1/3 arc second NED files). There are three potential meteorological data can be used in this HRA: NUMMI in Fremont, KNUQ (Moffett Airport) in Mountain View, and KSJC (San Jose International Airport) in San Jose. NUMMI meteorological site is located 2.4 miles of south-southeast of the facility. KNUQ meteorological station is about 9 miles southwest of the facility. The KSJC meteorological station is located approximately 12 miles south of the facility. There is no significant terrain barrier between the facility and three meteorological sites. Since KSJC is located in the center of the Santa Clara Valley, the predominant wind directions are Northwest (daytime on shore wind) and Southeast (nighttime to early morning offshore wind), as can be seen from attached KSJC windrose map. The axis of strong wind activity is generally well aligned with the northwest/southeast axis of the San Francisco Bay. The annual average wind speed from KSJC is higher than that of NUMMI site as indicated in the summary of the windrose maps. Based on daily data analysis, generally daily daytime wind speed at KSJC is higher than that of NUMMI. NUMMI site is at east of the bay and is near the foothill of the east bay hills, thus it encounters more easterly winds during late night and early morning due to the downslope wind. In the daytime, the predominate wind direction is from Northwest, same as that of KSJC, but with lower wind speeds. KNUQ is near the south end of the San Francisco Bay, per attached 2009 to 2103 windrose map for KNUQ, predominate wind is from almost pure north (at around

[9] Auer, Jr., A.H. (1978). Correlation of Land Use and Cover with Meteorological Anomalies. Journal of Applied Meteorology, 17(5), 636-643.

[10] See Appendix A of the BAAQMD Health Risk Assessment Modeling Protocol [insert web-site link when available]

345-350 degree). After comparison, NUMMI appears to the most representative met data available for the modeled area based on elevation, surface characteristics, wind direction, and wind speed.

Stack and building parameters for the analysis were based on information provided by the facility and summarized in Table 8. Flow rate and temperature from 2007 Source Test for S-6 are applied to S-4 through S-6 since they are identical sources. All modeled sources are open, vertical oriented exhaust stack outlets (point sources). Regulatory default options were selected, consistent with established practices for use of AERMOD in regulatory applications. In addition, since the sources operate 12 hours per day (6 am through 6 pm), daytime scalars were applied to each modeled source for the modeling runs used to determine annual average concentrations. Scalars were not used in the 1-hour modeling analysis.

Receptor networks were constructed for the dispersion analysis including a fine grid containing receptors spaced 20 meters apart extending 200 meters from the sources, and a coarse grid containing receptors spaced 50 meters apart extending 500 meters from the sources. The grid receptor locations inside of the facility boundary are not included in the HRA. All receptors were modeled with a flagpole height of 1.5 meters to approximate an average human breathing zone. A total of 722 receptors including sensitive receptors (for 3 nearby schools) were included in the analysis. Spatial averaging was not included in this analysis because the potential receptor location areas were small and spatial averaging was not expected to have any significant impact on the cancer risk or chronic hazard index results. Also, spatial averaging does not apply to acute impact analyses.

Table 8. Point Source Release Parameters

Point Sources	Exhaust Direction	Outlet Type	Stack Height (above ground level)	Exit Diameter	Cross Sectional Area	Typical Exhaust Gas Flow Rate	Typical Exhaust Temperature
	Vertical or Horizontal	Rain Cap or Open (or Hinged Rain Flap)	(ft)	(ft)	ft^2	(Actual, wet cfm)	(degrees F)
S-1	Vertical	Open	16	1.667	2.18	2800	1200
S-2	Vertical	Open	20	1.667	2.18	2800	1200
S-4	Vertical	Open	33	1.792	2.52	4351	1072
S-5	Vertical	Open	33	1.792	2.52	4351	1072
S-6	Vertical	Open	33	1.792	2.52	4351	1072

6. HARP2 Risk Assessment

The HARP2 Air Dispersion Modeling and Risk Tool (ADMRT) was used to evaluate health risk in the following categories: (1) Cancer Risk and (2) Chronic Hazard Index for Residential, Off-

site Worker and Student receptors; and (3) Acute Hazard Index for the maximally exposed receptor.

- Individual cancer risk is the increased chance for a person to contract cancer after long-term exposure to facility emissions (for example, 30 years for a resident and 25 years for a worker).
- The chronic hazard index is a ratio of annual average concentrations of TACs in the air to established chronic reference exposure levels (RELs). A chronic hazard index below 1.0 indicates that adverse non-cancer health effects from long-term exposure are not expected.
- The acute hazard index is a ratio of maximum 1-hour average concentrations of TACs in the air to established acute RELs. An acute hazard index below 1.0 indicates that adverse non-cancer health effects from infrequent short-term exposure are not expected.

Chronic exposure assumptions assume that TAC emissions are continuous and that pollutant concentrations are annual average values. Acute exposure assumes a maximum hourly emission rate. Dispersion modeling for the ADMRT is based on unit emission rates of 1.0 grams per second for each source (or combined source) and determines 1-hour and annual average unit concentrations in micrograms per cubic meter, per gram per second (X/Q). Health risk estimates were calculated in accordance with the BAAQMD's Air Toxics NSR Program HRA Guidelines, dated December 2016. Since the facility's TAC emissions include multi-pathway pollutants (arsenic, beryllium, cadmium, chromium VI, lead, mercury, nickel, selenium, dioxins, and, PCBs), several non-inhalation exposure pathways were also included in the HRA, including dermal adsorption, soil ingestion, and mother's milk ingestion. Since the furnace emissions are equipped with afterburners (e.g., particulate emission control devices), a deposition rate of 0.02 meters per second was chosen when determining multi-pathway health impacts.

Residential Receptors:

Estimates of residential risk assume potential exposure to annual average TAC concentrations occur 350 days per year, for 30 years. In addition, residential risk estimates assume a 95th percentile breathing rate for age groups younger than two years old, and 80th percentile breathing rate for age groups that are older than or equal to two years of age.

Residential cancer risk estimates include age sensitivity factors (ASFs) and fraction of time at home (FAH) adjustments. The ASFs are age-specific weighting factors used in calculating cancer risks from exposures of infants, children and adolescents, to reflect their anticipated special sensitivity to carcinogens. For risk assessment of residential receptors, FAH (73%) was applied to age groups greater or equal to 16 years, per BAAQMD's policy.

Worker Receptors:

Risk estimates for offsite workers assume potential exposure occurs 8 hours per day, 250 days per year, for 25 years. For offsite workers, the 95th percentile 8-hour breathing rate based on moderate activity was assumed. Since these sources do not operate continuously, the air concentration that the offsite workers breath when present at work is different than the annual average concentration calculated by the AERMOD dispersion model. The annual average estimated by the dispersion model is based on continuous emissions, regardless of the actual operating schedule of the emitting

facility. It is assumed the off-site worker is impacted by the toxic emissions only during work hours. Thus, the AERMOD predicted concentrations must be adjusted by a multiplying factor to reflect the pollutant concentration that the worker breathes. A Worker Adjustment Factor (WAF) of 2.0 is used to estimate worker cancer risk in order to account for higher than estimated coincident exposure to source emissions.

The sources are non-continuously emitting for 12 hours/day (from 6 AM to 6 PM), 7 days/week and the offsite worker's shift completely overlaps the emitting facility's operating schedule, therefore, the WAF is 2.0:

(24 hrs/day / 12 hrs/day) x (7 days/week / 7 days/week) = 2.0

Sensitive Receptors:

For K-6 students at the Hirsch Elementary School located at 41399 Chapel Way, Fremont, CA, 94538, risk estimates assume potential exposure occurs 10 hours per day, 180 days per year, for 7-year duration, with a starting age at 5 years. For students in grades 9-12 at the Horner High School located at 41365 Chapel Way, Fremont, CA, 94538, risk estimates assume potential exposure occurs 10 hours per day, 180 days per year, for 4-year duration, with a starting age at 14 years. For students in grades 7-12 at the Pathway Academy located at 40950 Chapel Way, Fremont, CA, 94538, risk estimates assume potential exposure occurs 10 hours per day, 180 days per year, for 6-year duration, with a starting age at 12 years. In addition, the 95th percentile 8-hour breathing rate based on moderate activity (for age 2<16 years; 520 L/kg-8 hours) was assumed for all students.

Receptor-specific exposure assumptions are summarized in Table 9.

Table 9. Exposure Assumptions by Receptor Type

Receptor Type	Exposure Frequency and Duration			Intake Rate % Breathing Rate Category		Exposed Person's Age Range
	Days per Year	Hours per Day	Years			
Residential	350	24	30	RMP using the Derived Method	95th percentile for age < 2 years, 80th percentile for age ≥ 2 years	> 3rd Trimester
Worker	250	8	25	OEHHA Derived Method	8-hour Breathing rate with moderate intensity	> 16 years
Pathfinder Academy	180	10	6	95th percentile high end		12-17 years
Hirsch Elementary School	180	10	7	95th percentile high end		5-11 years
Horner High School	180	10	4	95th percentile high end		14-17 years

7. Summary of Results

The estimated facility-wide health risks resulting from stationary source operations at Irvington Memorial Cemetery are summarized in Table 10 below. At the MEI locations for each health risk category, the maximum estimated health risks are: 7.6 in a million for cancer risk, 1.0 for chronic hazard index, and 1.9 for acute hazard index.

Hexavalent chromium, cadmium, and dioxins are the major contributors to cancer risk for residential and worker receptors. Dioxins and hexavalent chromium are the major contributors of cancer risk for students with short-term (4 to 6 years) exposure duration, from the mother's milk ingestion exposure pathway and the inhalation pathway, respectively.

For non-cancer impacts, mercury and cadmium are the major contributor to chronic hazard index for all receptors. Mercury is the major contributor to the acute hazard index, where the identified target organ system of concern is the reproductive system including developmental toxicity.

Table 10. Health Risks from 5 Cremators Combined at 2018 Throughput Level

Receptor (1)	NAD 83 UTM Coordinates (meters)		Cancer Risk (in a million)	Chronic HI	Max Acute HI (1-hour)
	Easting (x)	Northing (y)			
Resident	591, 537	4,154,546	**7.6**	0.28	NA
Worker	591,617	4,154,426	3.7	0.76	NA
Seneca Pathfinder Academy Student	591,617	4,154,426	4.8	**1.0**	NA
Hirsch Elementary School Student	591,581	4,153,965	0.093	0.012	NA
Horner High School Student	591,557	4,154,116	0.076	0.023	NA
Acute MEI (2)	591,608	4,154,479	6.9	0.25	**1.9**

(1) The health risk contour maps in Appendix C show the health risks at *potential* receptor locations near this facility. For each type of health risk, the point of maximum impact, or PMI, occurs along the fence line of the facility next to a road. However, the health risks at the PMI and at other fence line locations occur in areas where there are no *actual* receptors, or exposed individuals (EI), as defined in Regulation 11-18-208. The results reported in Table 10 reflect locations where there is an *actual* EI. The health risk values in bold text are the maximum values.

(2) The maximum acute hazard index for an exposed individual occurs at a residential location, but this Acute MEI location is different from resident location where the maximum cancer risk occurs.

The Air District compared the facility-wide health risks from Table 10 to the final RALs identified in Table 2. Maximum chronic hazard index and acute hazard index each exceed the applicable final RAL for that health risk category. Detailed results of this comparison are presented below.

- Maximum cancer risk for residents is 7.6 in a million, which is the MEI for cancer risk. Major contributors to this cancer risk are emissions of hexavalent chromium (47%), cadmium (31%), dioxins (19%). The MEI for cancer risk is below the final RAL of 10 in a million (Effective 1/1/2020).[11]
- Maximum cancer risk for students at the Seneca Pathfinder Academy is 4.8 in a million, which is below the final RAL of 10 in a million;
- Maximum cancer risk for workers at the Seneca Pathfinder Academy is 3.7 in a million, which is below the final RAL of 10 in a million;
- Maximum chronic hazard index for students at the Seneca Pathfinder Academy is 1.0, which is the MEI for chronic HI. Major contributors to this chronic HI are emissions of mercury (94%) and cadmium (5.6%). The MEI for chronic HI exceeds the final RAL threshold, which must be below 1.0.[12]
- Maximum chronic hazard index for workers at the Seneca Pathfinder Academy is 0.76, which is below the final RAL of 1.0;
- Maximum chronic hazard index for residents is 0.28, which is below the final RAL of 1.0;
- Maximum 1-hour acute hazard index for the MEI is 1.9, which exceeds the RAL of 1.0.[11] Major contributor to this acute hazard index is emissions of mercury (99.8%).

Table 11 summarizes the maximum source risks for each cremator S-1 through S-6. As shown in Table 11, for nearby receptors, like students and teachers at the Seneca Pathfinder Academy (across Chapel Street from the facility) and residents at the neighboring apartments, the estimated source risk for each cremator ranged from 0.56 to 1.7 in a million for cancer risk. The estimated chronic hazard index for individual sources ranged from 0.11 to 0.25 for worker/student receptors at the Seneca Pathfinder Academy. The estimated acute hazard index ranged from 0.28 to 0.49 for individual sources. Each source (S-1, S-2, S-4, S-5 and S-6) is identified as a significant source of health risk, because at least one health risk category for each source exceeds a significant source risk threshold (cancer risk of 1 in a million or more, or chronic HI of 0.2 or more, or acute HI of 0.2 or more). Therefore, each cremation furnace could be subject to the rule's TBARCT requirements, if facility-wide health risks cannot be reduced below the RALs.

[11] Final RALs are identified in Regulation 11-18-218.2

[12] The Seneca School property has been listed for sale. It is possible this school will be closed in the future. However, this location is being retained as a potential student receptor in case this property is purchased and used as a school site in the future.

Table 11. Maximum Source Risks for Each Cremation Furnace: S-1 through S-6

Receptor	NAD 83 UTM Coordinates (meters)		S-1			S-2			S-4			S-5			S-6		
	Easting (x)	Northing (y)	Cancer Risk (in a million)	Chronic HI	Max Acute HI	Cancer Risk (in a million)	Chronic HI	Max Acute HI	Cancer Risk (in a million)	Chronic HI	Max Acute HI	Cancer Risk (in a million)	Chronic HI	Max Acute HI	Cancer Risk (in a million)	Chronic HI	Max Acute HI
Resident	591,537	4,154,546	1.7	0.062	NA	1.5	0.056	NA	1.4	0.050	NA	1.4	0.052	NA	1.5	0.057	NA
Worker	591,617	4,154,426	0.94	0.19	NA	0.78	0.16	NA	0.79	0.16	NA	0.66	0.13	NA	0.56	0.11	NA
Pathfinder Academy Student	591,617	4,154,426	1.2	0.25	NA	0.99	0.21	NA	1.0	0.21	NA	0.85	0.18	NA	0.72	0.15	NA
Hirsch Elementary School Student	591,581	4,153,965	0.018	0.0024	NA	0.018	0.002	NA	0.020	0.003	NA	0.019	0.0025	NA	0.018	0.0024	NA
Horner High School Student	591,557	4,154,116	0.016	0.0049	NA	0.015	0.0047	NA	0.016	0.005	NA	0.015	0.0045	NA	0.014	0.0043	NA
Acute MEI (1-hour)	591,608	4,154,479	NA	NA	0.47	NA	NA	0.49	NA	NA	0.28	NA	NA	0.30	NA	NA	0.32

8. Preliminary Conclusions

This facility-wide HRA results in estimated health risks for the maximally exposed individual, or MEI, of: a cancer risk of **7.6 in a million**, a chronic hazard index of **1.0**, and a 1-hour acute hazard index of **1.9**. The facility-wide chronic hazard index, and the acute hazard index each exceed the final RALs that become effective on January 1, 2020. Therefore, this facility is expected to be subject to Rule 11-18. The Air District's preliminary conclusion is that this facility will be required to comply with the Risk Reduction Plan (RRP) requirements identified in Regulation 11-18-301.

Since the maximum chronic hazard index and acute hazard index each exceed the final risk reduction goals for Rule 11-18, the RRP will need to demonstrate reductions in these two non-cancer categories of health risk. Mercury and arsenic are the major contributors to chronic hazard index. Mercury is the major contributor to acute hazard index.

In addition, the Air District has determined that the following sources are significant sources of health risk: S-1, S-2, S-4, S-5 and S-6. Source risks are fairly evenly distributed among the five cremation furnaces. Variations in health risks among the sources are primarily linked to throughput related emissions differences.

To reduce health impacts from this facility, the facility may consider improving emissions inventories by conducting site-specific source testing, implementing physical or operational changes to the existing plant, employing pollution prevention measures, or installing abatement equipment to reduce TAC emissions. The facility should consider reductions in emissions of mercury through pollution prevention measures or abatement methods. To reduce acute health impacts, the facility should consider staggering the initial operation time for cremation furnaces

(such that no more than three furnaces start operating at the same time). This change in the method of operation would reduce the acute hazard index.

In accordance with Regulation 11-18-403, the Air District has is provided a preliminary HRA to the facility. The facility provided comments, and the Air District revised the HRA in response to these comments.

The Air-District is ready to publish a draft HRA for public comment. The public will have 45 days to review and comment on the draft HRA. The Air District will consider and respond to all public comments before making a final decision on this HRA.

The Air District's preliminary conclusion is that Irvington Memorial Cemetery will be required to meet the RRP requirements of Regulation 11-18-301. The facility will be required to submit a proposed RRP to the District within 180 days of notification of the Air District's final decision on this HRA. If the facility cannot reduce health risks below 10 in a million for cancer risk and below 1.0 hazard indices for acute and chronic non-cancer health impacts, the facility must demonstrate in the RRP that each significant source (in this case, each cremation furnace) is meeting best available retrofit control technology for toxics (TBARCT).

9. Potential Modifications to Meet Rule 11-18 Risk Action Levels

Mr. Rodney Millican of the Rod Millican Consultant (on behalf of Irvington Memorial Cemetery) advised BAAQMD that one of possible modifications to reduce risk levels is to increase all cremator stacks to up to 50 feet above ground level. The facility prefers height increases over other options like installing costly pollutant-specific abatement devices or reducing the facility's annual throughput (cremations).

The Air District evaluated several alternative stack heights up to 50 feet for each existing cremator stack. With all five cremator stacks increased to 39 feet above ground level, the HRA results indicated that the facility's chronic hazard index would be reduced below the Rule 11-18 Risk Action Level of 1.0. In addition, HRA results indicated that the facility's acute hazard index could be reduced below the Rule 11-18 Risk Action Level of 1.0 by firing no more than three furnaces concurrently, during any one hour. The estimated facility-wide health risks resulting from stationary source operations with all stacks at 39 feet and no more than three concurrent cremations per hour at Irvington Memorial Cemetery are summarized in Table 12 (Health Risk tables and contour maps attached in Appendix G and H).

Table 12. Summary of Health Risks from Irvington Memorial Cemetery with stack height increased to 39 feet above ground level and no more than 3 concurrent cremations per hour

Receptor [1]	NAD 83 UTM Coordinates (meters)		Cancer Risk (in a million)	Chronic HI	Max Acute HI (1-hour)
	Easting (x)	Northing (y)			
Resident	591,537	4,154,546	**5.3**	0.19	0.64
Worker	591,617	4,154,426	3.6	0.73	0.65
Seneca Pathfinder Academy Student	591,617	4,154,426	4.6	**0.97**	0.65
Hirsch Elementary School Student	591,581	4,153,965	0.089	0.012	0.081
Horner High School Student	591,557	4,154,116	0.067	0.021	0.11
Acute MEI [1]	591,511	4,154,514	2.6	0.097	**0.84**

(1) The maximum acute hazard index for an EI occurs at a residential location, but this Acute MEI location is different from resident location where the maximum cancer risk occurs. The health risk values in bold text are the maximum values.

10. Appendix A – AERMOD Input Files

```
**BEE-Line Software: (Version 12.01) data input file
** Model: AERMOD.EXE     Input File Creation Date: 5/9/2020  Time: 4:57:29 PM
NO ECHO




  Input File - C:\HRSA\11-18\4134 Irvington Memorial\OS\SrcTstQT\MasterAnnualOS12NummiQT_4yrs_OTHER.DTA

 Output File - C:\HRSA\11-18\4134 Irvington Memorial\OS\SrcTstQT\MasterAnnualOS12NummiQT_4yrs_OTHER.LST

    Met File - C:\HRSA\Tools\AERMET-5yr\NUMMI\Processed AERMET Data\Nummi 2005 2009.sfc


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            1 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
               *** NONE ***


    ********   WARNING MESSAGES   ********
 MX W403     933       PFLCNV: Turbulence data is being used w/o ADJ_U* option       SigA Data

 **********************************
 *** SETUP Finishes Successfully ***
 **********************************
```

```
*** AERMOD - VERSION  19191 ***   *** 1118 P4134 Irvington Memorial                                  ***        05/09/20
*** AERMET - VERSION  16216 ***   *** Annual                                                         ***        16:57:31
                                                                                                               PAGE   1
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  NODRYDPLT  NOWETDPLT  RURAL  SigA Data

                                       ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
**Model Uses NO WET DEPLETION.  WETDPLT  =  F

**Model Uses RURAL Dispersion Only.

**Model Uses Regulatory DEFAULT Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Use Calms Processing Routine.
        4. Use Missing Data Processing Routine.
        5. No Exponential Decay.

**Other Options Specified:
        TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of:  OTHER

**Model Calculates PERIOD Averages Only

**This Run Includes:      5 Source(s);       6 Source Group(s); and     722 Receptor(s)

               with:      5 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:      0 VOLUME source(s)
                and:      0 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 RLINE/RLINEXT source(s)
                and:      0 OPENPIT source(s)
                and:      0 BUOYANT LINE source(s) with      0 line(s)


**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date:  16216

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)
```

```
**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     9.10 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                              ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =      3.7 MB of RAM.

**Input Runstream File:          MasterAnnualOS12NummiQT_4yrs_OTHER.DTA
**Output Print File:             MasterAnnualOS12NummiQT_4yrs_OTHER.LST

**File for Summary of Results:   C:\HRSA\11-18\4134 Irvington Memorial\OS\SrcTstQT\MasterAnnualOS12NummiQT_4yrs_OTHER.SUM
```

```
*** AERMOD - VERSION  19191 ***   *** 1118 P4134 Irvington Memorial                                  ***        05/09/20
*** AERMET - VERSION  16216 ***   *** Annual                                                         ***        16:57:31
                                                                                                              PAGE   2

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  NODRYDPLT  NOWETDPLT  RURAL  SigA Data


                                          *** POINT SOURCE DATA ***

             NUMBER EMISSION RATE                    BASE     STACK   STACK    STACK     STACK    BLDG   URBAN  CAP/  EMIS RATE
  SOURCE      PART.  (GRAMS/SEC)     X         Y     ELEV.    HEIGHT  TEMP.   EXIT VEL. DIAMETER  EXISTS SOURCE HOR   SCALAR
    ID        CATS.               (METERS)  (METERS) (METERS) (METERS) (DEG.K) (M/SEC)  (METERS)                       VARY BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

S1              0   0.10000E+01  591558.6 4154472.1    16.4     4.88   922.04     6.52     0.51    YES     NO    NO  HRDOW
S2              0   0.10000E+01  591558.7 4154470.2    16.4     6.10   922.04     6.52     0.51    YES     NO    NO  HRDOW
S4              0   0.10000E+01  591557.4 4154466.4    16.3    10.06   850.93     8.77     0.55    YES     NO    NO  HRDOW
S5              0   0.10000E+01  591557.3 4154465.0    16.3    10.06   850.93     8.77     0.55    YES     NO    NO  HRDOW
S6              0   0.10000E+01  591557.4 4154463.7    16.3    10.06   850.93     8.77     0.55    YES     NO    NO  HRDOW
```

```
*** AERMOD - VERSION  19191 ***   *** 1118 P4134 Irvington Memorial                    ***        05/09/20
*** AERMET - VERSION  16216 ***   *** Annual                                           ***        16:57:31
                                                                                                  PAGE   3

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  NODRYDPLT  NOWETDPLT  RURAL  SigA Data


                                      *** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID                                          SOURCE IDs
-----------                                          ----------

 ALL        S1          , S2          , S4          , S5          , S6          ,

 S1         S1          ,

 S2         S2          ,

 S4         S4          ,

 S5         S5          ,

 S6         S6          ,
```

```
*** AERMOD - VERSION  19191 ***   *** 1118 P4134 Irvington Memorial                                  ***        05/09/20
*** AERMET - VERSION  16216 ***   *** Annual                                                         ***        16:57:31
                                                                                                              PAGE   4

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  NODRYDPLT  NOWETDPLT  RURAL  SigA Data

                                    *** DIRECTION SPECIFIC BUILDING DIMENSIONS ***


SOURCE ID: S1
 IFV    BH      BW      BL     XADJ    YADJ     IFV    BH      BW      BL     XADJ    YADJ
   1    9.1,   16.9,   10.6,  -13.7,   2.2,      2    9.1,   16.9,   12.8,  -15.1,   0.7,
   3    9.1,   16.4,   14.7,  -16.0,  -0.9,      4    9.1,   15.5,   16.1,  -16.4,  -2.4,
   5    9.1,   14.0,   17.0,  -16.4,  -3.8,      6    9.1,   12.1,   17.4,  -15.8,  -5.1,
   7    9.1,    9.9,   17.3,  -14.8,  -6.3,      8    9.1,    7.3,   16.7,  -13.3,  -7.3,
   9    9.1,    8.0,   16.3,  -11.8,  -7.9,     10    9.1,   10.6,   16.9,  -10.6,  -8.4,
  11    9.1,   12.8,   16.9,   -9.1,  -8.7,     12    9.1,   14.7,   16.4,   -7.3,  -8.7,
  13    9.1,   16.1,   15.5,   -5.3,  -8.4,     14    9.1,   17.0,   14.0,   -3.2,  -7.8,
  15    9.1,   17.4,   12.1,   -0.9,  -7.1,     16    9.1,   17.3,    9.9,    1.3,  -6.1,
  17    9.1,   16.7,    7.3,    3.6,  -4.9,     18    9.1,   16.3,    8.0,    3.9,  -3.6,
  19    9.1,   16.9,   10.6,    3.1,  -2.2,     20    9.1,   16.9,   12.8,    2.3,  -0.7,
  21    9.1,   16.4,   14.7,    1.3,   0.9,     22    9.1,   15.5,   16.1,    0.3,   2.4,
  23    9.1,   14.0,   17.0,   -0.7,   3.8,     24    9.1,   12.1,   17.4,   -1.6,   5.1,
  25    9.1,    9.9,   17.3,   -2.6,   6.3,     26    9.1,    7.3,   16.7,   -3.4,   7.3,
  27    9.1,    8.0,   16.3,   -4.6,   7.9,     28    9.1,   10.6,   16.9,   -6.3,   8.4,
  29    9.1,   12.8,   16.9,   -7.8,   8.7,     30    9.1,   14.7,   16.4,   -9.1,   8.7,
  31    9.1,   16.1,   15.5,  -10.1,   8.4,     32    9.1,   17.0,   14.0,  -10.8,   7.8,
  33    9.1,   17.4,   12.1,  -11.2,   7.1,     34    9.1,   17.3,    9.9,  -11.2,   6.1,
  35    9.1,   16.7,    7.3,  -10.9,   4.9,     36    9.1,   16.3,    8.0,  -11.9,   3.6,


SOURCE ID: S2
 IFV    BH      BW      BL     XADJ    YADJ     IFV    BH      BW      BL     XADJ    YADJ
   1    9.1,   16.9,   10.6,  -11.8,   2.7,      2    9.1,   16.9,   12.8,  -13.3,   1.5,
   3    9.1,   16.4,   14.7,  -14.4,   0.2,      4    9.1,   15.5,   16.1,  -15.0,  -1.0,
   5    9.1,   14.0,   17.0,  -15.2,  -2.2,      6    9.1,   12.1,   17.4,  -15.0,  -3.3,
   7    9.1,    9.9,   17.3,  -14.2,  -4.4,      8    9.1,    7.3,   16.7,  -13.1,  -5.3,
   9    9.1,    8.0,   16.3,  -11.9,  -5.9,     10    9.1,   10.6,   16.9,  -11.1,  -6.5,
  11    9.1,   12.8,   16.9,   -9.9,  -6.9,     12    9.1,   14.7,   16.4,   -8.5,  -7.0,
  13    9.1,   16.1,   15.5,   -6.7,  -7.0,     14    9.1,   17.0,   14.0,   -4.8,  -6.7,
  15    9.1,   17.4,   12.1,   -2.7,  -6.2,     16    9.1,   17.3,    9.9,   -0.6,  -5.6,
  17    9.1,   16.7,    7.3,    1.6,  -4.8,     18    9.1,   16.3,    8.0,    2.0,  -3.8,
  19    9.1,   16.9,   10.6,    1.2,  -2.7,     20    9.1,   16.9,   12.8,    0.5,  -1.5,
  21    9.1,   16.4,   14.7,   -0.3,  -0.2,     22    9.1,   15.5,   16.1,   -1.1,   1.0,
  23    9.1,   14.0,   17.0,   -1.8,   2.2,     24    9.1,   12.1,   17.4,   -2.5,   3.3,
  25    9.1,    9.9,   17.3,   -3.1,   4.4,     26    9.1,    7.3,   16.7,   -3.6,   5.3,
  27    9.1,    8.0,   16.3,   -4.4,   5.9,     28    9.1,   10.6,   16.9,   -5.8,   6.5,
  29    9.1,   12.8,   16.9,   -7.0,   6.9,     30    9.1,   14.7,   16.4,   -8.0,   7.0,
  31    9.1,   16.1,   15.5,   -8.7,   7.0,     32    9.1,   17.0,   14.0,   -9.2,   6.7,
  33    9.1,   17.4,   12.1,   -9.4,   6.2,     34    9.1,   17.3,    9.9,   -9.3,   5.6,
  35    9.1,   16.7,    7.3,   -9.0,   4.8,     36    9.1,   16.3,    8.0,   -9.9,   3.8,


SOURCE ID: S4
 IFV    BH      BW      BL     XADJ    YADJ     IFV    BH      BW      BL     XADJ    YADJ
   1    9.1,   16.9,   10.6,   -7.8,   2.0,      2    9.1,   16.9,   12.8,   -9.2,   1.5,
```

3	9.1,	16.4,	14.7,	-10.4,	1.0,	4	9.1,	15.5,	16.1,	-11.2,	0.4,
5	9.1,	14.0,	17.0,	-11.7,	-0.2,	6	9.1,	12.1,	17.4,	-11.9,	-0.8,
7	9.1,	9.9,	17.3,	-11.7,	-1.3,	8	9.1,	7.3,	16.7,	-11.1,	-1.8,
9	9.1,	8.0,	16.3,	-10.6,	-2.1,	10	9.1,	10.6,	16.9,	-10.4,	-2.5,
11	9.1,	12.8,	16.9,	-10.0,	-2.8,	12	9.1,	14.7,	16.4,	-9.2,	-3.1,
13	9.1,	16.1,	15.5,	-8.1,	-3.2,	14	9.1,	17.0,	14.0,	-6.8,	-3.2,
15	9.1,	17.4,	12.1,	-5.3,	-3.2,	16	9.1,	17.3,	9.9,	-3.7,	-3.0,
17	9.1,	16.7,	7.3,	-1.9,	-2.7,	18	9.1,	16.3,	8.0,	-1.8,	-2.4,
19	9.1,	16.9,	10.6,	-2.7,	-2.0,	20	9.1,	16.9,	12.8,	-3.6,	-1.5,
21	9.1,	16.4,	14.7,	-4.3,	-1.0,	22	9.1,	15.5,	16.1,	-4.8,	-0.4,
23	9.1,	14.0,	17.0,	-5.3,	0.2,	24	9.1,	12.1,	17.4,	-5.6,	0.8,
25	9.1,	9.9,	17.3,	-5.7,	1.3,	26	9.1,	7.3,	16.7,	-5.6,	1.8,
27	9.1,	8.0,	16.3,	-5.8,	2.1,	28	9.1,	10.6,	16.9,	-6.5,	2.5,
29	9.1,	12.8,	16.9,	-7.0,	2.8,	30	9.1,	14.7,	16.4,	-7.3,	3.1,
31	9.1,	16.1,	15.5,	-7.3,	3.2,	32	9.1,	17.0,	14.0,	-7.2,	3.2,
33	9.1,	17.4,	12.1,	-6.8,	3.2,	34	9.1,	17.3,	9.9,	-6.2,	3.0,
35	9.1,	16.7,	7.3,	-5.5,	2.7,	36	9.1,	16.3,	8.0,	-6.1,	2.4,

