REPORT

AIR QUALITY TECHNICAL ANALYSIS

Air Quality Analysis Performed for the Seismic Phase 2 Project at the Lawrence Berkeley National Laboratory

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1.0 INTRODUCTION

The Seismic Life-Safety Phase 2 Project (Project) at the Lawrence Berkeley National Laboratory (LBNL) is proposed by the University of California and the U.S. Department of Energy. The LBNL site is an approximately 200-acre University-owned site in Berkeley and Oakland, California and is located adjacent to the University of California Berkeley (UCB) campus.

This report provides the estimated air emissions associated with the construction and operation of the General Purpose Lab (GPL) and other components of the Project. Associated air emissions of criteria pollutants (nitrogen oxides [NO_x], carbon monoxide [CO], particulate matter less than 10 microns [PM_{10}], sulfur dioxide [SO_2], and reactive organic gases [ROG]), toxic air contaminants (TACs), and carbon dioxide (CO_2; a greenhouse gas) were quantified.

In addition, potential human health impacts were estimated from the TAC emissions quantified.

1.1 Purpose

This air quality impact analysis was performed in support of a draft environmental impact report (DEIR) submitted for the proposed Project.

1.2 Project Overview

The proposed Project includes the demolition of some seismically “poor” and “very poor” structures and provides new space for the displaced occupants and functions elsewhere on the LBNL campus. The Project would also allow for the consolidation of life science personnel from various locations on and off the LBNL main hill site in a new facility to be constructed on the current Building 25/25B location, at the heart of the LBNL campus.

Building 85, constructed in 1996, was later discovered to have been built on two landslides. The landslides could be unstable in an earthquake. In addition, requirements for building performance in the event of an earthquake have been increased since that time.

Building 55 and the Building 71 trailers that would be demolished (71C, 71F, 71J, 71K, and 71P) are located in the northeastern section of the site. Building 25/25B and the site of the proposed GPL is in the central portion of the site.

As such, the Project consists of the following building demolition, construction, and upgrade activities:

Table 1-1. Proposed Project Actions

Action	Gross Square Footage	Footprint Square Footage
Building 25/25B Demolition	20,664	17,100
GPL Construction at B25/25B Site	43,000	14,000
Building 55 Demolition	19,048	14,327
Building 71 Trailers (71C, F, J, K and P) Demolition	3,348[1]	3,348[1]
Building 85 Seismic Strengthening	Not applicable	Not applicable

Based on the Project action descriptions in Table 1-1 above and additional information about the operation of the GPL building and volumes of truck traffic associated with these construction/ demolition activities, air pollutant emissions were estimated.

1.3 Analyses Performed

Activities for which air emissions were estimated were divided up into three categories:

1) Emissions from ongoing operation of the GPL once construction has been completed. These emissions are associated with research laboratory chemical use, natural gas combustion in water boilers, and a backup diesel generator included in the building design.

2) Emissions from off-road construction and demolition equipment used to demolish existing buildings and construct the GPL. These include emissions from internal fuel combustion and fugitive dust generated by these activities.

3) Emissions from on-road trucks travel associated with the construction and demolition phases of the Project. Only vehicle tailpipe emissions were considered in this analysis.

Maximum daily and annual criteria pollutant emissions were estimated, along with maximum CO_2 emissions.

[1] Note that after completion of the analyses discussed in this report, Golder was informed that an additional trailer was added to the Building 71 demolition list (71D), which would increase the square footage from 3,348 gsf to 3,842 gsf. Since this change adds only 1% to the total square footage demolished, it would have an inconsequential effect on the air quality impact assessment and was not considered in the analyses performed in this report.

TAC emissions from the emission sources listed above were used in conjunction with dispersion modeling to estimate potential maximum exposure concentrations at hypothetical human receptor locations, which were converted to estimates of maximum lifetime excess cancer risk and chronic health hazard.

For on-road truck travel and onsite, off-road equipment, TAC and $PM_{2.5}$ emissions associated with construction and demolition projects identified at both the LBNL and UCB (for those projects that might contribute cumulatively) facilities during the Project period (approximately August 2010 through April 2014) were quantified and used to estimate maximum lifetime excess cancer risk and non-cancer health hazard at hypothetical human receptor locations, as well as maximum annual average $PM_{2.5}$ concentrations in ambient air.

2.0 AIR EMISSION ESTIMATES

The following sections provide descriptions of the sources of air pollutant emissions currently anticipated as part of the Project.

2.1 General Purpose Lab Operations Emissions

Based on information provided by LBNL and its contractors, GPL project operations are expected to include the following sources of air emissions:

- Laboratory hood exhaust vented out of two stacks
- One backup diesel generator
- Two natural gas fired boilers
- Mobile emissions from employee vehicles

A summary of all GPL operation criteria pollutant and CO_2 emission estimates is presented in Table 2-1 and TAC emission estimates are presented in Table 2-2. The following sections detail how criteria pollutant, CO_2, and TAC emission estimates were determined for the GPL project.

2.1.1 Laboratory Emissions

A baseline emission inventory for the LBNL facility was developed for the 2006 LRDP HHRA study (SECOR, 2004). The baseline emissions inventory, along with toxicity factors, was then used in a screening process to identify chemicals of potential concern (COPCs) based on those chemicals representing at least 90% of the toxicity-weighted TAC emission from the facility. For purposes of this study, it was assumed that any COPCs emitted from a laboratory source in the 2006 LRDP HHRA study will be emitted by the laboratories in the GPL building.

The baseline emissions inventory for the laboratories was then used to develop TAC emission factors based on laboratory square footage. These emission factors were used to estimate TAC emissions from future laboratories in the LRDP for the facility, and were used in the current assessment to estimate TAC emissions from the GPL building. The GPL building is estimated to have 16,250 net square feet of laboratory space, which was used in conjunction with the emission factors to estimate TAC emissions.

Detailed calculations of laboratory TAC emission estimates are presented in Appendix A.

2.1.2 Backup Diesel Generator

One 350 kilowatt (kW) diesel-fired emergency backup generator is proposed for the GPL project. Based on data for a typical 350 kW diesel generator, the engine for this unit will have approximately 535 horsepower. The generator was assumed to operate up to 50 hours per year.

Emission factors for potential volatile organic TACs for the generator were taken from the California Air Toxics Emission Factors (CATEF) database.[1] Since neither this database nor information provided in the U.S. EPA AP-42 document included metals emissions, emission factors for metal TACs were obtained from the emission factors published by the Ventura County Air Pollution Control District for the AB2588 program[2].

Emissions of individual TACs form the diesel generator were calculated for informational purposes only. For the risk assessments conducted, only diesel particular matter (DPM) was used, as the toxicity factors for DPM account for the toxicity of all TAC components of diesel exhaust.

Criteria pollutant emissions, and CO_2, were based on emission factors from AP-42, generator specification sheet, and the engine specification sheet. Particulate emissions were not calculated since DPM was estimated under the TAC emission estimates. It was assumed that all particulate from the diesel generator would be DPM.

Detailed emission calculations for criteria pollutants and CO_2 from the backup diesel generator are presented in Appendix B.

2.1.3 Natural Gas Boilers

Two natural gas-fired boilers with a total combined maximum heat input of 3.3 million British thermal units (MMBTU) per hour are proposed for the GPL Project. Emission factors for potential TAC emissions for these boilers were taken from the following data sources, in descending order of preference:

- CATEF database
- U.S. EPA AP-42 document

Based on information provided by LBNL and its contractors, annual emissions for the boilers were based on a maximum annual fuel usage of 6,000 therms.

Criteria pollutant emissions, and CO_2, were based on AP-42 emission factors.

[1] See http://www.arb.ca.gov/ei/catef/catef.htm.

[2] See http://www.aqmd.gov/prdas/pdf/COMBEM2001.pdf.

Detailed emission calculations of for criteria pollutants, CO_2, and TACs from the natural gas fired boilers are presented in Appendix B.

2.1.4 Employee Vehicles

The URBEMIS (Urban Emissions) model, Version 9.2.4 (June 2007) was used to estimate emissions from employee vehicles associated with Project operations. URBEMIS accounts for tailpipe emissions for a project under the "operational emissions" section of the model. URBEMIS estimates emissions from vehicles based on the user selected "land use type" and an associated vehicle trip rate. For the GPL project, the "Junior College (2-year)" land use type was selected since trip rates could be based on the square footage of the GPL building (the "University/College (4-year) land use type did not allow for the trip rate to be based on square footage, only the total number of students).

A total area of 43,000 square feet (equal to the gross square footage of the GPL building) was input into URBEMIS under the Junior College land use type. The default vehicle trip rate of 27.49 vehicle trips per 1,000 square feet was modified to 4.65 vehicle trips per 1,000 square feet to yield a total daily vehicle trip rate of 200, which was estimated to account for both employee vehicles and delivery vehicles. All other values associate with emission estimates for employee vehicles were kept as the URBEMIS default values. URBEMIS summary tables, which present daily and annual emissions estimates for employee vehicles, are presented in Appendix C.

2.2 Project Construction/Demolition Off-Road Equipment Emissions

Several individual construction/demolition projects occur as part of the proposed Project. Based on information received from LBNL and its contractors, these projects (referred to as activities) are defined as follows:

- Building 25 Demolition
- Grading for GPL Building Construction
- GPL Building Construction
- Building 71 Trailer Demolition
- Building 55 Demolition

Each of these activities was explicitly modeled in URBEMIS to estimate the criteria pollutant, CO_2, and TAC emissions resulting from the use of off-road equipment and soil disturbances. For purposes of TAC emission estimates, only DPM was estimated as discussed in Section 2.1.2 above. It was assumed that DPM was equal to 100% of the PM_{10} emissions resulting from engine exhaust.

Output from the URBEMIS model is included in Appendix D. A summary of the criteria pollutant, CO_2, and DPM emission rates is presented in Table 2-3 and the following sections detail the basis of the emission estimates for each activity.

2.2.1 Building 25 Demolition

The demolition of Building 25 was modeled as a demolition activity using URBEMIS to estimate criteria pollutant, CO_2, and DPM emission rates. The demolition activity was defined as occurring 5 days a week from August 2, 2010 through January 28, 2011 for a total of six months.

URBEMIS estimates emissions for demolition activities by using the estimated volume of the building to be demolished. URBEMIS uses the length, width, and height input by the user of the building to be demolished to calculate a total building volume. Since URBEMIS does not account for the geometry of the building to be demolished, the length, width and height do not need to be representative of the physical geometry of the building, but rather the resulting volume should represent the actual volume of the building; therefore, building dimensions resulting in a total building volume of 343,220 cubic feet, approximately the volume of Building 25, were entered.

A maximum daily volume of buildings to be demolished concurrently is also defined in URBEMIS. Similar to the total building volume, a width, length and height (which do not need to represent the geometry of the actual building, but result in a representative building volume) are defined which are then used to calculate a maximum daily volume of buildings to demolished concurrently. For this demolition activity, building dimensions representing 8,384 cubic feet per day were entered.

The values used to define the maximum daily building volume to be demolished were selected so that the number of daily truck trips calculated by URBEMIS was approximately four. This number of daily truck trips is equal to, or slightly more than, the information provided by LBNL and its contractors indicated would occur for this activity.

For this activity, default URBEMIS values were used for all other data inputs including the number and type of equipment.

As stated above, URBEMIS output is included in Appendix D and summaries of the criteria pollutant, CO_2, and DPM emission rates are presented in Table 2-3.

2.2.2 Grading for GPL Building Construction

The site preparation for the construction of the GPL building includes grading. This grading was modeled as a “mass site grading” activity using URBEMIS to estimate criteria pollutant, CO_2, and DPM emission rates. The grading activity was defined as occurring 5 days a week from April 1, 2011 through April 29, 2011 for a total of one month.

URBEMIS estimates emissions for grading activities by using the user defined "total acreage to be graded" and the user defined "maximum daily acreage disturbed". For this activity, the following values were defined:

- Total acreage to be graded = 1.97
- Maximum daily acreage disturbed = 0.80

For this activity, the maximum daily acreage disturbed was set equal to the estimated total area of the activity site and the total acreage to be graded was the default value estimated by URBEMIS based on the gross square footage of the GPL building. Default URBEMIS values were used for all other data inputs including the number and type of equipment.

As stated above, URBEMIS output is included in Appendix D and summaries of the criteria pollutant, DPM, and CO_2 emission rates are presented in Table 2-3.

2.2.3 GPL Building Construction

The construction of the GPL building was modeled as a "construction" activity using URBEMIS to estimate criteria, DPM and greenhouse gas emission rates. The construction activity was defined as occurring 5 days a week from May 2, 2011 through April 26, 2013 for a total of 25 months.

For this activity, default URBEMIS values were used for all data inputs including the number and type of equipment. No input values were modified.

As stated above, URBEMIS output is included in Appendix D and summaries of the criteria pollutant, CO_2, and DPM emission rates are presented in Table 2-3.

2.2.4 Building 71 Trailer Demolition

Several trailers that are located adjacent to building 71 will be demolished. The trailers are 71C, F, J, K and P. The demolition of these trailers was modeled as a demolition activity using URBEMIS to estimate criteria pollutant, CO_2, and DPM emission rates. The demolition activity was defined as occurring 5 days a week from September 3, 2012 through April 26, 2013 for a total of eight months.

As noted in Section 2.2.1 above, URBEMIS estimates emissions for demolition activities by using the estimated volume of the building to be demolished. Since URBEMIS does not account for the geometry of the building to be demolished, the length, width and height do not need to be representative of the physical geometry of the building, but rather the resulting volume should represent the actual volume of the building; therefore, building dimensions resulting in a total building volume of 40,368 cubic feet, approximately the volume of the Building 71 trailers to be demolished, were entered.

As noted for Building 25, the maximum daily building volume to be demolished were selected so that the number of daily truck trips calculated by URBEMIS was approximately equal to the number of daily truck trips provided by LBNL and its contractors indicated for this activity (three trips per day [or 6,960 cubic feet] for the Building 71 trailer demolitions).

For this activity, default URBEMIS values were used for all other data inputs including the number and type of equipment.

As stated above, URBEMIS output is included in Appendix D and summaries of the criteria pollutant, CO_2, and DPM emission rates are presented in Table 2-3.

2.2.5 Building 55 Demolition

The demolition of Building 55 was modeled as a demolition activity using URBEMIS to estimate criteria pollutant, CO_2, and DPM emission rates. The demolition activity was defined as occurring 5 days a week from June 3, 2013 through April 25, 2014 for a total of 11 months.

As noted in Section 2.2.1 above, URBEMIS estimates emissions for demolition activities by using the estimated volume of the building to be demolished. Since URBEMIS does not account for the geometry of the building to be demolished, the length, width and height do not need to be representative of the physical geometry of the building, but rather the resulting volume should represent the actual volume of the building; therefore, building dimensions resulting in a total building volume of 288,000 cubic feet, approximately the volume of Building 55 to be demolished, were entered.

As noted for Building 25, the maximum daily building volume to be demolished were selected so that the number of daily truck trips calculated by URBEMIS was approximately equal to the number of daily truck trips provided by LBNL and its contractors indicated for this activity (four trips per day [or 8,400 cubic feet] for the Building 55 demolition).

For this activity, default URBEMIS values were used for all other data inputs including the number and type of equipment.

As stated above, URBEMIS output is included in Appendix D and summaries of the criteria pollutant, CO_2, and DPM emission rates are presented in Table 2-3.

2.2.6 Emission Rate Scenarios

Three different emission rate scenarios for construction/demolition off-road equipment emissions were necessary for conducting dispersion modeling assessments for lifetime excess cancer risk (LECR), chronic hazard, and $PM_{2.5}$ ambient concentrations. The three different emission rate scenarios are as follows:

1) Construction/Demolition total project DPM (PM_{10} exhaust) emissions [for LECR assessment]

2) Construction/Demolition maximum annual DPM (PM_{10} exhaust) emissions [for chronic hazard assessment].

3) Construction/Demolition maximum annual $PM_{2.5}$ (exhaust and fugitive) emissions [for $PM_{2.5}$ assessment]

For the total construction/demolition DPM emissions scenario (Scenario 1), the total mass emission rate for each activity across all years was determined. This constitutes the total mass emitted for each activity and is used in the LECR risk assessments described in Section 4.2 below.

For the construction/demolition maximum annual DPM emissions scenario (Scenario 2), the worst-case year resulting in the highest annual emission rates was determined. Table 2-3 presents emissions for each activity in each corresponding year and identifies the year which constitutes "worst-case". Based on the emissions modeling conducted with URBEMIS as described above, the worst-case year for DPM emissions was 2012. These emissions were used for the chronic hazard assessment described in Section 4.2 below.

The maximum annual $PM_{2.5}$ emission rate for both the construction/demolition scenario (Scenario 3) was determined similar to the maximum annual DPM emission rate in Table 2-3. Both exhaust and fugitive dust sources of $PM_{2.5}$ were analyzed on an annual basis in order to determine the "worst-case" year. Based on the emissions modeling conducted with URBEMIS as described above, the worst-case year for construction/demolition $PM_{2.5}$ emissions was 2013. These emissions were used for the $PM_{2.5}$ ambient concentration assessment described in Section 3.3.3 below.

2.3 Project Construction/Demolition On-Road Truck Emissions

Emissions of air pollutants were estimated for offsite, on-road truck traffic projected to be associated with demolition and construction activities defined for the Project. It should be noted that the projected truck traffic volumes were conservatively estimated for purposes of estimating air pollutant emissions, but should not be used for other purposes as these estimates are likely to be higher than actual values.

2.3.1 Criteria Pollutant and CO_2 Emissions

Maximum daily and annual emissions of ROG, NO_x, PM_{10}, $PM_{2.5}$, CO, SO_2, and CO_2 were estimated for offsite, on-road truck traffic associated with Project demolition and construction activities. Emissions of these pollutants were based on estimates of maximum daily or annual truck roundtrips, an estimated roundtrip distance of 15 miles, and emission factors (in units of pounds per thousand miles travelled) derived from the EMFAC2007 (version 2.3) emissions model.

A maximum single-day volume of truck trips associated with the Project for construction/demolition activities of 14 roundtrips was provided by LBNL. Based on average daily roundtrip data provided by LBNL, the maximum number of truck roundtrips in any 12-month period was estimated to be 1,671 (supporting information provided in Appendix E).

The EMFAC2007 emission model was executed for simulation year 2009 for the Bay Area. Two separate model runs had to be executed to obtain data for PM_{10} and $PM_{2.5}$ (model run outputs are provided in Appendix F). The model output was used to estimate pollutant emission factors in units of pounds per thousand miles travelled.

The emission calculations and results are summarized in Table 2-4.

2.3.2 Toxic Air Contaminant Emissions

TAC emissions from on-road trucks were represented by DPM emissions, as the health effects from all TAC subcomponents of DPM are represented in the toxicity values for DPM[3]. Total DPM emissions per mile of roadway travelled due to on-road truck traffic associated with construction/demolition projects were estimated for the following scenarios:

1) Maximum 12-month DPM emissions for Project construction/demolition activities (for assessment of Project-related chronic hazard).

2) Maximum total DPM emissions for Project construction/demolition activities (for assessment of Project-related LECR).

Estimated average daily truck trips per month were provided by LBNL over the life of the project. These data are provided in Appendix F. Maximum on-road truck trips for the two scenarios listed above were determined. DPM emissions, in units of grams per mile traveled, were estimated by multiplying the number of round trips estimated over the appropriate averaging period by two (to convert from round trips to single trips) and the exhaust PM_{10} emission factor determined by executing the EMFAC2007 emissions model for model year 2009 for the mix of trucks anticipated for the Project.

The associated calculations and results for these DPM emissions are provided in Table 2-5.

2.4 Overall Project Greenhouse Gas Emissions

As discussed in Section 2.1 above, Project operations will have direct greenhouse gas emissions (i.e. CO_2 emissions) from natural gas combustion in boilers and diesel fuel combustion in the backup

[3] See guidance from the California Office of Health Hazard Assessment in Appendix D of *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, California Environmental Protection Agency and Office of Environmental Health Hazard Assessment, August 2003

generator. Also, Project operations will have indirect CO_2 emissions resulting from employee commute trips, which were also quantified in Section 2.1.

In addition to these greenhouse gas emissions, electricity usage at the GPL building will result in indirect CO_2 emissions from the various electrical generating resources utilized by the electrical utility. LBNL estimates that the GPL building will require up to 4,700 megawatts of electricity annually to operate. The Climate Registry provides a greenhouse gas reporting protocol document that summarizes appropriate CO_2 emission factors associated with electricity usage in various regions within California.[4] This resource was used to estimate CO_2 emissions associated with electricity usage at the GPL building.

Estimated annual emissions of CO_2 from the Project are summarized in Table 2.6 for Onsite Stationary Sources (i.e. boilers and backup diesel generator), Worker Commuting (i.e. employee commute trips), and Offsite Electrical Generation (i.e. the 4,700 megawatts of annual electricity usage).

For comparison, CO_2 emissions from operations that are being replaced by the GPL building (i.e. offsetting emissions decreases) were estimated. This includes the displacement of electricity and natural gas usage at buildings to be demolished as part of the Project, as well as the shift of LBNL operations from the Potter Street building to the GPL building. LBNL provided data for historical electricity and natural gas usage at the buildings to be demolished, and electricity usage at the Potter Street building (historical natural gas usage was not available).

Such historical calculations were conducted for both 2004 and 2008 historical energy usage at the operations being displaced by the GPL building. The reason for this was that although 2008 provided the most recent complete calendar year of data, some operations had already begun to shut down in that year. 2004 operations were more representative of historical averages. Where exact calendar year data were not available, energy usage was estimated based on available data.

It was assumed that overall employee commute emissions would be relatively unchanged with the shift in location of operations, given the wide range of locations that such commutes would originate from.

Therefore, a comparison of Project CO_2 emissions to 2004 displaced CO_2 emissions is provided in Table 2-6 and a comparison of Project CO_2 emissions to 2008 displaced CO_2 emissions is provided in Table 2-7.

[4] Climate Registry General Reporting Protocol (Ver. 1.1, May 2008), http://www.theclimateregistry.org/downloads/GRP.pdf.

2.5 Cumulative Construction/Demolition Off-Road Equipment Emissions

Emissions estimates of DPM and $PM_{2.5}$ from construction/demolition off-road equipment were necessary to conduct cumulative impact assessments for LECR and health hazard, as well as ambient $PM_{2.5}$ concentrations.

This analysis started by determining those LBNL and UCB projects that might cumulatively contribute to impacts from the Project. For purposes of this analysis, only projects located within 1,000 feet of Project construction or demolition sites were considered to potentially contribute to cumulative impacts. As such, only other LBNL projects were included. The following LBNL projects that included building demolition, or new building construction, that had projected project construction/demolition timelines overlapping the Project period (estimated to be August 2010 through April 2014) were identified:

- Solar Energy Research Center Construction
- CRT Building Construction
- Building 51 & 51A Demolition
- Old Town Building Demolition

For each construction project, it was estimated that the first five percent of the project period was dedicated to site grading and the last one-third of the project was dedicated to building commissioning. Commissioning would not include significant off-road equipment emissions and therefore was not included in the analysis. The period of time between site grading and commissioning was considered the "construction" phase of the project. DPM (PM_{10} exhaust) and $PM_{2.5}$ emissions (exhaust and fugitive dust) were determined using the URBEMIS model for the site grading and construction phases of each construction project based on the gross square footage of the building being constructed. The URBEMIS output files are provided in Appendix D.

For each demolition project, DPM and $PM_{2.5}$ emissions were determined using the URBEMIS model using the Demolition phase designation based on the gross square footage of the building being demolished. The following emission estimates for each project assessed in the cumulative analysis were required:

1) Maximum total DPM emissions for all identified LBNL construction/demolition activities (for assessment of cumulative LECR).

2) Maximum 12-month DPM emissions for all identified LBNL construction/demolition activities (for assessment of cumulative chronic hazard).

3) Maximum 12-month $PM_{2.5}$ emissions for all identified LBNL construction/demolition activities (for assessment of maximum annual average $PM_{2.5}$ concentrations in ambient air).

DPM and $PM_{2.5}$ emissions for the identified projects to be included in the cumulative assessment (in addition to the Seismic Phase 2 project) are summarized in Table 2-8.

2.6 Cumulative Construction/Demolition On-Road Truck Emissions

Emissions estimates of DPM and $PM_{2.5}$ from construction/demolition on-road truck traffic were necessary to conduct cumulative impact assessments for LECR and health hazard, as well as ambient $PM_{2.5}$ concentrations.