SOURCE ID: S5

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	9.1,	16.9,	10.6,	-6.4,	2.2,	2	9.1,	16.9,	12.8,	-7.9,	1.9,
3	9.1,	16.4,	14.7,	-9.2,	1.6,	4	9.1,	15.5,	16.1,	-10.2,	1.3,
5	9.1,	14.0,	17.0,	-10.8,	0.9,	6	9.1,	12.1,	17.4,	-11.2,	0.4,
7	9.1,	9.9,	17.3,	-11.2,	0.0,	8	9.1,	7.3,	16.7,	-10.8,	-0.4,
9	9.1,	8.0,	16.3,	-10.5,	-0.8,	10	9.1,	10.6,	16.9,	-10.6,	-1.2,
11	9.1,	12.8,	16.9,	-10.4,	-1.5,	12	9.1,	14.7,	16.4,	-9.8,	-1.9,
13	9.1,	16.1,	15.5,	-9.0,	-2.1,	14	9.1,	17.0,	14.0,	-7.9,	-2.3,
15	9.1,	17.4,	12.1,	-6.5,	-2.4,	16	9.1,	17.3,	9.9,	-5.0,	-2.5,
17	9.1,	16.7,	7.3,	-3.2,	-2.5,	18	9.1,	16.3,	8.0,	-3.2,	-2.4,
19	9.1,	16.9,	10.6,	-4.1,	-2.2,	20	9.1,	16.9,	12.8,	-4.9,	-1.9,
21	9.1,	16.4,	14.7,	-5.5,	-1.6,	22	9.1,	15.5,	16.1,	-5.9,	-1.3,
23	9.1,	14.0,	17.0,	-6.2,	-0.9,	24	9.1,	12.1,	17.4,	-6.3,	-0.4,
25	9.1,	9.9,	17.3,	-6.2,	0.0,	26	9.1,	7.3,	16.7,	-5.9,	0.4,
27	9.1,	8.0,	16.3,	-5.8,	0.8,	28	9.1,	10.6,	16.9,	-6.3,	1.2,
29	9.1,	12.8,	16.9,	-6.5,	1.5,	30	9.1,	14.7,	16.4,	-6.6,	1.9,
31	9.1,	16.1,	15.5,	-6.5,	2.1,	32	9.1,	17.0,	14.0,	-6.1,	2.3,
33	9.1,	17.4,	12.1,	-5.6,	2.4,	34	9.1,	17.3,	9.9,	-5.0,	2.5,
35	9.1,	16.7,	7.3,	-4.1,	2.5,	36	9.1,	16.3,	8.0,	-4.8,	2.4,

```
*** AERMOD - VERSION  19191 ***   *** 1118 P4134 Irvington Memorial                                  ***        05/09/20
*** AERMET - VERSION  16216 ***   *** Annual                                                         ***        16:57:31
                                                                                                              PAGE   5

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  NODRYDPLT  NOWETDPLT  RURAL  SigA Data

                                      *** DIRECTION SPECIFIC BUILDING DIMENSIONS ***


SOURCE ID: S6
 IFV    BH      BW      BL     XADJ    YADJ     IFV    BH      BW      BL     XADJ    YADJ
   1    9.1,   16.9,   10.6,   -5.2,    2.5,     2    9.1,   16.9,   12.8,   -6.8,    2.4,
   3    9.1,   16.4,   14.7,   -8.1,    2.3,     4    9.1,   15.5,   16.1,   -9.2,    2.1,
   5    9.1,   14.0,   17.0,  -10.1,    1.9,     6    9.1,   12.1,   17.4,  -10.6,    1.6,
   7    9.1,    9.9,   17.3,  -10.8,    1.2,     8    9.1,    7.3,   16.7,  -10.7,    0.8,
   9    9.1,    8.0,   16.3,  -10.6,    0.5,    10    9.1,   10.6,   16.9,  -10.9,    0.1,
  11    9.1,   12.8,   16.9,  -10.9,   -0.4,    12    9.1,   14.7,   16.4,  -10.6,   -0.8,
  13    9.1,   16.1,   15.5,   -9.9,   -1.2,    14    9.1,   17.0,   14.0,   -8.9,   -1.5,
  15    9.1,   17.4,   12.1,   -7.6,   -1.9,    16    9.1,   17.3,    9.9,   -6.2,   -2.1,
  17    9.1,   16.7,    7.3,   -4.5,   -2.3,    18    9.1,   16.3,    8.0,   -4.5,   -2.4,
  19    9.1,   16.9,   10.6,   -5.4,   -2.5,    20    9.1,   16.9,   12.8,   -6.0,   -2.4,
  21    9.1,   16.4,   14.7,   -6.6,   -2.3,    22    9.1,   15.5,   16.1,   -6.9,   -2.1,
  23    9.1,   14.0,   17.0,   -7.0,   -1.9,    24    9.1,   12.1,   17.4,   -6.9,   -1.6,
  25    9.1,    9.9,   17.3,   -6.5,   -1.2,    26    9.1,    7.3,   16.7,   -6.0,   -0.8,
  27    9.1,    8.0,   16.3,   -5.7,   -0.5,    28    9.1,   10.6,   16.9,   -6.0,   -0.1,
  29    9.1,   12.8,   16.9,   -6.0,    0.4,    30    9.1,   14.7,   16.4,   -5.9,    0.8,
  31    9.1,   16.1,   15.5,   -5.6,    1.2,    32    9.1,   17.0,   14.0,   -5.1,    1.5,
  33    9.1,   17.4,   12.1,   -4.5,    1.9,    34    9.1,   17.3,    9.9,   -3.7,    2.1,
  35    9.1,   16.7,    7.3,   -2.8,    2.3,    36    9.1,   16.3,    8.0,   -3.5,    2.4,
```

```
*** AERMOD - VERSION  19191 ***   *** 1118 P4134 Irvington Memorial                                  ***        05/09/20
*** AERMET - VERSION  16216 ***   *** Annual                                                         ***        16:57:31
                                                                                                              PAGE   6

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  NODRYDPLT  NOWETDPLT  RURAL  SigA Data

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = S1           ; SOURCE TYPE = POINT    :
 HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
```

```
*** AERMOD - VERSION  19191 ***   *** 1118 P4134 Irvington Memorial                                  ***        05/09/20
*** AERMET - VERSION  16216 ***   *** Annual                                                         ***        16:57:31
                                                                                                               PAGE   7

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  NODRYDPLT  NOWETDPLT  RURAL  SigA Data

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = S2           ; SOURCE TYPE = POINT    :
 HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
```

```
*** AERMOD - VERSION  19191 ***   *** 1118 P4134 Irvington Memorial                                  ***        05/09/20
*** AERMET - VERSION  16216 ***   *** Annual                                                         ***        16:57:31
                                                                                                               PAGE   8

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  NODRYDPLT  NOWETDPLT  RURAL  SigA Data

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = S4           ; SOURCE TYPE = POINT    :
 HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
```

```
*** AERMOD - VERSION  19191 ***   *** 1118 P4134 Irvington Memorial                                  ***        05/09/20
*** AERMET - VERSION  16216 ***   *** Annual                                                         ***        16:57:31
                                                                                                              PAGE   9

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  NODRYDPLT  NOWETDPLT  RURAL  SigA Data

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = S5           ; SOURCE TYPE = POINT    :
 HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
```

```
*** AERMOD - VERSION  19191 ***   *** 1118 P4134 Irvington Memorial                                  ***        05/09/20
*** AERMET - VERSION  16216 ***   *** Annual                                                         ***        16:57:31
                                                                                                               PAGE  10

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  NODRYDPLT  NOWETDPLT  RURAL  SigA Data

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = S6           ; SOURCE TYPE = POINT    :
 HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .2000E+01    8  .2000E+01
   9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01   14  .2000E+01   15  .2000E+01   16  .2000E+01
  17  .2000E+01   18  .2000E+01   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
```

11. Appendix B – HARP2 Output: Health Risk Tables

Cancer Risk By Source

Project Student Cancer Risk (Seneca Pathfinder Academy) **4.76E-06**

*HARP - HRACalc v19044 5/11/2020 11:59:21 AM - Cancer Risk - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\PA-C-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	RISK_SUM	SCENARIC	DETAILS	INH_RISK	SOIL_RISK	DERMAL_I	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRIVE	2ND_DRIVER
96	ALL		591617	4154426	2.8E-09	1746016	2,3,7,8-TC	1.75E-06	6YrCancer	36.78%	3.45E-08	1.16E-07	3.82E-08	1.56E-06	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	3.56E-05	18540299	Cr(VI)	1.75E-06	6YrCancer	36.66%	1.72E-06	2.61E-08	2.47E-09	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000831	7440439	Cadmium	1.18E-06	6YrCancer	24.78%	1.18E-06	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	1.32E-05	7440382	Arsenic	5.22E-08	6YrCancer	1.10%	1.5E-08	2.9E-08	8.23E-09	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000194	7440020	Nickel	1.67E-08	6YrCancer	0.35%	1.67E-08	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000458	7439921	Lead	9.38E-09	6YrCancer	0.20%	1.82E-09	5.73E-09	8.12E-10	1.02E-09	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	6.99E-06	7440417	Beryllium	5.56E-09	6YrCancer	0.12%	5.56E-09	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	6.39E-08	1151	PAHs-w/o	3.89E-10	6YrCancer	0.01%	2.36E-11	5.34E-11	3.28E-11	2.79E-10	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000342	75070	Acetaldeh	3.24E-10	6YrCancer	0.01%	3.24E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	8.96E-05	50000	Formaldel	1.78E-10	6YrCancer	0.00%	1.78E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	1.69E-05	71432	Benzene	1.6E-10	6YrCancer	0.00%	1.6E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000459	7440508	Copper	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.189654	7647010	HCl	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.001725	7664393	HF	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.010037	7439976	Mercury	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	5.74E-05	7782492	Selenium	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000493	7439965	Manganes	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	2.73E-05	108883	Toluene	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
								4.76E-06		100.00%														

Cancer Risk By Source

Project Student Cancer Risk (Seneca Pathfinder Academy)

*HARP - HRACalc v19044 5/11/2020 11:59:55 AM - Cancer Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\S1.PA-C-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	RISK_SUM	SCENARIC	INH_RISK	SOIL_RISK	DERMAL_	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK
S1	96	ALL		591617	4154426	1.2E-06	6YrCancer	7.47E-07	4.45E-08	1.3E-08	3.94E-07	0	0	0	0	0	0	0	0
S4	96	ALL		591617	4154426	1.01E-06	6YrCancer	6.28E-07	3.74E-08	1.1E-08	3.31E-07	0	0	0	0	0	0	0	0
S2	96	ALL		591617	4154426	9.93E-07	6YrCancer	6.2E-07	3.69E-08	1E-08	3.26E-07	0	0	0	0	0	0	0	0
S5	96	ALL		591617	4154426	8.49E-07	6YrCancer	5.3E-07	3.15E-08	8.9E-09	2.79E-07	0	0	0	0	0	0	0	0
S6	96	ALL		591617	4154426	7.15E-07	6YrCancer	4.47E-07	2.65E-08	7.5E-09	2.35E-07	0	0	0	0	0	0	0	0
						4.76E-06													

Chronic Risk By Pollutant

Project Student Chronic Risk (Seneca Pathfinder Academy) **1.00**

*HARP - HRACalc v19044 5/11/2020 10:31:17 AM - Chronic Risk - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\PA-ChHRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	SCENARIC	CV	CNS	IMMUN	KIDNEY	DETAILS	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	INH_CON	SOIL_DOS	DERMAL_I	MMILK_D	WATER	FISH_DC	CROP	BEEF_DC	DAIRY_	PIG_DOS	CHICKEN	EGG_DC	1ST_DRIVI	2ND_DRIV	3RD_DRIVER
96	ALL		591617	4154426	0.010037	7439976	Mercury	NonCance	0	0.94686	0	0.94686	94.36%	0	0.94686	0	0	0	0	0	0	0	0	0.010037	9.07E-05	7.27E-06	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000831	7440439	Cadmium	NonCance	0	0	0	0.056622	5.64%	0	0	0.041545	0	0	0	0	0	0	0	0.000831	7.51E-06	3.01E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000342	75070	Acetaldeh	NonCance	0	0	0	0	0.00%	0	0	2.45E-06	0	0	0	0	0	0	0	0.000342	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	1.32E-05	7440382	Arsenic	NonCance	0.03895	0.03895	0	0	0.00%	0	0.03895	0.03895	0.03895	0	0	0	0	0	0	1.32E-05	1.19E-07	1.43E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	6.99E-06	7440417	Beryllium	NonCance	0	0	0.000999	0	0.00%	3.35E-05	0	0.000999	0	0	0	0	0	0	0	6.99E-06	6.32E-08	3.8E-09	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	3.56E-05	18540299	Cr(VI)	NonCance	0	0	0	0	0.00%	0	0	0.000178	0	0	0	0	0	1.67E-05	0	3.56E-05	3.21E-07	1.29E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000459	7440508	Copper	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000459	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	8.96E-05	50000	Formalde	NonCance	0	0	0	0	0.00%	0	0	9.95E-06	0	0	0	0	0	0	0	8.96E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.189654	7647010	HCl	NonCance	0	0	0	0	0.00%	0	0	0.021073	0	0	0	0	0	0	0	0.18965	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.001725	7664393	HF	NonCance	0	0	0	0	0.00%	0	0	0.000123	0	0	0.000536	0	0	0	0	0.001725	1.56E-05	9.38E-07	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000458	7439921	Lead	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000458	4.14E-06	2.49E-07	1.6E-06	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000194	7440020	Nickel	NonCance	0	0	0	0	0.00%	0	0.000166	0.013868	0	0	0	0	0.013868	0	0	0.000194	1.75E-06	7.03E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	5.74E-05	7782492	Selenium	NonCance	0.000113	0.00011	0	0	0.00%	0.000113	0	0	0	0	0	0	0	0	0	5.74E-05	5.19E-07	3.12E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	2.8E-09	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0.00%	0.015974	0.015974	0.015974	0	0	0	0.015974	0.015974	0	0	2.8E-09	5.48E-12	7.66E-13	1.5E-10	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	6.39E-08	1151	PAHs-w/o	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	6.39E-08	2.74E-11	7.13E-12	3.1E-10	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000493	7439965	Manganes	NonCance	0	0.00548	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000493	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	1.69E-05	71432	Benzene	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	5.63E-06	0	1.69E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	2.73E-05	108883	Toluene	NonCance	0	9.1E-08	0	0	0.00%	0	9.11E-08	9.11E-08	0	0	0	0	0	0	0	2.73E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
												1.0035	100.0%																									

Chronic Risk By Source

Project Student Chronic Risk (Seneca Pathfinder Academy)

*HARP - HRACalc v19044 5/11/2020 1:55:08 PM - Chronic Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\S1.PA-Ch-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIC	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S1	96	ALL		591617	4154426	NonCance	0.009825	0.24935	0.000251	0.25239	0.004055	0.252	0.033382	0.009796	0	0.000135	0.004019	0.007512	0	0	0.25239
S4	96	ALL		591617	4154426	NonCance	0.00826	0.20963	0.000211	0.21219	0.003407	0.21186	0.028062	0.008236	0	0.000113	0.003376	0.006313	0	0	0.21219
S2	96	ALL		591617	4154426	NonCance	0.008147	0.20676	0.000208	0.20928	0.003363	0.20896	0.02768	0.008123	0	0.000112	0.003333	0.006229	0	0	0.20928
S5	96	ALL		591617	4154426	NonCance	0.006961	0.17668	0.000178	0.17883	0.002875	0.17856	0.023655	0.006941	0	9.56E-05	0.002849	0.005324	0	0	0.17883
S6	96	ALL		591617	4154426	NonCance	0.00587	0.14899	0.00015	0.1508	0.00242	0.15057	0.019943	0.005853	0	8.06E-05	0.002398	0.004486	0	0	0.1508
										1.0035											

Cancer Risk By Pollutant

Project Resident Cancer Risk 7.57E-06

Note: Each source is a significant source

*HARP - HRACalc v19044 5/11/2020 10:48:29 AM - Cancer Risk - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\RC-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_I	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRIVI	2ND_DRIVER
187	ALL		591537	4154546	9.84E-06	18540299	Cr(VI)	3.54E-06	30YrCance	46.73%	3.4E-06	1.42E-07	2.3E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL
187	ALL		591537	4154546	0.00023	7440439	Cadmium	2.33E-06	30YrCance	30.81%	2.33E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	7.75E-10	1746016	2,3,7,8-TCI	1.42E-06	30YrCance	18.81%	4.81E-08	6.28E-07	3.55E-08	7.13E-07	0	0	0	0	0	0	0	0	MMILK	SOIL
187	ALL		591537	4154546	3.64E-06	7440382	Arsenic	1.95E-07	30YrCance	2.57%	2.96E-08	1.57E-07	7.66E-09	0	0	0	0	0	0	0	0	0	SOIL	INHALATION
187	ALL		591537	4154546	0.000127	7439921	Lead	3.58E-08	30YrCance	0.47%	3.6E-09	3.1E-08	7.56E-10	3.74E-10	0	0	0	0	0	0	0	0	SOIL	INHALATION
187	ALL		591537	4154546	5.37E-05	7440020	Nickel	3.31E-08	30YrCance	0.44%	3.31E-08	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	1.93E-06	7440417	Beryllium	1.1E-08	30YrCance	0.15%	1.1E-08	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	9.47E-05	75070	Acetaldeh	6.41E-10	30YrCance	0.01%	6.41E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	1.77E-08	1151	PAHs-w/o	4.99E-10	30YrCance	0.01%	3.29E-11	2.89E-10	3.05E-11	1.46E-10	0	0	0	0	0	0	0	0	SOIL	MMILK
187	ALL		591537	4154546	2.48E-05	50000	Formaldel	3.52E-10	30YrCance	0.00%	3.52E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	4.68E-06	71432	Benzene	3.16E-10	30YrCance	0.00%	3.16E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	0.000127	7440508	Copper	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	0.052471	7647010	HCl	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	0.000477	7664393	HF	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	0.002777	7439976	Mercury	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	1.59E-05	7782492	Selenium	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	0.000136	7439965	Manganes	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	7.56E-06	108883	Toluene	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
								7.57E-06		100.00%														

Cancer Risk By Source

Project Resident Cancer Risk

*HARP - HRACalc v19044 5/11/2020 11:44:37 AM - Cancer Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\S1.RC-Src-HRAInput.hra

SRC	REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_	MMILK_RI	WATER_R	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK
S1	187	ALL		591537	4154546	1.7E-06	30YrCance	1.32E-06	2.16E-07	1E-08	1.61E-07	0	0	0	0	0	0	0	0
S6	187	ALL		591537	4154546	1.55E-06	30YrCance	1.2E-06	1.95E-07	9.4E-09	1.46E-07	0	0	0	0	0	0	0	0
S2	187	ALL		591537	4154546	1.54E-06	30YrCance	1.19E-06	1.94E-07	9.4E-09	1.45E-07	0	0	0	0	0	0	0	0
S5	187	ALL		591537	4154546	1.42E-06	30YrCance	1.09E-06	1.79E-07	8.7E-09	1.34E-07	0	0	0	0	0	0	0	0
S4	187	ALL		591537	4154546	1.37E-06	30YrCance	1.06E-06	1.73E-07	8.4E-09	1.29E-07	0	0	0	0	0	0	0	0
						7.57E-06													

Chronic HI By Pollutant

Project Resident Chronic HI 2.78E-01

*HARP - HRACalc v19044 5/11/2020 11:54:30 AM - Chronic Risk - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\RCh-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	SCENARIO	CV	CNS	IMMUN	KIDNEY	DETAILS	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	INH_CON	SOIL_DOS	DERMAL_I	MMILK_I	WATER_	FISH_DI	CROP_D	BEEF_DO	DAIRY_D	PIG_DO	CHICKEN_	EGG_DO	1ST_DRIVI	2ND_DRIV	3RD_DRIVER
187	ALL		591537	4154546	0.002777	7439976	Mercury	NonCance	0	0.26197	0	0.26197	94.36%	0	0.26197	0	0	0	0	0	0	0	0	0.002777	2.51E-05	2.01E-06	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	0.00023	7440439	Cadmium	NonCance	0	0	0	0.015666	5.64%	0	0	0.011494	0	0	0	0	0	0	0	0.00023	2.08E-06	8.33E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	9.47E-05	75070	Acetaldeh	NonCance	0	0	0	0	0.00%	0	0	6.77E-07	0	0	0	0	0	0	0	9.47E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	3.64E-06	7440382	Arsenic	NonCance	0.010776	0.01078	0	0	0.00%	0	0.010776	0.010776	0.010776	0	0	0	0	0	0	3.64E-06	3.29E-08	3.96E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	1.93E-06	7440417	Beryllium	NonCance	0	0	0.000276	0	0.00%	9.27E-06	0	0.000276	0	0	0	0	0	0	0	1.93E-06	1.75E-08	1.05E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	9.84E-06	18540299	Cr(VI)	NonCance	0	0	0	0	0.00%	0	0	4.92E-05	0	0	0	0	0	4.62E-06	0	9.84E-06	8.89E-08	3.56E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	0.000127	7440508	Copper	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000127	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	2.48E-05	50000	Formaldel	NonCance	0	0	0	0	0.00%	0	0	2.75E-06	0	0	0	0	0	0	0	2.48E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	0.052471	7647010	HCl	NonCance	0	0	0	0	0.00%	0	0	0.00583	0	0	0	0	0	0	0	0.052471	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	0.000477	7664393	HF	NonCance	0	0	0	0	0.00%	0	0	3.41E-05	0	0	0.000148	0	0	0	0	0.000477	4.31E-06	2.59E-07	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	0.000127	7439921	Lead	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000127	1.15E-06	4.15E-08	4.5E-07	0	0	0	0	0	0	0	0	INHALATI	SOIL	MMILK
187	ALL		591537	4154546	5.37E-05	7440020	Nickel	NonCance	0	0	0	0	0.00%	0	4.59E-05	0.003837	0	0	0	0	0.003837	0	0	5.37E-05	4.85E-07	1.95E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	1.59E-05	7782492	Selenium	NonCance	3.12E-05	3.1E-05	0	0	0.00%	3.12E-05	0	0	0	0	0	0	0	0	0	1.59E-05	1.44E-07	8.63E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	7.75E-10	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0.00%	0.00447	0.00447	0.00447	0	0	0	0.00447	0.00447	0	0	7.75E-10	1.51E-12	1.28E-13	4.3E-11	0	0	0	0	0	0	0	0	INHALATI	MMILK	SOIL
187	ALL		591537	4154546	1.77E-08	1151	PAHs-w/o	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	1.77E-08	7.57E-12	1.19E-12	9.2E-11	0	0	0	0	0	0	0	0	INHALATI	MMILK	SOIL
187	ALL		591537	4154546	0.000136	7439965	Manganes	NonCance	0	0.00151	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000136	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	4.68E-06	71432	Benzene	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	1.56E-06	0	0	4.68E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	7.56E-06	108883	Toluene	NonCance	0	2.5E-08	0	0	0.00%	0	2.52E-08	2.52E-08	0	0	0	0	0	0	0	7.56E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
												0.2776	100.00%																									

Chronic HI By Source

Project Resident Chronic HI

*HARP - HRACalc v19044 5/11/2020 11:54:08 AM - Chronic Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\S1.RCh-Src-HRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/D	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S1	187	ALL		591537	4154546	NonCance	0.002431	6.17E-02	6.22E-05	6.25E-02	1.02E-03	6.24E-02	8.27E-03	2.42E-03	0.00E+00	3.34E-05	1.01E-03	1.87E-03	0.00E+00	0	0.062456
S6	187	ALL		591537	4154546	NonCance	0.002207	5.60E-02	5.64E-05	5.67E-02	9.20E-04	5.66E-02	7.51E-03	2.20E-03	0.00E+00	3.03E-05	9.12E-04	1.70E-03	0.00E+00	0	0.0567
S2	187	ALL		591537	4154546	NonCance	0.002192	5.56E-02	5.60E-05	5.63E-02	9.15E-04	5.62E-02	7.46E-03	2.19E-03	0.00E+00	3.01E-05	9.07E-04	1.69E-03	0.00E+00	0	0.056298
S5	187	ALL		591537	4154546	NonCance	0.00202	5.13E-02	5.17E-05	5.19E-02	8.44E-04	5.18E-02	6.87E-03	2.01E-03	0.00E+00	2.77E-05	8.36E-04	1.55E-03	0.00E+00	0	0.051893
S4	187	ALL		591537	4154546	NonCance	0.001958	4.97E-02	5.01E-05	5.03E-02	8.17E-04	5.02E-02	6.66E-03	1.95E-03	0.00E+00	2.69E-05	8.09E-04	1.51E-03	0.00E+00	0	0.050285
										0.2776											

Cancer Risk by Pollutant

Project Worker Cancer Risk (teacher at Seneca Pathfinder Academy) **3.72E-06**

*HARP - HRACalc v19044 5/11/2020 2:08:27 PM - Cancer Risk - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\W-C-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_I	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRIVI	2ND_DRIVER
96	ALL		591617	4154426	3.56E-05	18540299	Cr(VI)	2.06E-06	25YrCance	55.50%	2.04E-06	2.16E-08	1.5E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL
96	ALL		591617	4154426	0.000831	7440439	Cadmium	1.4E-06	25YrCance	37.72%	1.4E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	2.8E-09	1746016	2,3,7,8-TCI	1.71E-07	25YrCance	4.59%	3.03E-08	9.57E-08	4.45E-08	0	0	0	0	0	0	0	0	0	SOIL	DERMAL
96	ALL		591617	4154426	1.32E-05	7440382	Arsenic	4.68E-08	25YrCance	1.26%	1.78E-08	2.4E-08	4.99E-09	0	0	0	0	0	0	0	0	0	SOIL	INHALATION
96	ALL		591617	4154426	0.000194	7440020	Nickel	1.99E-08	25YrCance	0.53%	1.99E-08	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	0.000458	7439921	Lead	7.39E-09	25YrCance	0.20%	2.17E-09	4.73E-09	4.92E-10	0	0	0	0	0	0	0	0	0	SOIL	INHALATION
96	ALL		591617	4154426	6.99E-06	7440417	Beryllium	6.61E-09	25YrCance	0.18%	6.61E-09	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	0.000342	75070	Acetaldeh	3.85E-10	25YrCance	0.01%	3.85E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	8.96E-05	50000	Formaldel	2.12E-10	25YrCance	0.01%	2.12E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	1.69E-05	71432	Benzene	1.9E-10	25YrCance	0.01%	1.9E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	6.39E-08	1151	PAHs-w/o	1.03E-10	25YrCance	0.00%	2.07E-11	4.41E-11	3.83E-11	0	0	0	0	0	0	0	0	0	SOIL	DERMAL
96	ALL		591617	4154426	0.000459	7440508	Copper	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	0.189654	7647010	HCl	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	0.001725	7664393	HF	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	0.010037	7439976	Mercury	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	5.74E-05	7782492	Selenium	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	0.000493	7439965	Manganes	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	2.73E-05	108883	Toluene	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
								3.72E-06		100.00%														

Cancer Risk By Source

Project Worker Cancer Risk (teacher at Seneca Pathfinder Academy)

*HARP - HRACalc v19044 5/11/2020 2:08:00 PM - Cancer Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\S1.W-C-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_I	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK
S1	96	ALL		591617	4154426	9.35E-07	25YrCance	8.85E-07	3.68E-08	1.30E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S4	96	ALL		591617	4154426	7.86E-07	25YrCance	7.44E-07	3.09E-08	1.09E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S2	96	ALL		591617	4154426	7.75E-07	25YrCance	7.34E-07	3.05E-08	1.08E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S5	96	ALL		591617	4154426	6.63E-07	25YrCance	6.27E-07	2.60E-08	9.19E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S6	96	ALL		591617	4154426	5.59E-07	25YrCance	5.29E-07	2.19E-08	7.74E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						3.72E-06													

Chronic Risk By Pollutant: Worker

Project Worker Chronic HI (teacher at Seneca Pathfinder Academy) **7.55E-01**

*HARP - HRACalc v19044 5/11/2020 2:09:19 PM - Chronic Risk - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\W-Ch-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	SCENARIO	CV	CNS	IMMUN	KIDNEY	DETAILS	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	INH_CON	SOIL_DOS	DERMAL_I	MMILK_I	WATER_I	FISH_DC	CROP_D	BEEF_DC	DAIRY_D	PIG_DOSE	CHICKEN_	EGG_DOS	1ST_DRIVI	2ND_DRIV	3RD_DRIVER
96	ALL		591617	4154426	0.010037	7439976	Mercury	NonCance	0	0.70553	0	0.70553	93.40%	0	0.70553	0	0	0	0	0	0	0	0	0.010037	4.99E-05	9.5E-06	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000831	7440439	Cadmium	NonCance	0	0	0	0.049879	6.60%	0	0	0.041545	0	0	0	0	0	0	0	0.000831	4.13E-06	3.93E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000342	75070	Acetaldeh	NonCance	0	0	0	0	0.00%	0	0	2.45E-06	0	0	0	0	0	0	0	0.000342	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	1.32E-05	7440382	Arsenic	NonCance	0.024898	0.024898	0	0	0.00%	0	0.024898	0.024898	0.024898	0	0	0	0	0	0	1.32E-05	6.54E-08	1.87E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	6.99E-06	7440417	Beryllium	NonCance	0	0	0.000999	0	0.00%	1.99E-05	0	0.000999	0	0	0	0	0	0	0	6.99E-06	3.47E-08	4.96E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	3.56E-05	18540299	Cr(VI)	NonCance	0	0	0	0	0.00%	0	0	0.000178	0	0	0	0	9.67E-06	0	0	3.56E-05	1.77E-07	1.68E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000459	7440508	Copper	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000459	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	8.96E-05	50000	Formaldel	NonCance	0	0	0	0	0.00%	0	0	9.95E-06	0	0	0	0	0	0	0	8.96E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	0.189654	7647010	HCl	NonCance	0	0	0	0	0.00%	0	0	0.021073	0	0	0	0	0	0	0	0.18965	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	0.001725	7664393	HF	NonCance	0	0	0	0	0.00%	0	0	0.000123	0	0	0.000368	0	0	0	0	0.001725	8.57E-06	1.22E-06	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000458	7439921	Lead	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000458	2.28E-06	3.25E-07	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000194	7440020	Nickel	NonCance	0	0	0	0	0.00%	0	9.6E-05	0.013868	0	0	0	0	0.013868	0	0	0.000194	9.65E-07	9.19E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	5.74E-05	7782492	Selenium	NonCance	6.81E-05	6.81E-05	0	0	0.00%	6.81E-05	0	0	0	0	0	0	0	0	0	5.74E-05	2.85E-07	4.08E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	2.8E-09	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0.00%	0.000471	0.000471	0.000471	0	0	0	0.000471	0.000471	0	0	2.8E-09	3.01E-12	1E-12	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	6.39E-08	1151	PAHs-w/o	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	6.39E-08	1.5E-11	9.31E-12	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000493	7439965	Manganes	NonCance	0	0.005475	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000493	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	1.69E-05	71432	Benzene	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	5.63E-06	0	0	1.69E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	2.73E-05	108883	Toluene	NonCance	0	9.11E-08	0	0	0.00%	0	9.11E-08	9.11E-08	0	0	0	0	0	0	0	2.73E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
												0.7554	100.00%																									

Chronic Risk By Source: Worker

Project Worker Chronic Risk (teacher at the Pathfinder Academy)

*HARP - HRACalc v19044 5/11/2020 2:09:30 PM - Chronic Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\S1.W-Ch-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S1	96	ALL		591617	4154426	NonCance	0.006279	0.18511	0.000251	0.18999	0.000141	0.18385	0.025948	0.006262	0	9.26E-05	0.000119	0.00361	0	0	0.18999
S4	96	ALL		591617	4154426	NonCance	0.005279	0.15562	0.000211	0.15973	0.000118	0.15457	0.021815	0.005265	0	7.78E-05	9.96E-05	0.003035	0	0	0.15973
S2	96	ALL		591617	4154426	NonCance	0.005207	0.15349	0.000208	0.15754	0.000117	0.15245	0.021515	0.005193	0	7.68E-05	9.83E-05	0.002994	0	0	0.15754
S5	96	ALL		591617	4154426	NonCance	0.004449	0.13116	0.000178	0.13462	9.97E-05	0.13027	0.018385	0.004437	0	6.56E-05	8.4E-05	0.002558	0	0	0.13462
S6	96	ALL		591617	4154426	NonCance	0.003752	0.1106	0.00015	0.11352	8.39E-05	0.10985	0.015504	0.003742	0	5.53E-05	7.07E-05	0.002157	0	0	0.11352
										0.7554											

Cancer Risk By Pollutant

Project Student Cancer Risk (Horner High School) **7.58E-08**

*HARP - HRACalc v19044 5/11/2020 12:02:36 PM - Cancer Risk - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\HS-C-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBR	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_R	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRI	2ND_DRIVER
397	ALL		591557	4154116	6.48E-11	1746016	2,3,7,8-TC	3.85E-08	4YrCancer	50.75%	4.28E-10	1.4E-09	4.63E-10	3.62E-08	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	8.23E-07	18540299	Cr(VI)	2.16E-08	4YrCancer	28.55%	2.13E-08	3.2E-10	3E-11	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.92E-05	7440439	Cadmium	1.46E-08	4YrCancer	19.31%	1.46E-08	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	3.05E-07	7440382	Arsenic	6.37E-10	4YrCancer	0.84%	1.85E-10	3.5E-10	9.99E-11	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	4.49E-06	7440020	Nickel	2.07E-10	4YrCancer	0.27%	2.07E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.06E-05	7439921	Lead	1.26E-10	4YrCancer	0.17%	2.26E-11	6.9E-11	9.85E-12	2.37E-11	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.62E-07	7440417	Beryllium	6.9E-11	4YrCancer	0.09%	6.9E-11	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.48E-09	1151	PAHs-w/o	7.79E-12	4YrCancer	0.01%	2.92E-13	6.5E-13	3.98E-13	6.46E-12	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	7.93E-06	75070	Acetaldeh	4.02E-12	4YrCancer	0.01%	4.02E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	2.07E-06	50000	Formaldel	2.21E-12	4YrCancer	0.00%	2.21E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	3.91E-07	71432	Benzene	1.98E-12	4YrCancer	0.00%	1.98E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.06E-05	7440508	Copper	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	0.00439	7647010	HCl	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	3.99E-05	7664393	HF	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	0.000232	7439976	Mercury	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.33E-06	7782492	Selenium	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.14E-05	7439965	Manganes	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	6.33E-07	108883	Toluene	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
								7.58E-08		100.00%														

Cancer Risk By Source

Project Student Cancer Risk (Horner High School)

*HARP - HRACalc v19044 5/11/2020 12:03:08 PM - Cancer Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\S1.HS-C-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_	MMILK_RI	WATER_F	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK
S1	397	ALL		591557	4154116	1.61E-08	4YrCancer	7.81E-09	4.54E-10	1.3E-10	7.67E-09	0	0	0	0	0	0	0	0
S4	397	ALL		591557	4154116	1.56E-08	4YrCancer	7.59E-09	4.41E-10	1.2E-10	7.45E-09	0	0	0	0	0	0	0	0
S2	397	ALL		591557	4154116	1.55E-08	4YrCancer	7.51E-09	4.37E-10	1.2E-10	7.38E-09	0	0	0	0	0	0	0	0
S5	397	ALL		591557	4154116	1.48E-08	4YrCancer	7.18E-09	4.18E-10	1.2E-10	7.06E-09	0	0	0	0	0	0	0	0
S6	397	ALL		591557	4154116	1.39E-08	4YrCancer	6.77E-09	3.93E-10	1.1E-10	6.64E-09	0	0	0	0	0	0	0	0
						7.58E-08													

Chronic HI By Pollutant

Project Student Chronic HI (Horner High School) **2.32E-02**

*HARP - HRACalc v19044 5/11/2020 12:17:32 PM - Chronic Risk - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\HS-ChHRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBR	SCENARIO	CV	CNS	IMMUN	KIDNEY	DETAILS	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERA	INH_CONS	SOIL_DOS	DERMAL_I	MMILK_D	WATER_D	FISH_DOS	CROP_D	BEEF_DC	DAIRY_	PIG_DOS	CHICKEN	EGG_DO	1ST_DRIV	2ND_DRIV	3RD_DRIVER
397	ALL		591557	4154116	0.000232	7439976	Mercury	NonCance	0	0.02192	0	0.02192	94.36%	0	0.021919	0	0	0	0	0	0	0	0	0.000232	2.1E-06	1.68E-07	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.92E-05	7440439	Cadmium	NonCance	0	0	0	0.00131	5.64%	0	0	0.000962	0	0	0	0	0	0	0	1.92E-05	1.74E-07	6.97E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	7.93E-06	75070	Acetaldeh	NonCance	0	0	0	0	0.00%	0	0	5.66E-08	0	0	0	0	0	0	0	7.93E-06	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	3.05E-07	7440382	Arsenic	NonCance	0.000902	0.0009	0	0	0.00%	0	0.000902	0.000902	0.000902	0	0	0	0	0	0	3.05E-07	2.75E-09	3.31E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.62E-07	7440417	Beryllium	NonCance	0	0	2.31E-05	0	0.00%	7.75E-07	0	2.31E-05	0	0	0	0	0	0	0	1.62E-07	1.46E-09	8.8E-11	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	8.23E-07	18540299	Cr(VI)	NonCance	0	0	0	0	0.00%	0	0	4.12E-06	0	0	0	0	3.87E-07	0	0	8.23E-07	7.44E-09	2.98E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.06E-05	7440508	Copper	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	1.06E-05	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	2.07E-06	50000	Formaldel	NonCance	0	0	0	0	0.00%	0	0	2.3E-07	0	0	0	0	0	0	0	2.07E-06	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	0.00439	7647010	HCl	NonCance	0	0	0	0	0.00%	0	0	0.000488	0	0	0	0	0	0	0	0.00439	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	3.99E-05	7664393	HF	NonCance	0	0	0	0	0.00%	0	0	2.85E-06	0	0	1.24E-05	0	0	0	0	3.99E-05	3.61E-07	2.17E-08	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.06E-05	7439921	Lead	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	1.06E-05	9.59E-08	5.76E-09	3.7E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	4.49E-06	7440020	Nickel	NonCance	0	0	0	0	0.00%	0	3.84E-06	0.000321	0	0	0	0	0.000321	0	0	4.49E-06	4.06E-08	1.63E-09	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.33E-06	7782492	Selenium	NonCance	2.61E-06	2.6E-06	0	0	0.00%	2.61E-06	0	0	0	0	0	0	0	0	0	1.33E-06	1.2E-08	7.22E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	6.48E-11	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0.00%	0.00037	0.00037	0.00037	0	0	0	0.00037	0.00037	0	0	6.48E-11	1.27E-13	1.77E-14	3.5E-12	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.48E-09	1151	PAHs-w/o	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	1.48E-09	6.33E-13	1.65E-13	7.2E-12	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.14E-05	7439965	Manganes	NonCance	0	0.00013	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	1.14E-05	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	3.91E-07	71432	Benzene	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	1.3E-07	0	0	3.91E-07	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	6.33E-07	108883	Toluene	NonCance	0	2.1E-09	0	0	0.00%	0	2.11E-09	2.11E-09	0	0	0	0	0	0	0	6.33E-07	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
												0.0232	100.00%																									

Chronic HI By Source

Project Student Chronic HI (Horner High School)

*HARP - HRACalc v19044 5/11/2020 12:17:58 PM - Chronic Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\S1.HS-Ch-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/D	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S1	397	ALL		591557	4154116	NonCance	0.000192	0.004861	4.9E-06	4.92E-03	7.91E-05	0.00491	0.000651	0.000191	0	2.63E-06	7.83E-05	0.000146	0	0	0.00492
S4	397	ALL		591557	4154116	NonCance	0.000186	0.004727	4.76E-06	4.78E-03	7.68E-05	0.00478	0.000633	0.000186	0	2.56E-06	7.61E-05	0.000142	0	0	0.004784
S2	397	ALL		591557	4154116	NonCance	0.000184	0.004679	4.71E-06	4.74E-03	7.61E-05	0.00473	0.000626	0.000184	0	2.53E-06	7.54E-05	0.000141	0	0	0.004736
S5	397	ALL		591557	4154116	NonCance	0.000176	0.004469	4.5E-06	4.52E-03	7.27E-05	0.00452	0.000598	0.000176	0	2.42E-06	7.21E-05	0.000135	0	0	0.004524
S6	397	ALL		591557	4154116	NonCance	0.000166	0.004215	4.25E-06	4.27E-03	6.85E-05	0.00426	0.000564	0.000166	0	2.28E-06	6.79E-05	0.000127	0	0	0.004267
										0.0232											

Cancer Risk By Pollutant

Project Student Cancer Risk (Hirsch Elementary School) **9.31E-08**

*HARP - HRACalc v19044 5/11/2020 12:01:51 PM - Cancer Risk - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\ES-C-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBR	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_I	MMILK_RI	WATER_R	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRIVE	2ND_DRIVER
335	ALL		591581.7	4153965	4.37E-07	18540299	Cr(VI)	3.97E-08	7YrCancer	42.63%	3.88E-08	8.41E-10	5.26E-11	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	1.02E-05	7440439	Cadmium	2.67E-08	7YrCancer	28.64%	2.67E-08	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	3.44E-11	1746016	2,3,7,8-TCI	2.45E-08	7YrCancer	26.33%	7.79E-10	3.72E-09	8.12E-10	1.92E-08	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	1.62E-07	7440382	Arsenic	1.45E-09	7YrCancer	1.55%	3.38E-10	9.33E-10	1.75E-10	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	2.38E-06	7440020	Nickel	3.78E-10	7YrCancer	0.41%	3.78E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	5.63E-06	7439921	Lead	2.55E-10	7YrCancer	0.27%	4.12E-11	1.84E-10	1.73E-11	1.26E-11	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	8.59E-08	7440417	Beryllium	1.26E-10	7YrCancer	0.13%	1.26E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	4.2E-06	75070	Acetaldeh	7.32E-12	7YrCancer	0.01%	7.32E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	7.84E-10	1151	PAHs-w/o	6.37E-12	7YrCancer	0.01%	5.33E-13	1.72E-12	6.98E-13	3.42E-12	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	1.1E-06	50000	Formaldel	4.02E-12	7YrCancer	0.00%	4.02E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	2.08E-07	71432	Benzene	3.61E-12	7YrCancer	0.00%	3.61E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	5.64E-06	7440508	Copper	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	0.002329	7647010	HCl	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	2.12E-05	7664393	HF	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	0.000123	7439976	Mercury	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	7.05E-07	7782492	Selenium	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	6.05E-06	7439965	Manganes	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	3.36E-07	108883	Toluene	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
								9.31E-08		100.00%														

Cancer Risk By Source

Project Student Cancer Risk (Hirsch Elementary School)

*HARP - HRACalc v19044 5/11/2020 12:01:33 PM - Cancer Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\S1.ES-C-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_	MMILK_R	WATER_R	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK
S4	335	ALL		591581.7	4153965	2.02E-08	7YrCancer	1.46E-08	1.23E-09	2.3E-10	4.16E-09	0	0	0	0	0	0	0	0
S5	335	ALL		591581.7	4153965	1.88E-08	7YrCancer	1.36E-08	1.15E-09	2.1E-10	3.89E-09	0	0	0	0	0	0	0	0
S1	335	ALL		591581.7	4153965	1.83E-08	7YrCancer	1.32E-08	1.12E-09	2.1E-10	3.77E-09	0	0	0	0	0	0	0	0
S2	335	ALL		591581.7	4153965	1.8E-08	7YrCancer	1.3E-08	1.1E-09	2E-10	3.71E-09	0	0	0	0	0	0	0	0
S6	335	ALL		591581.7	4153965	1.78E-08	7YrCancer	1.28E-08	1.09E-09	2E-10	3.67E-09	0	0	0	0	0	0	0	0
						9.31E-08													

Chronic HI By Pollutant

Project Student Chronic HI (Hirsch Elementary School) **1.23E-02**

*HARP - HRACalc v19044 5/11/2020 12:19:06 PM - Chronic Risk - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\ES-Ch-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBR	SCENARIO	CV	CNS	IMMUN	KIDNEY	DETAILS	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	INH_CONS	SOIL_DOS	DERMAL_I	MMILK_I	WATER_I	FISH_DI	CROP_I	BEEF_I	DAIRY_	PIG_DI	CHICKEN	EGG_DI	1ST_DRIVI	2ND_DRIV	3RD_DRIVER
335	ALL		591581.7	4153965	0.000123	7439976	Mercury	NonCance	0	0.01163	0	0.011627	94.36%	0	0.011627	0	0	0	0	0	0	0	0	0.000123	1.11E-06	8.93E-08	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	1.02E-05	7440439	Cadmium	NonCance	0	0	0	0.000695	5.64%	0	0	0.00051	0	0	0	0	0	0	0	1.02E-05	9.22E-08	3.7E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	4.2E-06	75070	Acetaldeh	NonCance	0	0	0	0	0.00%	0	0	3E-08	0	0	0	0	0	0	0	4.2E-06	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	1.62E-07	7440382	Arsenic	NonCance	0.000478	0.00048	0	0	0.00%	0	0.000478	0.000478	0.000478	0	0	0	0	0	0	1.62E-07	1.46E-09	1.76E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	8.59E-08	7440417	Beryllium	NonCance	0	0	1.23E-05	0	0.00%	4.11E-07	0	1.23E-05	0	0	0	0	0	0	0	8.59E-08	7.76E-10	4.67E-11	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	4.37E-07	18540299	Cr(VI)	NonCance	0	0	0	0	0.00%	0	0	2.18E-06	0	0	0	0	2.05E-07	0	0	4.37E-07	3.95E-09	1.58E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	5.64E-06	7440508	Copper	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	5.64E-06	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	1.1E-06	50000	Formaldel	NonCance	0	0	0	0	0.00%	0	0	1.22E-07	0	0	0	0	0	0	0	1.1E-06	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	0.002329	7647010	HCl	NonCance	0	0	0	0	0.00%	0	0	0.000259	0	0	0	0	0	0	0	0.002329	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	2.12E-05	7664393	HF	NonCance	0	0	0	0	0.00%	0	0	1.51E-06	0	0	6.59E-06	0	0	0	0	2.12E-05	1.91E-07	1.15E-08	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	5.63E-06	7439921	Lead	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	5.63E-06	5.08E-08	3.06E-09	2E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	2.38E-06	7440020	Nickel	NonCance	0	0	0	0	0.00%	0	2.04E-06	0.00017	0	0	0	0	0.00017	0	0	2.38E-06	2.15E-08	8.64E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	7.05E-07	7782492	Selenium	NonCance	1.39E-06	1.4E-06	0	0	0.00%	1.39E-06	0	0	0	0	0	0	0	0	0	7.05E-07	6.37E-09	3.83E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	3.44E-11	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0.00%	0.000196	0.000196	0.000196	0	0	0	0.000196	0.000196	0	0	3.44E-11	6.72E-14	9.4E-15	1.9E-12	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	7.84E-10	1151	PAHs-w/o	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	7.84E-10	3.36E-13	8.75E-14	3.8E-12	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	6.05E-06	7439965	Manganes	NonCance	0	6.7E-05	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	6.05E-06	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	2.08E-07	71432	Benzene	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	6.92E-08	0	0	2.08E-07	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	3.36E-07	108883	Toluene	NonCance	0	1.1E-09	0	0	0.00%	0	1.12E-09	1.12E-09	0	0	0	0	0	0	0	3.36E-07	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
												0.0123	100.00%																									

Chronic HI By Source

Project Student Chronic HI (Hirsch Elementary School)

*HARP - HRACalc v19044 5/11/2020 12:19:31 PM - Chronic Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\S1.ES-Ch-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S4	335	ALL		591581.7	4153965	NonCance	0.000104	0.00264	2.66E-06	0.00267	4.29E-05	0.002668	0.000353	0.000104	0	1.43E-06	4.25E-05	7.95E-05	0	0	0.002673
S5	335	ALL		591581.7	4153965	NonCance	9.71E-05	0.002464	2.48E-06	0.00249	4.01E-05	0.00249	0.00033	9.68E-05	0	1.33E-06	3.97E-05	7.42E-05	0	0	0.002494
S1	335	ALL		591581.7	4153965	NonCance	9.42E-05	0.00239	2.41E-06	0.00242	3.89E-05	0.002415	0.00032	9.39E-05	0	1.29E-06	3.85E-05	0.000072	0	0	0.002419
S2	335	ALL		591581.7	4153965	NonCance	9.27E-05	0.002352	2.37E-06	0.00238	3.83E-05	0.002377	0.000315	9.24E-05	0	1.27E-06	3.79E-05	7.09E-05	0	0	0.002381
S6	335	ALL		591581.7	4153965	NonCance	9.17E-05	0.002328	2.35E-06	0.00236	3.78E-05	0.002352	0.000312	9.14E-05	0	1.26E-06	3.75E-05	7.01E-05	0	0	0.002356
										0.0123											

Acute HI By Source

Project Acute HI **1.86E+00**

*HARP - HRACalc v19044 5/11/2020 2:10:50 PM - Acute Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\S1.A-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/D	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S2	122	ALL		591608	4154479	NonCance	0.000948	0.4865	0.01682	0	0	0.48651	0.002085	0	0.002037	0	0	5.73E-06	0	0	0.48651
S1	122	ALL		591608	4154479	NonCance	0.000907	0.46548	0.016093	0	0	0.46549	0.001995	0	0.001949	0	0	5.48E-06	0	0	0.46549
S6	122	ALL		591608	4154479	NonCance	0.000629	0.32291	0.011168	0	0	0.32292	0.001384	0	0.001352	0	0	8.16E-06	0	0	0.32292
S5	122	ALL		591608	4154479	NonCance	0.000582	0.29879	0.010334	0	0	0.29879	0.001281	0	0.001251	0	0	7.55E-06	0	0	0.29879
S4	122	ALL		591608	4154479	NonCance	0.000554	0.28424	0.009831	0	0	0.28425	0.001218	0	0.00119	0	0	7.18E-06	0	0	0.28425
												1.85796									

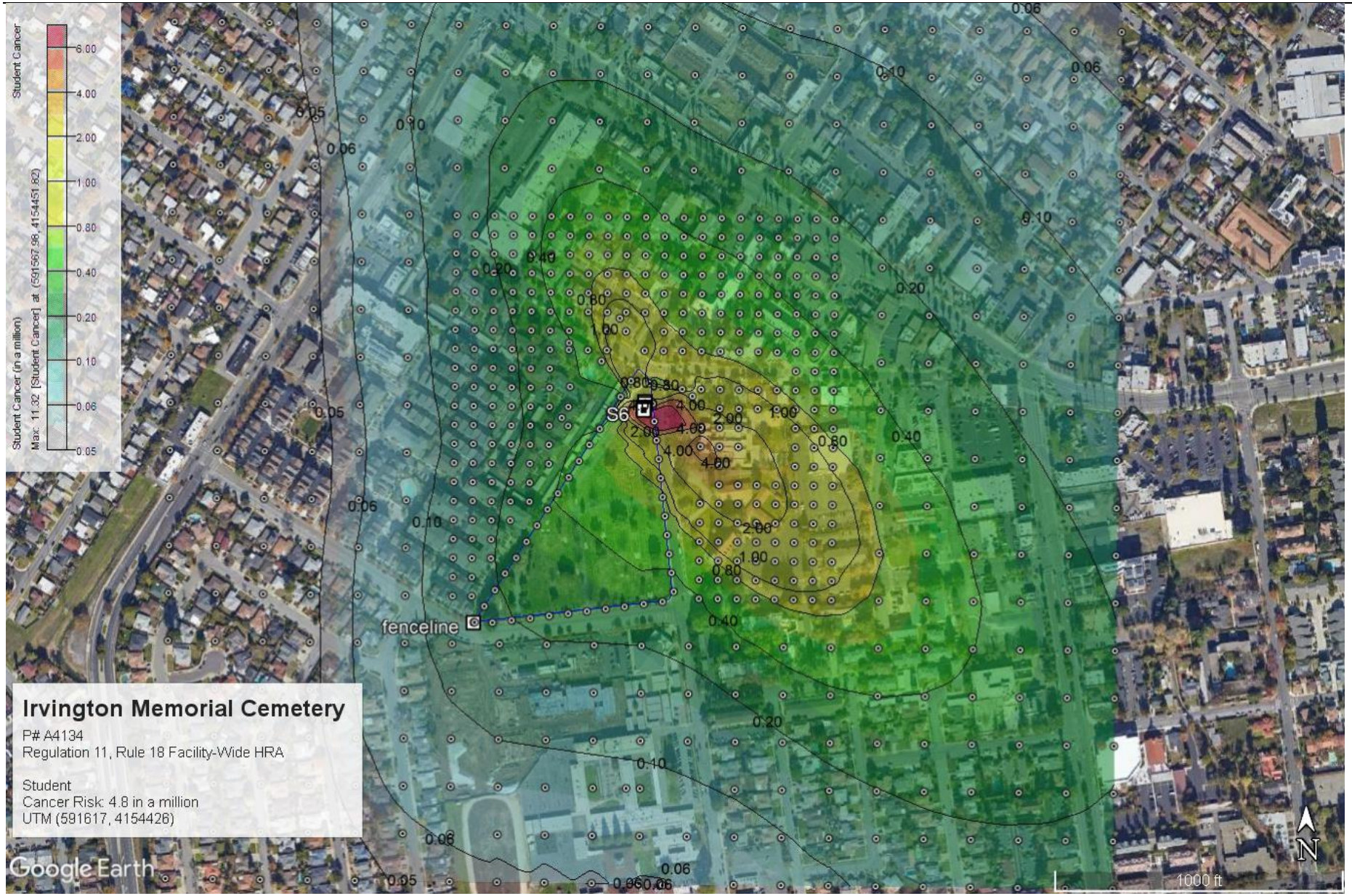
Acute HI By Pollutant

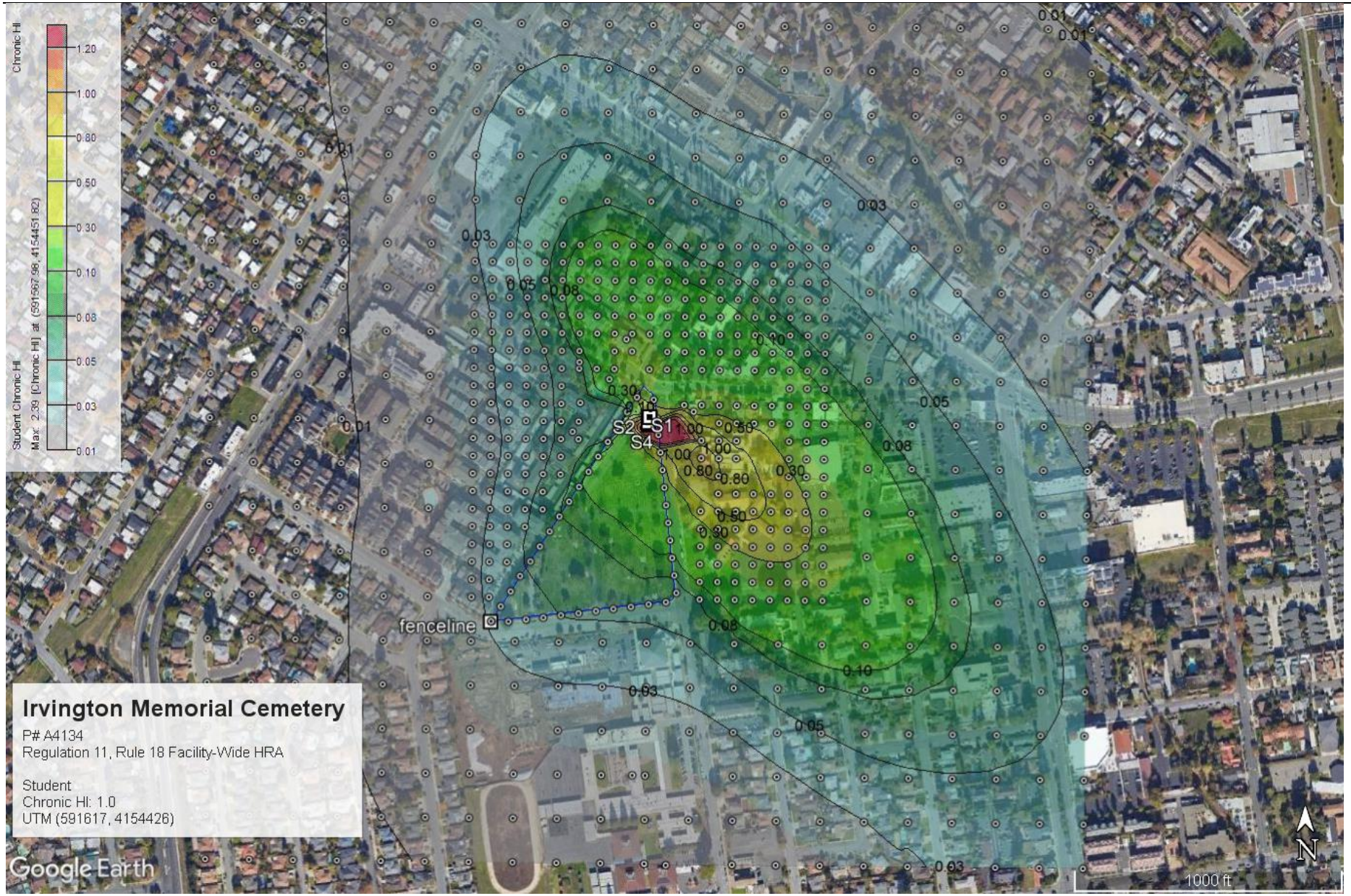
Project Acute HI

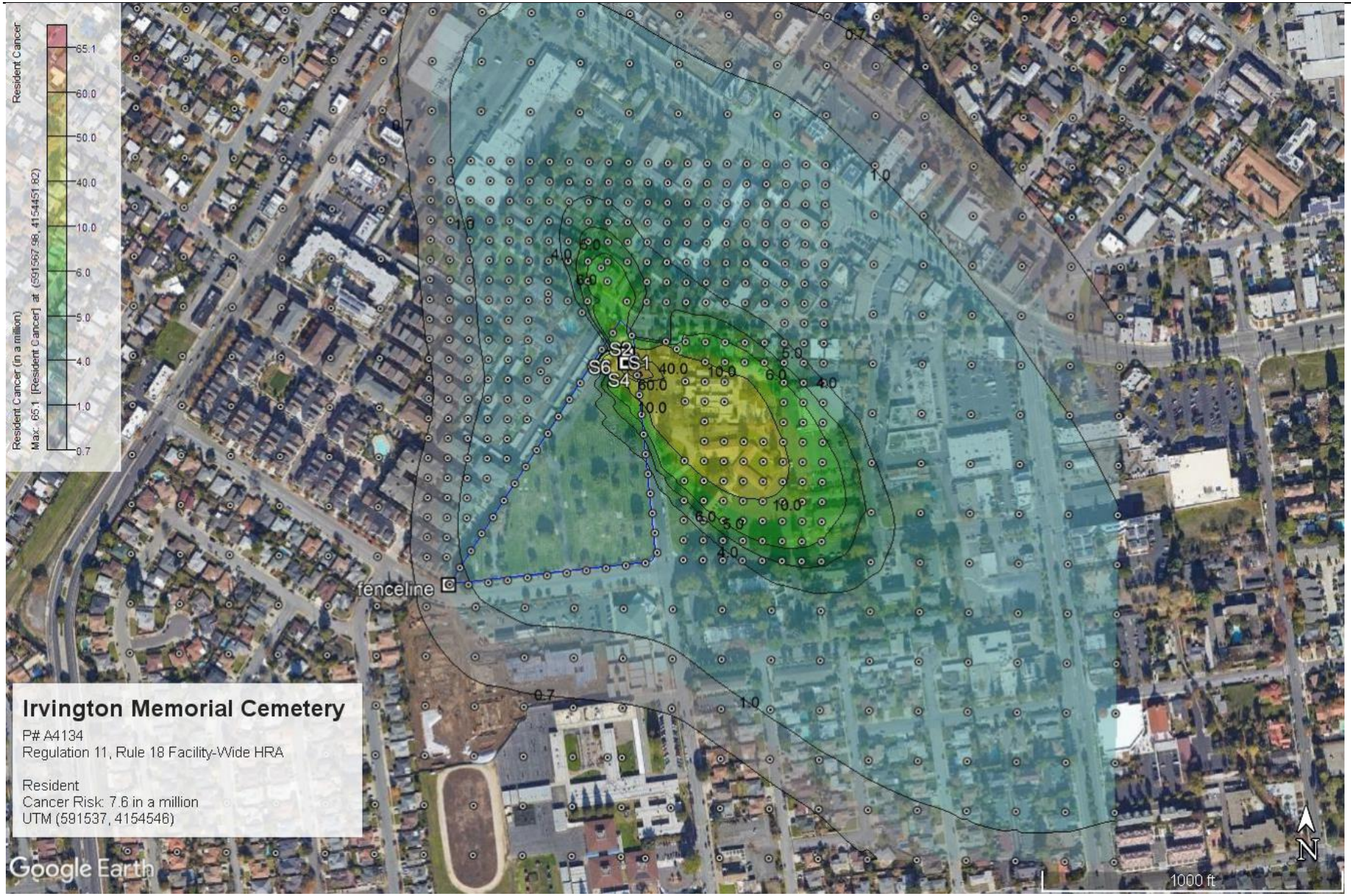
*HARP - HRACalc v19044 5/11/2020 10:40:34 AM - Acute Risk - Input File: C:\HARP2\SA-Student4134\QT\4134QT\hra\Acute-HRAInput.hra

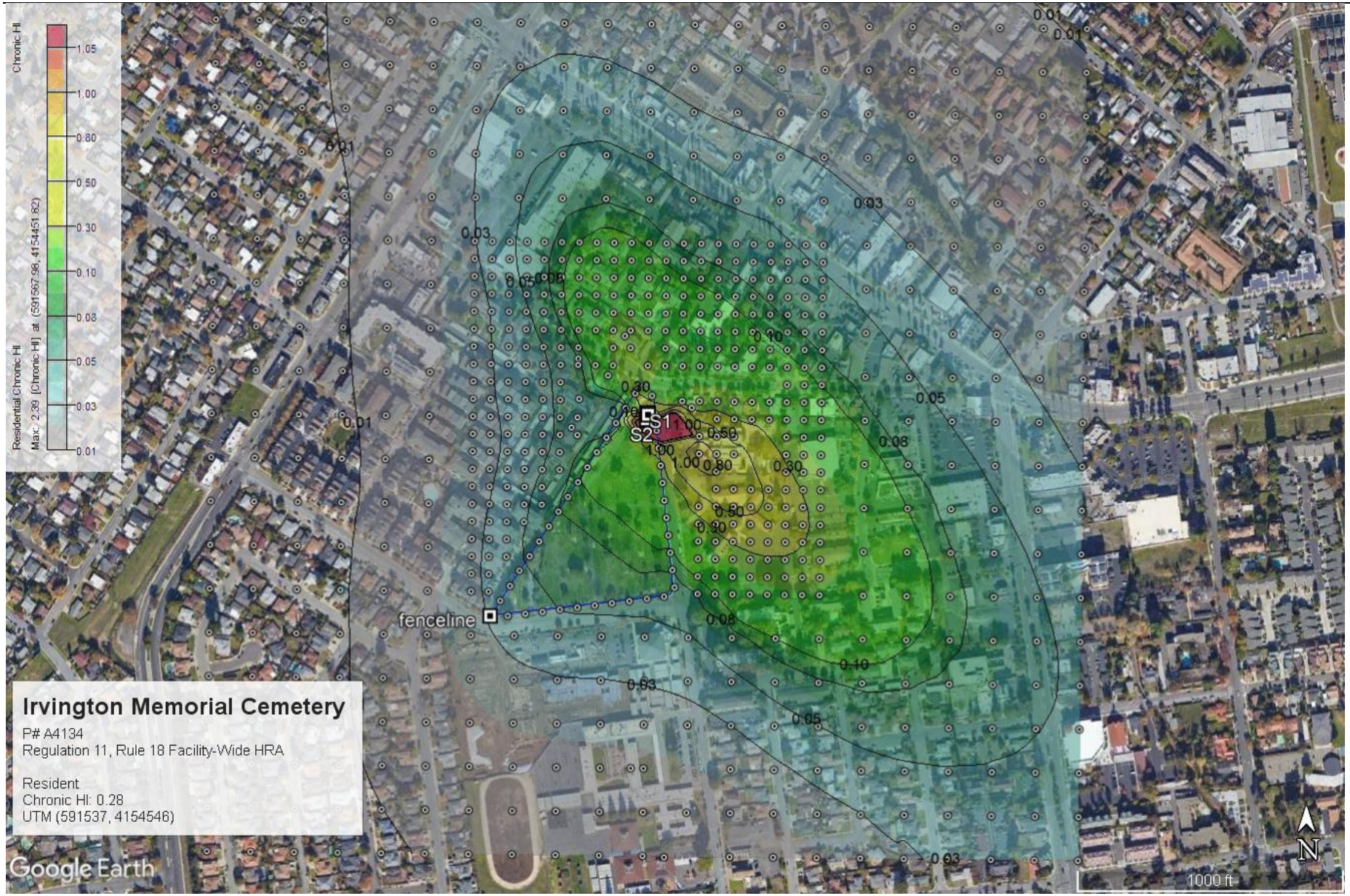
REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/	DETAILS	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL
122	ALL		591608	4154479	1.112579	7439976	Mercury	NonCance	0	1.8543	0	0	0	1.8543	99.80%	0	0	0	0	0	0	0	0
122	ALL		591608	4154479	0.000724	7440382	Arsenic	NonCance	0.003621	0.003621	0	0	0	0.0036	0.19%	0	0	0	0	0	0	0	0
122	ALL		591608	4154479	0.000921	71432	Benzene	NonCance	0	0	3.41E-05	0	0	3E-05	0.00%	0	0	0	0	0	3.41E-05	0	0
122	ALL		591608	4154479	0.001489	108883	Toluene	NonCance	0	4.02E-08	0	0	0	4E-08	0.00%	4.02E-08	0	4.02E-08	0	0	0	0	0
122	ALL		591608	4154479	0.026669	75070	Acetaldeh	NonCance	0	0	0	0	0	0	0.00%	5.67E-05	0	5.67E-05	0	0	0	0	0
122	ALL		591608	4154479	0.000384	7440417	Beryllium	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
122	ALL		591608	4154479	0.112162	7440439	Cadmium	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
122	ALL		591608	4154479	0.00277	18540299	Cr(VI)	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
122	ALL		591608	4154479	0.031252	7440508	Copper	NonCance	0	0	0	0	0	0	0.00%	0.000313	0	0	0	0	0	0	0
122	ALL		591608	4154479	0.006975	50000	Formaldel	NonCance	0	0	0	0	0	0	0.00%	0	0	0.000127	0	0	0	0	0
122	ALL		591608	4154479	14.77071	7647010	HCl	NonCance	0	0	0	0	0	0	0.00%	0.007034	0	0.007034	0	0	0	0	0
122	ALL		591608	4154479	0.134372	7664393	HF	NonCance	0	0	0	0	0	0	0.00%	0.00056	0	0.00056	0	0	0	0	0
122	ALL		591608	4154479	0.036317	7439921	Lead	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
122	ALL		591608	4154479	0.012842	7440020	Nickel	NonCance	0	0	0.064212	0	0	0	0.00%	0	0	0	0	0	0	0	0
122	ALL		591608	4154479	0.004472	7782492	Selenium	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
122	ALL		591608	4154479	2.17E-07	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
122	ALL		591608	4154479	4.99E-06	1151	PAHs-w/o	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
122	ALL		591608	4154479	0.036362	7439965	Manganes	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
														1.858	100.00%								