Cumulative DPM and $PM_{2.5}$ emissions in this case were those emission associated not only with on-road construction/demolition truck traffic from the Project, but also with on-road construction/ demolition truck traffic from other identified construction and demolition projects at LBNL and UCB during the Project time period (estimated to be August 2010 through April 2014).

Estimated average daily truck trips per month were provided by LBNL and UCB for identified projects, over the life of the project. These data are provided in Appendix F. Maximum annual and project total on-road truck trips were determined for all identified projects combined (as shown in Appendix F). DPM and $PM_{2.5}$ emissions, in units of grams per mile traveled, were estimated by multiplying the number of round trips estimated over the appropriate averaging period by two (to convert from round trips to single trips) and the exhaust PM_{10} (for DPM) or total $PM_{2.5}$ emission factor determined by executing the EMFAC2007 emissions model for model year 2009 for the mix of trucks anticipated for the projects. The following emission estimates for each project assessed in the cumulative analysis were required:

1) Maximum total DPM emissions for all identified LBNL and UCB construction/demolition activities (for assessment of cumulative LECR).
2) Maximum 12-month DPM emissions for all identified LBNL and UCB construction/demolition activities (for assessment of cumulative chronic hazard).
3) Maximum 12-month $PM_{2.5}$ emissions for all identified LBNL and UCB construction/demolition activities (for assessment of maximum annual average $PM_{2.5}$ concentrations in ambient air).

DPM and $PM_{2.5}$ emissions for the identified projects to be included in the cumulative assessment are summarized in Tables 2-5 and 2-9 respectively.

3.0 DISPERSION MODELING FOR RISK ASSESSMENT

3.1 Overall Modeling Methodology

Estimated ambient concentrations of TACs and $PM_{2.5}$ were generated from source emissions using air dispersion modeling methods. The air quality dispersion model selected for this project was the U.S. EPA AERMOD dispersion model. This regulatory model represents a widely accepted, current technology near-field dispersion model that has been shown to outperform the previously accepted standard ISCST3 model in complex terrain situations (as is found at the LBNL site), thereby providing more accurate estimates of actual measured ambient concentrations (ENSR et al., 1998).

The AERMOD model processed data inputs such as estimated source emissions and release parameters, building structure data, surface meteorological data collected onsite at LBNL, and U.S. Geological Survey terrain elevation data to estimate ambient concentrations at specific locations in and around the LBNL facility property.

Version 09292 of AERMOD incorporating the Plume Rise Model Enhancements (PRIME) building downwash algorithms was used for this project.

The AERMOD View graphical user interface (version 6.4.0) developed by Lakes Environmental Software (Waterloo, Ontario, Canada) was used as a tool to aid in developing and entering model input data and visualizing model output results.

3.1.1 Meteorological Data

Surface meteorological data were taken from LBNL's 20-meter weather monitoring tower. LBNL began operating this tower in January 1994. Surface meteorological data taken from the LBNL tower consisted of hourly solar radiation, atmospheric pressure, wind speed, wind direction, wind direction standard deviation, and temperature.

For purposes of this evaluation, surface data for the years 1998 and 1999 were selected as they represented two years of data that had previously been developed for use in AERMOD modeling. These data were paired with upper air data collected at the Oakland International Airport, which was obtained from the National Climatic Data Center.

Although the surface and upper air meteorological data were previously processed with AERMET for prior dispersion modeling projects at LBNL, EPA has since updated the meteorological preprocessor, AERMET, (now version 06314) and changed guidance related to processing land use (land use types are used by AERMET to determine albedo, Bowen ratio, and surface roughness length). Also, EPA now recommends the use of AERSURFACE to process Land Use Land Classification (LULC) data provided by the USGS. In order to remain consistent with current EPA guidance, the most recent versions of

AERMET and AERSURFACE were used to re-process the meteorological data collected at LBNL for the years of 1998 and 1999. AERSURFACE was executed with user defined parameters and downloaded LULC data. The output from AERSURFACE was used as input for AERMET. Appendix G includes the AERSURFACE output, which includes all the user input.

Additional information about this meteorological data set collected at LBNL can be found in Golder, 2007.

3.2 Long-Term Project Operations

TAC and $PM_{2.5}$ emissions from long-term Project operation were modeled. Modeling of TAC emissions was conducted such that the California Air Resources Board (CARB) Hot Spots Analysis Reporting Program (HARP) On-Ramp program could be used to assess chronic hazard and LECR.

TAC modeling for acute hazard assessments was conducted for the laboratory stacks only. The rationale for this approach is that human health risk and hazard from combustion sources (such as the boilers and diesel generator) are expected to be dominated by chronic effects based on the types of pollutants emitted, and in particular to be dominated by LECR. Because laboratory fume hood vents could emit a more diverse variety of chemicals, this assumption could not necessarily be made. This approach has been utilized in previous EIR assessments for LBNL.

3.2.1 Source Representations

Point sources related to long-term project operations include:

- A backup diesel generator stack located on a small utility building to the south of the main GPL building
- Two natural gas-fired boiler stacks located on the roof of the main GPL building
- Two laboratory fume hood stacks located on the roof of the main GPL building

The locations of these sources are shown in Figure 3-1. The source parameters for these modeled point sources are provided in Table 3-1.

Source representations for employee commuting emissions were not included in the modeling of $PM_{2.5}$ due to the diffuse nature of these emissions.

Variable emission rates are defined in AERMOD through the use of a multiplier which, for this project, was defined for each hour of the day, each day of the week, and each season of the year. If the multiplier is zero, then the emission rate for the given source is multiplied by zero and is effectively “turned off”. If the multiplier is one then the emission rate for a given source is multiplied by one and the source is “turned on”.

Variable emission rates were utilized for sources that were expected to operate primarily during weekday business hours and for modeling which would be processed through the HARP On-Ramp. For long-term project operation, laboratory stacks are the only source that would not be expected to operate continuously throughout the year, but rather only during business hours (10 hours per day, 5 days per week).

While the backup diesel generator would not be expected to operate continuously throughout the year, it would be expected to operate at any given hour of any given day. Therefore, a variable emission rate was not used in favor of an annual averaged emission rate.

TAC modeling conducted for the HARP On-Ramp software (discussed in Section 4.1.1 below) requires that emission rates specified in the model be set to one gram per second. However, a consequence of using a variable emission rate, such as for the laboratory stacks, is that the one gram per second emission rate is no longer appropriate. The HARP On-Ramp documentation requires that any source with a variable emission rate have an emission rate such that a total of 31,536 kilograms would be emitted per year (equal to 1 gram per second x 3,600 seconds per hour x 8,760 hours per year). The laboratory stacks were modeled such that emissions would occur for 10 hours per day for 5 days a week. This equates to 50 hours per week out of a possible 168 hours per week. Dividing the total number of possible hours each week by the number of actual operating hours each week yields a ratio of 3.36. This ratio is synonymous with the emission rate (3.36 grams per second) needed to be input to the model such that the two laboratory stacks would emit 31,536 kilograms per year in total (3.36 grams per second x 3,600 second per hour x 50 hours per week x 52 weeks per year).

For the $PM_{2.5}$ modeling runs, sources were assigned the actual $PM_{2.5}$ emission rate, since the HARP On-Ramp was not used. Project operations result in emissions of $PM_{2.}5$ from combustion of diesel fuel in the backup diesel generator and the combustion of natural gas in the two boilers serving the GPL building

For the acute TAC modeling, a unit emission rate of one gram per second was modeled for each of the two laboratory stacks. When this approach is used, the resulting maximum 1-hour concentration predicted by the model can be multiplied by the TAC emission rate in grams per second for each stack (assuming emissions are equally distributed between the two stacks) to obtain the maximum TAC-specific concentration. This allows the calculation of maximum concentrations for all TACs emitted from a single model run.

3.2.2 Receptor Sets

Two separate receptor grids were created for this project: one grid contained only receptor locations on, or inside, the LBNL facility property boundaries (onsite grid), and one grid contained only receptor locations on, or outside of, the LBNL facility property boundaries (offsite grid).

The receptor grids were created by first overlaying a rectilinear grid of receptor locations extending approximately 1,000 meters out from the centroid of the GPL point sources with even 50-meter spacing between receptor locations. An additional grid of receptors with 100-meter spacing was extended 1,000 meters from the edge of the 50-meter grid.

A set of property boundary receptors was also generated by creating receptor locations every 25 meters along the LBNL facility property boundary.

The onsite receptor grid is shown in Figure 3-2 and the offsite receptor grid is shown in Figure 3-3.

Modeling was conducted for use with the HARP On-Ramp program using the onsite and offsite receptor grids separately. Acute TAC modeling was conducted using the offsite and onsite grids combined in one model run as exposure assumptions were the same over both grids. $PM_{2.5}$ modeling was conducted with the offsite grid only to assess concentrations in ambient air (typically defined as outside of the facility property boundary).

3.2.3 Dispersion Modeling Output

Summaries of output from AERMOD runs executed for purposes of importing into the HARP On-Ramp are not meaningful due to the use of unitized emission rates as described above that yield predicted concentrations that have no significance by themselves.. The only use of the modeling output is for identifying errors in the model execution and to ensure that the HARP On-Ramp software can import the data such that the modeling output is understood by HARP.

The output of the AERMOD modeling conducted to determine maximum 1-hour TAC concentrations for assessment of acute hazard impacts is summarized in Table 3-2.

$PM_{2.5}$ modeling runs were conducted for the 1998 and 1999 meteorology data set separately in order to obtain maximum annual averaged concentrations for each year. As discussed above, only the offsite grid was used for the $PM_{2.5}$ modeling. The results are presented in Table 3-3 (under Project Operations).

3.3 Project Construction/Demolition Off-Road Equipment

DPM and $PM_{2.5}$ emissions from Project construction/demolition off-road equipment were modeled using methods similar to the $PM_{2.5}$ modeling for Project operations. DPM modeling was performed to determine both the average ambient concentration over the entire Project period and to determine the maximum average concentration based on maximum annual emission rates. $PM_{2.5}$ modeling was conducted for 1998 and 1999 separately to determine the maximum annual average concentration.

Dispersion modeling was performed for Project construction/demolition activities alone, as well as in conjunction with contemporaneous cumulative projects as identified in Section 2.5 above.

3.3.1 Source Representations

Area sources were used in AERMOD to represent the emissions of DPM and $PM_{2.5}$ resulting from the use of off-road equipment for project construction/demolition activities. Each activity described in Section 2.2 above was represented by areas sources. Emissions for a given activity were evenly assigned to an area source which encompassed the area in which the emissions could occur. Area sources did not include areas occupied by existing adjacent buildings, existing roads, or extreme terrain since off-road equipment would not operate in these areas.

$PM_{2.5}$ emissions result from a combination of both fugitive dust and engine exhaust, and two separate area sources were used for each of these sources of $PM_{2.5}$. For area sources representing fugitive dust, the release height was set to zero meters (ground level release) and the initial vertical dispersion was set to two meters to account for turbulence created by a moving vehicle. For area sources representing exhaust emissions, the release height was set to three meters and the initial vertical dispersion was set to two meters.

Since DPM results from exhaust, modeling for DPM only included area sources that represented exhaust as described above.

Where appropriate, a single area source was used to represent emissions from GPL site grading and GPL building construction. While emissions from the two activities are estimated separately, they do not occur at different locations.

Source representations for worker commuting emissions were not included in the modeling of $PM_{2.5}$ due to the diffuse nature of these emissions.

The locations of these area sources are shown in Figure 3-4.

3.3.2 Receptor Sets

The same receptor grids described above in Section 3.2.2 were used for the project construction/demolition off-road equipment modeling. DPM modeling was conducted with the onsite grid and offsite grid separately while the $PM_{2.5}$ modeling was conducted with the offsite grid only. Model receptors located within any of the emissions source representations were removed.

3.3.3 Dispersion Modeling Output

DPM and $PM_{2.5}$ emissions from off-road equipment used in both Project and cumulative construction and demolition activities were modeled.

As discussed above in Section 2.2.6, both maximum annual emission rates and total project mass emission rates for DPM were modeled, the former for use in the chronic hazard assessment and the latter for use in the LECR assessment. Modeling was conducted using the onsite and offsite receptor grids separately, resulting in four different modeling runs (offsite LECR, onsite LECR, offsite chronic hazard and onsite chronic hazard) for both Project and cumulative emission scenarios, for a total of eight model runs. The maximum DPM concentrations (in μg/m³) for each of the modeling runs are summarized in Table 3-4.

Because the total period average DPM concentration was to be used for determining cancer risk, the locations of the highest predicted impacts were examined. In the case of the total period average concentration for Project emissions, it was determined that the highest impacts occurred south-southeast of the GPL building site at the LBNL property boundary, at the border with a portion of the UCB "Hill Campus". This hillside location well north of Centennial Drive does not have any nearby residences or buildings, and is not expected to ever have such occupants. Therefore, the three receptor locations with the highest predicted DPM concentrations (between 0.056 $\mu g/m^3$ and 0.052 $\mu g/m^3$), which occur at this location, were excluded from the analysis of cancer risk.

All $PM_{2.5}$ modeling was conducted with the offsite receptor grid. Each of the two years that comprise the meteorological data set (1998 and 1999) was modeled separately. Construction/demolition $PM_{2.5}$ emissions included exhaust particulate and fugitive dust, both of which were estimated using URBEMIS as discussed above. The maximum $PM_{2.5}$ concentrations (in μg/m³) for each year and emission scenario (Project and cumulative) are also presented in Table 3-3.

3.4 Project Construction/Demolition On-Road Truck Travel

DPM and $PM_{2.5}$ emissions from Project construction/demolition on-road truck traffic were modeled using methods similar to the $PM_{2.5}$ modeling for Project operations. DPM modeling was performed to determine both the average ambient concentration over the entire Project period and to determine the maximum average concentration based on maximum annual emission rates. $PM_{2.5}$ modeling was conducted for 1998 and 1999 separately to determine the maximum annual average concentration.

Dispersion modeling was performed for Project construction/demolition activities alone, as well as in conjunction with contemporaneous cumulative projects as identified in Section 2.6 above.

3.4.1 Source Representations

Area source representations were entered into the model along the proposed construction-related truck traffic routes. A release height of two meters and an initial vertical dispersion of two meters were assigned to all area sources to account for the release characteristics of a traveling vehicle. Estimated DPM emissions were apportioned to the area sources in units of grams per square meter per second

($g/m^2/sec$). As discussed in Section 2.3.2 above, there were two sets of on-road truck traffic DPM emissions used for modeling: those resulting from Project construction/demolitions activities and those resulting from all contemporaneous LBNL and UCB construction/demolition activities (i.e. cumulative emissions).

Figure 3-5 presents the area source arrangements in the vicinity of LBNL while Figure 3-6 presents all of the area sources used to represent the routes taken by the on-road trucks.

3.4.2 Receptor Sets

The receptor grid developed for purposes of capturing the maximum off-property ambient concentration started with the offsite receptor grid discussed in Section 3.2.2. Receptors were then added along both sides of the roadways where DPM emissions were assigned, maintaining a distance of five meters from any individual model area source. Any offsite grid receptor that was within 5 meters of any area source was then manually removed.

Figure 3-7 presents the receptors used in the construction/demolition on-road truck travel dispersion modeling.

3.4.3 Dispersion Modeling Output

AERMOD dispersion modeling of DPM emissions from on-road truck traffic from construction/demolition activities was conducted for four different emissions scenarios. Each of the four emissions scenarios were utilized for a different risk assessment, and are summarized as follows:

- Maximum 12-month DPM concentration for Project-related chronic hazard
- Maximum period (3.75 year) DPM concentration for Project-related LECR
- Maximum 12-month DPM concentration for cumulative chronic hazard
- Maximum period (3.75 year) DPM concentration for cumulative LECR

These DPM concentrations are summarized in Table 3-5.

4.0 HUMAN HEALTH RISK ASSESSMENT

Human health risk assessments (HHRAs) were completed based on the AERMOD dispersion modeling described in Section 3 above and the TAC emission rates described in Section 2 above.

HHRAs were performed for the following TAC emissions source groups, consistent with the dispersion modeling described in Section 3 above:

1) TAC emissions from stationary sources associated with the long-term operations of the GPL.

2) DPM emissions from onsite Project and cumulative construction/demolition activities (off-road equipment).

3) DPM emissions from offsite, on-road truck travel associated with Project and cumulative construction/demolition activities.

HHRAs for cumulative impacts from TAC emissions from stationary sources associated with the long-term operations of the GPL were not performed since such cumulative impacts were represented in the Long Range Development Plan for the LBNL facility (Golder 2007).

Because assessments 2 and 3 listed above were based on only DPM emissions, average DPM concentrations determined by the dispersion modeling were manually converted to LECR and hazard based on available toxicity factors provided by the California Office of Environmental Health Hazard Assessment (OEHHA) and risk assessment guidance provided by both OEHHA (OEHHA, 2003) and the Bay Area Air Quality Management District (BAAQMD, 2009).

However, for assessment 1 listed above, which was based on a wide variety of TAC emissions, the CARB HARP On-Ramp and HARP programs were used to conduct the HHRA in accordance with OEHHA guidance (OEHHA 2003). LECR values for residential receptors were then adjusted based on recent draft BAAQMD guidance (BAAQMD, 2009) as discussed further below.

Using the HARP On-Ramp, dispersion model output data and TAC emission rates were combined to produce files of TAC concentrations at model receptor locations. The HARP model (CARB 2003) uses these files to determine potential maximum human exposure to individual TACs, and applies toxicity factors and exposure assumptions provided by OEHHA to estimate maximum potential LECR and chronic/acute health hazard.

4.1 HHRA for Project Operations

The HHRA for long-term operation of the GPL was based on TAC emissions from the following sources:

- Laboratory fume hood roof exhaust vents.
- Natural gas-fueled building boilers.
- Maintenance/testing operation of a backup diesel generator.

Through the use of the HARP On-Ramp and HARP models, as described further below, the dispersion modeling results described in Section 3 above were used to assess LECR and chronic hazard at both onsite and offsite hypothetical human receptor locations. All onsite model receptors were conservatively assumed to represent human receptors with Worker exposure parameters as defined by OEHHA. All offsite model receptors were conservatively assumed to represent human receptors with Resident exposure parameters as defined by OEHHA.

Maximum 1-hour TAC concentrations predicted by the dispersion modeling were used to assess maximum acute hazard at all model receptors without use of the HARP model.

4.1.1 Use of HARP On-Ramp

The CARB HARP On-Ramp program (Version 1, released 2/3/2009) was executed in order to produce TAC concentrations appropriate for estimating LECR and chronic health hazard. Input files to the program included AERMOD plot files for period average concentrations at onsite or offsite receptor locations based on one gram per second emission rates for each source (adjusted as necessary in accordance with the HARP On-Ramp guidance) and annual TAC emission rates (in pounds per year).

4.1.2 Use of HARP Model

Using the output files from the HARP On-Ramp model runs described above, a Risk Analysis to determine a multi-pathway Point Estimate was conducted for each of the two sets of model receptors described in Section 3.2.2 above (i.e. a set of Onsite model receptor locations and a set of Offsite model receptor locations).

In all model runs, the inhalation exposure pathway was assessed. In addition, the following non-inhalation exposure pathways were allowed with default parameters:

- Ingestion of home-grown produce
- Dermal absorption from soil
- Ingestion of soil
- Ingestion of mother's milk

These were estimated to be the only significant non-inhalation exposure pathways that could be influenced by the maximum ambient air impacts from Project TAC emissions, and consideration of these pathways would in most cases be very conservative.

The following HARP risk assessment methodologies were utilized to determine LECR and chronic hazard:

- LECR for Offsite (Resident) Exposure – OEHHA Derived Method (70 years at period average TAC concentrations)
- LECR for Onsite (Worker) Exposure – Default exposure parameters (49 weeks/year, 5 days/week, 8 hours/day, 40 years of exposure at period average TAC concentrations).
- Chronic Hazard for Offsite (Resident) Exposure - OEHHA Derived Method (70 years at period average TAC concentrations).
- Chronic Hazard for Onsite (Worker) Exposure – Default exposure parameters (49 weeks/year, 5 days/week, 8 hours/day, 40 years of exposure at period average TAC concentrations).

The HARP model was initially run in each case to compute maximum LECR or chronic hazard at each model receptor location. Once the model receptor with the highest risk/hazard was identified, the HARP model was re-run to determine how much each emission source, pollutant, and exposure pathway contributed to the maximum value.

For the LECR estimated for offsite (Resident) receptors, draft BAAQMD guidance for the use of age sensitivity factors (ASFs) was implemented.[5] This methodology is based on the assumption that the carcinogenicity of toxicants are ten times higher than otherwise suggested by the available cancer slope factors for human exposure from the third trimester before birth through age two, and three times higher from age two through fifteen. The overall implication is that Resident LECR values should be multiplied by a factor of 1.7 to account for the ASFs. This was therefore done for the Offsite (Resident) MEI result from the HARP model. Because workers are assumed to be over the age of fifteen, ASFs were not applied to onsite (Worker) LECR results from HARP.

4.1.3 Risk Assessment Results

The HHRA results for exposure to TAC emissions from long-term GPL operations are presented in Table 4-1. The HARP output files for the onsite (Worker) receptors with the highest impacts (showing the

[5] BAAQMD Air Toxics NSR Program Health Risk Screening Analysis (HRSA) Guidance – draft, December 2009, http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/Public%20Hearings/2009/0205_RFC_102109/0205_hsraguide_111309.ashx, accessed on December 10, 2009.

breakdown by source and TAC) are provided in Appendix H. The HARP output files for the offsite (Resident) receptors with the highest impacts (showing the breakdown by source and TAC) are provided in Appendix I.

Estimated DPM emissions from the backup diesel generator were the TAC emissions most significantly contributing to the LECR for the hypothetical maximally exposed individual (MEI) onsite (Worker) and offsite (Resident).

Estimated chlorine emissions from the laboratory vent stacks were the TAC emissions most significantly contributing to the chronic hazard for the hypothetical MEI onsite (Worker) and offsite (Resident).

Taking the maximum modeled 1-hour TAC concentrations determined as described in Section 3.2.3 above, maximum acute hazard quotients were estimated for potential emissions from the laboratory vent stacks. The acute hazard quotient (HQ) is defined as:

$$HQ = \text{Maximum 1-Hour Concentration } (\mu g/m^3) \,/\, \text{Acute Reference Concentration } (\mu g/m^3) \qquad (1)$$

The TAC-specific acute reference concentrations were taken from values published by OEHHA [6]. Table 4-2 summarizes the resulting acute HQ values for those TACs emitted from the laboratory vent stacks having published acute reference concentrations. Individual HQ values were not summed into total hazard indices since the nature of laboratory chemical use does not lend itself to the likelihood that the maximum emissions of two or more chemicals would occur contemporaneously.

4.2 HHRA for Project Construction/Demolition Off-Road Equipment

The HHRA for onsite, off-road equipment associated with Project and cumulative construction/demolition activities was based on DPM emissions from engine exhaust for these sources. The cumulative assessment included the additional LBNL projects described in Section 2.5 above.

LECR and chronic hazard were assessed for both onsite and offsite hypothetical human receptor locations. All onsite model receptors were conservatively assumed to represent human receptors with Worker exposure parameters as defined by OEHHA. All offsite model receptors were conservatively assumed to represent human receptors with Resident exposure parameters as defined by OEHHA.

4.2.1 Methodology

The dispersion modeling results for off-road equipment exhaust DPM emissions described in Section 3.3.3 above were used to determine the maximum DPM concentration over both any given 12-month period and the average over the entire Project period (three years and nine months). The maximum 12-

[6] http://www.arb.ca.gov/toxics/healthval/acute.pdf, accessed December 2009.

month average DPM concentration was then used to determine the maximum chronic hazard and the maximum average DPM concentration over the entire Project period was then used to determine the maximum LECR. LECR and chronic hazard estimates were determined using methodologies recommended by OEHHA (OEHHA 2003).

For the LECR estimated for offsite (Resident) receptors, the draft BAAQMD guidance for the use of ASFs noted in Section 4.1.2 above was implemented. However, in this case, because construction/demolition emissions are limited in duration (three years and nine months), the ASFs were applied assuming an ASF factor of ten for the first 2.25 years of exposure (starting from third trimester) and an ASF factor of three for the last 1.50 years of exposure. This results in an overall weighted ASF adjustment factor of 7.20 over the exposure period.

Because workers are assumed to be over the age of fifteen, ASFs were not applied to onsite (Worker) LECR calculations.

The specific equations used to estimate LECR and chronic hazard are provided in the summary tables discussed in Section 4.2.2 below.