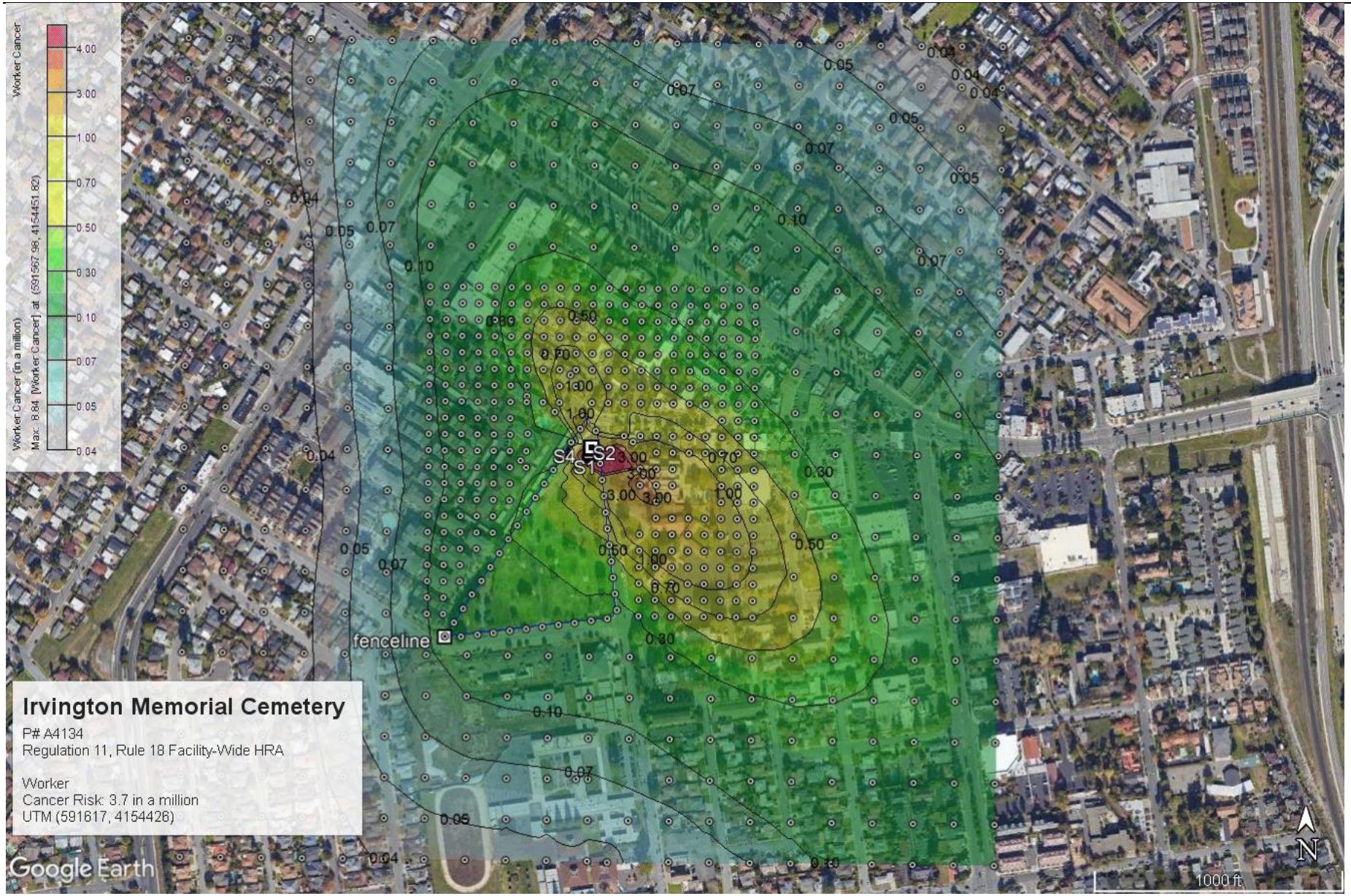
12. Appendix C – Health Risk Contour Maps

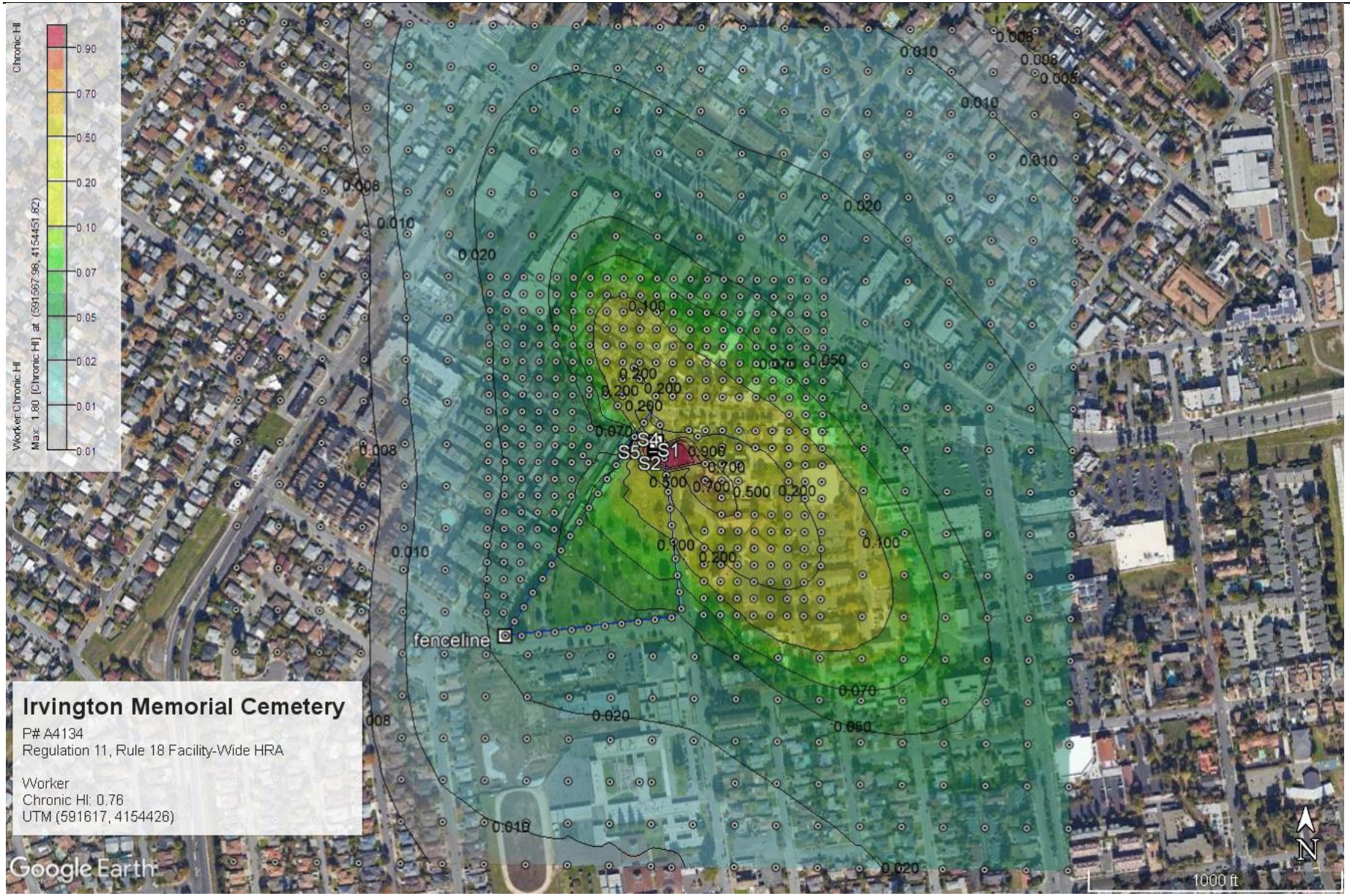

Student Cancer
Student Cancer (in a million)
Max: 11.32 [Student Cancer] at (591567.96, 4154451.82)
6.00
4.00
2.00
1.00
0.80
0.40
0.20
0.10
0.06
0.05
S6
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
Student
Cancer Risk: 4.8 in a million
UTM (591617, 4154426)
Google Earth
1000 ft
N

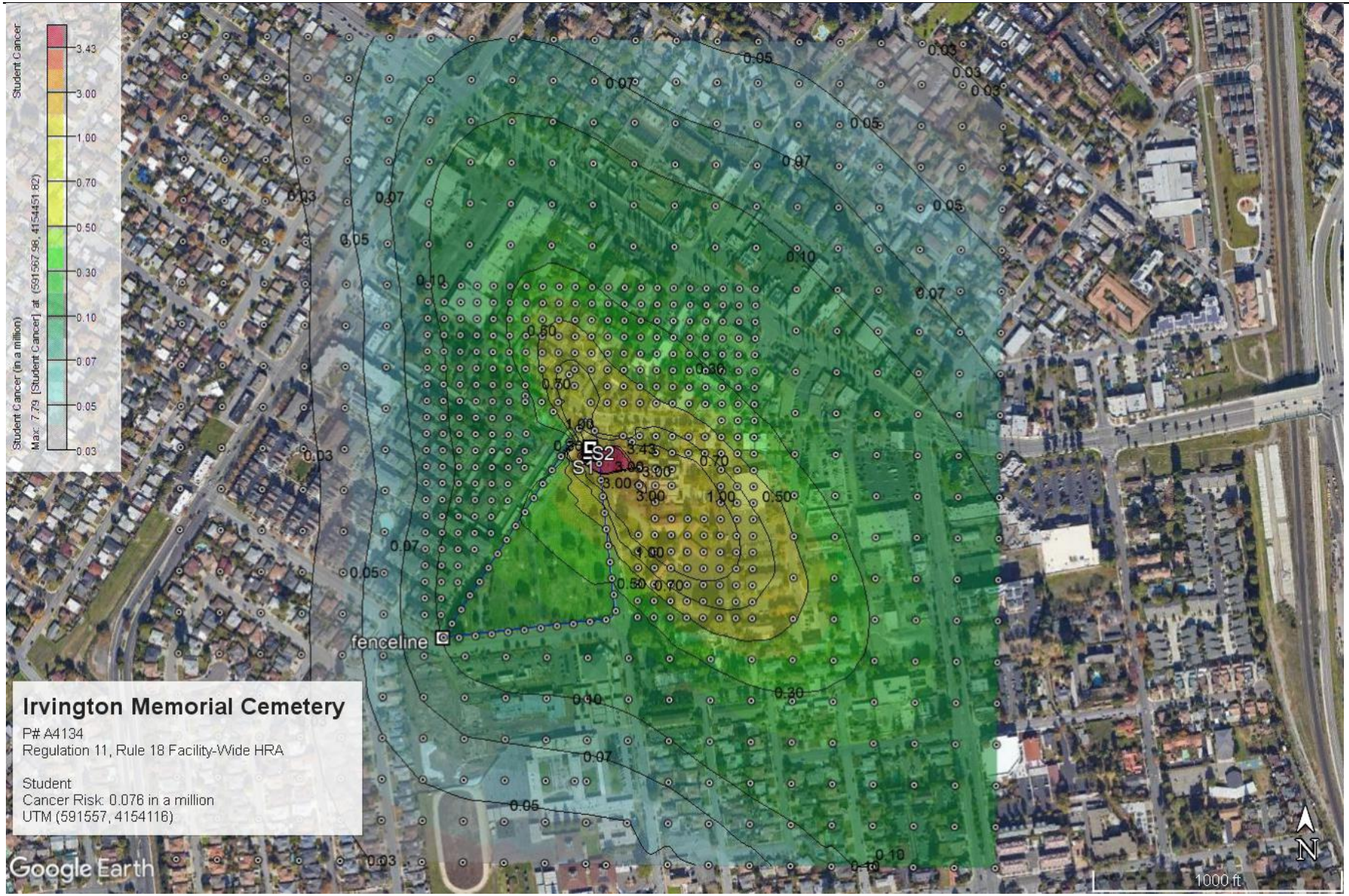

Chronic HI
1.20
1.00
0.80
0.50
0.30
0.10
0.08
0.05
0.03
0.01
Student Chronic HI
Max: 2.39 [Chronic HI] at (591567.96, 4154451.82)
S1
S2
S4
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
Student
Chronic HI: 1.0
UTM (591617, 4154426)
Google Earth
1000 ft
N

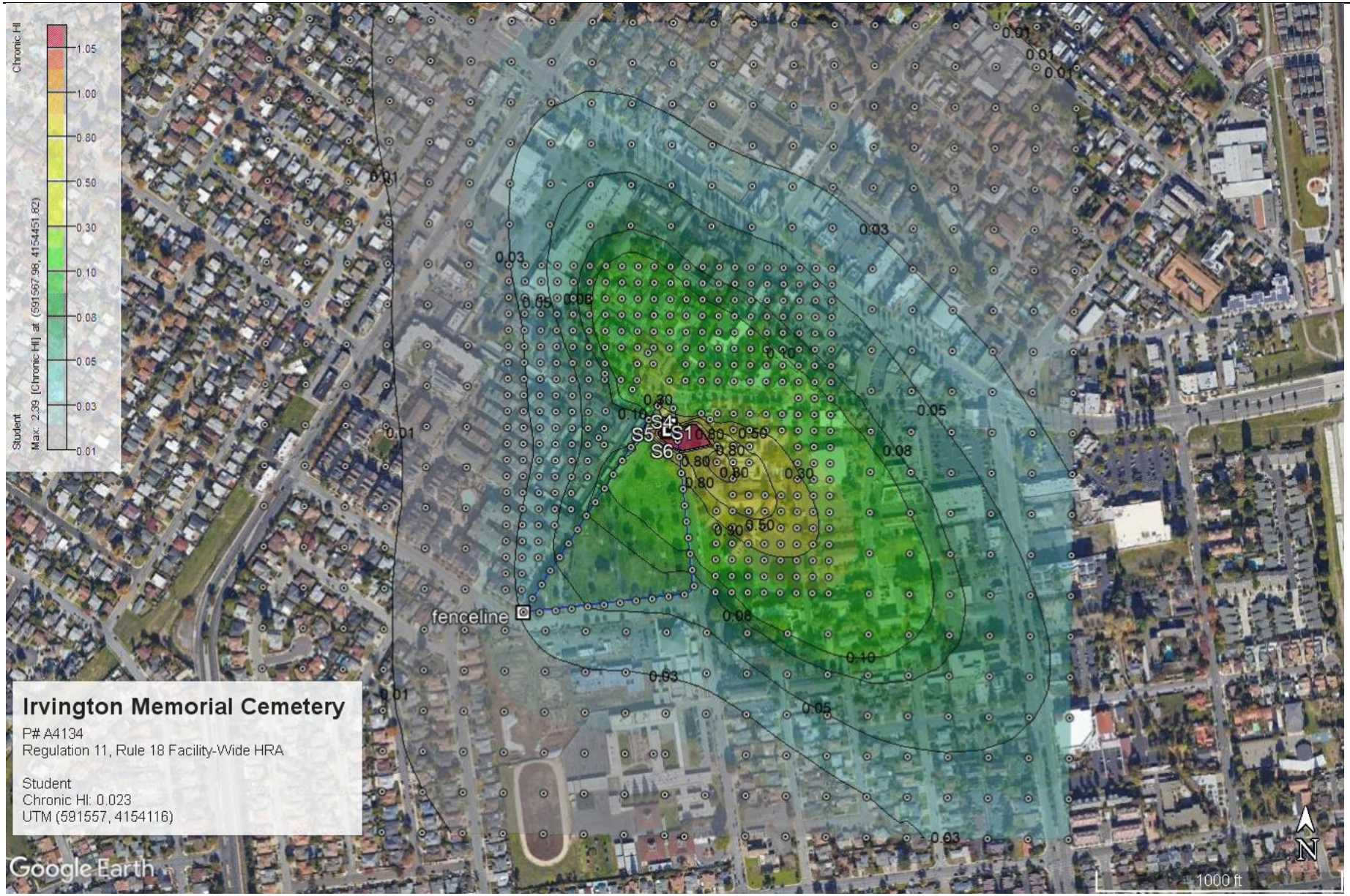

Resident Cancer
Resident Cancer (in a million)
Max: 65.1 [Resident Cancer] at (591567.98, 4154451.82)
65.1
60.0
50.0
40.0
10.0
6.0
5.0
4.0
1.0
0.7
S1
S2
S4
S6
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
Resident
Cancer Risk: 7.6 in a million
UTM (591537, 4154546)
Google Earth
1000 ft
N

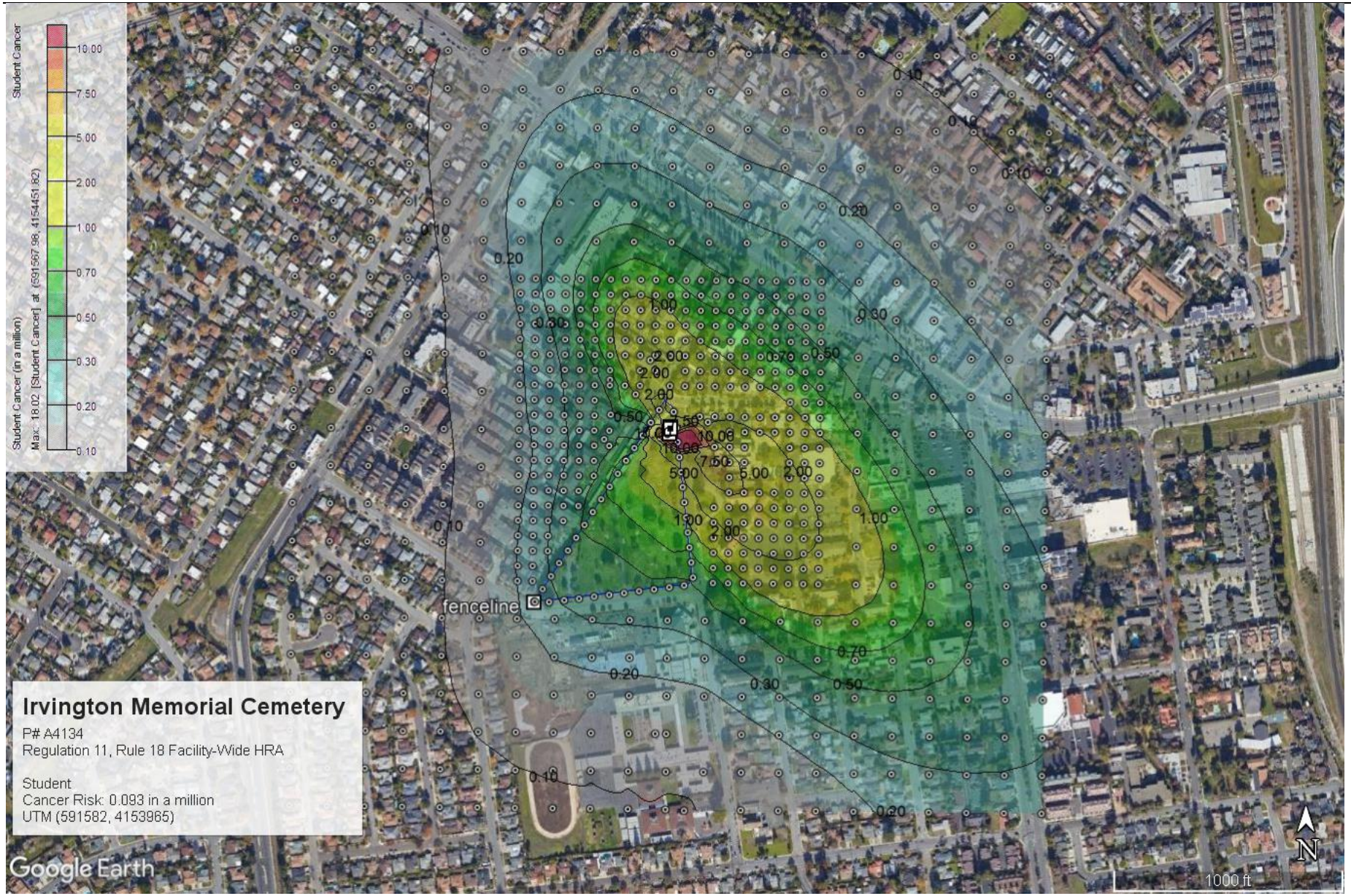

Chronic HI
1.05
1.00
0.80
0.50
0.30
0.10
0.08
0.05
0.03
0.01
Residential Chronic HI
Max: 2.39 [Chronic HI] at (591567.98, 4154451.82)
S1
S2
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
Resident
Chronic HI: 0.28
UTM (591537, 4154546)
Google Earth
1000 ft
N

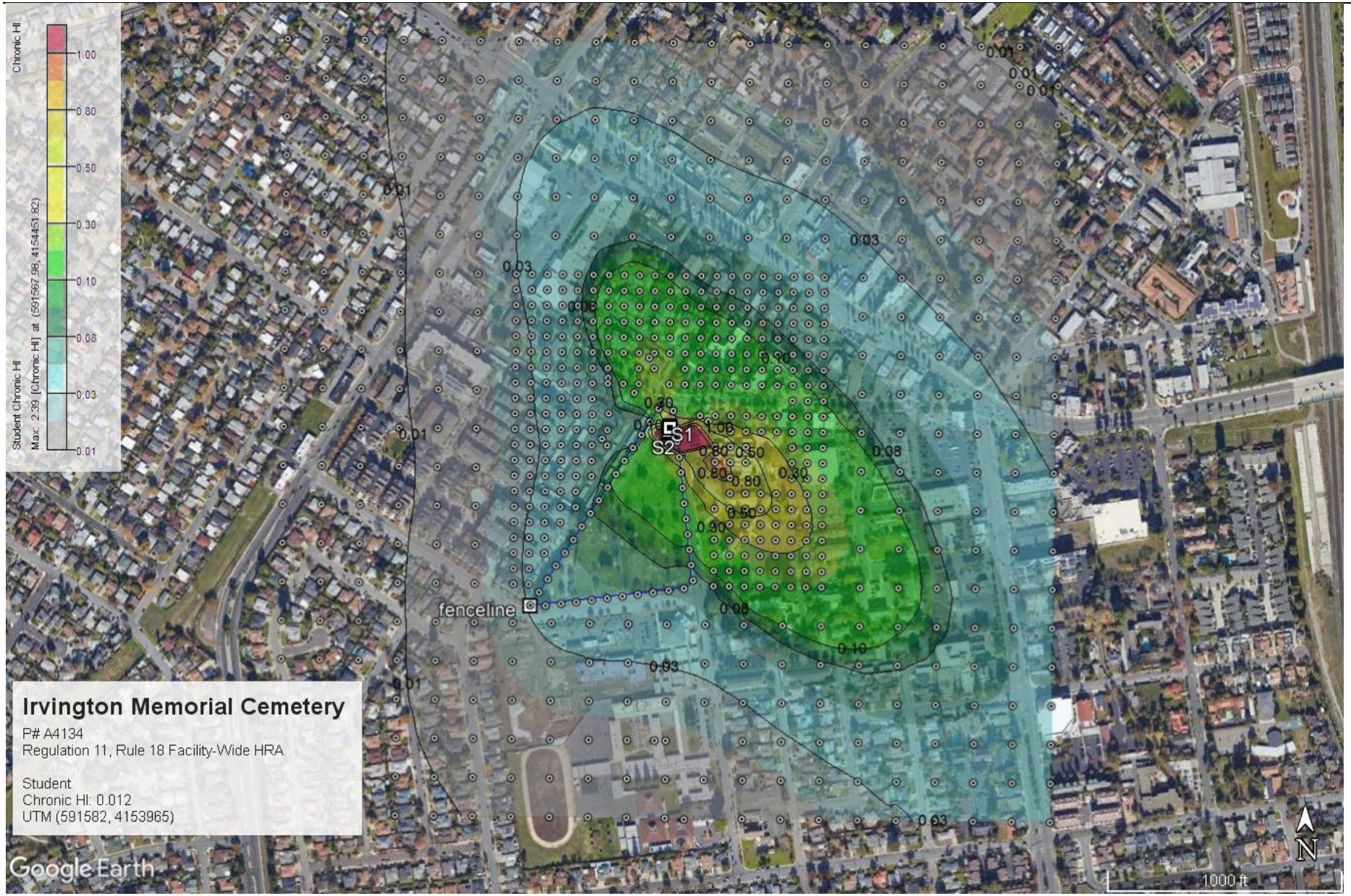

Worker Cancer
Worker Cancer (in a million)
Max: 8.84 [Worker Cancer] at (591567.98, 4154451.82)
4.00
3.00
1.00
0.70
0.50
0.30
0.10
0.07
0.05
0.04
S1
S2
S4
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
Worker
Cancer Risk: 3.7 in a million
UTM (591617, 4154426)
Google Earth
1000 ft
N

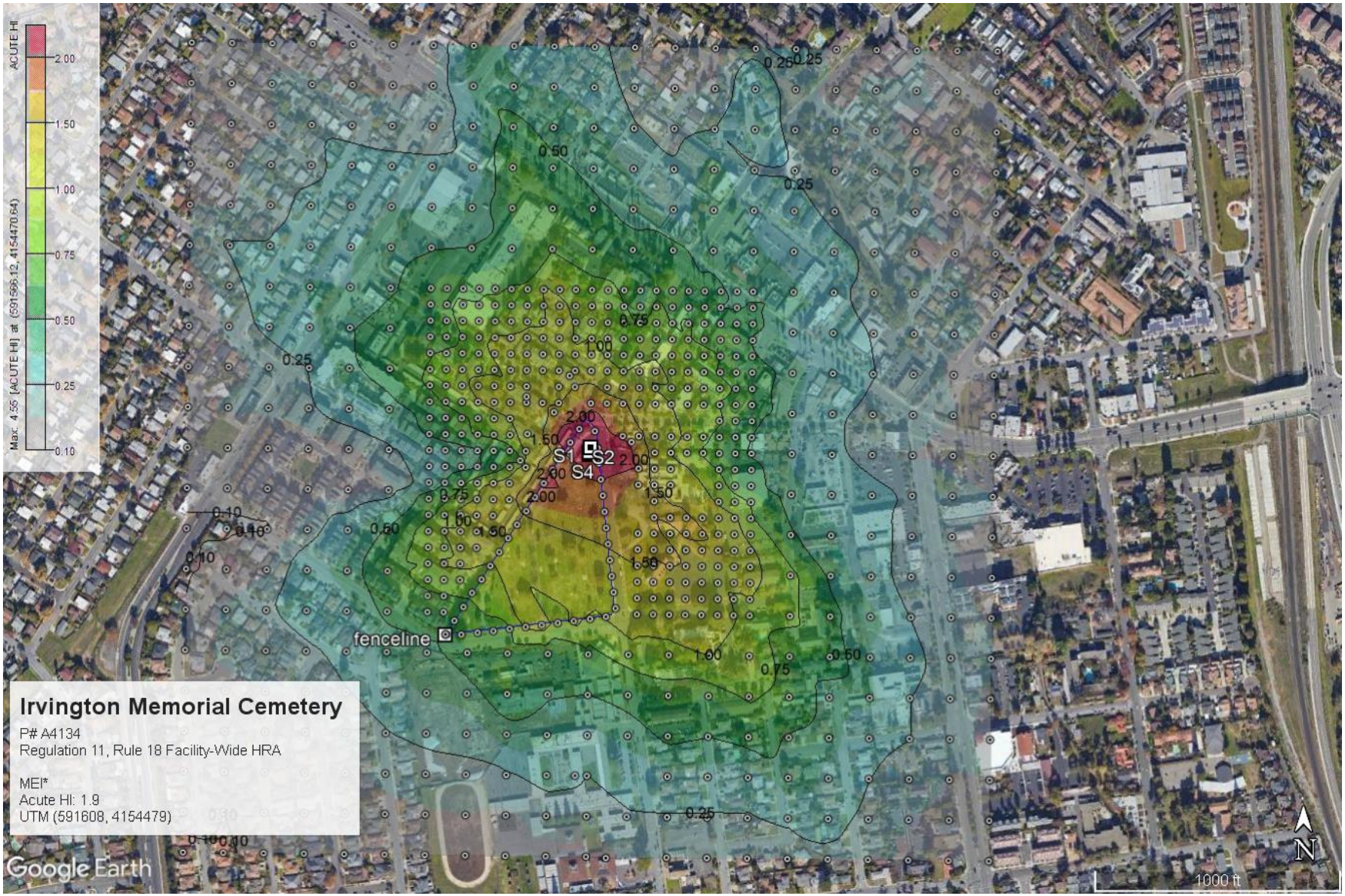

Chronic HI
0.90
0.70
0.50
0.20
0.10
0.07
0.05
0.02
0.01
0.01
Worker Chronic HI
Max: 1.80 [Chronic HI] at (591567.98, 4154451.82)
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
Worker
Chronic HI: 0.76
UTM (591617, 4154426)
fenceline
S1
S2
S4
S5
Google Earth
1000 ft
N


Student Cancer
Student Cancer (in a million)
Max: 7.79 [Student Cancer] at (591567.98, 4154451.82)
3.43
3.00
1.00
0.70
0.50
0.30
0.10
0.07
0.05
0.03
S1
S2
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
Student
Cancer Risk: 0.076 in a million
UTM (591557, 4154116)
Google Earth
1000 ft
N


Chronic HI
1.05
1.00
0.80
0.50
0.30
0.10
0.08
0.05
0.03
0.01
Student
Max: 2.39 [Chronic HI] at (591567.98, 4154451.82)
S1
S2
S3
S4
S5
S6
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
Student
Chronic HI: 0.023
UTM (591557, 4154116)
Google Earth
1000 ft
N


Student Cancer
Student Cancer (in a million)
Max: 18.02 [Student Cancer] at (591567.96, 4154451.82)
10.00
7.50
5.00
2.00
1.00
0.70
0.50
0.30
0.20
0.10
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
Student
Cancer Risk: 0.093 in a million
UTM (591582, 4153985)
Google Earth
1000 ft
N


Chronic HI
1.00
0.80
0.50
0.30
0.10
0.08
0.03
0.01
Student Chronic HI
Max: 2.39 [Chronic HI] at (591567.96, 4154451.82)
S1
S2
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
Student
Chronic HI: 0.012
UTM (591582, 4153965)
Google Earth
1000 ft
N



* At the point of maximum impact, or PMI, Acute HI is 4.5, but this fence line area has no receptors.