4.2.2 Risk Assessment Results

Table 4-3 summarizes the LECR and chronic hazard calculations and results for the hypothetical offsite (Resident) MEI. In accordance with guidance received from BAAQMD[7], a child breathing rate was applied across the entire exposure period.[8] Because ASFs were used, BAAQMD recommends that only the exposure period be considered (i.e. 3.75 years) instead of nine years as otherwise recommended by OEHHA guidance.

As discussed in Section 3.3.3 above, it was determined that the highest impacts in the dispersion modeling for the assessment of Project emissions occurred south-southeast of the GPL building site at the LBNL property boundary, at the border with a portion of the UCB “Hill Campus”. This hillside location well north of Centennial Drive does not have any nearby residences or buildings, and is not expected to ever have such occupants. Therefore, the three receptor locations with the highest predicted DPM concentrations (between 0.056 $\mu g/m^3$ and 0.052 $\mu g/m^3$), which occur at this location, were excluded from the analysis of LECR.

Table 4-4 summarizes the LECR and chronic hazard calculations and results for the hypothetical onsite (Worker) MEI. For this receptor type, a worker breathing rate is appropriate and consistent with OEHHA

[7] Phone conversation with Scott Lutz with BAAQMD by Brian Patterson with Golder Associates Inc. on November 23, 2009.

[8] An average daily breathing rate for a child was conservatively applied even though the exposure was assumed to occur primarily to an infant.

guidance. Because ASFs were not used for the worker receptors, standard OEHHA guidance recommending that exposures less than nine years in duration are assessed assuming nine years of exposure was used.

4.3 HHRA for Project and Cumulative Construction/Demolition On-Road Truck Travel

The HHRA for offsite, on-road truck travel associated with Project construction/demolition activities was based on DPM emissions from engine exhaust for these sources. In addition, a similar assessment was made for all on-road truck travel associated with all LBNL and UCB construction/demolition activities for projects estimated to occur during the Project period (approximately August 2010 through April 2014).

LECR and chronic hazard were assessed for offsite hypothetical human receptor locations assumed to be located as near as five meters to the roadways traveled. All offsite model receptors were conservatively assumed to represent human receptors with Resident exposure parameters as defined by OEHHA.

4.3.1 Methodology

The dispersion modeling results for on-road truck exhaust DPM emissions described in Section 3.4.3 above were used to determine the maximum DPM concentration over both any given 12-month period and the average over the entire Project period (three years and nine months). The maximum 12-month average DPM concentration was then used to determine the maximum chronic hazard and the maximum average over the entire Project period was then used to determine the maximum LECR. LECR and chronic hazard estimates were determined using methodologies recommended by OEHHA (OEHHA 2003).

For the LECR estimated for offsite (Resident) receptors, the draft BAAQMD guidance for the use of ASFs noted in Section 4.2.2 above was implemented.

The specific equations used to estimate LECR and chronic hazard are provided in the summary table discussed in Section 4.3.2 below.

4.3.2 Risk Assessment Results

Table 4-5 summarizes the LECR and chronic hazard calculations and results for the hypothetical offsite (Resident) MEI. Results were estimated for DPM emissions from just the Project, and from the Project along with all other contemporaneous construction/demolition projects at the LBNL and UCB facilities during the Project period. In accordance with guidance received from BAAQMD[9], a child breathing rate

[9] Phone conversation with Scott Lutz with BAAQMD by Brian Patterson with Golder Associates Inc. on November 23, 2009.

was applied across the entire exposure period.[10] Because ASFs were used, BAAQMD recommends that only the exposure period be considered (i.e. 3.75 years) instead of nine years as otherwise recommended by OEHHA guidance.

[10] An average daily breathing rate for a child was conservatively applied even though the exposure was assumed to occur primarily to an infant.

5.0 CLOSING

This report documents the estimated emissions of criteria pollutants, TACs, and CO_2 (the primary greenhouse gas emitted) associated with the proposed Seismic Phase 2 project at the LBNL facility and estimated potential maximum human health risks associated with TAC emissions. In addition, cumulative impacts for Project TAC and $PM_{2.5}$ emissions were evaluated for construction/demolition activities in conjunction with similar emission from other contemporaneous projects. These results are intended for use in a DEIR being prepared for the Project.

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6.0 REFERENCES

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(OEHHA 2003) - *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, prepared by the Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, August 2003.

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TABLES

Table 2-1
Estimated Criteria Pollutants and CO_2 Emissions from Operations
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Chemical	Laboratory		Natural Gas Boiler		Diesel Generator		Employee Vehicles		Total	
	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)
Criteria Pollutants										
ROG	0.0	0.0	0.43	1.6E-03	0.09	1.18E-03	1.52	2.70E-01	2.04	2.73E-01
NO_x	0.0	0.0	7.76	2.9E-02	7.88	9.85E-02	1.48	3.10E-01	17.12	4.38E-01
PM_{10} (1)	0.0	0.0	0.59	2.2E-03	0.11	1.36E-03	2.47	4.50E-01	3.17	4.54E-01
$PM_{2.5}$ (2)	0.0	0.0	0.59	2.2E-03	0.11	1.36E-03	0.47	9.00E-02	1.17	9.36E-02
CO	0.0	0.0	6.52	2.5E-02	1.25	1.56E-02	14.71	2.77E+00	22.48	2.81E+00
SO_2	0.0	0.0	0.05	1.8E-04	1.39	1.74E-02	0.01	0.00E+00	1.45	1.76E-02
Greenhouse Gases										
CO_2	0	0	9,318	35.3	1,231	15.4	1,386	241	11,934	292

Notes:
(1) PM_{10} values are set equal to the $PM_{2.5}$ values. See note (2) below.
(2) It is assumed that all particulate emitted from the natural gas fired boilers and the diesel generator will be $PM_{2.5}$.

Table 2-2
Estimated Toxic Air Contaminent Emissions from Operations
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Chemical	CAS Number	Laboratory		Natural Gas Boiler		Diesel Generator		Employee Vehicles [1]		Total	
		Estimated Emissions (lbs/hr)	Estimated Emissions (lbs/yr)	Estimated Emissions (lbs/hr)	Estimated Emissions (lbs/yr)	Estimated Emissions (lbs/hr)	Estimated Emissions (lbs/yr)	Estimated Emissions (lbs/hr)	Estimated Emissions (lbs/yr)	Estimated Emissions (lbs/hr)	Estimated Emissions (lbs/yr)
ORGANICS											
1,3-Butadiene	106990	1.59E-04	6.14E-02	-- --	-- --	-- --	-- --			1.59E-04	6.14E-02
7,12-Dimethylbenz(a)anthracene	57976	-- --	-- --	4.53E-04	1.07E-09	-- --	-- --			4.53E-04	1.07E-09
Acetaldehyde	75070	9.63E-04	3.72E-01	2.51E-01	5.96E-07	9.92E-05	4.96E-03			2.52E-01	3.77E-01
Acrolein	107028	3.39E-04	1.31E-01	-- --	-- --	3.06E-05	1.53E-03			3.70E-04	1.33E-01
Acrylonitrile	107131	2.75E-04	1.06E-01	-- --	-- --	-- --	-- --			2.75E-04	1.06E-01
Benzaldehyde	100527	-- --	-- --	4.65E-01	1.10E-06	-- --	-- --			4.65E-01	1.10E-06
Benzene	71432	7.00E-03	2.70E+00	1.22E-01	2.89E-07	5.52E-03	2.76E-01			1.35E-01	2.98E+00
Boron Trifluoride	7637072	6.09E-04	2.35E-01	-- --	-- --	-- --	-- --			6.09E-04	2.35E-01
Butane	106978	-- --	-- --	5.95E+01	1.41E-04	-- --	-- --			5.95E+01	1.41E-04
Carbon Tetrachloride	56235	5.38E-03	2.08E+00	-- --	-- --	-- --	-- --			5.38E-03	2.08E+00
Chlorine	7782505	5.02E-03	1.94E+00	-- --	-- --	-- --	-- --			5.02E-03	1.94E+00
Chloroform	67663	4.13E-02	1.59E+01	-- --	-- --	-- --	-- --			4.13E-02	1.59E+01
Crotonaldehyde	4170303	2.88E-05	1.11E-02	-- --	-- --	-- --	-- --			2.88E-05	1.11E-02
Dibenz(a,h)anthracene	53703	-- --	-- --	-- --	-- --	2.35E-06	1.17E-04			2.35E-06	1.17E-04
Dichlorobenzene	25321226	-- --	-- --	3.40E-02	8.06E-08	-- --	-- --			3.40E-02	8.06E-08
Ethane	74840	-- --	-- --	8.79E+01	2.08E-04	-- --	-- --			8.79E+01	2.08E-04
Ethylbenzene	100414	-- --	-- --	-- --	-- --	1.93E-04	9.67E-03			1.93E-04	9.67E-03
Ethylene Dichloride	107062	4.84E-03	1.87E+00	-- --	-- --	-- --	-- --			4.84E-03	1.87E+00
Fluoranthene	206440	-- --	-- --	8.50E-05	2.01E-10	9.40E-06	4.70E-04			9.44E-05	4.70E-04
Formaldehyde	50000	5.07E-03	1.96E+00	6.26E+00	1.48E-05	1.45E-03	7.23E-02			6.27E+00	2.03E+00
HCl	7647010	4.62E-02	1.78E+01	-- --	-- --	-- --	-- --			4.62E-02	1.78E+01
Hexane	110543	-- --	-- --	5.10E+01	1.21E-04	3.98E-05	1.99E-03			5.10E+01	2.11E-03
Hydrazine	302012	7.73E-05	2.98E-02	-- --	-- --	-- --	-- --			7.73E-05	2.98E-02
Naphthalene	91203	-- --	-- --	1.73E-02	4.10E-08	4.56E-04	2.28E-02			1.77E-02	2.28E-02
Pentane	109660	-- --	-- --	7.37E+01	1.75E-04	-- --	-- --			7.37E+01	1.75E-04
Propane	74986	-- --	-- --	4.53E+01	1.07E-04	-- --	-- --			4.53E+01	1.07E-04
Propylene	115071	-- --	-- --	-- --		9.75E-03	4.88E-01			9.75E-03	4.88E-01
Toluene	108883	-- --	-- --	9.64E-02	2.28E-07	1.75E-03	8.75E-02			9.81E-02	8.75E-02
Vinyl Chloride	75014	3.43E-03	1.32E+00	-- --	-- --	-- --	-- --			3.43E-03	1.32E+00
Vinylidene Chloride	75354	2.37E-04	9.15E-02	-- --	-- --	-- --	-- --			2.37E-04	9.15E-02
Xylene (total)	1330207	-- --	-- --	-- --	-- --	5.99E-04	3.00E-02			5.99E-04	3.00E-02
METALS											
Arsenic	7440382	-- --	-- --	5.67E-03	1.34E-08	4.58E-05	2.29E-03			5.71E-03	2.29E-03
Barium	7440393	-- --	-- --	1.25E-01	2.95E-07	-- --	-- --			1.25E-01	2.95E-07
Beryllium	7440417	-- --	-- --	3.40E-04	8.06E-10	-- --	-- --			3.40E-04	8.06E-10
Cadmium	7440439	-- --	-- --	3.12E-02	7.39E-08	4.29E-05	2.15E-03			3.12E-02	2.15E-03
Chromium (hexavalent)	18540299	-- --	-- --	6.75E-03	1.66E-02	2.92E-06	1.46E-04			6.75E-03	1.68E-02
Cobalt	7440484	-- --	-- --	2.38E-03	5.64E-09	-- --	-- --			2.38E-03	5.64E-09
Copper	7440508	-- --	-- --	2.41E-02	5.71E-08	1.17E-04	5.86E-03			2.42E-02	5.86E-03
Lead	7439921	-- --	-- --	1.42E-02	3.36E-08	2.37E-04	1.19E-02			1.44E-02	1.19E-02
Manganese	7439965	-- --	-- --	1.08E-02	2.55E-08	8.87E-05	4.43E-03			1.09E-02	4.43E-03
Mercury	7439976	-- --	-- --	7.37E-03	1.75E-08	5.72E-05	2.86E-03			7.43E-03	2.86E-03
Molybdenum	7439987	-- --	-- --	3.12E-02	7.39E-08	-- --	-- --			3.12E-02	7.39E-08
Nickel	7440020	-- --	-- --	5.95E-02	1.41E-07	1.12E-04	5.58E-03			5.96E-02	5.58E-03
Selenium	7782492	-- --	-- --	6.80E-04	1.61E-09	6.29E-05	3.15E-03			7.43E-04	3.15E-03
Vanadium	7440622	-- --	-- --	6.52E-02	1.54E-07	-- --	-- --			6.52E-02	1.54E-07
Zinc	7440666	-- --	-- --	8.22E-01	1.95E-06	6.41E-04	3.20E-02			8.23E-01	3.20E-02
Diesel Particulate Matter [1]	DPM	-- --	-- --	-- --	-- --	5.43E-02	2.71E+00	3.09E-01	4.50E-01	3.63E-01	3.16E+00

Notes:
(1) Hourly DPM emissions for employee vehicles are based on daily emissions estimated by URBEMIS divided by 8 hours per day.

Table 2-3
Estimated Criteria Pollutants and CO_2 Emissions from Construction/Demolition Off-Road Equipment
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

	ROG		NO_x		PM_{10} Dust		PM_{10} (1) Exhaust		PM_{10} Total		$PM_{2.5}$ Dust	
	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)
2010												
Building 25 Demolition	1.2821	0.0705	9.3942	0.5167	3.5345	0.1944	0.6488	0.0357	4.1832	0.0357	3.5345	0.0405
2010 TOTAL	**1.2821**	**0.0705**	**9.3942**	**0.5167**	**3.5345**	**0.1944**	**0.6488**	**0.0357**	**4.1832**	**0.0357**	**3.5345**	**0.0405**
2011												
Building 25 Demolition	1.1819	0.0118	8.7518	0.0875	3.5345	0.0353	3.5345	0.0060	4.1378	0.0414	0.7369	0.0074
Grading for GPL Construction	2.8622	0.0301	23.4966	0.2467	8.2946	0.0871	1.1746	0.0123	9.4692	0.0994	1.7330	0.0182
Construction of GPL	1.2316	0.1078	8.9812	0.7859	0.0163	0.0014	0.5617	0.0492	0.5781	0.0506	0.0058	0.0005
2011 TOTAL	**5.2757**	**0.1496**	**41.2297**	**1.1201**	**11.8454**	**0.1239**	**5.2709**	**0.0675**	**14.1851**	**0.1914**	**2.4758**	**0.0261**
2012												
Construction of GPL	1.1408	0.1489	8.3008	1.0833	0.0163	0.0021	0.5026	0.0656	0.5189	0.0677	0.0058	0.0008
Building 71 Trailer Demolition	1.0844	0.0466	7.9064	0.3400	2.9350	0.1262	0.5362	0.0231	3.4712	0.1493	0.6121	0.0263
2012 TOTAL	**2.2251**	**0.1955**	**16.2072**	**1.4232**	**2.9513**	**0.1283**	**1.0387**	***0.0886***	**3.9901**	**0.2170**	**0.6179**	**0.0271**
2013												
Construction of GPL	1.0509	0.0441	7.6719	0.3222	0.0163	0.0007	0.4434	0.0186	0.4597	0.0193	0.0058	0.0002
Building 71 Trailer Demolition	1.0844	0.0423	7.3590	0.3091	2.9350	0.1233	0.4785	0.0201	3.4135	0.1434	0.6121	0.0257
Building 55 Demolition	1.0219	0.0777	7.5584	0.5744	3.5412	0.2691	0.4856	0.0369	4.0268	0.3060	0.7383	0.0561
2013 TOTAL	**3.1571**	**0.1641**	**22.5892**	**1.2057**	**6.4925**	**0.3931**	**1.4075**	**0.0756**	**7.9000**	**0.4687**	**1.3562**	**0.0821**
2014												
Building 55 Demolition	0.9405	0.0390	7.0197	0.2913	3.5412	0.1470	0.4288	0.0178	3.9701	0.1648	0.7383	0.0306
2014 TOTAL	**0.9405**	**0.0390**	**7.0197**	**0.2913**	**3.5412**	**0.1470**	**0.4288**	**0.0178**	**3.9701**	**0.1648**	**0.7383**	**0.0306**
Pollutant Totals	12.9	0.6	96.4	4.6	28.4	1.0	8.8	0.3	34.2	1.1	8.7	0.2

	$PM_{2.5}$ Exhaust		$PM_{2.5}$ (2) Total		CO		SO_2		CO_2	
	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)	Estimated Emissions (lbs/day)	Estimated Emissions (tons/yr)
2010										
Building 25 Demolition	0.5966	0.0328	1.334	0.0733	6.3664	0.3501	0.0032	0.0002	1037	57.0
2010 TOTAL	**0.5966**	**0.0328**	**1.334**	**0.0733**	**6.3664**	**0.3501**	**0.0032**	**0.0002**	**1037**	**57.0**
2011										
Building 25 Demolition	0.5548	0.0055	1.292	0.0129	6.1288	0.0613	0.0032	0.0000	1037	10.4
Grading for GPL Construction	1.0804	0.0113	2.813	0.0295	13.0280	0.1368	0.0010	0.0000	2349	24.7
Construction of GPL	0.5160	0.0452	0.5218	0.0457	7.8834	0.6898	0.0034	0.0003	1243	108.8
2011 TOTAL	**2.1512**	**0.0620**	**4.627**	**0.0881**	**27.0402**	**0.8879**	**0.0076**	**0.0003**	**4629**	**143.8**
2012										
Construction of GPL	0.4615	0.0602	0.4674	0.0610	7.5262	0.9822	0.0034	0.0004	1244	162.3
Building 71 Trailer Demolition	0.4930	0.0212	1.105	0.0475	5.8358	0.2509	0.0028	0.0001	997	42.9
2012 TOTAL	**0.9545**	**0.0814**	**1.572**	**0.1085**	**13.3620**	**1.2331**	**0.0062**	**0.0006**	**2241**	**205.2**
2013										
Construction of GPL	0.4071	0.0171	0.4130	0.0173	7.2112	0.3029	0.0034	0.0001	1244	52.2
Building 71 Trailer Demolition	0.4399	0.0185	1.052	0.0442	5.6320	0.2365	0.0028	0.1233	997	41.9
Building 55 Demolition	0.4465	0.0339	1.185	0.0900	5.6989	0.4331	0.0032	0.0002	1037	78.8
2013 TOTAL	**1.2935**	**0.0695**	**2.650**	***0.1516***	**18.5422**	**0.9725**	**0.0094**	**0.1237**	**3278**	**172.9**
2014										
Building 55 Demolition	0.3942	0.0164	1.133	0.0470	5.5227	0.2292	0.0032	0.0001	1037	43.0
2014 TOTAL	**0.3942**	**0.0164**	**1.133**	**0.0470**	**5.5227**	**0.2292**	**0.0032**	**0.0001**	**1037**	**43.0**
Pollutant Totals	5.4	0.3	11.3	0.5	70.8	3.7	0.03	0.12	12221.9	622.0

Notes
(1) It is assumed that 100% of PM_{10} Exhaust is DPM. Maximum annual DPM emission rate (occurs for in year 2012) is underlined, intalicized, and highlighted.
(2) Maximum annual $PM_{2.5}$ emission rate (occurs for in year 2013) is underlined, intalicized, and highlighted.

Table 2-4
Summary of Project Construction/Demolition On-Road Truck Criteria Pollutant and CO_2 Emissions Estimates
Seismic Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Pollutant	Emission Factor (1) (lb/10^3 VMT)	Maximum Daily Truck Trips (2)	Maximum Annual Truck Trips (2)	Round-Trip Distance (3) (miles)	Maximum Daily Emissions (a) (lb/day)	Maximum Annual Emissions (b) (ton/yr)
ROG	1.35	14	1,671	15	0.3	0.017
NO_x	20.1	14	1,671	15	4.2	0.252
PM_{10}	0.70	14	1,671	15	0.1	0.009
$PM_{2.5}$	0.60	14	1,671	15	0.1	0.008
CO	5.6	14	1,671	15	1.2	0.070
SO_2	0.0220	14	1,671	15	0.005	0.0003

Pollutant	Emission Factor (1) (lb/10^3 VMT)	Maximum Daily Truck Trips (2)	Maximum Annual Truck Trips (2)	Round-Trip Distance (3) (miles)	Maximum Daily Emissions (a) (lb/day)	Maximum Annual Emissions (c) (metric ton/yr)
CO_2	2623.2	14	1,671	15	550.9	29.8

Notes:
VMT = Vehicle Miles Travelled
(a) Maximum Daily Emissions (lb/day) = [Maximum Daily Truck Trips x Round-Trip Distance (mi) x Emission Factor (lb/10^3 VMT)] / 1,000 (VMT/10^3 VMT)
(b) Maximum Annual Emissions (ton/yr) = [Maximum Annual Truck Trips x Round-Trip Distance (mi) x Emission Factor (lb/10^3 VMT)]/[1,000 (VMT/10^3 VMT) x 2,000 (lb/ton)]
(c) Maximum Annual Emissions (ton/yr) = [Maximum Annual Truck Trips x Round-Trip Distance (mi) x Emission Factor (lb/10^3 VMT)]/[1,000 (VMT/10^3 VMT) x 2,205 (lb/metric ton)]

(1) Taken from a 2009 EMFAC2007 model run for the Bay Area. Assumes the following vehicle mix: 20% T3 Medium Duty Trucks; 15% T4 Light-Heavy-Duty Trucks; 10% T5 Light-Heavy-Duty Trucks; Trucks 15% T6 Medium-Heavy-Duty Trucks; 40% T7 Heavy-Heavy-Duty
(2) Estimated by Lawrence Berkeley National Laboratory.
(3) Estimated by Golder Associates.

Table 2-5
Summary of Project and Cumulative Construction/Demolition On-Road Truck DPM Emissions Estimates
Seismic Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Assessment	Maximum No. of Roundtrips (1) (12 months)	Total No. of Roundtrips (2) (total sum)	DPM Emission Factor (3) (g/mi)	Maximum 12-Month Total DPM Emissions (a) (g/mi)	Total DPM Emissions (b) (g/mi)	Maximum 12-Month Average DPM Emission Rate (c) (g/mi/sec)	Average DPM Emission Rate (d) (g/mi/sec)	Maximum 12-Month Average DPM Emission Rate (e) ($g/m^2/sec$)	Average DPM Emission Rate (f) ($g/m^2/sec$)
Seismic 2 Project Only	1,671	4,101	0.284	948	2,327	3.01E-05	1.97E-05	1.87E-09	1.22E-09
All LBNL Projects	4,969	12,195	0.284	2,820	6,920	8.94E-05	5.85E-05	5.56E-09	3.64E-09
Cumulative (4)	36,499	87,777	0.284	20,710	49,806	6.57E-04	4.21E-04	4.08E-08	2.62E-08

Notes:
(a) Maximum 12-Month Total DPM Emissions (g/mi) = 2 x Maximum No. of Roundtrips (12 months) x DPM Emission Factor (g/mi).
(b) Total DPM Emissions (g/mi) = 2 x Total No. of Roundtrips (total sum) x DPM Emission Factor (g/mi).
(c) 12-Month Average DPM Emission Rate (g/mi/sec) = Maximum 12-Month Total DPM Emissions (g/mi) / (8,760 hrs/yr x 3,600 sec/hr).
(d) Average DPM Emission Rate (g/mi/sec) = Total DPM Emissions (g/mi) / (3.75 years x 8,760 hrs/yr x 3,600 sec/hr).
This is the average DPM emission rate over the 3.75 year Project period.
(e) 12-Month Average Emission Rate ($g/m^2/sec$) = 12-Month Average DPM Emission Rate (g/mi/sec) / (16,093 m^2/mi). (5)
(f) Average Emission Rate ($g/m^2/sec$) = Average DPM Emission Rate (g/mi/sec) / (16,093 m^2/mi). (5)

References:
(1) The maximum number of construction/demolition on-road truck trips (roundtrip) estimated for any 12-month period.
(2) The total number of construction/demolition on-road truck trips (roundtrip) estimated for the entire project time period(s).
(3) Based on the followed distribution of estimated truck types and emission factors; taken from EMFAC run for Bay Area for model year 2009.

20% T3 Medium Duty Trucks @	0.000	g/mi (no diesel)
15% T4 Light-Heavy-Duty Trucks @	0.053	g/mi
10% T5 Light-Heavy-Duty Trucks @	0.074	g/mi
15% T6 Medium-Heavy-Duty Trucks @	0.259	g/mi
40% T7 Heavy-Heavy-Duty Trucks @	0.574	g/mi
Weighted average =	0.284	g/mi

(4) All quantified LBNL and UCB projects.
(5) Because road emissions are represented in the dispersion model using area sources 10 meters wide, a mile of road segment has 1,609.3 meters x 10 meters = 16,093 m^2.