13. Appendix D – HARP2 Summary Report

HARP Project Summary Report 5/11/2020 2:22:15 PM

PROJECT INFORMATION
HARP Version: 19121
Project Name: 4134QT
Project Output Directory: C:\HARP2\SA-Student4134\QT\4134QT
HARP Database: NA

EMISSION INVENTORY
No. of Pollutants:90
No. of Background Pollutants:0

Emissions

ScrID	StkID	ProID	PolID	PolAbbrev	Multi	Annual Ems (lbs/yr)	MaxHr Ems (lbs/hr)	MWAF
S1	0	0	75070	Acetaldehyde	1	0.11232	0.00013	1
S1	0	0	7440382	Arsenic	1	0.00431746	3.53E-06	1
S1	0	0	7440417	Beryllium	1	0.002293651	1.87E-06	1
S1	0	0	7440439	Cadmium	1	0.272539683	0.000546737	1
S1	0	0	18540299	Cr(VI)	1	0.011664	1.35E-05	1
S1	0	0	7440508	Copper	1	0.150571429	0.000152337	1
S1	0	0	50000	Formaldehyde	1	0.029376	3.4E-05	1
S1	0	0	7647010	HCl	1	62.208	0.072	1
S1	0	0	7664393	HF	1	0.56592	0.000655	1
S1	0	0	7439921	Lead	1	0.150301587	0.000177028	1
S1	0	0	7439976	Mercury	1	3.292063492	0.00542328	1
S1	0	0	7440020	Nickel	1	0.06368254	6.26E-05	1
S1	0	0	7782492	Selenium	1	0.0188352	2.18E-05	1
S1	0	0	1746016	2,3,7,8-TCDD	1	9.19E-07	1.06E-09	1
S1	0	0	1151	PAHs-w/o	1	2.1E-05	2.43E-08	1
S1	0	0	7439965	Manganese	1	0.161634921	0.000177249	1
S1	0	0	71432	Benzene	1	0.005545932	2.88E-06	1
S1	0	0	108883	Toluene	1	0.008965026	4.66E-06	1
S2	0	0	75070	Acetaldehyde	1	0.11011	0.00013	1
S2	0	0	7440382	Arsenic	1	0.00423251	3.53E-06	1
S2	0	0	7440417	Beryllium	1	0.002248521	1.87E-06	1
S2	0	0	7440439	Cadmium	1	0.267177212	0.000546737	1
S2	0	0	18540299	Cr(VI)	1	0.0114345	1.35E-05	1
S2	0	0	7440508	Copper	1	0.147608796	0.000152337	1
S2	0	0	50000	Formaldehyde	1	0.028798	3.4E-05	1
S2	0	0	7647010	HCl	1	60.984	0.072	1
S2	0	0	7664393	HF	1	0.554785	0.000655	1
S2	0	0	7439921	Lead	1	0.147344264	0.000177028	1
S2	0	0	7439976	Mercury	1	3.227289095	0.00542328	1
S2	0	0	7440020	Nickel	1	0.062429527	6.26E-05	1
S2	0	0	7782492	Selenium	1	0.0184646	2.18E-05	1
S2	0	0	1746016	2,3,7,8-TCDD	1	9.01E-07	1.06E-09	1
S2	0	0	1151	PAHs-w/o	1	2.05E-05	2.43E-08	1
S2	0	0	7439965	Manganese	1	0.158454604	0.000177249	1
S2	0	0	71432	Benzene	1	0.005435104	2.88E-06	1
S2	0	0	108883	Toluene	1	0.008785872	4.66E-06	1
S4	0	0	75070	Acetaldehyde	1	0.15288	0.00013	1
S4	0	0	7440382	Arsenic	1	0.005876543	3.53E-06	1
S4	0	0	7440417	Beryllium	1	0.003121914	1.87E-06	1
S4	0	0	7440439	Cadmium	1	0.37095679	0.000546737	1
S4	0	0	18540299	Cr(VI)	1	0.015876	1.35E-05	1

S4	0	0	7440508	Copper	1	0.204944444	0.000152337	1
S4	0	0	50000	Formaldehyde	1	0.039984	3.4E-05	1
S4	0	0	7647010	HCl	1	84.672	0.072	1
S4	0	0	7664393	HF	1	0.77028	0.000655	1
S4	0	0	7439921	Lead	1	0.20457716	0.000177028	1
S4	0	0	7439976	Mercury	1	4.480864198	0.00542328	1
S4	0	0	7440020	Nickel	1	0.086679012	6.26E-05	1
S4	0	0	7782492	Selenium	1	0.0256368	2.18E-05	1
S4	0	0	1746016	2,3,7,8-TCDD	1	1.25E-06	1.06E-09	1
S4	0	0	1151	PAHs-w/o	1	2.85E-05	2.43E-08	1
S4	0	0	7439965	Manganese	1	0.220003086	0.000177249	1
S4	0	0	71432	Benzene	1	0.007546192	6.18E-06	1
S4	0	0	108883	Toluene	1	0.012198456	9.99E-06	1
S5	0	0	75070	Acetaldehyde	1	0.1417	0.00013	1
S5	0	0	7440382	Arsenic	1	0.005446796	3.53E-06	1
S5	0	0	7440417	Beryllium	1	0.00289361	1.87E-06	1
S5	0	0	7440439	Cadmium	1	0.343828998	0.000546737	1
S5	0	0	18540299	Cr(VI)	1	0.014715	1.35E-05	1
S5	0	0	7440508	Copper	1	0.189957011	0.000152337	1
S5	0	0	50000	Formaldehyde	1	0.03706	3.4E-05	1
S5	0	0	7647010	HCl	1	78.48	0.072	1
S5	0	0	7664393	HF	1	0.71395	0.000655	1
S5	0	0	7439921	Lead	1	0.189616586	0.000177028	1
S5	0	0	7439976	Mercury	1	4.153181952	0.00542328	1
S5	0	0	7440020	Nickel	1	0.080340241	6.26E-05	1
S5	0	0	7782492	Selenium	1	0.023762	2.18E-05	1
S5	0	0	1746016	2,3,7,8-TCDD	1	1.16E-06	1.06E-09	1
S5	0	0	1151	PAHs-w/o	1	2.64E-05	2.43E-08	1
S5	0	0	7439965	Manganese	1	0.203914425	0.000177249	1
S5	0	0	71432	Benzene	1	0.006994524	6.18E-06	1
S5	0	0	108883	Toluene	1	0.011306682	9.99E-06	1
S6	0	0	75070	Acetaldehyde	1	0.13338	0.00013	1
S6	0	0	7440382	Arsenic	1	0.005126984	3.53E-06	1
S6	0	0	7440417	Beryllium	1	0.00272371	1.87E-06	1
S6	0	0	7440439	Cadmium	1	0.323640873	0.000546737	1
S6	0	0	18540299	Cr(VI)	1	0.013851	1.35E-05	1
S6	0	0	7440508	Copper	1	0.178803571	0.000152337	1
S6	0	0	50000	Formaldehyde	1	0.034884	3.4E-05	1
S6	0	0	7647010	HCl	1	73.872	0.072	1
S6	0	0	7664393	HF	1	0.67203	0.000655	1
S6	0	0	7439921	Lead	1	0.178483135	0.000177028	1
S6	0	0	7439976	Mercury	1	3.909325397	0.00542328	1
S6	0	0	7440020	Nickel	1	0.075623016	6.26E-05	1
S6	0	0	7782492	Selenium	1	0.0223668	2.18E-05	1
S6	0	0	1746016	2,3,7,8-TCDD	1	1.09E-06	1.06E-09	1
S6	0	0	1151	PAHs-w/o	1	2.49E-05	2.43E-08	1
S6	0	0	7439965	Manganese	1	0.191941468	0.000177249	1
S6	0	0	71432	Benzene	1	0.00658376	6.18E-06	1
S6	0	0	108883	Toluene	1	0.01064268	9.99E-06	1

Background

PolID	PolAbbrev	Conc (ug/m^3)	MWAF

Ground level concentration files (\glc\)

108883MAXHR.txt

```
108883PER.txt
1151MAXHR.txt
1151PER.txt
1746016MAXHR.txt
1746016PER.txt
18540299MAXHR.txt
18540299PER.txt
50000MAXHR.txt
50000PER.txt
71432MAXHR.txt
71432PER.txt
7439921MAXHR.txt
7439921PER.txt
7439965MAXHR.txt
7439965PER.txt
7439976MAXHR.txt
7439976PER.txt
7440020MAXHR.txt
7440020PER.txt
7440382MAXHR.txt
7440382PER.txt
7440417MAXHR.txt
7440417PER.txt
7440439MAXHR.txt
7440439PER.txt
7440508MAXHR.txt
7440508PER.txt
75070MAXHR.txt
75070PER.txt
7647010MAXHR.txt
7647010PER.txt
7664393MAXHR.txt
7664393PER.txt
7782492MAXHR.txt
7782492PER.txt

***POLLUTANT HEALTH INFORMATION***
Health Database: C:\HARP2\Tables\HEALTH17320.mdb
Health Table Version: HEALTH17228
Official: False
```

PolID	PolAbbrev	InhCancer	OralCancer	AcuteREL	InhChronicREL	OralChronicREL	InhChronic8HRREL
75070	Acetaldehyde	0.01		470	140		300
7440382	Arsenic	12	1.5	0.2	0.015	3.5E-06	0.015
7440417	Beryllium	8.4			0.007	0.002	
7440439	Cadmium	15			0.02	0.0005	
18540299	Cr(VI)	510	0.5		0.2	0.02	
7440508	Copper			100			
50000	Formaldehyde	0.021		55	9		9
7647010	HCl			2100	9		
7664393	HF			240	14	0.04	
7439921	Lead	0.042	0.0085				
7439976	Mercury			0.6	0.03	0.00016	0.06
7440020	Nickel	0.91		0.2	0.014	0.011	0.06
7782492	Selenium				20	0.005	
1746016	2,3,7,8-TCDD	130000	130000		4E-05	1E-08	

1151	PAHs-w/o	3.9	12				
7439965	Manganese				0.09		0.17
71432	Benzene	0.1		27	3		3
108883	Toluene			37000	300		

LIST OF RISK ASSESSMENT FILES
Health risk analysis files (\hra\)

_____
A-SrcNCAcuteRiskSumByRecBySrc.csv
A-SrcOutput.txt
Acute-GLCList.csv
Acute-HRAInput.hra
Acute-NCAcuteRisk.csv
Acute-NCAcuteRiskSumByRec.csv
Acute-Output.txt
Acute-PathwayRec.csv
Acute-PolDB.csv
ES-C-CancerRisk.csv
ES-C-CancerRiskSumByRec.csv
ES-C-GLCList.csv
ES-C-HRAInput.hra
ES-C-Output.txt
ES-C-PathwayRec.csv
ES-C-PolDB.csv
ES-C-SrcCancerRiskSumByRecBySrc.csv
ES-C-SrcOutput.txt
ES-Ch-GLCList.csv
ES-Ch-HRAInput.hra
ES-Ch-NCChronicRisk.csv
ES-Ch-NCChronicRiskSumByRec.csv
ES-Ch-Output.txt
ES-Ch-PathwayRec.csv
ES-Ch-PolDB.csv
ES-Ch-SrcNCChronicRiskSumByRecBySrc.csv
ES-Ch-SrcOutput.txt
HS-C-CancerRisk.csv
HS-C-CancerRiskSumByRec.csv
HS-C-GLCList.csv
HS-C-HRAInput.hra
HS-C-Output.txt
HS-C-PathwayRec.csv
HS-C-PolDB.csv
HS-C-SrcCancerRiskSumByRecBySrc.csv
HS-C-SrcOutput.txt
HS-Ch-SrcNCChronicRiskSumByRecBySrc.csv
HS-Ch-SrcOutput.txt
HS-ChGLCList.csv
HS-ChHRAInput.hra
HS-ChNCChronicRisk.csv
HS-ChNCChronicRiskSumByRec.csv
HS-ChOutput.txt
HS-ChPathwayRec.csv
HS-ChPolDB.csv
PA-C-CancerRisk.csv
PA-C-CancerRiskSumByRec.csv
PA-C-GLCList.csv
PA-C-HRAInput.hra

PA-C-Output.txt
PA-C-PathwayRec.csv
PA-C-PolDB.csv
PA-C-SrcCancerRiskSumByRecBySrc.csv
PA-C-SrcOutput.txt
PA-Ch-SrcNCChronicRiskSumByRecBySrc.csv
PA-Ch-SrcOutput.txt
PA-ChGLCList.csv
PA-ChHRAInput.hra
PA-ChNCChronicRisk.csv
PA-ChNCChronicRiskSumByRec.csv
PA-ChOutput.txt
PA-ChPathwayRec.csv
PA-ChPolDB.csv
RC-CancerRisk.csv
RC-CancerRiskSumByRec.csv
RC-GLCList.csv
RC-HRAInput.hra
RC-Output.txt
RC-PathwayRec.csv
RC-PolDB.csv
RC-Src-CancerRiskSumByRecBySrc.csv
RC-Src-Output.txt
RCh-GLCList.csv
RCh-HRAInput.hra
RCh-NCChronicRisk.csv
RCh-NCChronicRiskSumByRec.csv
RCh-Output.txt
RCh-PathwayRec.csv
RCh-PolDB.csv
RCh-Src-NCChronicRiskSumByRecBySrc.csv
RCh-Src-Output.txt
S1.A-SrcGLCList.csv
S1.A-SrcHRAInput.hra
S1.A-SrcNCAcuteRisk.csv
S1.A-SrcNCAcuteRiskSumByRec.csv
S1.A-SrcPathwayRec.csv
S1.A-SrcPolDB.csv
S1.ES-C-SrcCancerRisk.csv
S1.ES-C-SrcCancerRiskSumByRec.csv
S1.ES-C-SrcGLCList.csv
S1.ES-C-SrcHRAInput.hra
S1.ES-C-SrcPathwayRec.csv
S1.ES-C-SrcPolDB.csv
S1.ES-Ch-SrcGLCList.csv
S1.ES-Ch-SrcHRAInput.hra
S1.ES-Ch-SrcNCChronicRisk.csv
S1.ES-Ch-SrcNCChronicRiskSumByRec.csv
S1.ES-Ch-SrcPathwayRec.csv
S1.ES-Ch-SrcPolDB.csv
S1.HS-C-SrcCancerRisk.csv
S1.HS-C-SrcCancerRiskSumByRec.csv
S1.HS-C-SrcGLCList.csv
S1.HS-C-SrcHRAInput.hra
S1.HS-C-SrcPathwayRec.csv
S1.HS-C-SrcPolDB.csv
S1.HS-Ch-SrcGLCList.csv

S1.HS-Ch-SrcHRAInput.hra
S1.HS-Ch-SrcNCChronicRisk.csv
S1.HS-Ch-SrcNCChronicRiskSumByRec.csv
S1.HS-Ch-SrcPathwayRec.csv
S1.HS-Ch-SrcPolDB.csv
S1.PA-C-SrcCancerRisk.csv
S1.PA-C-SrcCancerRiskSumByRec.csv
S1.PA-C-SrcGLCList.csv
S1.PA-C-SrcHRAInput.hra
S1.PA-C-SrcPathwayRec.csv
S1.PA-C-SrcPolDB.csv
S1.PA-Ch-SrcGLCList.csv
S1.PA-Ch-SrcHRAInput.hra
S1.PA-Ch-SrcNCChronicRisk.csv
S1.PA-Ch-SrcNCChronicRiskSumByRec.csv
S1.PA-Ch-SrcPathwayRec.csv
S1.PA-Ch-SrcPolDB.csv
S1.RC-Src-CancerRisk.csv
S1.RC-Src-CancerRiskSumByRec.csv
S1.RC-Src-GLCList.csv
S1.RC-Src-HRAInput.hra
S1.RC-Src-PathwayRec.csv
S1.RC-Src-PolDB.csv
S1.RCh-Src-GLCList.csv
S1.RCh-Src-HRAInput.hra
S1.RCh-Src-NCChronicRisk.csv
S1.RCh-Src-NCChronicRiskSumByRec.csv
S1.RCh-Src-PathwayRec.csv
S1.RCh-Src-PolDB.csv
S1.W-C-SrcCancerRisk.csv
S1.W-C-SrcCancerRiskSumByRec.csv
S1.W-C-SrcGLCList.csv
S1.W-C-SrcHRAInput.hra
S1.W-C-SrcPathwayRec.csv
S1.W-C-SrcPolDB.csv
S1.W-Ch-SrcGLCList.csv
S1.W-Ch-SrcHRAInput.hra
S1.W-Ch-SrcNCChronicRisk.csv
S1.W-Ch-SrcNCChronicRiskSumByRec.csv
S1.W-Ch-SrcPathwayRec.csv
S1.W-Ch-SrcPolDB.csv
S2.A-SrcGLCList.csv
S2.A-SrcHRAInput.hra
S2.A-SrcNCAcuteRisk.csv
S2.A-SrcNCAcuteRiskSumByRec.csv
S2.A-SrcPathwayRec.csv
S2.A-SrcPolDB.csv
S2.ES-C-SrcCancerRisk.csv
S2.ES-C-SrcCancerRiskSumByRec.csv
S2.ES-C-SrcGLCList.csv
S2.ES-C-SrcHRAInput.hra
S2.ES-C-SrcPathwayRec.csv
S2.ES-C-SrcPolDB.csv
S2.ES-Ch-SrcGLCList.csv
S2.ES-Ch-SrcHRAInput.hra
S2.ES-Ch-SrcNCChronicRisk.csv
S2.ES-Ch-SrcNCChronicRiskSumByRec.csv

S2.ES-Ch-SrcPathwayRec.csv
S2.ES-Ch-SrcPolDB.csv
S2.HS-C-SrcCancerRisk.csv
S2.HS-C-SrcCancerRiskSumByRec.csv
S2.HS-C-SrcGLCList.csv
S2.HS-C-SrcHRAInput.hra
S2.HS-C-SrcPathwayRec.csv
S2.HS-C-SrcPolDB.csv
S2.HS-Ch-SrcGLCList.csv
S2.HS-Ch-SrcHRAInput.hra
S2.HS-Ch-SrcNCChronicRisk.csv
S2.HS-Ch-SrcNCChronicRiskSumByRec.csv
S2.HS-Ch-SrcPathwayRec.csv
S2.HS-Ch-SrcPolDB.csv
S2.PA-C-SrcCancerRisk.csv
S2.PA-C-SrcCancerRiskSumByRec.csv
S2.PA-C-SrcGLCList.csv
S2.PA-C-SrcHRAInput.hra
S2.PA-C-SrcPathwayRec.csv
S2.PA-C-SrcPolDB.csv
S2.PA-Ch-SrcGLCList.csv
S2.PA-Ch-SrcHRAInput.hra
S2.PA-Ch-SrcNCChronicRisk.csv
S2.PA-Ch-SrcNCChronicRiskSumByRec.csv
S2.PA-Ch-SrcPathwayRec.csv
S2.PA-Ch-SrcPolDB.csv
S2.RC-Src-CancerRisk.csv
S2.RC-Src-CancerRiskSumByRec.csv
S2.RC-Src-GLCList.csv
S2.RC-Src-HRAInput.hra
S2.RC-Src-PathwayRec.csv
S2.RC-Src-PolDB.csv
S2.RCh-Src-GLCList.csv
S2.RCh-Src-HRAInput.hra
S2.RCh-Src-NCChronicRisk.csv
S2.RCh-Src-NCChronicRiskSumByRec.csv
S2.RCh-Src-PathwayRec.csv
S2.RCh-Src-PolDB.csv
S2.W-C-SrcCancerRisk.csv
S2.W-C-SrcCancerRiskSumByRec.csv
S2.W-C-SrcGLCList.csv
S2.W-C-SrcHRAInput.hra
S2.W-C-SrcPathwayRec.csv
S2.W-C-SrcPolDB.csv
S2.W-Ch-SrcGLCList.csv
S2.W-Ch-SrcHRAInput.hra
S2.W-Ch-SrcNCChronicRisk.csv
S2.W-Ch-SrcNCChronicRiskSumByRec.csv
S2.W-Ch-SrcPathwayRec.csv
S2.W-Ch-SrcPolDB.csv
S4.A-SrcGLCList.csv
S4.A-SrcHRAInput.hra
S4.A-SrcNCAcuteRisk.csv
S4.A-SrcNCAcuteRiskSumByRec.csv
S4.A-SrcPathwayRec.csv
S4.A-SrcPolDB.csv
S4.ES-C-SrcCancerRisk.csv

S4.ES-C-SrcCancerRiskSumByRec.csv
S4.ES-C-SrcGLCList.csv
S4.ES-C-SrcHRAInput.hra
S4.ES-C-SrcPathwayRec.csv
S4.ES-C-SrcPolDB.csv
S4.ES-Ch-SrcGLCList.csv
S4.ES-Ch-SrcHRAInput.hra
S4.ES-Ch-SrcNCChronicRisk.csv
S4.ES-Ch-SrcNCChronicRiskSumByRec.csv
S4.ES-Ch-SrcPathwayRec.csv
S4.ES-Ch-SrcPolDB.csv
S4.HS-C-SrcCancerRisk.csv
S4.HS-C-SrcCancerRiskSumByRec.csv
S4.HS-C-SrcGLCList.csv
S4.HS-C-SrcHRAInput.hra
S4.HS-C-SrcPathwayRec.csv
S4.HS-C-SrcPolDB.csv
S4.HS-Ch-SrcGLCList.csv
S4.HS-Ch-SrcHRAInput.hra
S4.HS-Ch-SrcNCChronicRisk.csv
S4.HS-Ch-SrcNCChronicRiskSumByRec.csv
S4.HS-Ch-SrcPathwayRec.csv
S4.HS-Ch-SrcPolDB.csv
S4.PA-C-SrcCancerRisk.csv
S4.PA-C-SrcCancerRiskSumByRec.csv
S4.PA-C-SrcGLCList.csv
S4.PA-C-SrcHRAInput.hra
S4.PA-C-SrcPathwayRec.csv
S4.PA-C-SrcPolDB.csv
S4.PA-Ch-SrcGLCList.csv
S4.PA-Ch-SrcHRAInput.hra
S4.PA-Ch-SrcNCChronicRisk.csv
S4.PA-Ch-SrcNCChronicRiskSumByRec.csv
S4.PA-Ch-SrcPathwayRec.csv
S4.PA-Ch-SrcPolDB.csv
S4.RC-Src-CancerRisk.csv
S4.RC-Src-CancerRiskSumByRec.csv
S4.RC-Src-GLCList.csv
S4.RC-Src-HRAInput.hra
S4.RC-Src-PathwayRec.csv
S4.RC-Src-PolDB.csv
S4.RCh-Src-GLCList.csv
S4.RCh-Src-HRAInput.hra
S4.RCh-Src-NCChronicRisk.csv
S4.RCh-Src-NCChronicRiskSumByRec.csv
S4.RCh-Src-PathwayRec.csv
S4.RCh-Src-PolDB.csv
S4.W-C-SrcCancerRisk.csv
S4.W-C-SrcCancerRiskSumByRec.csv
S4.W-C-SrcGLCList.csv
S4.W-C-SrcHRAInput.hra
S4.W-C-SrcPathwayRec.csv
S4.W-C-SrcPolDB.csv
S4.W-Ch-SrcGLCList.csv
S4.W-Ch-SrcHRAInput.hra
S4.W-Ch-SrcNCChronicRisk.csv
S4.W-Ch-SrcNCChronicRiskSumByRec.csv

S4.W-Ch-SrcPathwayRec.csv
S4.W-Ch-SrcPolDB.csv
S5.A-SrcGLCList.csv
S5.A-SrcHRAInput.hra
S5.A-SrcNCAcuteRisk.csv
S5.A-SrcNCAcuteRiskSumByRec.csv
S5.A-SrcPathwayRec.csv
S5.A-SrcPolDB.csv
S5.ES-C-SrcCancerRisk.csv
S5.ES-C-SrcCancerRiskSumByRec.csv
S5.ES-C-SrcGLCList.csv
S5.ES-C-SrcHRAInput.hra
S5.ES-C-SrcPathwayRec.csv
S5.ES-C-SrcPolDB.csv
S5.ES-Ch-SrcGLCList.csv
S5.ES-Ch-SrcHRAInput.hra
S5.ES-Ch-SrcNCChronicRisk.csv
S5.ES-Ch-SrcNCChronicRiskSumByRec.csv
S5.ES-Ch-SrcPathwayRec.csv
S5.ES-Ch-SrcPolDB.csv
S5.HS-C-SrcCancerRisk.csv
S5.HS-C-SrcCancerRiskSumByRec.csv
S5.HS-C-SrcGLCList.csv
S5.HS-C-SrcHRAInput.hra
S5.HS-C-SrcPathwayRec.csv
S5.HS-C-SrcPolDB.csv
S5.HS-Ch-SrcGLCList.csv
S5.HS-Ch-SrcHRAInput.hra
S5.HS-Ch-SrcNCChronicRisk.csv
S5.HS-Ch-SrcNCChronicRiskSumByRec.csv
S5.HS-Ch-SrcPathwayRec.csv
S5.HS-Ch-SrcPolDB.csv
S5.PA-C-SrcCancerRisk.csv
S5.PA-C-SrcCancerRiskSumByRec.csv
S5.PA-C-SrcGLCList.csv
S5.PA-C-SrcHRAInput.hra
S5.PA-C-SrcPathwayRec.csv
S5.PA-C-SrcPolDB.csv
S5.PA-Ch-SrcGLCList.csv
S5.PA-Ch-SrcHRAInput.hra
S5.PA-Ch-SrcNCChronicRisk.csv
S5.PA-Ch-SrcNCChronicRiskSumByRec.csv
S5.PA-Ch-SrcPathwayRec.csv
S5.PA-Ch-SrcPolDB.csv
S5.RC-Src-CancerRisk.csv
S5.RC-Src-CancerRiskSumByRec.csv
S5.RC-Src-GLCList.csv
S5.RC-Src-HRAInput.hra
S5.RC-Src-PathwayRec.csv
S5.RC-Src-PolDB.csv
S5.RCh-Src-GLCList.csv
S5.RCh-Src-HRAInput.hra
S5.RCh-Src-NCChronicRisk.csv
S5.RCh-Src-NCChronicRiskSumByRec.csv
S5.RCh-Src-PathwayRec.csv
S5.RCh-Src-PolDB.csv
S5.W-C-SrcCancerRisk.csv

S5.W-C-SrcCancerRiskSumByRec.csv
S5.W-C-SrcGLCList.csv
S5.W-C-SrcHRAInput.hra
S5.W-C-SrcPathwayRec.csv
S5.W-C-SrcPolDB.csv
S5.W-Ch-SrcGLCList.csv
S5.W-Ch-SrcHRAInput.hra
S5.W-Ch-SrcNCChronicRisk.csv
S5.W-Ch-SrcNCChronicRiskSumByRec.csv
S5.W-Ch-SrcPathwayRec.csv
S5.W-Ch-SrcPolDB.csv
S6.A-SrcGLCList.csv
S6.A-SrcHRAInput.hra
S6.A-SrcNCAcuteRisk.csv
S6.A-SrcNCAcuteRiskSumByRec.csv
S6.A-SrcPathwayRec.csv
S6.A-SrcPolDB.csv
S6.ES-C-SrcCancerRisk.csv
S6.ES-C-SrcCancerRiskSumByRec.csv
S6.ES-C-SrcGLCList.csv
S6.ES-C-SrcHRAInput.hra
S6.ES-C-SrcPathwayRec.csv
S6.ES-C-SrcPolDB.csv
S6.ES-Ch-SrcGLCList.csv
S6.ES-Ch-SrcHRAInput.hra
S6.ES-Ch-SrcNCChronicRisk.csv
S6.ES-Ch-SrcNCChronicRiskSumByRec.csv
S6.ES-Ch-SrcPathwayRec.csv
S6.ES-Ch-SrcPolDB.csv
S6.HS-C-SrcCancerRisk.csv
S6.HS-C-SrcCancerRiskSumByRec.csv
S6.HS-C-SrcGLCList.csv
S6.HS-C-SrcHRAInput.hra
S6.HS-C-SrcPathwayRec.csv
S6.HS-C-SrcPolDB.csv
S6.HS-Ch-SrcGLCList.csv
S6.HS-Ch-SrcHRAInput.hra
S6.HS-Ch-SrcNCChronicRisk.csv
S6.HS-Ch-SrcNCChronicRiskSumByRec.csv
S6.HS-Ch-SrcPathwayRec.csv
S6.HS-Ch-SrcPolDB.csv
S6.PA-C-SrcCancerRisk.csv
S6.PA-C-SrcCancerRiskSumByRec.csv
S6.PA-C-SrcGLCList.csv
S6.PA-C-SrcHRAInput.hra
S6.PA-C-SrcPathwayRec.csv
S6.PA-C-SrcPolDB.csv
S6.PA-Ch-SrcGLCList.csv
S6.PA-Ch-SrcHRAInput.hra
S6.PA-Ch-SrcNCChronicRisk.csv
S6.PA-Ch-SrcNCChronicRiskSumByRec.csv
S6.PA-Ch-SrcPathwayRec.csv
S6.PA-Ch-SrcPolDB.csv
S6.RC-Src-CancerRisk.csv
S6.RC-Src-CancerRiskSumByRec.csv
S6.RC-Src-GLCList.csv
S6.RC-Src-HRAInput.hra

S6.RC-Src-PathwayRec.csv
S6.RC-Src-PolDB.csv
S6.RCh-Src-GLCList.csv
S6.RCh-Src-HRAInput.hra
S6.RCh-Src-NCChronicRisk.csv
S6.RCh-Src-NCChronicRiskSumByRec.csv
S6.RCh-Src-PathwayRec.csv
S6.RCh-Src-PolDB.csv
S6.W-C-SrcCancerRisk.csv
S6.W-C-SrcCancerRiskSumByRec.csv
S6.W-C-SrcGLCList.csv
S6.W-C-SrcHRAInput.hra
S6.W-C-SrcPathwayRec.csv
S6.W-C-SrcPolDB.csv
S6.W-Ch-SrcGLCList.csv
S6.W-Ch-SrcHRAInput.hra
S6.W-Ch-SrcNCChronicRisk.csv
S6.W-Ch-SrcNCChronicRiskSumByRec.csv
S6.W-Ch-SrcPathwayRec.csv
S6.W-Ch-SrcPolDB.csv
W-C-CancerRisk.csv
W-C-CancerRiskSumByRec.csv
W-C-GLCList.csv
W-C-HRAInput.hra
W-C-Output.txt
W-C-PathwayRec.csv
W-C-PolDB.csv
W-C-SrcCancerRiskSumByRecBySrc.csv
W-C-SrcOutput.txt
W-Ch-GLCList.csv
W-Ch-HRAInput.hra
W-Ch-NCChronicRisk.csv
W-Ch-NCChronicRiskSumByRec.csv
W-Ch-Output.txt
W-Ch-PathwayRec.csv
W-Ch-PolDB.csv
W-Ch-SrcNCChronicRiskSumByRecBySrc.csv
W-Ch-SrcOutput.txt

Spatial averaging files (\sa\)
_____

14. Appendix E – Land Use Determination

Land Use Determination from AERSURFACE

Facility Irvington Memorial Cemetery
P# 4134

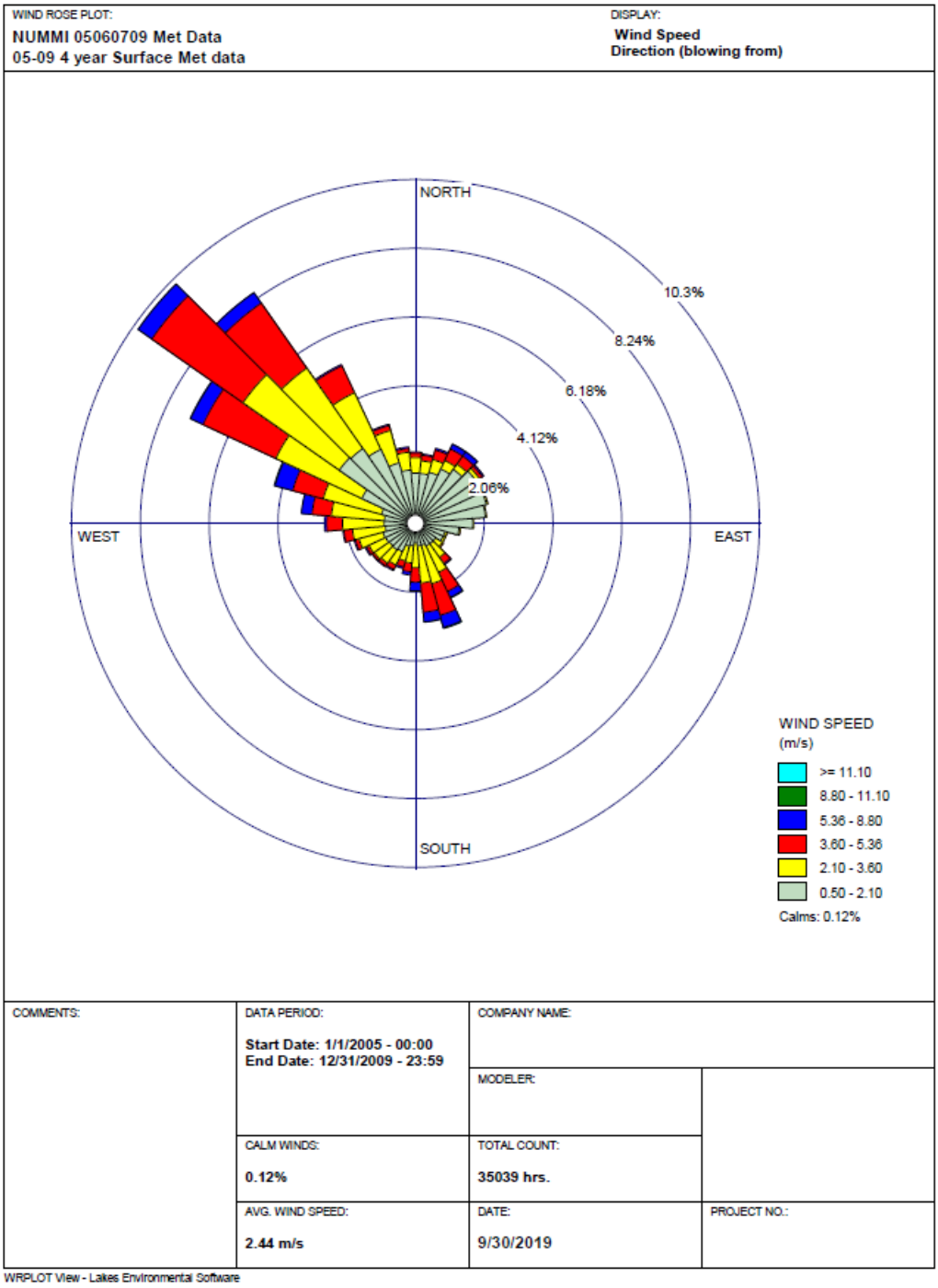
Study Radius for surface roughness (km): 3.0
UTM Easting (meters): 591558.0
UTM Northing (meters): 4154470.0

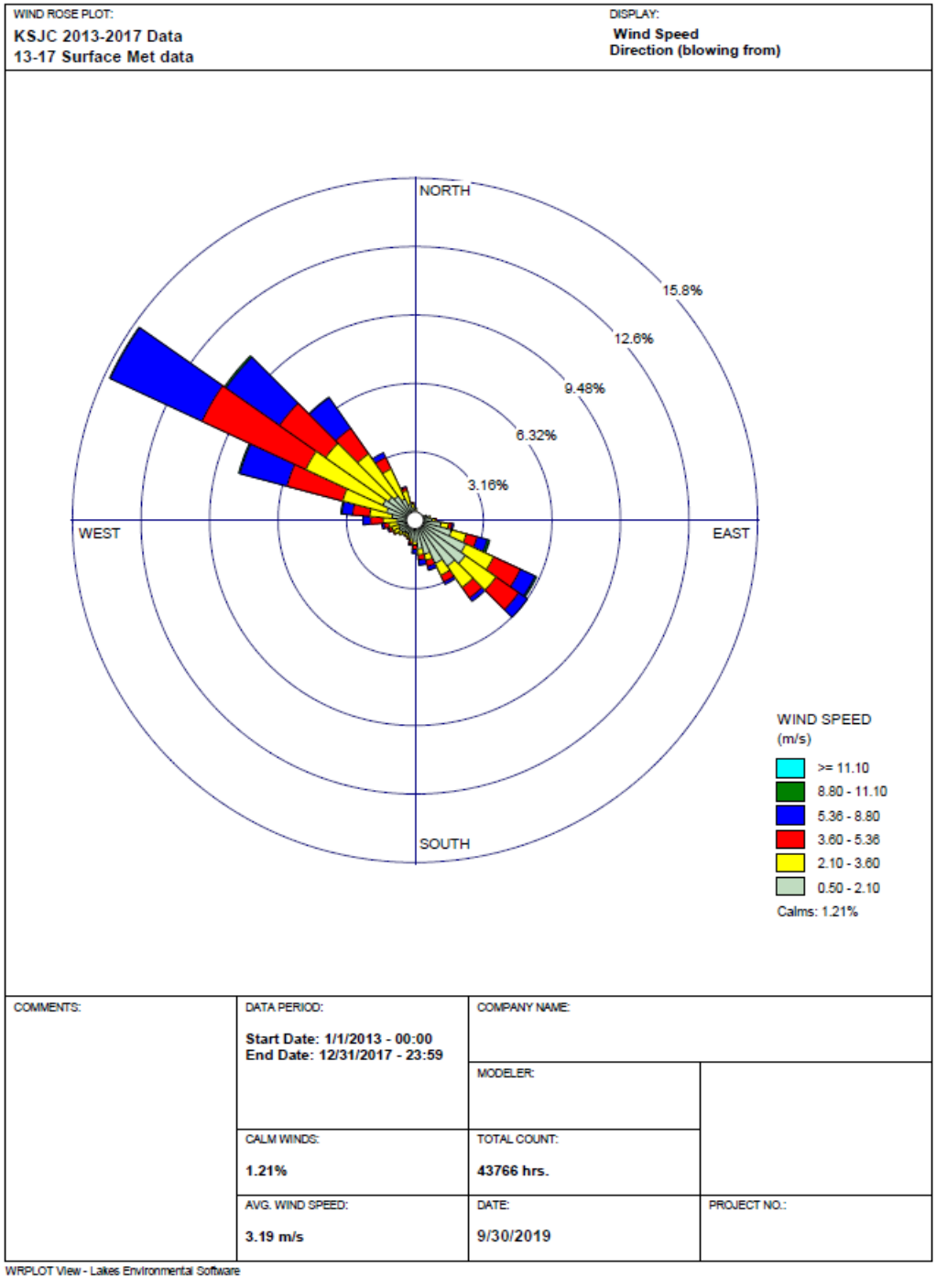
Land Cover Counts, Surface Roughness

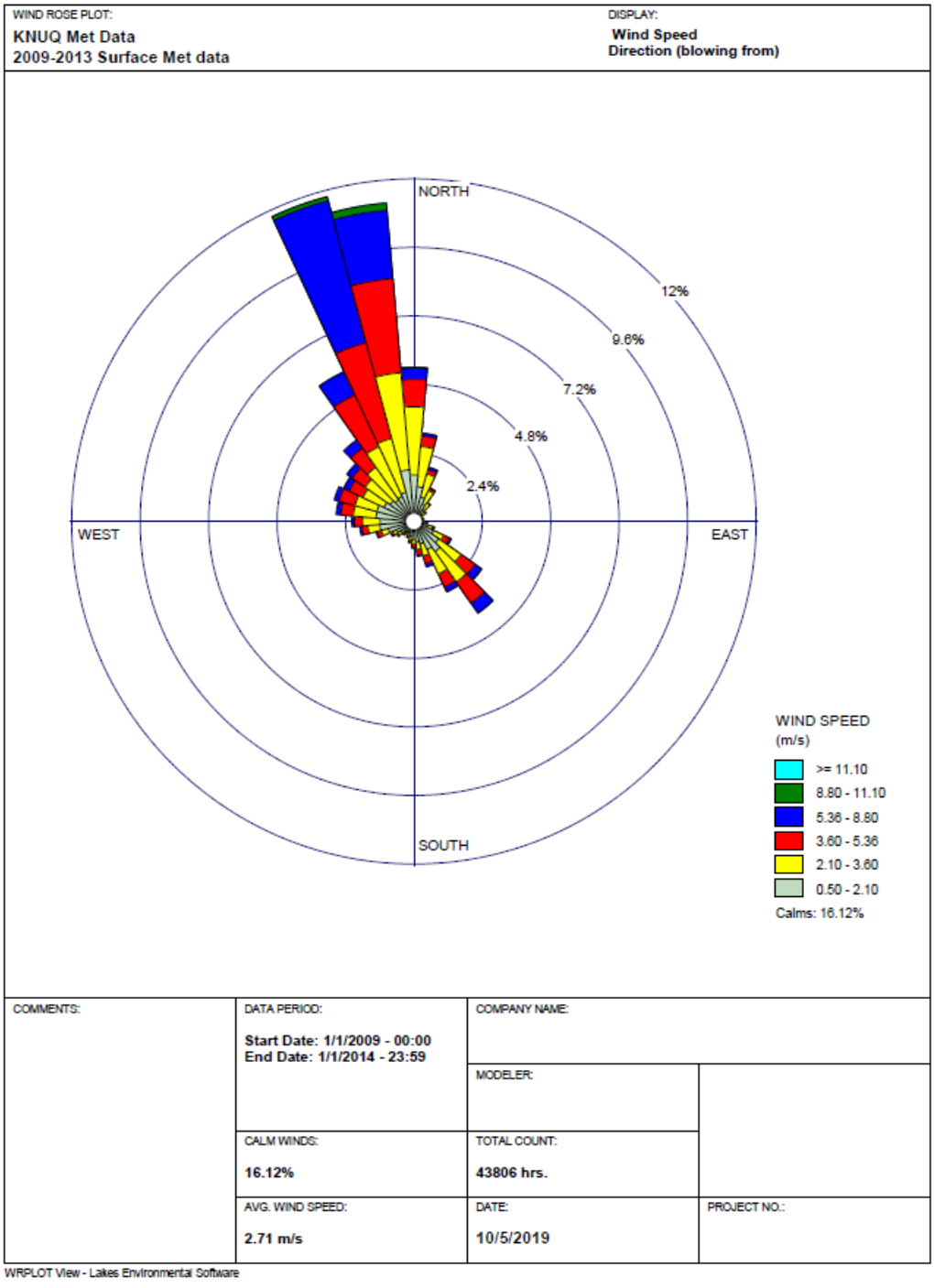
			urban %	
0	Missing, Out-of-Bounds, or Undefined	0		
11	Open Water	302		
12	Perennial Ice/Snow	0		
21	Low Intensity Residential	20730	50%	10365
22	High Intensity Residential	80	100%	80
23	Commercial/Industrial/Transp	3635	100%	3635
31	Bare Rock/Sand/Clay	276		
32	Quarries/Strip Mines/Gravel	49		
33	Transitional	0		
41	Deciduous Forest	16		
42	Evergreen Forest	65		
43	Mixed Forest	42		
51	Shrubland	478		
61	Orchards/Vineyard/Other	21		
71	Grasslands/Herbaceous	4128		
81	Pasture/Hay	11		
82	Row Crops	0		
83	Small Grains	42		
84	Fallow	0		
85	Urban/Recreational Grasses	1453		
91	Woody Wetlands	1		
92	Emergent Herbaceous Wetlands	84		
	Total	31413		14080
			urban % =	44.8%

15. Appendix F – Wind Rose Plots

Wind Rose Plots for NUMMI (Fremont), KNUQ, and KSJC




WIND ROSE PLOT:
KSJC 2013-2017 Data
13-17 Surface Met data
DISPLAY:
Wind Speed
Direction (blowing from)
NORTH
EAST
SOUTH
WEST
15.8%
12.6%
9.48%
6.32%
3.16%
WIND SPEED
(m/s)
>= 11.10
8.80 - 11.10
5.36 - 8.80
3.60 - 5.36
2.10 - 3.60
0.50 - 2.10
Calms: 1.21%
COMMENTS:
DATA PERIOD:
Start Date: 1/1/2013 - 00:00
End Date: 12/31/2017 - 23:59
COMPANY NAME:
MODELER:
CALM WINDS:
1.21%
TOTAL COUNT:
43766 hrs.
AVG. WIND SPEED:
3.19 m/s
DATE:
9/30/2019
PROJECT NO.:
WRPLOT View - Lakes Environmental Software


WIND ROSE PLOT:
KNUQ Met Data
2009-2013 Surface Met data
DISPLAY:
Wind Speed
Direction (blowing from)
NORTH
EAST
SOUTH
WEST
12%
9.6%
7.2%
4.8%
2.4%
WIND SPEED
(m/s)
>= 11.10
8.80 - 11.10
5.36 - 8.80
3.60 - 5.36
2.10 - 3.60
0.50 - 2.10
Calms: 16.12%
COMMENTS:
DATA PERIOD:
Start Date: 1/1/2009 - 00:00
End Date: 1/1/2014 - 23:59
COMPANY NAME:
MODELER:
CALM WINDS:
16.12%
TOTAL COUNT:
43806 hrs.
AVG. WIND SPEED:
2.71 m/s
DATE:
10/5/2019
PROJECT NO.:
WRPLOT View - Lakes Environmental Software

16. Appendix G – HARP2 Output: Health Risk Tables with Potential Stack Modification

Cancer Risk By Source

Project Student Cancer Risk (Seneca Pathfinder Academy) **4.58E-06**

*HARP - HRACalc v19044 5/13/2020 5:27:42 PM - Cancer Risk - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\PA-C-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBR	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_I	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRIVE	2ND_DRIVER
96	ALL		591617	4154426	2.69E-09	1746016	2,3,7,8-TC	1.68E-06	6YrCancer	36.78%	3.32E-08	1.11E-07	3.67E-08	1.5E-06	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	3.42E-05	18540299	Cr(VI)	1.68E-06	6YrCancer	36.66%	1.65E-06	2.51E-08	2.38E-09	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000799	7440439	Cadmium	1.13E-06	6YrCancer	24.78%	1.13E-06	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	1.27E-05	7440382	Arsenic	5.02E-08	6YrCancer	1.10%	1.44E-08	2.79E-08	7.92E-09	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000187	7440020	Nickel	1.61E-08	6YrCancer	0.35%	1.61E-08	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000441	7439921	Lead	9.02E-09	6YrCancer	0.20%	1.75E-09	5.51E-09	7.81E-10	9.83E-10	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	6.73E-06	7440417	Beryllium	5.35E-09	6YrCancer	0.12%	5.35E-09	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	6.14E-08	1151	PAHs-w/o	3.74E-10	6YrCancer	0.01%	2.27E-11	5.13E-11	3.16E-11	2.68E-10	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000329	75070	Acetaldeh	3.12E-10	6YrCancer	0.01%	3.12E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	8.61E-05	50000	Formaldel	1.71E-10	6YrCancer	0.00%	1.71E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	1.63E-05	71432	Benzene	1.54E-10	6YrCancer	0.00%	1.54E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000441	7440508	Copper	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.182396	7647010	HCl	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.001659	7664393	HF	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.009652	7439976	Mercury	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	5.52E-05	7782492	Selenium	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	0.000474	7439965	Manganes	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
96	ALL		591617	4154426	2.63E-05	108883	Toluene	0	6YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
								4.58E-06		100.00%														

Cancer Risk By Source

Project Student Cancer Risk (Seneca Pathfinder Academy)

*HARP - HRACalc v19044 5/13/2020 5:28:07 PM - Cancer Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\S1.PA-C-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK
S4	96	ALL		591617	4154426	1E-06	6YrCancer	6.25E-07	3.71E-08	1E-08	3.29E-07	0	0	0	0	0	0	0	0
S2	96	ALL		591617	4154426	9.96E-07	6YrCancer	6.22E-07	3.7E-08	1E-08	3.27E-07	0	0	0	0	0	0	0	0
S1	96	ALL		591617	4154426	9.67E-07	6YrCancer	6.04E-07	3.59E-08	1E-08	3.18E-07	0	0	0	0	0	0	0	0
SS	96	ALL		591617	4154426	8.68E-07	6YrCancer	5.41E-07	3.22E-08	9.1E-09	2.85E-07	0	0	0	0	0	0	0	0
S6	96	ALL		591617	4154426	7.48E-07	6YrCancer	4.67E-07	2.77E-08	7.8E-09	2.45E-07	0	0	0	0	0	0	0	0
						4.58E-06													

Chronic Risk By Pollutant

Project Student Chronic Risk (Seneca Pathfinder Academy) **0.97**

*HARP - HRACalc v19044 5/13/2020 5:03:10 PM - Chronic Risk - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\PA-Ch-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBR	SCENARIO	CV	CNS	IMMUN	KIDNEY	DETAILS	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	INH_CON	SOIL_DOS	DERMAL_I	MMILK_	WATER	FISH_DI	CROP_DI	BEEF_DI	DAIRY_D	PIG_DOS	CHICKE	EGG_DO	1ST_DRIV	2ND_D	3RD_DRIVER
96	ALL		591617	4154426	0.009652	7439976	Mercury	NonCance	0	0.91063	0	0.91063	94.36%	0	0.91063	0	0	0	0	0	0	0	0	0.00965	8.72E-05	6.99E-06	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000799	7440439	Cadmium	NonCance	0	0	0	0.054455	5.64%	0	0	0.039955	0	0	0	0	0	0	0	0.0008	7.22E-06	2.9E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000329	75070	Acetaldeh	NonCance	0	0	0	0	0.00%	0	0	2.35E-06	0	0	0	0	0	0	0	0.00033	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	1.27E-05	7440382	Arsenic	NonCance	0.037459	0.03746	0	0	0.00%	0	0.037459	0.037459	0.037459	0	0	0	0	0	0	1.3E-05	1.14E-07	1.38E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	6.73E-06	7440417	Beryllium	NonCance	0	0	0.000961	0	0.00%	3.22E-05	0	0.000961	0	0	0	0	0	0	0	6.7E-06	6.08E-08	3.65E-09	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	3.42E-05	18540299	Cr(VI)	NonCance	0	0	0	0	0.00%	0	0	0.000171	0	0	0	0	0	1.61E-05	0	3.4E-05	3.09E-07	1.24E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000441	7440508	Copper	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.00044	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	8.61E-05	50000	Formalde	NonCance	0	0	0	0	0.00%	0	0	9.57E-06	0	0	0	0	0	0	0	8.6E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.182396	7647010	HCl	NonCance	0	0	0	0	0.00%	0	0	0.020266	0	0	0	0	0	0	0	0.1824	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.001659	7664393	HF	NonCance	0	0	0	0	0.00%	0	0	0.000119	0	0	0	0.000516	0	0	0	0.00166	1.5E-05	9.02E-07	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000441	7439921	Lead	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.00044	3.98E-06	2.39E-07	2E-06	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000187	7440020	Nickel	NonCance	0	0	0	0	0.00%	0	0.00016	0.013337	0	0	0	0	0.013337	0	0	0.00019	1.69E-06	6.76E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	5.52E-05	7782492	Selenium	NonCance	0.000109	0.00011	0	0	0.00%	0.000109	0	0	0	0	0	0	0	0	0	5.5E-05	4.99E-07	3E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	2.69E-09	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0.00%	0.015363	0.015363	0.015363	0	0	0	0.015363	0.015363	0	0	2.7E-09	5.27E-12	7.36E-13	1E-10	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	6.14E-08	1151	PAHs-w/o	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	6.1E-08	2.63E-11	6.85E-12	3E-10	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	0.000474	7439965	Manganes	NonCance	0	0.00527	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.00047	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	1.63E-05	71432	Benzene	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	5.42E-06	0	0	1.6E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
96	ALL		591617	4154426	2.63E-05	108883	Toluene	NonCance	0	8.8E-08	0	0	0.00%	0	8.76E-08	8.76E-08	0	0	0	0	0	0	0	2.6E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
												0.9651	100.00%																									

Chronic Risk By Source

Project Student Chronic Risk (Seneca Pathfinder Academy)

*HARP - HRACalc v19044 5/13/2020 5:02:53 PM - Chronic Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\S1.PA-Ch-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S4	96	ALL		591617	4154426	NonCance	0.008213	0.20844	0.00021	0.21098	0.003388	0.21065	0.027903	0.008189	0	0.000113	0.003357	0.006277	0	0	0.21098
S2	96	ALL		591617	4154426	NonCance	0.008172	0.20739	0.000209	0.20992	0.003373	0.2096	0.027766	0.008148	0	0.000112	0.003343	0.006249	0	0	0.20992
S1	96	ALL		591617	4154426	NonCance	0.007934	0.20135	0.000203	0.20381	0.003275	0.2035	0.026957	0.007911	0	0.000109	0.003245	0.006066	0	0	0.20381
SS	96	ALL		591617	4154426	NonCance	0.007115	0.18057	0.000182	0.18277	0.002938	0.18249	0.024175	0.007094	0	9.77E-05	0.002912	0.005442	0	0	0.18277
S6	96	ALL		591617	4154426	NonCance	0.006135	0.15571	0.000157	0.1576	0.002529	0.15736	0.020842	0.006117	0	8.43E-05	0.002506	0.004688	0	0	0.1576
										0.9651											

Cancer Risk By Pollutant

Project Resident Cancer Risk 5.30E-06

Note: Each source is a significant source

*HARP - HRACalc v19044 5/13/2020 5:33:38 PM - Cancer Risk - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\R-C-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBR	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_I	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRIVI	2ND_DRIVER
187	ALL		591537	4154546	6.88E-06	18540299	Cr(VI)	2.47E-06	30YrCance	46.73%	2.37E-06	9.91E-08	1.61E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL
187	ALL		591537	4154546	0.000161	7440439	Cadmium	1.63E-06	30YrCance	30.81%	1.63E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	5.42E-10	1746016	2,3,7,8-TCI	9.96E-07	30YrCance	18.81%	3.36E-08	4.39E-07	2.48E-08	4.99E-07	0	0	0	0	0	0	0	0	MMILK	SOIL
187	ALL		591537	4154546	2.55E-06	7440382	Arsenic	1.36E-07	30YrCance	2.57%	2.07E-08	1.1E-07	5.36E-09	0	0	0	0	0	0	0	0	0	SOIL	INHALATION
187	ALL		591537	4154546	8.87E-05	7439921	Lead	2.5E-08	30YrCance	0.47%	2.52E-09	2.17E-08	5.28E-10	2.62E-10	0	0	0	0	0	0	0	0	SOIL	INHALATION
187	ALL		591537	4154546	3.76E-05	7440020	Nickel	2.31E-08	30YrCance	0.44%	2.31E-08	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	1.35E-06	7440417	Beryllium	7.69E-09	30YrCance	0.15%	7.69E-09	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	6.63E-05	75070	Acetaldeh	4.48E-10	30YrCance	0.01%	4.48E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	1.24E-08	1151	PAHs-w/o	3.49E-10	30YrCance	0.01%	2.3E-11	2.02E-10	2.14E-11	1.02E-10	0	0	0	0	0	0	0	0	SOIL	MMILK
187	ALL		591537	4154546	1.73E-05	50000	Formaldel	2.46E-10	30YrCance	0.00%	2.46E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	3.27E-06	71432	Benzene	2.21E-10	30YrCance	0.00%	2.21E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
187	ALL		591537	4154546	8.88E-05	7440508	Copper	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	0.036694	7647010	HCl	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	0.000334	7664393	HF	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	0.001942	7439976	Mercury	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	1.11E-05	7782492	Selenium	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	9.53E-05	7439965	Manganes	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
187	ALL		591537	4154546	5.29E-06	108883	Toluene	0	30YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
								5.3E-06		100.00%														

Cancer Risk By Source

Project Resident Cancer Risk

*HARP - HRACalc v19044 5/13/2020 5:33:56 PM - Cancer Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\S1.R-C-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_	MMILK_RI	WATER_R	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK
S4	187	ALL		591537	4154546	1.32E-06	30YrCance	1.02E-06	1.66E-07	8E-09	1.24E-07	0	0	0	0	0	0	0	0
S5	187	ALL		591537	4154546	1.18E-06	30YrCance	9.15E-07	1.5E-07	7.2E-09	1.12E-07	0	0	0	0	0	0	0	0
S6	187	ALL		591537	4154546	9.99E-07	30YrCance	7.72E-07	1.26E-07	6.1E-09	9.4E-08	0	0	0	0	0	0	0	0
S2	187	ALL		591537	4154546	9.64E-07	30YrCance	7.46E-07	1.22E-07	5.9E-09	9.09E-08	0	0	0	0	0	0	0	0
S1	187	ALL		591537	4154546	8.34E-07	30YrCance	6.45E-07	1.06E-07	5.1E-09	7.87E-08	0	0	0	0	0	0	0	0
						5.3E-06													

Chronic HI By Pollutant

Project Resident Chronic HI 1.94E-01

*HARP - HRACalc v19044 5/13/2020 5:34:58 PM - Chronic Risk - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\R-Ch-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBR	SCENARIO	CV	CNS	IMMUN	KIDNEY	DETAILS	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	INH_CON	SOIL_DOS	DERMAL_I	MMILK_D	WATER_D	FISH_DO	CROP_D	BEEF_DAIRY_D	PIG_DOS	CHICKEN	EGG_DO	1ST_DRIVI	2ND_DRIV	3RD_DRIVER
187	ALL		591537	4154546	0.001942	7439976	Mercury	NonCance	0	0.1832	0	0.1832	94.36%	0	0.1832	0	0	0	0	0	0	0	0	0.001942	1.75E-05	1.41E-06	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	0.000161	7440439	Cadmium	NonCance	0	0	0	0.010955	5.64%	0	0	0.008038	0	0	0	0	0	0	0	0.000161	1.45E-06	5.82E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	6.63E-05	75070	Acetaldeh	NonCance	0	0	0	0	0.00%	0	0	4.73E-07	0	0	0	0	0	0	0	6.63E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	2.55E-06	7440382	Arsenic	NonCance	0.007536	0.00754	0	0	0.00%	0	0.007536	0.007536	0.007536	0	0	0	0	0	0	2.55E-06	2.3E-08	2.77E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	1.35E-06	7440417	Beryllium	NonCance	0	0	0.000193	0	0.00%	6.48E-06	0	0.000193	0	0	0	0	0	0	0	1.35E-06	1.22E-08	7.35E-10	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	6.88E-06	18540299	Cr(VI)	NonCance	0	0	0	0	0.00%	0	0	3.44E-05	0	0	0	0	3.23E-06	0	0	6.88E-06	6.22E-08	2.49E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	8.88E-05	7440508	Copper	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	8.88E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	1.73E-05	50000	Formaldel	NonCance	0	0	0	0	0.00%	0	0	1.93E-06	0	0	0	0	0	0	0	1.73E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	0.036694	7647010	HCl	NonCance	0	0	0	0	0.00%	0	0	0.004077	0	0	0	0	0	0	0	0.036694	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	0.000334	7664393	HF	NonCance	0	0	0	0	0.00%	0	0	2.38E-05	0	0	0.000104	0	0	0	0	0.000334	3.02E-06	1.81E-07	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	8.87E-05	7439921	Lead	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	8.87E-05	8.01E-07	2.91E-08	3.12E-07	0	0	0	0	0	0	0	0	INHALATI	SOIL	MMILK
187	ALL		591537	4154546	3.76E-05	7440020	Nickel	NonCance	0	0	0	0	0.00%	0	3.21E-05	0.002683	0	0	0	0	0.002683	0	0	3.76E-05	3.39E-07	1.36E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	1.11E-05	7782492	Selenium	NonCance	2.18E-05	2.2E-05	0	0	0.00%	2.18E-05	0	0	0	0	0	0	0	0	0	1.11E-05	1E-07	6.04E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
187	ALL		591537	4154546	5.42E-10	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0.00%	0.003126	0.003126	0.003126	0	0	0	0	0.003126	0.003126	0	5.42E-10	1.06E-12	8.93E-14	3E-11	0	0	0	0	0	0	0	0	INHALATI	MMILK	SOIL
187	ALL		591537	4154546	1.24E-08	1151	PAHs-w/o	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	1.24E-08	5.29E-12	8.31E-13	6.43E-11	0	0	0	0	0	0	0	0	INHALATI	MMILK	SOIL
187	ALL		591537	4154546	9.53E-05	7439965	Manganes	NonCance	0	0.00106	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	9.53E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	3.27E-06	71432	Benzene	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	1.09E-06	0	0	3.27E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
187	ALL		591537	4154546	5.29E-06	108883	Toluene	NonCance	0	1.8E-08	0	0	0.00%	0	1.76E-08	1.76E-08	0	0	0	0	0	0	0	5.29E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
												0.1942	100.00%																								

Chronic HI By Source

Project Resident Chronic HI

*HARP - HRACalc v19044 5/13/2020 5:34:38 PM - Chronic Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\S1.R-Ch-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DI	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S4	187	ALL		591537	4154546	NonCance	0.001877	4.76E-02	4.80E-05	4.82E-02	6.39E-03	1.87E-03	0.00E+00	2.58E-05	7.76E-04	1.44E-03	0.00E+00	0	0.048229		
S5	187	ALL		591537	4154546	NonCance	0.001688	4.28E-02	4.32E-05	4.34E-02	7.05E-04	4.33E-02	5.74E-03	1.68E-03	0.00E+00	2.32E-05	6.99E-04	1.30E-03	0.00E+00	0	0.043368
S6	187	ALL		591537	4154546	NonCance	0.001425	3.62E-02	3.65E-05	3.66E-02	5.94E-04	3.66E-02	4.85E-03	1.42E-03	0.00E+00	1.96E-05	5.89E-04	1.10E-03	0.00E+00	0	0.036616
S2	187	ALL		591537	4154546	NonCance	0.001376	3.49E-02	3.52E-05	3.54E-02	5.75E-04	3.53E-02	4.68E-03	1.37E-03	0.00E+00	1.89E-05	5.69E-04	1.06E-03	0.00E+00	0	0.035351
S1	187	ALL		591537	4154546	NonCance	0.001191	3.02E-02	3.05E-05	3.06E-02	4.97E-04	3.06E-02	4.05E-03	1.19E-03	0.00E+00	1.64E-05	4.93E-04	9.16E-04	0.00E+00	0	0.030591
										0.19416										

Cancer Risk by Pollutant

Project Worker Cancer Risk (teacher at Seneca Pathfinder Academy) **3.58E-06**

*HARP - HRACalc v19044 5/13/2020 5:36:48 PM - Cancer Risk - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\W-C-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBR	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_I	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRIVI	2ND_DRIVER
96	ALL		591617	4154426	3.42E-05	18540299	Cr(VI)	1.98E-06	25YrCance	55.50%	1.96E-06	2.08E-08	1.44E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL
96	ALL		591617	4154426	0.000799	7440439	Cadmium	1.35E-06	25YrCance	37.72%	1.35E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	2.69E-09	1746016	2,3,7,8-TCI	1.64E-07	25YrCance	4.59%	2.91E-08	9.21E-08	4.28E-08	0	0	0	0	0	0	0	0	0	SOIL	DERMAL
96	ALL		591617	4154426	1.27E-05	7440382	Arsenic	4.5E-08	25YrCance	1.26%	1.71E-08	2.31E-08	4.8E-09	0	0	0	0	0	0	0	0	0	SOIL	INHALATION
96	ALL		591617	4154426	0.000187	7440020	Nickel	1.91E-08	25YrCance	0.53%	1.91E-08	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	0.000441	7439921	Lead	7.11E-09	25YrCance	0.20%	2.08E-09	4.55E-09	4.73E-10	0	0	0	0	0	0	0	0	0	SOIL	INHALATION
96	ALL		591617	4154426	6.73E-06	7440417	Beryllium	6.36E-09	25YrCance	0.18%	6.36E-09	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	0.000329	75070	Acetaldeh	3.71E-10	25YrCance	0.01%	3.71E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	8.61E-05	50000	Formaldel	2.04E-10	25YrCance	0.01%	2.04E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	1.63E-05	71432	Benzene	1.83E-10	25YrCance	0.01%	1.83E-10	0	0	0	0	0	0	0	0	0	0	0	INHALATION	
96	ALL		591617	4154426	6.14E-08	1151	PAHs-w/o	9.92E-11	25YrCance	0.00%	1.99E-11	4.25E-11	3.68E-11	0	0	0	0	0	0	0	0	0	SOIL	DERMAL
96	ALL		591617	4154426	0.000441	7440508	Copper	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	0.182396	7647010	HCl	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	0.001659	7664393	HF	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	0.009652	7439976	Mercury	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	5.52E-05	7782492	Selenium	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	0.000474	7439965	Manganes	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
96	ALL		591617	4154426	2.63E-05	108883	Toluene	0	25YrCance	0.00%	0	0	0	0	0	0	0	0	0	0	0	0		
								3.58E-05		100.00%														

Cancer Risk By Source

Project Worker Cancer Risk (teacher at Seneca Pathfinder Academy)

*HARP - HRACalc v19044 5/13/2020 5:37:07 PM - Cancer Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\S1.W-C-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_I	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK
S4	96	ALL		591617	4154426	7.82E-07	25YrCance	7.40E-07	3.07E-08	1.08E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S2	96	ALL		591617	4154426	7.78E-07	25YrCance	7.37E-07	3.06E-08	1.08E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S1	96	ALL		591617	4154426	7.55E-07	25YrCance	7.15E-07	2.97E-08	1.05E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S5	96	ALL		591617	4154426	6.77E-07	25YrCance	6.41E-07	2.66E-08	9.39E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S6	96	ALL		591617	4154426	5.84E-07	25YrCance	5.53E-07	2.29E-08	8.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						3.58E-06													

Chronic Risk By Pollutant: Worker

Project Worker Chronic HI (teacher at Seneca Pathfinder Academy) **7.27E-01**

*HARP - HRACalc v19044 5/13/2020 5:35:46 PM - Chronic Risk - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\W-Ch-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBR	SCENARIO	CV	CNS	IMMUN	KIDNEY	DETAILS	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	INH_CON	SOIL_DOS	DERMAL_I	MMILK_D	WATER_D	FISH_DOS	CROP_D	BEEF_D	DAIRY_D	PIG_D	CHICKEN_	EGG_D	1ST_DRIVI	2ND_DRIV	3RD_DRIVER
96	ALL		591617	4154426	0.009652	7439976	Mercury	NonCance	0	0.67853	0	0.67853	93.40%	0	0.67853	0	0	0	0	0	0	0	0	0.009652	4.8E-05	9.13E-06	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000799	7440439	Cadmium	NonCance	0	0	0	0.04797	6.60%	0	0	0.039955	0	0	0	0	0	0	0	0.000799	3.97E-06	3.78E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000329	75070	Acetaldeh	NonCance	0	0	0	0	0.00%	0	0	2.35E-06	0	0	0	0	0	0	0	0.000329	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	1.27E-05	7440382	Arsenic	NonCance	0.023946	0.023946	0	0	0.00%	0	0.023946	0.023946	0.023946	0	0	0	0	0	0	1.27E-05	6.29E-08	1.8E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	6.73E-06	7440417	Beryllium	NonCance	0	0	0.000961	0	0.00%	1.91E-05	0	0.000961	0	0	0	0	0	0	0	6.73E-06	3.34E-08	4.77E-09	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	3.42E-05	18540299	Cr(VI)	NonCance	0	0	0	0	0.00%	0	0	0.000171	0	0	0	0	9.3E-06	0	0	3.42E-05	1.7E-07	1.62E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000441	7440508	Copper	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000441	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	8.61E-05	50000	Formaldel	NonCance	0	0	0	0	0.00%	0	0	9.57E-06	0	0	0	0	0	0	0	8.61E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	0.182396	7647010	HCl	NonCance	0	0	0	0	0.00%	0	0	0.020266	0	0	0	0	0	0	0	0.1824	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	0.001659	7664393	HF	NonCance	0	0	0	0	0.00%	0	0	0.000119	0	0	0.000354	0	0	0	0	0.001659	8.24E-06	1.18E-06	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000441	7439921	Lead	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000441	2.19E-06	3.13E-07	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000187	7440020	Nickel	NonCance	0	0	0	0	0.00%	0	9.24E-05	0.013337	0	0	0	0	0.013337	0	0	0.000187	9.28E-07	8.83E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	5.52E-05	7782492	Selenium	NonCance	6.55E-05	6.55E-05	0	0	0.00%	6.55E-05	0	0	0	0	0	0	0	0	0	5.52E-05	2.74E-07	3.92E-08	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	2.69E-09	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0.00%	0.000453	0.000453	0.000453	0	0	0	0.000453	0.000453	0	0	2.69E-09	2.89E-12	9.62E-13	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	6.14E-08	1151	PAHs-w/o	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	6.14E-08	1.45E-11	8.95E-12	0	0	0	0	0	0	0	0	0	INHALATI	SOIL	DERMAL
96	ALL		591617	4154426	0.000474	7439965	Manganes	NonCance	0	0.005266	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	0.000474	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	1.63E-05	71432	Benzene	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	5.42E-06	0	0	1.63E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
96	ALL		591617	4154426	2.63E-05	108883	Toluene	NonCance	0	8.76E-08	0	0	0.00%	0	8.76E-08	8.76E-08	0	0	0	0	0	0	0	2.63E-05	0	0	0	0	0	0	0	0	0	0	0	INHALATION		
												0.7265	100.00%																									

Chronic Risk By Source: Worker

Project Worker Chronic Risk (teacher at the Pathfinder Academy)

*HARP - HRACalc v19044 5/13/2020 5:36:08 PM - Chronic Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\S1.W-Ch-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S4	96	ALL		591617	4154426	NonCance	0.005249	0.15474	0.00021	0.15882	0.000117	0.15369	0.02169	0.005235	0	7.74E-05	9.9E-05	0.003018	0	0	0.15882
S2	96	ALL		591617	4154426	NonCance	0.005223	0.15396	0.000209	0.15803	0.000117	0.15292	0.021582	0.005209	0	7.7E-05	9.86E-05	0.003003	0	0	0.15803
S1	96	ALL		591617	4154426	NonCance	0.005071	0.14948	0.000203	0.15342	0.000114	0.14847	0.020953	0.005057	0	7.48E-05	9.57E-05	0.002915	0	0	0.15342
S5	96	ALL		591617	4154426	NonCance	0.004547	0.13405	0.000182	0.13759	0.000102	0.13314	0.01879	0.004535	0	6.7E-05	8.59E-05	0.002615	0	0	0.13759
S6	96	ALL		591617	4154426	NonCance	0.003921	0.11559	0.000157	0.11864	8.77E-05	0.11481	0.016203	0.003911	0	5.78E-05	7.39E-05	0.002254	0	0	0.11864
										0.7265											