Table 2-6
CO_2 Emissions: Comparison of Project Emissions to Displaced 2004 Historical Emissions
Seismic Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Project Operations	CO_2 Emissions (tons/yr)
Onsite Stationary Sources [1]	51
Worker Commuting [2]	241
Offsite Electrical Generation [a]	2,065
Total	2357.0

2004 Replaced Energy Usage	CO_2 Emissions (tons/yr)
Onsite Stationary Sources [b]	62.6
Worker Commuting [7]	241
Offsite Electrical Generation [c]	519
Potter Street -Offsite Electrical Generation [d]	765
Total	1587.9

Notes:

(a) CO_2 Emissions (tons/yr) = Annual Electrical Usage (MW-hrs) x CO_2 Emission Factor (lbs CO_2/MW-hr) / 2,000 lb/ton

Annual Electrical Usage (MW-hrs) =	4,700	(3)
CO_2 Emission Factor (lbs CO_2/MW-hr) =	878.71	(4)

(b) CO_2 Emissions (tons/yr) = (Maximum annual fuel usage [therms/yr]) x (100,000 [Btu/therms]) x (scf/1,020 Btu) x (MMscf/1,000,000 scf) x (emission factor [lbs/MMscf]) x (1 ton/2,000 lbs)

Annual Natural Gas Usage (therms/yr) =	10,643	(5)
CO_2 Emission Factor (lbs CO_2/MMscf) =	120,000	(6)

(c) CO_2 Emissions (tons/yr) = Annual Electrical Usage (MW-hrs) x CO_2 Emission Factor (lbs CO_2/MW-hr) / 2,000 lb/ton

Annual Electrical Usage (MW-hrs) =	1,181.0	(8)
CO_2 Emission Factor (lbs CO_2/MW-hr) =	878.71	(4)

(d) CO_2 Emissions (tons/yr) = Annual Electrical Usage (MW-hrs) x CO_2 Emission Factor (lbs CO_2/MW-hr) / 2,000 lb/ton

Annual Electrical Usage (MW-hrs) =	1,742.1	(9)
CO_2 Emission Factor (lbs CO_2/MW-hr) =	878.71	(4)

References:

(1) Onsite stationary source emissions are from natural gas combustion in the heaters/boilers and diesel fuel usage in the backup diesel generator. From Table 2-1.
(2) From Table 2-1.
(3) Provided by LBNL.
(4) From the Climate Registry General Reporting Protocol (Ver. 1.1, May 2008) for the WECC California subregion.
(5) Provided by LBNL and/or its contractors. Based on Fiscal Year 2009 data.
(6) AP-42, Fifth Edition, Section 1.4 (July 1998), Table 1.4-2; Emission Factors For Criteria Pollutants and Greenhouse Gases From Natural Gas Combustion.
(7) Assumed to be equal to the Project Opertions emission rate. Assumes that workers in demolished bulidings will be relocated to GPL Building.
(8) Provided by LBNL and/or its contractors. Based on 2008 data and usage values for Building 55, Building 25 & 26, Buildings 71C,D,E,G,K,P and Buildings 71F,J
(9) Provided by LBNL and/or its contractors. Based on 2008 data and usage values for B977.

Table 2-7
CO_2 Emissions: Comparison of Project Emissions to Displaced 2008 Historical Emissions
Seismic Life-Safety Phase 2 Project
Lawarence Berkeley National Laboratory, Berkeley, California

Project Operations	CO_2 Emissions (tons/yr)
Onsite Stationary Sources [1]	51
Worker Commuting [2]	241
Offsite Electrical Generation [a]	2,065
Total	2357.0

2008 Replaced Energy Usage	CO_2 Emissions (tons/yr)
Onsite Stationary Sources [b]	62.6
Worker Commuting [7]	241
Offsite Electrical Generation [c]	309
Potter Street -Offsite Electrical Generation [d]	765
Total	1377.9

Notes:

(a) CO_2 Emissions (tons/yr) = Annual Electrical Usage (MW-hrs) x CO_2 Emission Factor (lbs CO_2/MW-hr) / 2,000 lb/ton

Annual Electrical Usage (MW-hrs) =	4,700	(3)
CO_2 Emission Factor (lbs CO_2/MW-hr) =	878.71	(4)

(b) CO_2 Emissions (tons/yr) = (Maximum annual fuel usage [therms/yr]) x (100,000 [Btu/therms]) x (scf/1,020 Btu) x (MMscf/1,000,000 scf) x (emission factor [lbs/MMscf]) x (1 ton/2,000 lbs)

Annual Naturdal Gas Usage (therms/yr) =	10,643	(5)
CO_2 Emission Factor (lbs CO_2/MMscf) =	120,000	(6)

(c) CO_2 Emissions (tons/yr) = Annual Electrical Usage (MW-hrs) x CO_2 Emission Factor (lbs CO_2/MW-hr) / 2,000 lb/ton

Annual Electrical Usage (MW-hrs) =	703.0	(8)
CO_2 Emission Factor (lbs CO_2/MW-hr) =	878.71	(4)

(d) CO_2 Emissions (tons/yr) = Annual Electrical Usage (MW-hrs) x CO_2 Emission Factor (lbs CO_2/MW-hr) / 2,000 lb/ton

Annual Electrical Usage (MW-hrs) =	1,742.1	(9)
CO_2 Emission Factor (lbs CO_2/MW-hr) =	878.71	(4)

References:

(1) Onsite stationary source emissions are from natural gas combustion in the heaters/boilers and diesel fuel usage in the backup diesel generator. From Table 2-1.
(2) From Table 2-1.
(3) Provided by LBNL.
(4) From the Climate Registry General Reporting Protocol (Ver. 1.1, May 2008) for the WECC California subregion.
(5) Provided by LBNL and/or its contractors. Based on Fiscal Year 2009 data.
(6) AP-42, Fifth Edition, Section 1.4 (July 1998), Table 1.4-2; Emission Factors For Criteria Pollutants and Greenhouse Gases From Natural Gas Combustion.
(7) Assumed to be equal to the Project Opertions emission rate. Assumes that workers in demolished bulidings will be relocated to GPL Building.
(8) Provided by LBNL and/or its contractors. Based on 2008 data and usage values for Building 55, Building 25 & 26, Buildings 71C,D,E,G,K,P and Buildings 71F,J
(9) Provided by LBNL and/or its contractors. Based on 2008 data and usage values for B977.

Table 2-8
Summary of Cumulative LBNL Project Emissions
Seismic Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Project	2011 (ton/yr)			2012 (ton/yr)			2013 (ton/yr)			2014 (ton/yr)		
	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Dust	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Dust	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Dust	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Dust
Solar Energy Research Center (Construction)	-	-	-	6.83E-02	6.28E-02	6.00E-03	2.73E-02	2.51E-02	2.81E-04	-	-	-
CRT Building (Construction)	6.88E-02	6.32E-02	9.40E-04	1.55E-01	1.42E-01	2.22E-03	2.18E-02	2.00E-02	3.42E-04	-	-	-
Building 51 & 51A (Demolition)	3.24E-02	2.98E-02	1.25E-01	1.76E-02	1.62E-02	7.29E-02	-	-	-	-	-	-
Old Town (Demolition)	3.24E-02	2.98E-02	6.17E-03	7.15E-02	6.58E-02	1.46E-02	6.49E-02	5.96E-02	1.46E-02	3.37E-02	3.10E-02	8.53E-03

Does not include Seismic Phase 2 project.
Diesel particulate matter = PM_{10} Exhaust.
Emissions estimated using the URBEMIS emissions model (see report text).

Table 2-9
Summary of Construction/Demolition On-Road Truck $PM_{2.5}$ Emissions Estimates
Seismic Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Assessment	Maximum No. of Roundtrips (1) (12 months)	Total No. of Roundtrips (2) (total sum)	$PM_{2.5}$ Emission Factor (3) (g/mi)	Maximum 12-Month Total $PM_{2.5}$ Emissions (a) (g/mi)	Maximum 12-Month Average $PM_{2.5}$ Emission Rate (b) (g/mi/sec)	Maximum 12-Month Average $PM_{2.5}$ Emission Rate (c) ($g/m^2/sec$)
Seismic 2 Project Only	1,671	4,101	0.272	908	2.88E-05	1.79E-09
All LBNL Projects	4,969	12,195	0.272	2,702	8.57E-05	5.32E-09
Cumulative (4)	36,499	87,777	0.272	19,843	6.29E-04	3.91E-08

Notes:

(a) Maximum 12-Month Total $PM_{2.5}$ Emissions (g/mi) = 2 x Maximum No. of Roundtrips (12 months) x $PM_{2.5}$ Emission Factor (g/mi).

(b) 12-Month Average $PM_{2.5}$ Emission Rate (g/mi/sec) = Maximum 12-Month Total $PM_{2.5}$ Emissions (g/mi) / (8,760 hrs/yr x 3,600 sec/hr).

(c) 12-Month Average Emission Rate ($g/m^2/sec$) = 12-Month Average $PM_{2.5}$ Emission Rate (g/mi/sec) / (16,093 m^2/mi). (5)

References:

(1) The maximum number of construction/demolition on-road truck trips (roundtrip) estimated for any 12-month period.
(2) The total number of construction/demolition on-road truck trips (roundtrip) estimated for the entire project time period(s).
(3) Based on the followed distribution of estimated truck types and emission factors; taken from EMFAC run for Bay Area for model year 2009.

20% T3 Medium Duty Trucks @	0.000	g/mi (no diesel)
15% T4 Light-Heavy-Duty Trucks @	0.053	g/mi
10% T5 Light-Heavy-Duty Trucks @	0.074	g/mi
15% T6 Medium-Heavy-Duty Trucks @	0.247	g/mi
40% T7 Heavy-Heavy-Duty Trucks @	0.548	g/mi
Weighted average =	0.272	g/mi

(4) All quantified LBNL and UCB projects.
(5) Because road emissions are represented in the dispersion model using area sources 10 meters wide, a mile of road segment has 1,609.3 meters x 10 meters = 16,093 m^2.

Table 3-1
Project Operations Point Source Parameters
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Source	Source ID	UTM-x (m)	UTM-y (m)	Base Elevation (m)	Height (ft) [m]	Diameter (in) [m]	Velocity (ft/min) [m/s]	Temperature (°F) [K]
Lab Stack 1	LAB1	566,255.5	4,192,340.3	289.5	90 [27.4]	44 [1.1]	1,800 [9.14]	72 [295.4]
Lab Stack 2	LAB2	566,255.8	4,192,338.9	289.5	90 [27.4]	44 [1.1]	1,800 [9.14]	72 [295.4]
Boiler Flue 1	BOIL1	566,246.5	4,192,350.0	289.5	63 [19.2]	10 [0.25]	800 [4.06]	200 [366.5]
Boiler Flue 2	BOIL2	566,245.0	4,192,349.7	289.5	63 [19.2]	10 [0.25]	800 [4.06]	200 [366.5]
Diesel Generator	DGEN	566,272.0	4,192,293.0	279.6	20 [6.1]	8 [0.20]	8,650 [43.9]	975 [797.0]

Table 3-2
Laboratory TAC Emissions Estimates
Seismic Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

CAS	COPC (1)	Proposed Project Per Stack Maximum Hourly Emissions (2) (lbs/hr)	Exposure Concentration (a) (µg/m³)
106990	1,3-Butadiene	7.9E-05	0.004
75070	Acetaldehyde	4.8E-04	0.026
107028	Acrolein	1.7E-04	0.009
107131	Acrylonitrile	1.4E-04	0.007
71432	Benzene	3.5E-03	0.19
7637072	Boron Trifluoride	3.0E-04	0.016
56235	Carbon Tetrachloride	2.7E-03	0.14
7782505	Chlorine	2.5E-03	0.13
67663	Chloroform	2.1E-02	1.1
4170303	Crotonaldehyde	1.4E-05	0.001
107062	Ethylene Dichloride	2.4E-03	0.13
50000	Formaldehyde	2.5E-03	0.13
7647010	HCl	2.3E-02	1.2
302012	Hydrazine	3.9E-05	0.002
75014	Vinyl Chloride	1.7E-03	0.09
75354	Vinylidene Chloride	1.2E-04	0.006

Notes:

(a) Exposure concentration (µg/m³) = (maximum modeled concentration [µg/m³]) x (proposed project maximum hourly emissions [lbs/hr]) x (453.59 g/lbs) / (3,600 s/hr)

maximum modeled concentration (µg/m³) = 420.8 (3)

References:

(1) Chemicals of Potential Concern (COPC) list is taken from Baseline Air Emissions Inventory Toxic Compound Emissions for Lawrence Berkeley National Laboratory (SECOR 2004), Table 33. Only COPCs which were emitted by laboratory sources have been included in this table as determined by Table 29, SECOR 2004.