Cancer Risk By Pollutant

Project Student Cancer Risk (Horner High School) **6.69E-08**

*HARP - HRACalc v19044 5/13/2020 5:30:08 PM - Cancer Risk - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\HS-C-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_I	MMILK_RI	WATER_RI	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRI	2ND_DRIVER
397	ALL		591557	4154116	5.72E-11	1746016	2,3,7,8-TCI	3.4E-08	4YrCancer	50.75%	3.77E-10	1.2E-09	4.09E-10	3.19E-08	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	7.27E-07	18540299	Cr(VI)	1.91E-08	4YrCancer	28.55%	1.88E-08	2.8E-10	2.65E-11	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.7E-05	7440439	Cadmium	1.29E-08	4YrCancer	19.31%	1.29E-08	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	2.69E-07	7440382	Arsenic	5.63E-10	4YrCancer	0.84%	1.64E-10	3.1E-10	8.82E-11	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	3.97E-06	7440020	Nickel	1.83E-10	4YrCancer	0.27%	1.83E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	9.36E-06	7439921	Lead	1.11E-10	4YrCancer	0.17%	1.99E-11	6.1E-11	8.7E-12	2.09E-11	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.43E-07	7440417	Beryllium	6.09E-11	4YrCancer	0.09%	6.09E-11	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.3E-09	1151	PAHs-w/o	6.88E-12	4YrCancer	0.01%	2.58E-13	5.7E-13	3.51E-13	5.7E-12	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	7E-06	75070	Acetaldeh	3.55E-12	4YrCancer	0.01%	3.55E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.83E-06	50000	Formaldel	1.95E-12	4YrCancer	0.00%	1.95E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	3.45E-07	71432	Benzene	1.75E-12	4YrCancer	0.00%	1.75E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	9.38E-06	7440508	Copper	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	0.003875	7647010	HCl	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	3.53E-05	7664393	HF	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	0.000205	7439976	Mercury	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.17E-06	7782492	Selenium	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	1.01E-05	7439965	Manganes	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
397	ALL		591557	4154116	5.58E-07	108883	Toluene	0	4YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
								6.69E-08		100.00%														

Cancer Risk By Source

Project Student Cancer Risk (Horner High School)

*HARP - HRACalc v19044 5/13/2020 5:30:37 PM - Cancer Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\S1.HS-C-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_	MMILK_RI	WATER_F	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK
S4	397	ALL		591557	4154116	1.47E-08	4YrCancer	7.14E-09	4.15E-10	1.2E-10	7.01E-09	0	0	0	0	0	0	0	0
S5	397	ALL		591557	4154116	1.38E-08	4YrCancer	6.72E-09	3.91E-10	1.1E-10	6.61E-09	0	0	0	0	0	0	0	0
S6	397	ALL		591557	4154116	1.32E-08	4YrCancer	6.42E-09	3.73E-10	1.1E-10	6.3E-09	0	0	0	0	0	0	0	0
S1	397	ALL		591557	4154116	1.27E-08	4YrCancer	6.15E-09	3.58E-10	1E-10	6.05E-09	0	0	0	0	0	0	0	0
S2	397	ALL		591557	4154116	1.26E-08	4YrCancer	6.1E-09	3.55E-10	1E-10	6E-09	0	0	0	0	0	0	0	0
						6.69E-08													

Chronic HI By Pollutant

Project Student Chronic HI (Horner High School) **2.1E-02**

*HARP - HRACalc v19044 5/13/2020 5:31:10 PM - Chronic Risk - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\HS-ChHRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	SCENARIO	CV	CNS	IMMUN	KIDNEY	DETAILS	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERA	INH_CONS	SOIL_DOS	DERMAL_I	MMILK_E	WATER_	FISH_DC	CROP_D	BEEF_DC	DAIRY_D	PIG_DOS	CHICKEN	EGG_DO	1ST_DRIV	2ND_DRIV	3RD_DRIVER
397	ALL		591557	4154116	0.000205	7439976	Mercury	NonCance	0	0.01935	0	0.01935	94.36%	0	0.019348	0	0	0	0	0	0	0	0	0.000205	1.85E-06	1.49E-07	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.7E-05	7440439	Cadmium	NonCance	0	0	0	0.00116	5.64%	0	0	0.000849	0	0	0	0	0	0	0	1.7E-05	1.53E-07	6.15E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	7E-06	75070	Acetaldeh	NonCance	0	0	0	0	0.00%	0	0	5E-08	0	0	0	0	0	0	0	7E-06	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	2.69E-07	7440382	Arsenic	NonCance	0.000796	0.0008	0	0	0.00%	0	0.000796	0.000796	0.000796	0	0	0	0	0	0	2.69E-07	2.43E-09	2.92E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.43E-07	7440417	Beryllium	NonCance	0	0	2.04E-05	0	0.00%	6.84E-07	0	2.04E-05	0	0	0	0	0	0	0	1.43E-07	1.29E-09	7.76E-11	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	7.27E-07	18540299	Cr(VI)	NonCance	0	0	0	0	0.00%	0	0	3.63E-06	0	0	0	0	0	0	3.41E-07	7.27E-07	6.57E-09	2.63E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	9.38E-06	7440508	Copper	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	9.38E-06	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.83E-06	50000	Formaldel	NonCance	0	0	0	0	0.00%	0	0	2.03E-07	0	0	0	0	0	0	0	1.83E-06	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	0.003875	7647010	HCl	NonCance	0	0	0	0	0.00%	0	0	0.000431	0	0	0	0	0	0	0	0.003875	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	3.53E-05	7664393	HF	NonCance	0	0	0	0	0.00%	0	0	2.52E-06	0	0	1.1E-05	0	0	0	0	3.53E-05	3.19E-07	1.92E-08	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	9.36E-06	7439921	Lead	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	9.36E-06	8.46E-08	5.09E-09	3.3E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	3.97E-06	7440020	Nickel	NonCance	0	0	0	0	0.00%	0	3.39E-06	0.000283	0	0	0	0	0	0	0.000283	3.97E-06	3.59E-08	1.44E-09	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.17E-06	7782492	Selenium	NonCance	2.31E-06	2.3E-06	0	0	0.00%	2.31E-06	0	0	0	0	0	0	0	0	0	1.17E-06	1.06E-08	6.38E-10	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	5.72E-11	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0.00%	0.000326	0.000326	0.000326	0	0	0	0	0.000326	0.000326	0	5.72E-11	1.12E-13	1.56E-14	3.1E-12	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.3E-09	1151	PAHs-w/o	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	1.31E-09	5.59E-13	1.46E-13	6.4E-12	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	1.01E-05	7439965	Manganes	NonCance	0	0.00011	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	1.01E-05	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	3.45E-07	71432	Benzene	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	1.15E-07	3.45E-07	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
397	ALL		591557	4154116	5.58E-07	108883	Toluene	NonCance	0	1.9E-09	0	0	0.00%	0	1.86E-09	1.86E-09	0	0	0	0	0	0	0	5.58E-07	0	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
													0.0205	100.00%																								

Chronic HI By Source

Project Student Chronic HI (Horner High School)

*HARP - HRACalc v19044 5/13/2020 5:31:28 PM - Chronic Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\S1.HS-Ch-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/D	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S4	397	ALL		591557	4154116	NonCance	0.000175	0.004446	4.48E-06	4.50E-03	7.23E-05	0.00449	0.000595	0.000175	0	2.41E-06	7.16E-05	0.000134	0	0	0.0045
S5	397	ALL		591557	4154116	NonCance	0.000165	0.004183	4.22E-06	4.23E-03	6.81E-05	0.00423	0.00056	0.000164	0	2.26E-06	6.75E-05	0.000126	0	0	0.004234
S6	397	ALL		591557	4154116	NonCance	0.000157	0.003996	4.03E-06	4.04E-03	6.49E-05	0.00404	0.000535	0.000157	0	2.16E-06	6.43E-05	0.00012	0	0	0.004045
S1	397	ALL		591557	4154116	NonCance	0.000151	0.003831	3.86E-06	3.88E-03	6.23E-05	0.00387	0.000513	0.00015	0	2.07E-06	6.17E-05	0.000115	0	0	0.003877
S2	397	ALL		591557	4154116	NonCance	0.00015	0.003802	3.83E-06	3.85E-03	6.18E-05	0.00384	0.000509	0.000149	0	2.06E-06	6.13E-05	0.000115	0	0	0.003848
										2.05E-02											

Cancer Risk By Pollutant

Project Student Cancer Risk (Hirsch Elementary School) **8.94E-08**

*HARP - HRACalc v19044 5/13/2020 5:29:22 PM - Cancer Risk - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\ES-C-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_I	MMILK_RI	WATER_R	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRIVI	2ND_DRIVER
335	ALL		591581.7	4153965	4.2E-07	18540299	Cr(VI)	3.81E-08	7YrCancer	42.63%	3.73E-08	8.08E-10	5.05E-11	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	9.8E-06	7440439	Cadmium	2.56E-08	7YrCancer	28.64%	2.56E-08	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	3.3E-11	1746016	2,3,7,8-TC	2.35E-08	7YrCancer	26.33%	7.48E-10	3.58E-09	7.8E-10	1.84E-08	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	1.55E-07	7440382	Arsenic	1.39E-09	7YrCancer	1.55%	3.25E-10	8.97E-10	1.68E-10	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	2.29E-06	7440020	Nickel	3.63E-10	7YrCancer	0.41%	3.63E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	5.41E-06	7439921	Lead	2.45E-10	7YrCancer	0.27%	3.95E-11	1.77E-10	1.66E-11	1.21E-11	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	8.25E-08	7440417	Beryllium	1.21E-10	7YrCancer	0.13%	1.21E-10	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	4.04E-06	75070	Acetaldeh	7.04E-12	7YrCancer	0.01%	7.04E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	7.53E-10	1151	PAHs-w/o	6.12E-12	7YrCancer	0.01%	5.12E-13	1.65E-12	6.7E-13	3.29E-12	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	1.06E-06	50000	Formaldel	3.86E-12	7YrCancer	0.00%	3.86E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	1.99E-07	71432	Benzene	3.47E-12	7YrCancer	0.00%	3.47E-12	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	5.42E-06	7440508	Copper	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	0.002238	7647010	HCl	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	2.04E-05	7664393	HF	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	0.000118	7439976	Mercury	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	6.77E-07	7782492	Selenium	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	5.81E-06	7439965	Manganes	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
335	ALL		591581.7	4153965	3.22E-07	108883	Toluene	0	7YrCancer	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
								8.94E-08		100.00%														

Cancer Risk By Source

Project Student Cancer Risk (Hirsch Elementary School)

*HARP - HRACalc v19044 5/13/2020 5:29:02 PM - Cancer Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\S1.ES-C-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_	MMILK_RI	WATER_R	FISH_RISK	CROP_RIS	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_	EGG_RISK
S4	335	ALL		591581.7	4153965	1.98E-08	7YrCancer	1.43E-08	1.21E-09	2.2E-10	4.08E-09	0	0	0	0	0	0	0	0
S5	335	ALL		591581.7	4153965	1.85E-08	7YrCancer	1.33E-08	1.13E-09	2.1E-10	3.81E-09	0	0	0	0	0	0	0	0
S6	335	ALL		591581.7	4153965	1.75E-08	7YrCancer	1.26E-08	1.07E-09	2E-10	3.6E-09	0	0	0	0	0	0	0	0
S1	335	ALL		591581.7	4153965	1.7E-08	7YrCancer	1.22E-08	1.04E-09	1.9E-10	3.5E-09	0	0	0	0	0	0	0	0
S2	335	ALL		591581.7	4153965	1.67E-08	7YrCancer	1.21E-08	1.02E-09	1.9E-10	3.46E-09	0	0	0	0	0	0	0	0
						8.94E-08													

Chronic HI By Pollutant

Project Student Chronic HI (Hirsch Elementary School) **1.18E-02**

*HARP - HRACalc v19044 5/13/2020 5:32:38 PM - Chronic Risk - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\ES-Ch-HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	SCENARIO	CV	CNS	IMMUN	KIDNEY	DETAILS	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	INH_CON	SOIL_DOS	DERMAL_I	MMILK_D	WATER_E	FISH_D	CROP_D	BEEF_D	DAIRY_D	PIG_DOS	CHICKEN_	EGG_DOS	1ST_DRIVI	2ND_DRIV	3RD_DRIVER
335	ALL		591581.7	4153965	0.000118	7439976	Mercury	NonCance	0	0.01117	0	0.011171	94.36%	0	0.011171	0	0	0	0	0	0	0	0	0.000118	1.07E-06	8.58E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	9.8E-06	7440439	Cadmium	NonCance	0	0	0	0.000668	5.64%	0	0	0.00049	0	0	0	0	0	0	0	9.8E-06	8.86E-08	3.55E-10	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	4.04E-06	75070	Acetaldeh	NonCance	0	0	0	0	0.00%	0	0	2.89E-08	0	0	0	0	0	0	0	4.04E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	1.55E-07	7440382	Arsenic	NonCance	0.00046	0.00046	0	0	0.00%	0	0.00046	0.00046	0.00046	0	0	0	0	0	0	1.55E-07	1.4E-09	1.69E-10	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	8.25E-08	7440417	Beryllium	NonCance	0	0	1.18E-05	0	0.00%	3.95E-07	0	1.18E-05	0	0	0	0	0	0	0	8.25E-08	7.46E-10	4.48E-11	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	4.2E-07	18540299	Cr(VI)	NonCance	0	0	0	0	0.00%	0	0	2.1E-06	0	0	0	0	0	1.97E-07	0	4.2E-07	3.79E-09	1.52E-10	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	5.42E-06	7440508	Copper	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	5.42E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	1.06E-06	50000	Formaldel	NonCance	0	0	0	0	0.00%	0	0	1.17E-07	0	0	0	0	0	0	0	1.06E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	0.002238	7647010	HCl	NonCance	0	0	0	0	0.00%	0	0	0.000249	0	0	0	0	0	0	0	0.002238	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	2.04E-05	7664393	HF	NonCance	0	0	0	0	0.00%	0	0	1.45E-06	0	0	6.33E-06	0	0	0	0	2.04E-05	1.84E-07	1.11E-08	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	5.41E-06	7439921	Lead	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	5.41E-06	4.89E-08	2.94E-09	1.9E-08	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	2.29E-06	7440020	Nickel	NonCance	0	0	0	0	0.00%	0	1.96E-06	0.000164	0	0	0	0	0.000164	0	0	2.29E-06	2.07E-08	8.3E-10	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	6.77E-07	7782492	Selenium	NonCance	1.33E-06	1.3E-06	0	0	0.00%	1.33E-06	0	0	0	0	0	0	0	0	0	6.77E-07	6.12E-09	3.68E-10	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	3.3E-11	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0.00%	0.000188	0.000188	0.000188	0	0	0	0.000188	0.000188	0	0	3.3E-11	6.46E-14	9.03E-15	1.8E-12	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	7.53E-10	1151	PAHs-w/o	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	7.53E-10	3.23E-13	8.41E-14	3.68E-12	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	5.81E-06	7439965	Manganes	NonCance	0	6.5E-05	0	0	0.00%	0	0	0	0	0	0	0	0	0	0	5.81E-06	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	1.99E-07	71432	Benzene	NonCance	0	0	0	0	0.00%	0	0	0	0	0	0	0	6.65E-08	0	0	1.99E-07	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
335	ALL		591581.7	4153965	3.22E-07	108883	Toluene	NonCance	0	1.1E-09	0	0	0.00%	0	1.07E-09	1.07E-09	0	0	0	0	0	0	0	3.22E-07	0	0	0	0	0	0	0	0	0	0	0	INHALATI	NA	NA
												0.0118	100.00%																									

Chronic HI By Source

Project Student Chronic HI (Hirsch Elementary School)

*HARP - HRACalc v19044 5/13/2020 5:32:19 PM - Chronic Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\S1.ES-Ch-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S4	335	ALL		591581.7	4153965	NonCance	0.000102	0.002589	2.61E-06	0.00262	4.21E-05	0.002617	0.000347	0.000102	0	1.4E-06	4.17E-05	7.8E-05	0	0	0.002621
S5	335	ALL		591581.7	4153965	NonCance	9.51E-05	0.002414	2.43E-06	0.00244	3.93E-05	0.002439	0.000323	9.48E-05	0	1.31E-06	3.89E-05	7.27E-05	0	0	0.002443
S6	335	ALL		591581.7	4153965	NonCance	9E-05	0.002283	2.3E-06	0.00231	3.71E-05	0.002308	0.000306	8.97E-05	0	1.24E-06	3.68E-05	6.87E-05	0	0	0.002311
S1	335	ALL		591581.7	4153965	NonCance	8.75E-05	0.00222	2.24E-06	0.00225	3.61E-05	0.002244	0.000297	8.72E-05	0	1.2E-06	3.58E-05	6.69E-05	0	0	0.002247
S2	335	ALL		591581.7	4153965	NonCance	8.63E-05	0.002191	2.21E-06	0.00222	3.56E-05	0.002214	0.000293	8.61E-05	0	1.19E-06	3.53E-05	6.6E-05	0	0	0.002217
										0.0118											

Acute HI By Source

Project Acute HI **8.43E-01**

*HARP - HRACalc v19044 5/13/2020 4:51:12 PM - Acute Risk by Receptor and Source - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\S1.A-SrcHRAInput.hra

SRC	REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
S6	155	ALL		591511.5	4154514	NonCance	0.000571	0.29322	0.010141	0	0	0.2932	0.001257	0	0.001227	0	0	7.41E-06	0	0	0.29322
S5	155	ALL		591511.5	4154514	NonCance	0.000548	0.28124	0.009727	0	0	0.2813	0.001205	0	0.001177	0	0	7.11E-06	0	0	0.28125
S4	155	ALL		591511.5	4154514	NonCance	0.000524	0.2689	0.0093	0	0	0.2689	0.001153	0	0.001126	0	0	6.8E-06	0	0	0.2689
S1	155	ALL		591511.5	4154514	NonCance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S2	155	ALL		591511.5	4154514	NonCance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
												0.8434									

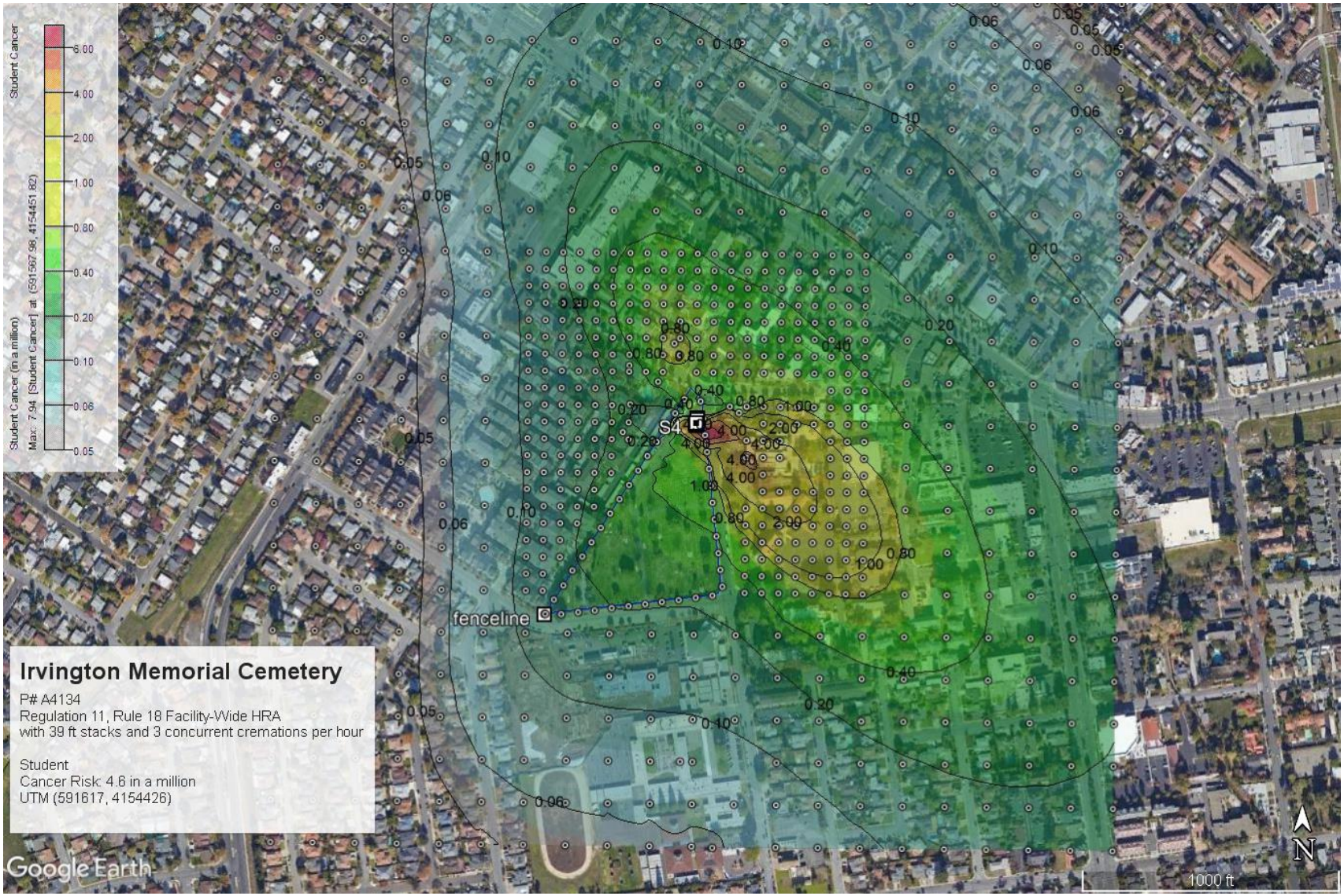
Acute HI By Pollutant

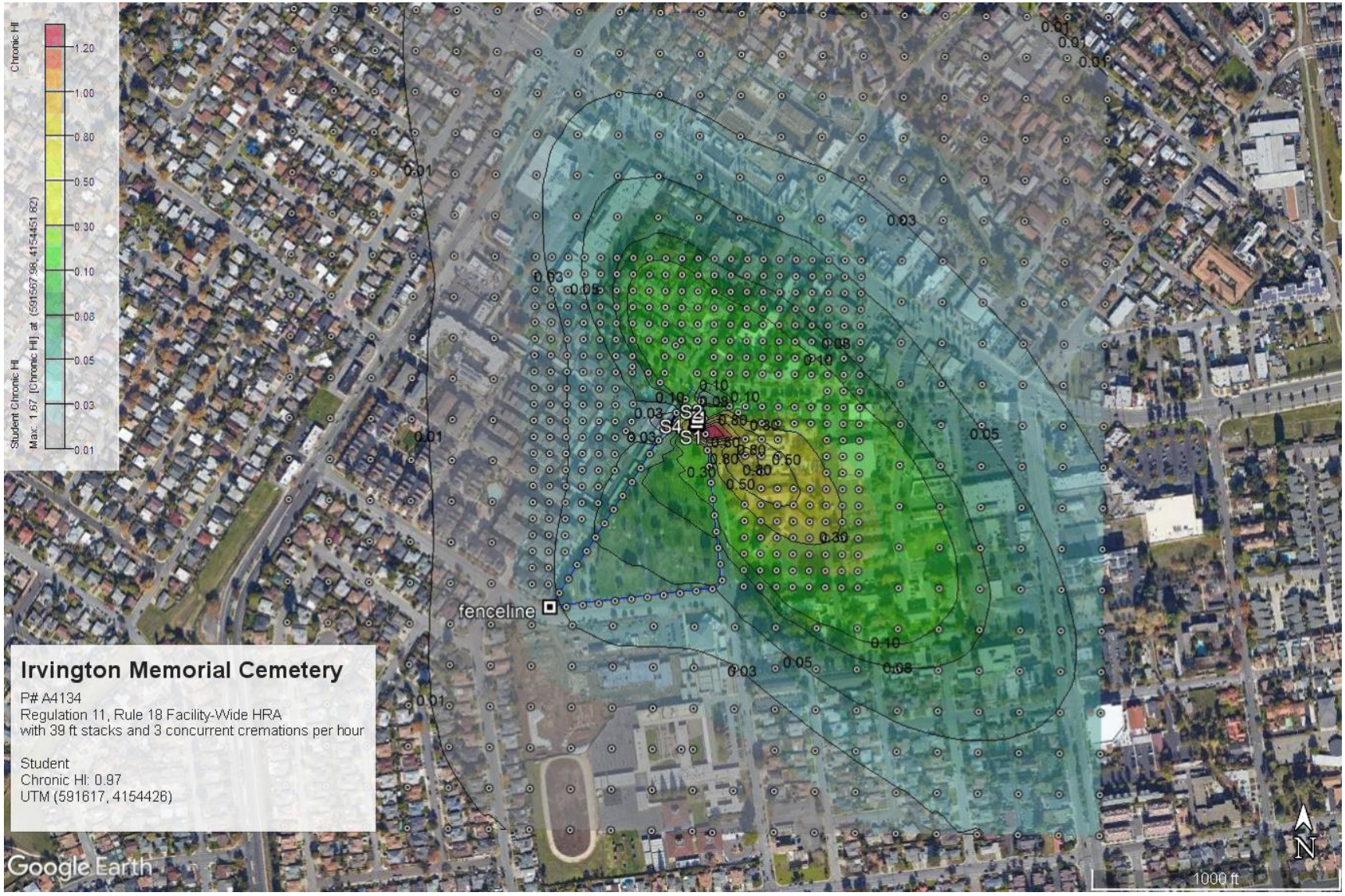
Project Acute HI

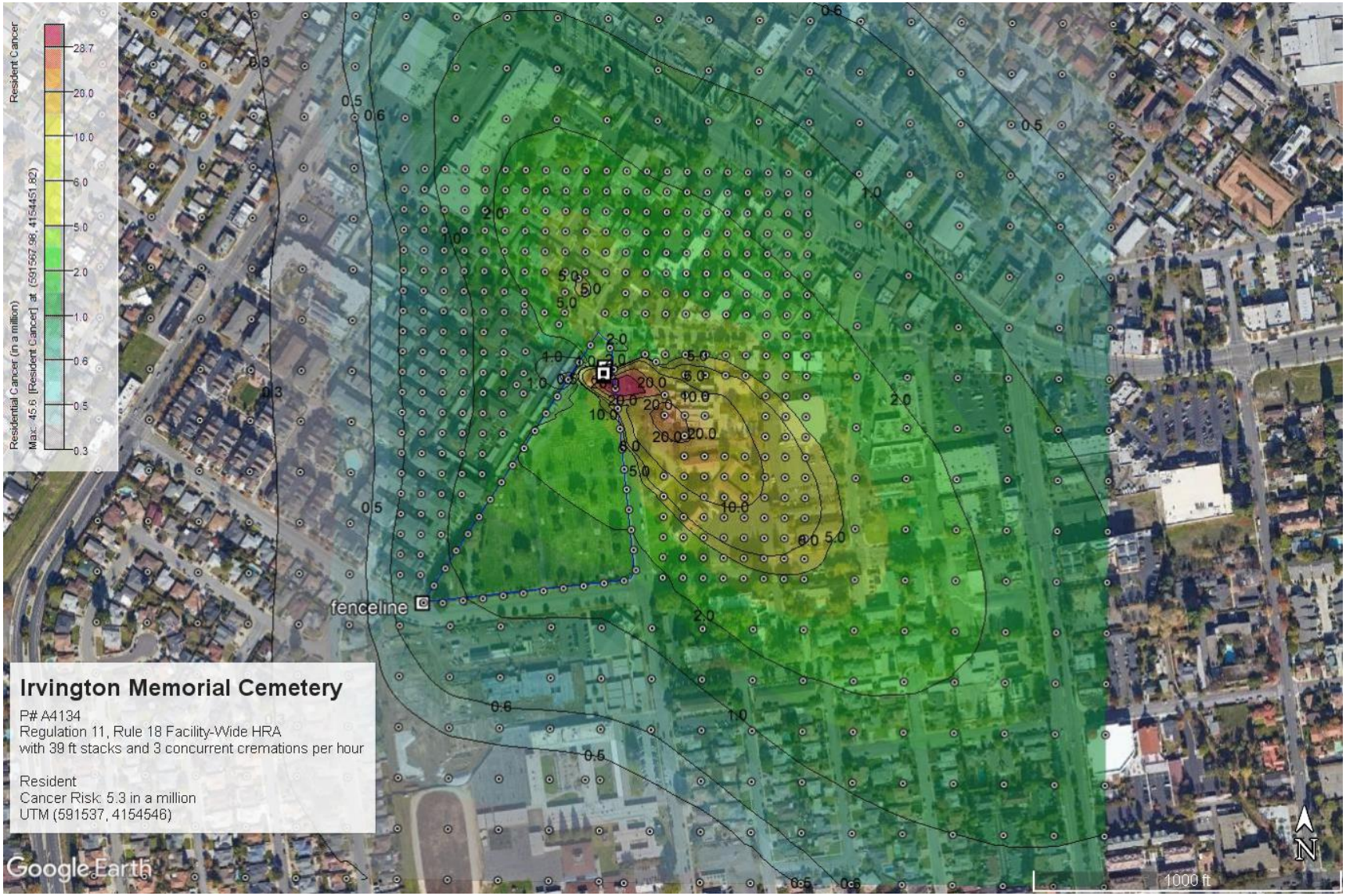
*HARP - HRACalc v19044 5/13/2020 4:50:26 PM - Acute Risk - Input File: C:\HARP2\SA-Student4134\39\ALT39QT\hra\A-HRAInput.hra

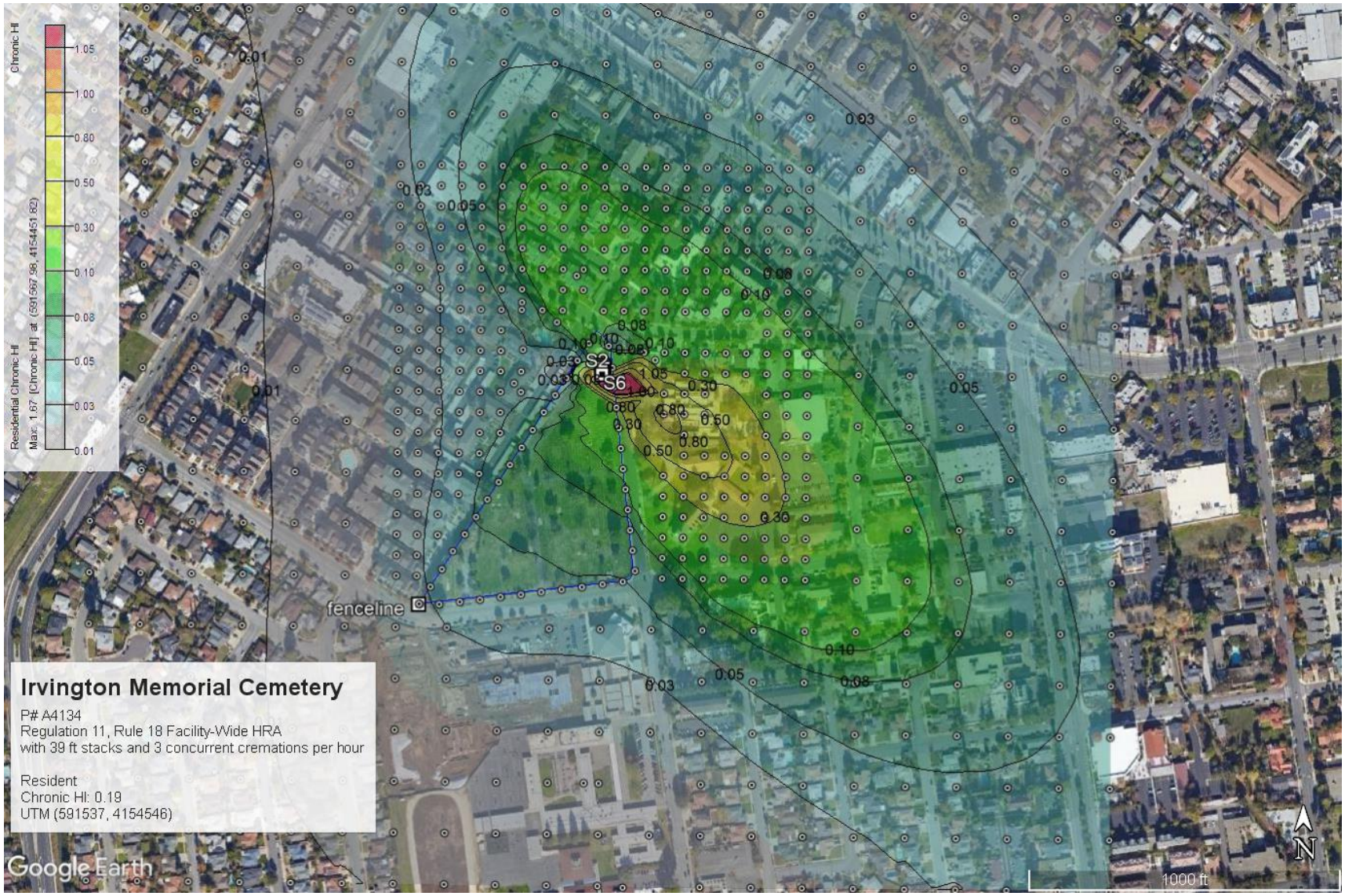
REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/	DETAILS	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL
155	ALL		591511.5	4154514	0.505027	7439976	Mercury	NonCance	0	0.84171	0	0	0	0.8417	99.80%	0	0	0	0	0	0	0	0
155	ALL		591511.5	4154514	0.000329	7440382	Arsenic	NonCance	0.001644	0.001644	0	0	0	0.0016	0.19%	0	0	0	0	0	0	0	0
155	ALL		591511.5	4154514	0.000575	71432	Benzene	NonCance	0	0	2.13E-05	0	0	2E-05	0.00%	0	0	0	0	0	2.13E-05	0	0
155	ALL		591511.5	4154514	0.00093	108883	Toluene	NonCance	0	2.51E-08	0	0	0	3E-08	0.00%	2.51E-08	0	2.51E-08	0	0	0	0	0
155	ALL		591511.5	4154514	0.012106	75070	Acetaldeh	NonCance	0	0	0	0	0	0	0.00%	2.58E-05	0	2.58E-05	0	0	0	0	0
155	ALL		591511.5	4154514	0.000174	7440417	Beryllium	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
155	ALL		591511.5	4154514	0.050913	7440439	Cadmium	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
155	ALL		591511.5	4154514	0.001257	18540299	Cr(VI)	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
155	ALL		591511.5	4154514	0.014186	7440508	Copper	NonCance	0	0	0	0	0	0	0.00%	0.000142	0	0	0	0	0	0	0
155	ALL		591511.5	4154514	0.003166	50000	Formalde	NonCance	0	0	0	0	0	0	0.00%	0	0	5.76E-05	0	0	0	0	0
155	ALL		591511.5	4154514	6.704787	7647010	HCl	NonCance	0	0	0	0	0	0	0.00%	0.003193	0	0.003193	0	0	0	0	0
155	ALL		591511.5	4154514	0.060995	7664393	HF	NonCance	0	0	0	0	0	0	0.00%	0.000254	0	0.000254	0	0	0	0	0
155	ALL		591511.5	4154514	0.016485	7439921	Lead	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
155	ALL		591511.5	4154514	0.005829	7440020	Nickel	NonCance	0	0	0.029147	0	0	0	0.00%	0	0	0	0	0	0	0	0
155	ALL		591511.5	4154514	0.00203	7782492	Selenium	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
155	ALL		591511.5	4154514	9.87E-08	1746016	2,3,7,8-TC	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
155	ALL		591511.5	4154514	2.26E-06	1151	PAHs-w/o	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
155	ALL		591511.5	4154514	0.016506	7439965	Manganes	NonCance	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0	0
														0.8434	100.00%								

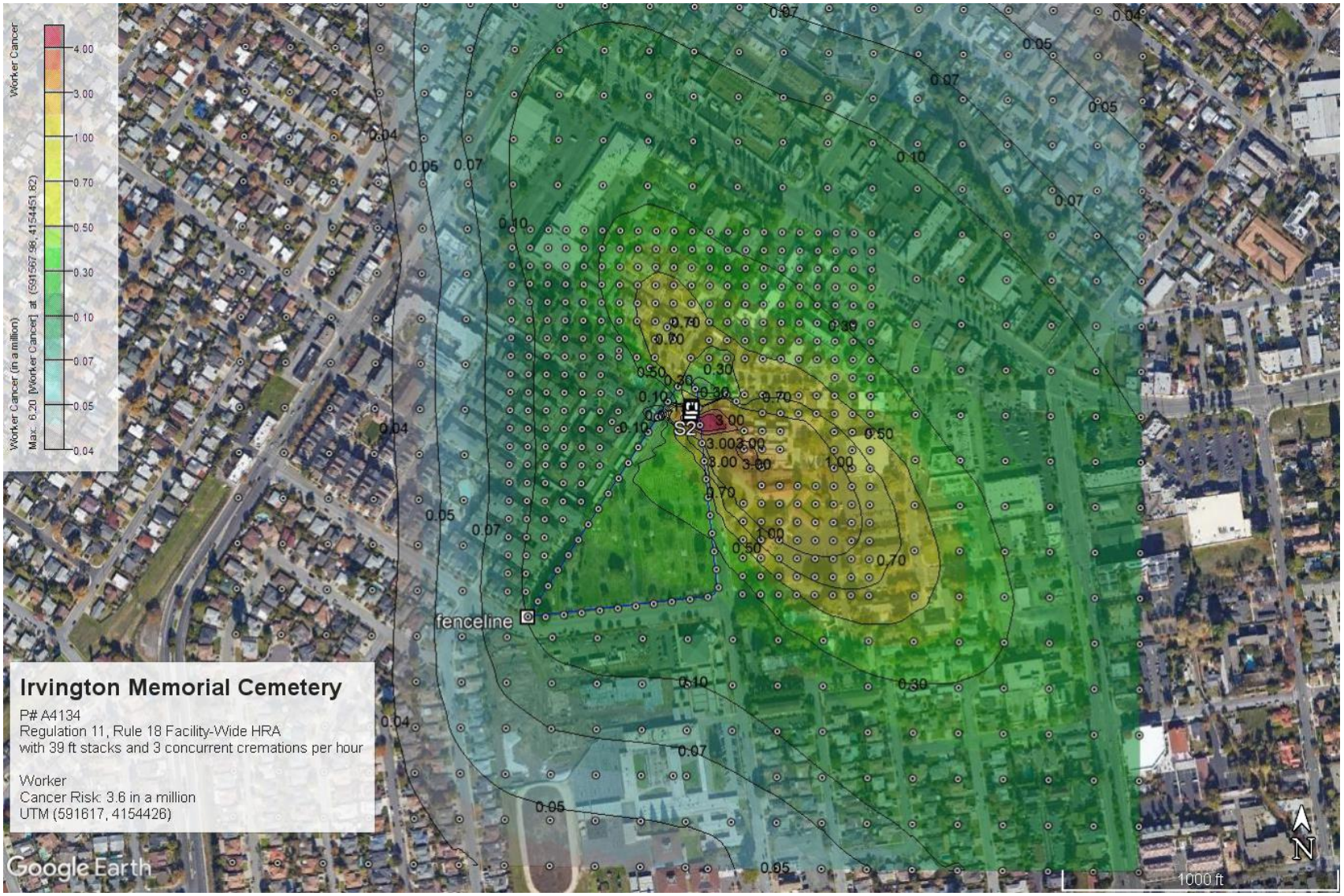
17. Appendix H – Health Risk Contour Maps with Potential Stack Modification and Staggered Firing

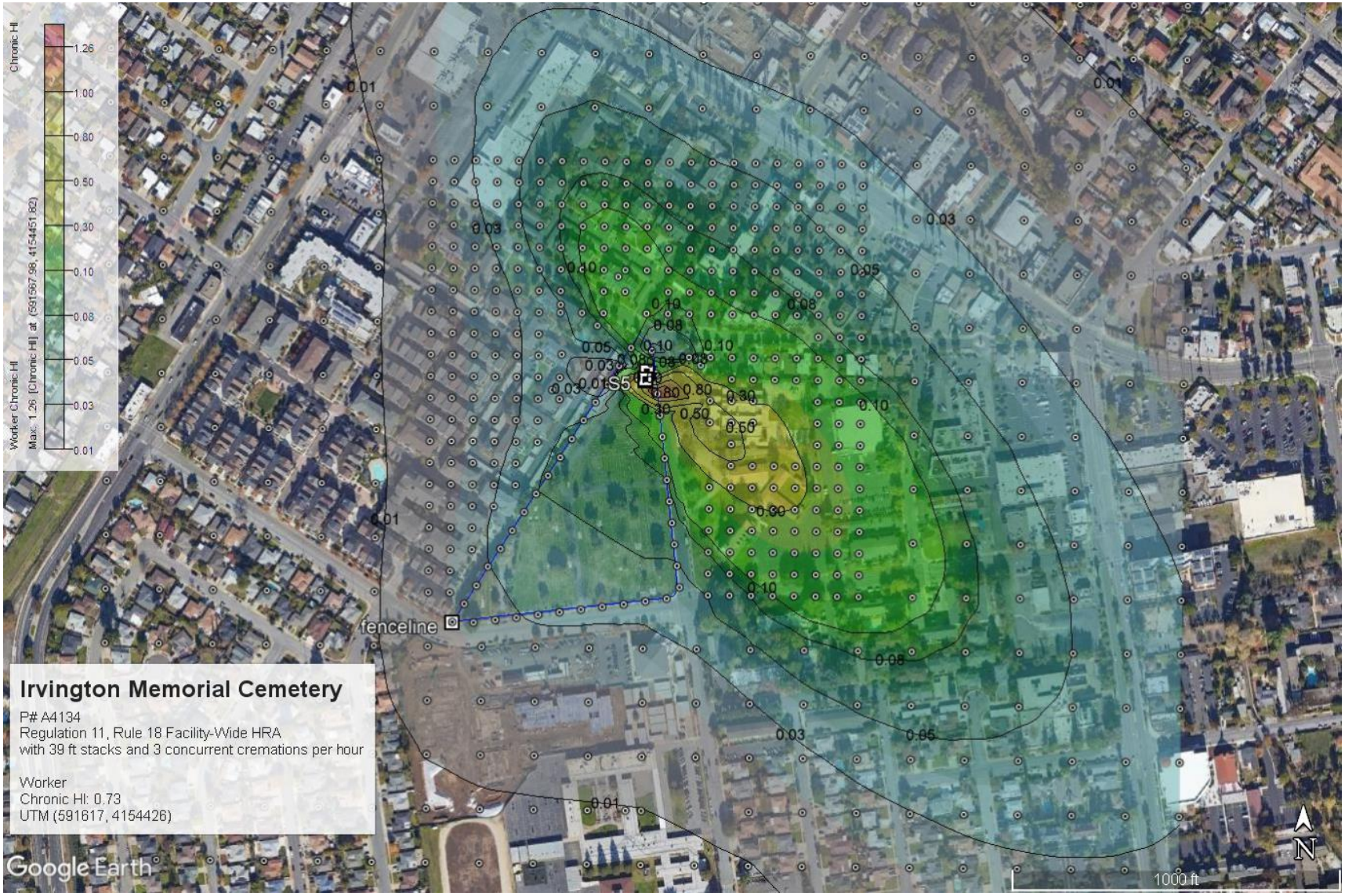

Student Cancer
Student Cancer (in a million)
Max: 7.94 [Student Cancer] at (591567.96, 4154451.82)
6.00
4.00
2.00
1.00
0.80
0.40
0.20
0.10
0.06
0.05
S4
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
with 39 ft stacks and 3 concurrent cremations per hour
Student
Cancer Risk: 4.6 in a million
UTM (591617, 4154426)
Google Earth
1000 ft
N

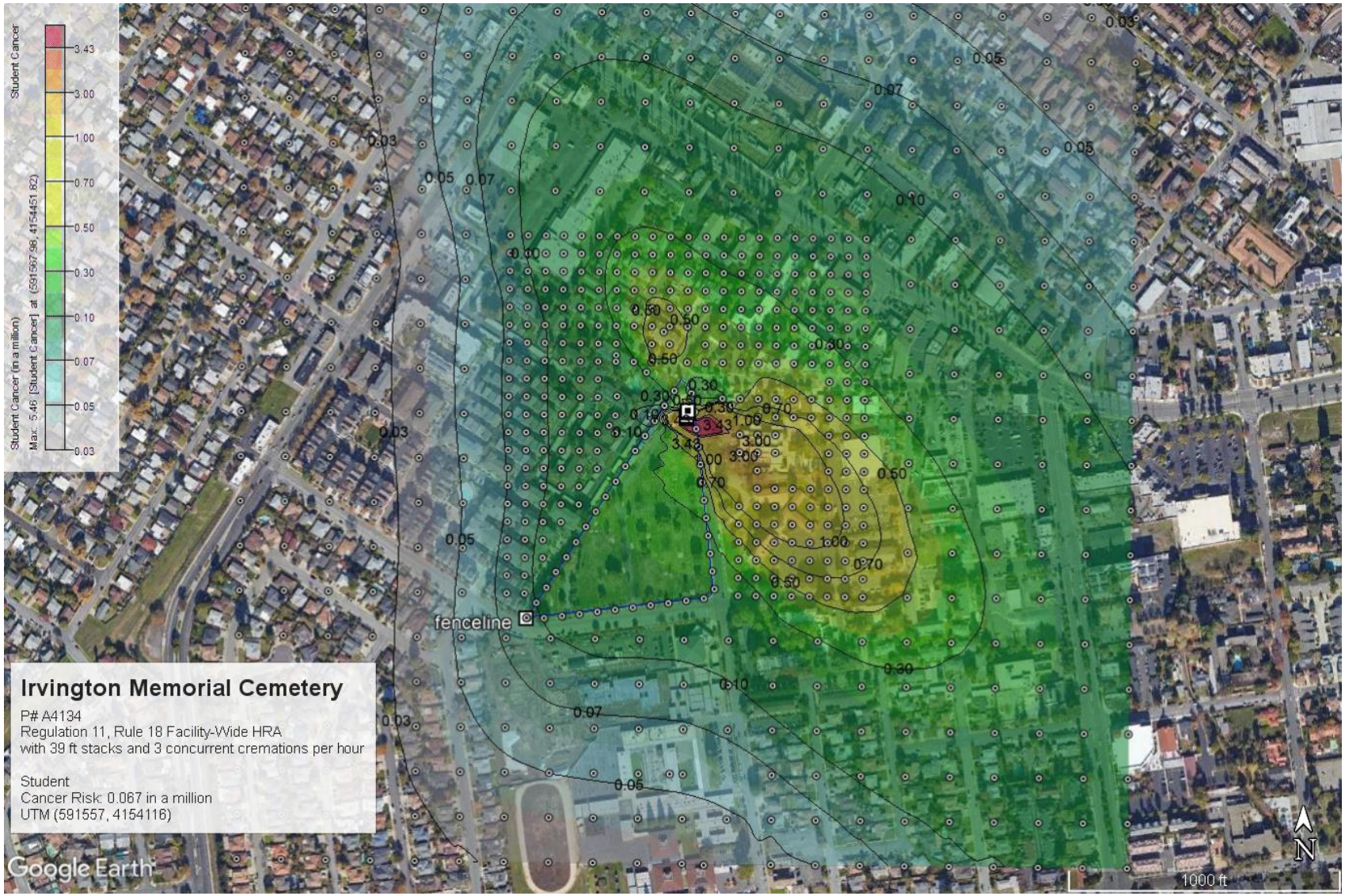

Chronic HI
1.20
1.00
0.80
0.50
0.30
0.10
0.08
0.05
0.03
0.01
Student Chronic HI
Max: 1.67 [Chronic HI] at (591567.98, 4154451.82)
S1
S2
S4
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
with 39 ft stacks and 3 concurrent cremations per hour
Student
Chronic HI: 0.97
UTM (591617, 4154426)
Google Earth
N
1000 ft

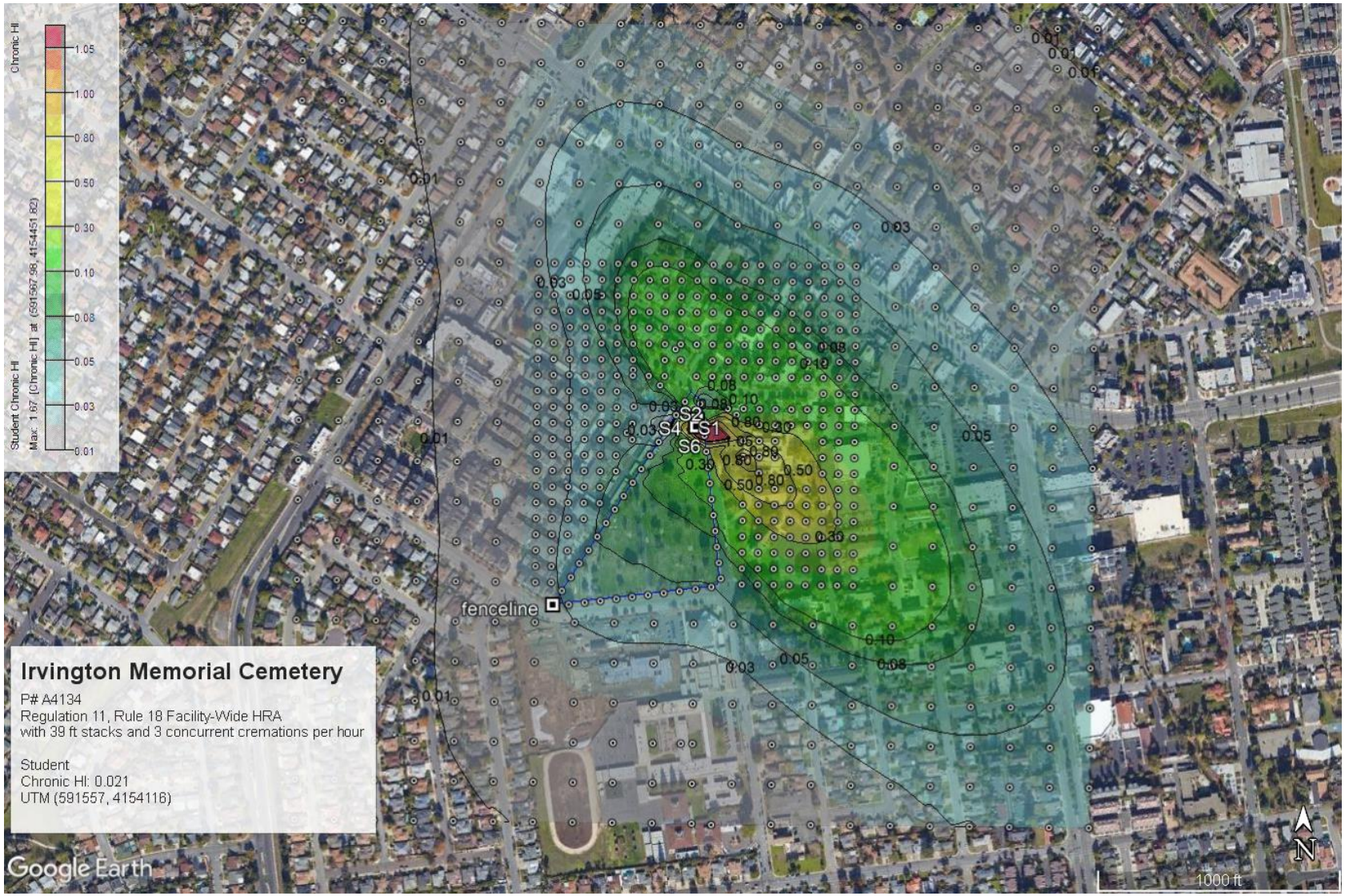

Resident Cancer
Residential Cancer (in a million)
Max: 45.6 [Resident Cancer] at (591567.98, 4154451.82)
28.7
20.0
10.0
6.0
5.0
2.0
1.0
0.6
0.5
0.3
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
with 39 ft stacks and 3 concurrent cremations per hour
Resident
Cancer Risk: 5.3 in a million
UTM (591537, 4154546)
Google Earth
1000 ft
N

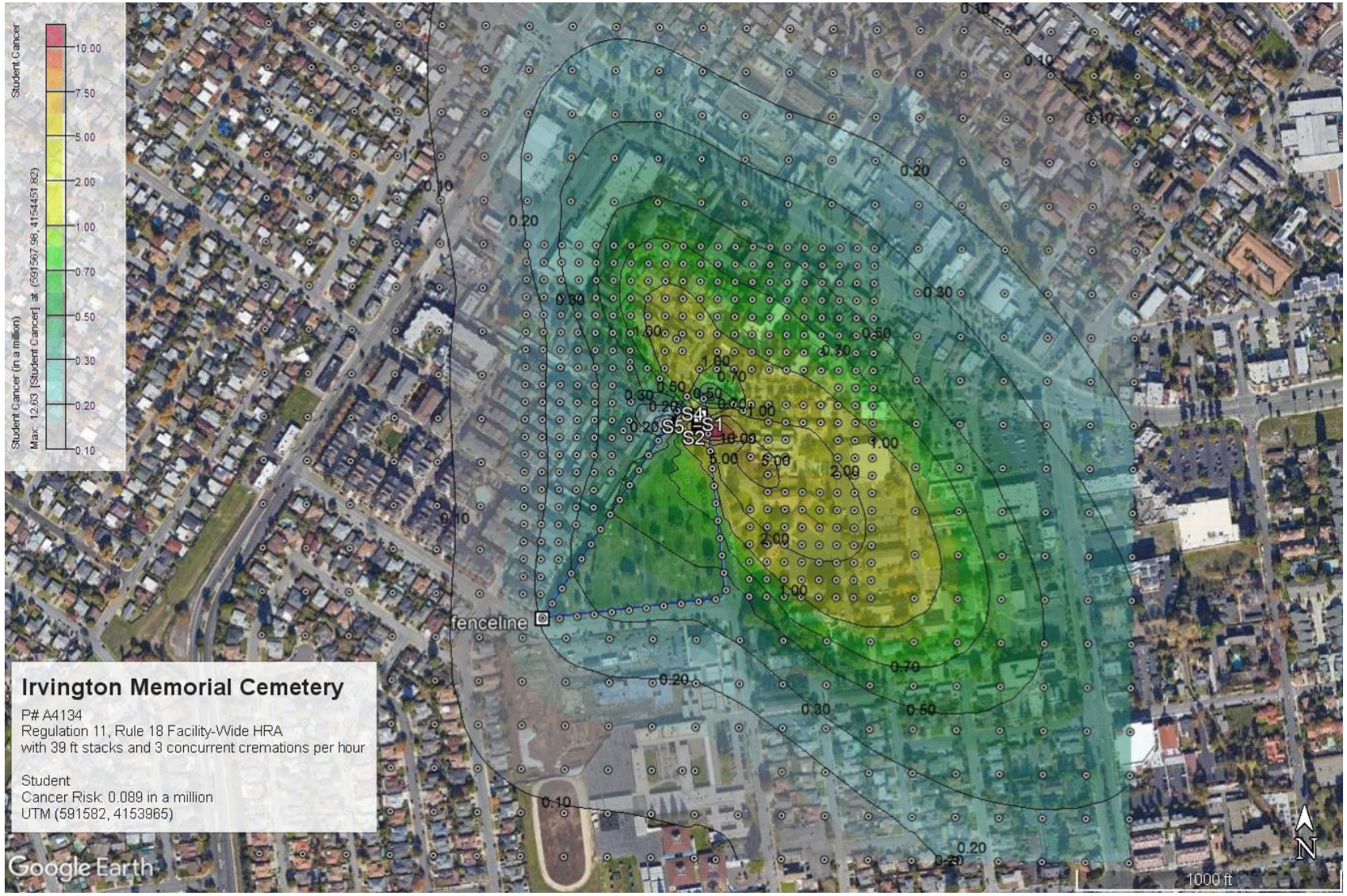

Chronic HI
1.05
1.00
0.80
0.50
0.30
0.10
0.08
0.05
0.03
0.01
Residential Chronic HI
Max: 1.67 [Chronic HI] at (591567.98, 4154451.62)
S2
S6
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
with 39 ft stacks and 3 concurrent cremations per hour
Resident
Chronic HI: 0.19
UTM (591537, 4154546)
Google Earth
1000 ft
N

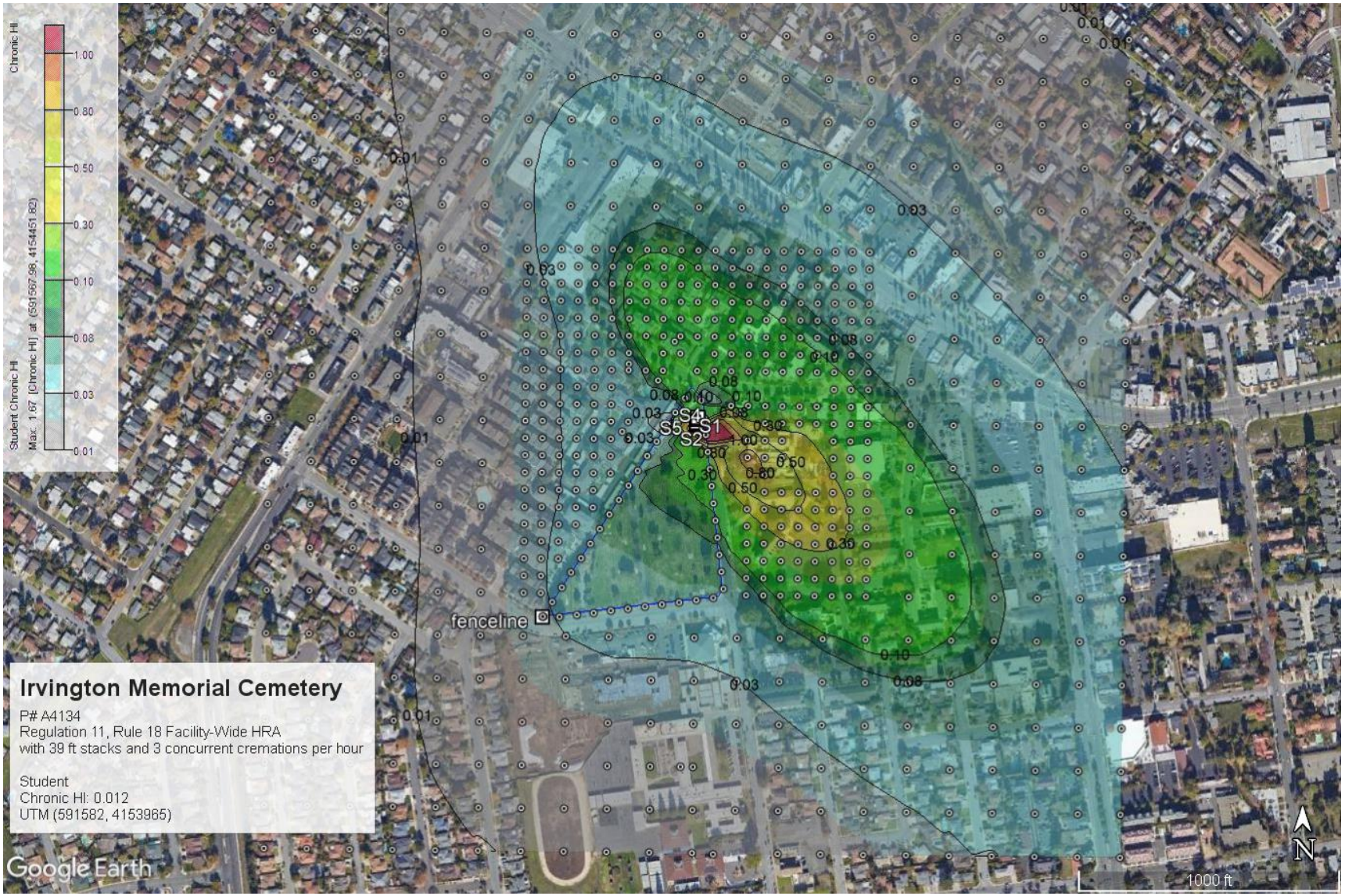

Worker Cancer
Worker Cancer (in a million)
Max: 6.20 [Worker Cancer] at (591567.98, 4154451.82)
4.00
3.00
1.00
0.70
0.50
0.30
0.10
0.07
0.05
0.04
fenceline
S2
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
with 39 ft stacks and 3 concurrent cremations per hour
Worker
Cancer Risk: 3.6 in a million
UTM (591617, 4154426)
Google Earth
1000 ft
N

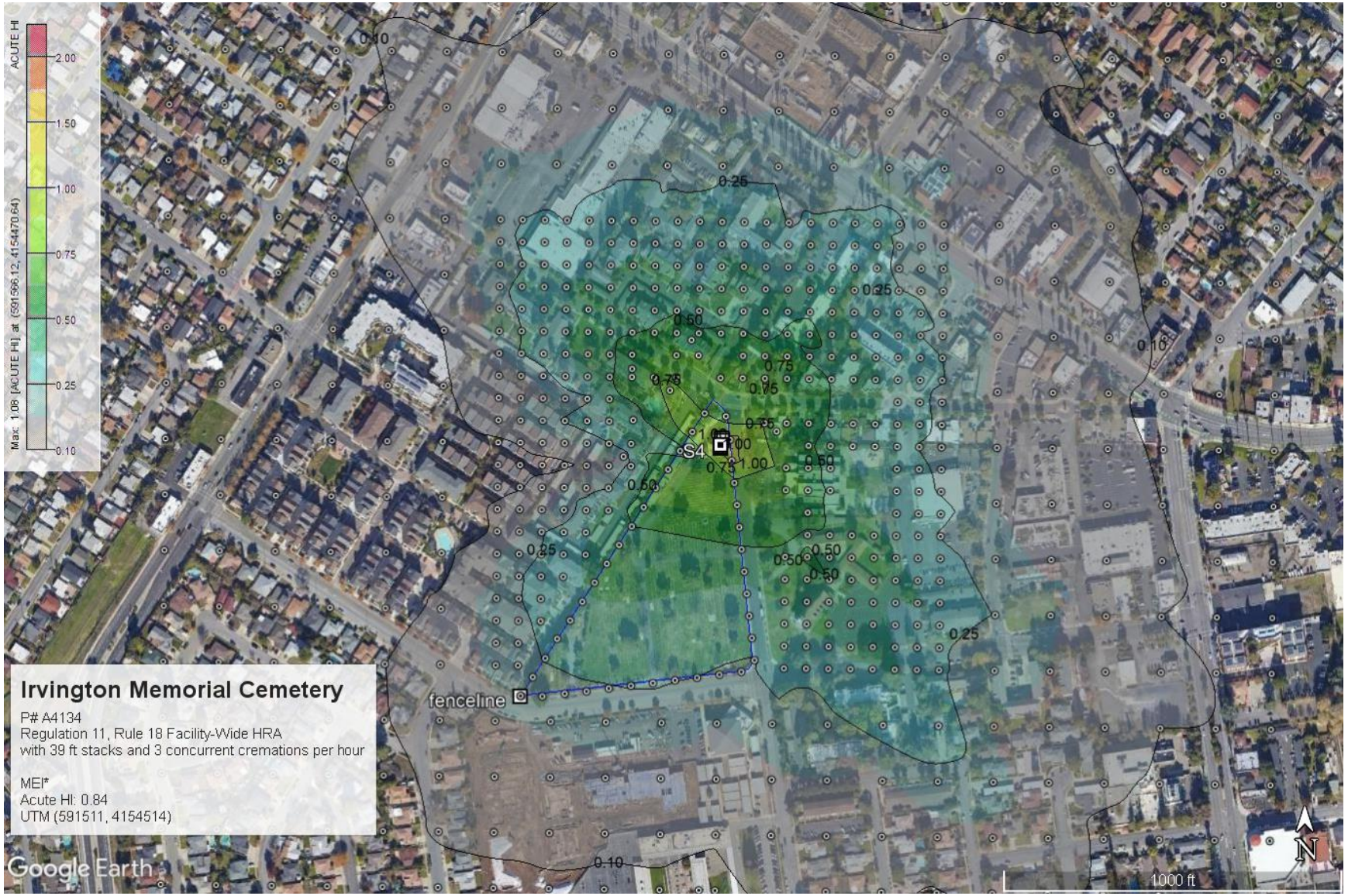

Chronic HI
1.26
1.00
0.80
0.50
0.30
0.10
0.08
0.05
0.03
0.01
Worker Chronic HI
Max: 1.26 [Chronic HI] at (591567.98, 4154451.82)
S5
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
with 39 ft stacks and 3 concurrent cremations per hour
Worker
Chronic HI: 0.73
UTM (591617, 4154426)
Google Earth
1000 ft
N


Student Cancer
Student Cancer (in a million)
Max: 5.46 [Student Cancer] at (591567.96, 4154451.82)
3.43
3.00
1.00
0.70
0.50
0.30
0.10
0.07
0.05
0.03
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
with 39 ft stacks and 3 concurrent cremations per hour
Student
Cancer Risk: 0.067 in a million
UTM (591557, 4154116)
Google Earth
1000 ft
N


Chronic HI
1.05
1.00
0.80
0.50
0.30
0.10
0.08
0.05
0.03
0.01
Student Chronic HI
Max: 1.67 [Chronic HI] at (591567.98, 4154451.82)
S1
S2
S4
S6
fenceline
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
with 39 ft stacks and 3 concurrent cremations per hour
Student
Chronic HI: 0.021
UTM (591557, 4154116)
Google Earth
1000 ft
N


Student Cancer
Student Cancer (in a million)
Max: 12.63 [Student Cancer] at: (591567.98, 4154451.82)
10.00
7.50
5.00
2.00
1.00
0.70
0.50
0.30
0.20
0.10
fenceline
S1
S2
S3
S4
S5
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
with 39 ft stacks and 3 concurrent cremations per hour
Student
Cancer Risk: 0.089 in a million
UTM (591582, 4153965)
Google Earth
1000 ft
N


Chronic HI
1.00
0.80
0.50
0.30
0.10
0.08
0.03
0.01
Student Chronic HI
Max: 1.67 [Chronic HI] at (591567.98, 4154451.82)
fenceline
S1
S2
S4
S5
Irvington Memorial Cemetery
P# A4134
Regulation 11, Rule 18 Facility-Wide HRA
with 39 ft stacks and 3 concurrent cremations per hour
Student
Chronic HI: 0.012
UTM (591582, 4153985)
Google Earth
1000 ft
N



* At the point of maximum impact, or PMI, Acute HI is 1.1, but this fence line area has no receptors.