(2) Taken from emissions inventory. Emission rates are for a single lab stack. It is assumed that both lab stacks emit equally.

(3) Maximum concentration resulting from the AERMOD model assuming a unit emission rate of 1 g/s for each of the two lab sources.

Table 3-3
$PM_{2.5}$ Modeling Results
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Pollutant	Meteorological Year	Emissions Scenario	Maximum Annual Average Concentration (µg/m³)
$PM_{2.5}$	1998	Project Operations	0.0008
		Project Construction/Demolition (1)	0.14
		Project Construction/Demolition (2)	0.0045
		Cumulative Construction/Demolition (1)	0.31
		Cumulative Construction/Demolition (2)	0.073
	1999	Project Operations	0.0008
		Project Construction/Demolition (1)	0.15
		Project Construction/Demolition (2)	0.0046
		Cumulative Construction/Demolition (1)	0.30
		Cumulative Construction/Demolition (2)	0.073

(1) From onsite, off-road equipment emissions.
(2) From offsite, on-road truck emissions.

Table 3-4
Construction/Demolition DPM Modeling Results
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Pollutant	Emission Scenario	Receptor Grid	Maximum Annual Average Concentration (µg/m³)
DPM	Project Max 12-Month (Hazard Assessments)	Onsite	0.41
		Offsite	0.070
	Total Project (LECR Assessments)	Onsite	0.31
		Offsite (1)	0.046
	Cumulative Max 12-Month (Hazard Assessments)	Onsite	1.44
		Offsite	0.31
	Total Cumulative (LECR Assessments)	Onsite	0.69
		Offsite	0.14

Notes:
(1) Excludes the three model receptor locations with the highest predicted concentrations (between 0.056 ug/m^3 and 0.052 ug/m^3) which were inappropriate for LECR assessment. See report text.

Table 3-5
DPM Modeling Results for On-Road Truck Traffic from Construction/Demolition Acitivities
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Pollutant	Modeling Scenario	Emissions Scenario	Maximum Concentration (µg/m³)
DPM	Project Only	Maximum 12-Month	0.0048
		Maximum Period (3.75 year)	0.0031
	Cumulative	Maximum 12-Month	0.053
		Maximum Period (3.75 year)	0.034

Table 4-1
Maximum LECR and Chronic Hazard Estimates For Project Operations
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Assessment	MEI Result (1)
Onsite LECR	5.4E-07
Onsite Chronic Hazard	0.003
Offsite LECR	1.7E-07
Offsite Chronic Hazard	0.001

LECR = Lifetime Excess Cancer Risk
MEI = Maximally Exposed Individual

(1) From the HARP model. Offsite LECR multiplied by age sensitivity factor of 1.7 in accordance with Jan. 2010 BAAQMD guidance for assessment of air toxics.

Table 4-2
Summary of Acute Hazard Index Estimates for GPL Laboratory Operations
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

CAS	Toxic Air Contaminant (1)	Project Maximum Hourly Emissions (2) (lbs/hr)	Maximum 1-Hour Exposure Concentration (a) (µg/m³)	Acute Inhalation Reference Concentration (4) (µg/m³)	Acute Hazard Index (b)
106990	1,3-Butadiene	7.9E-05	0.0042	N/A	-- --
75070	Acetaldehyde	4.8E-04	0.026	470	0.0001
107028	Acrolein	1.7E-04	0.0090	2.5	0.004
107131	Acrylonitrile	1.4E-04	0.0073	N/A	-- --
71432	Benzene	3.5E-03	0.19	1,300	0.0001
7637072	Boron Trifluoride	3.0E-04	0.02	N/A	-- --
56235	Carbon Tetrachloride	2.7E-03	0.14	1,900	0.0001
7782505	Chlorine	2.5E-03	0.13	210	0.001
67663	Chloroform	2.1E-02	1.1	150	0.01
4170303	Crotonaldehyde	1.4E-05	0.0008	N/A	-- --
107062	Ethylene Dichloride	2.4E-03	0.1	N/A	-- --
50000	Formaldehyde	2.5E-03	0.13	55	0.002
7647010	HCl	2.3E-02	1.2	2,100	0.001
302012	Hydrazine	3.9E-05	0.0	N/A	-- --
75014	Vinyl Chloride	1.7E-03	0.091	180,000	0.000001
75354	Vinylidene Chloride	1.2E-04	0.006	N/A	-- --

Notes:

(a) Exposure concentration (µg/m³) = [maximum modeled concentration (µg/m³)] x [project maximum hourly emissions (lb/hr)] x [453.59 g/lb] / [3,600 s/hr]

maximum modeled concentration (µg/m³) = 420.8 (3)

(b) Acute hazard index = [maximum 1-hour concentration (ug/m^3)] / [acute inhalation reference concentration (ug/m^3)]

References:

(1) List of TACs potentially emitted from the laboratory fume hood vents. See Section 2 of this report.
No hazard index provided for TACs without acute reference concentrations published by OEHHA.

(2) Estimated maximum hourly emission rate for each of the two laboratory fume hood vents. See Section 2 of this report.

(3) Maximum concentration resulting from the AERMOD model assuming a unit emission rate of 1 g/s for each of the two lab sources. See Section 3 of this report.

(4) Values published by OEHHA (http://www.arb.ca.gov/toxics/healthval/acute.pdf) accessed Dec 2009.

Table 4-3
Risk Assessment for Off-Road Construction/Demolition Equipment Usage for Offsite Receptors
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Assessment	Averaging Period for Maximum Exposure Concentration (years)	Maximum Average DPM Concentration Over Averaging Period ($\mu g/m^3$)	Maximum Lifetime Excess Cancer Risk [(a)]
LECR (Project only)	3.75	0.046 [(3)]	8.4E-06
LECR (Cumulative)	3.75	0.140	2.6E-05

Assessment	Averaging Period for Maximum Exposure Concentration (years)	Maximum Average DPM Concentration Over Averaging Period ($\mu g/m^3$)	Maximum Chronic Hazard Quotient [(b)]
Chronic Hazard (Project Only)	1	0.070	0.014
Chronic Hazard (Cumulative)	1	0.310	0.062

Notes:
LECR = Lifetime Excess Cancer Risk; DPM = Diesel Particulate Matter

(a) Maximum LECR = Dose (mg/kg-day) x Slope Factor ($(mg/kg\text{-}day)^{-1}$) x Weighted Age Sensitivity Factor

Dose (mg/kg-day) = [Exposure Concentration ($\mu g/m^3$) x Daily Breathing Rate (L/kg-day) x Exposure Frequency (days/yr) x Exposure Duration (yrs) x 10^{-6} ($\mu g\text{-}L/mg\text{-}m^3$)]/Averaging Period (days)

Daily Breathing Rate (child; L/kg-day) = 452 (1)
Exposure Frequency (days/yr; resident) = 350 (1)
Exposure Duration (yrs) = 3.75 (1)
Averaging Period (days) = 25,550 (1)

Slope Factor (DPM; $(mg/kg\text{-}day)^{-1}$) = 1.1

Weighted Age Sensitivity Factor = 10 x 2.25 years of infant exposure + 3 x 1.50 years of child exposure / 3.75 years total exposure

= 7.20 (2)

(b) Maximum Hazard Quotient = Exposure Concentration ($\mu g/m^3$) / Reference Concentration ($\mu g/m^3$)

DPM Reference Concentration ($\mu g/m^3$) = 5

(1) Recommended values from *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* , Cal EPA/OEHHA, August 2003 (http://www.oehha.org/air/hot_spots/pdf/HRAfinalnoapp.pdf).
(2) Age sensitivity factor usage from Jan. 2010 BAAQMD guidance for air toxics NSR program.
(3) Excludes three model receptor locations where residences were confirmed not to occur. See report text.

Table 4-4
Risk Assessment for Off-Road Construction/Demolition Equipment Usage for Onsite Receptors
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Assessment	Averaging Period for Maximum Exposure Concentration (years)	Maximum Average DPM Concentration Over Averaging Period ($\mu g/m^3$)	Maximum Lifetime Excess Cancer Risk [(a)]
LECR (Project only)	3.75	0.31	6.5E-06
LECR (Cumulative)	3.75	0.69	1.5E-05

Assessment	Averaging Period for Maximum Exposure Concentration (years)	Maximum Average DPM Concentration Over Averaging Period ($\mu g/m^3$)	Maximum Chronic Hazard Quotient [(b)]
Chronic Hazard (Project Only)	1	0.41	0.08
Chronic Hazard (Cumulative)	1	1.44	0.29

Notes:
LECR = Lifetime Excess Cancer Risk; DPM = Diesel Particulate Matter

(a) Maximum LECR = Dose (mg/kg-day) x Slope Factor ($(mg/kg\text{-}day)^{-1}$)

Dose (mg/kg-day) = [Exposure Concentration ($\mu g/m^3$) x Daily Breathing Rate (L/kg-day) x Exposure Frequency (days/yr) x Exposure Duration (yrs) x 10^{-6} ($\mu g\text{-}L/mg\text{-}m^3$)]/Averaging Period (days)

Daily Breathing Rate (worker; L/kg-day) = 149 (1)
Exposure Frequency (days/yr; worker) = 365 (1)
Exposure Duration (yrs) = 9 (1)
Averaging Period (days) = 25,550 (1)

Slope Factor (DPM; $(mg/kg\text{-}day)^{-1}$) = 1.1

(b) Maximum Hazard Quotient = Exposure Concentration ($\mu g/m^3$) / Reference Concentration ($\mu g/m^3$)

DPM Reference Concentration ($\mu g/m^3$) = 5

(1) Recommended values from *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* , Cal EPA/OEHHA, August 2003 (http://www.oehha.org/air/hot_spots/pdf/HRAfinalnoapp.pdf).
Exposure frequency set to 365 days because model produces annual average concentration for all hours.

Table 4-5
Risk Assessment for On-Road Construction/Demolition Truck Traffic at Offsite Receptors
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Assessment	Averaging Period for Maximum Exposure Concentration (years)	Maximum Average DPM Concentration Over Averaging Period ($\mu g/m^3$)	Maximum Lifetime Excess Cancer Risk (a)
LECR (Project only)	3.75	0.00309	5.7E-07
LECR (Cumulative)	3.75	0.0487	9.0E-06

Assessment	Averaging Period for Maximum Exposure Concentration (years)	Maximum Average DPM Concentration Over Averaging Period ($\mu g/m^3$)	Maximum Chronic Hazard Quotient (b)
Chronic Hazard (Project Only)	1	0.00477	0.001
Chronic Hazard (Cumulative)	1	0.0758	0.02

Notes:
LECR = Lifetime Excess Cancer Risk; DPM = Diesel Particulate Matter

(a) Maximum LECR = Dose (mg/kg-day) x Slope Factor ($(mg/kg\text{-}day)^{-1}$) x Weighted Age Sensitivity Factor

Dose (mg/kg-day) = [Exposure Concentration ($\mu g/m^3$) x Daily Breathing Rate (L/kg-day) x Exposure Frequency (days/yr) x Exposure Duration (yrs) x 10^{-6} ($\mu g\text{-}L/mg\text{-}m^3$)]/Averaging Period (days)

Daily Breathing Rate (child; L/kg-day) = 452 (1)
Exposure Frequency (days/yr; resident) = 350 (1)
Exposure Duration (yrs) = 3.75 (1)
Averaging Period (days) = 25,550 (1)

Slope Factor (DPM; $(mg/kg\text{-}day)^{-1}$) = 1.1

Weighted Age Sensitivity Factor = 10 x 2.25 years of infant exposure + 3 x 1.50 years of child exposure / 3.75 years total exposure

= 7.20 (2)

(b) Maximum Hazard Quotient = Exposure Concentration ($\mu g/m^3$) / Reference Concentration ($\mu g/m^3$)

DPM Reference Concentration ($\mu g/m^3$) = 5

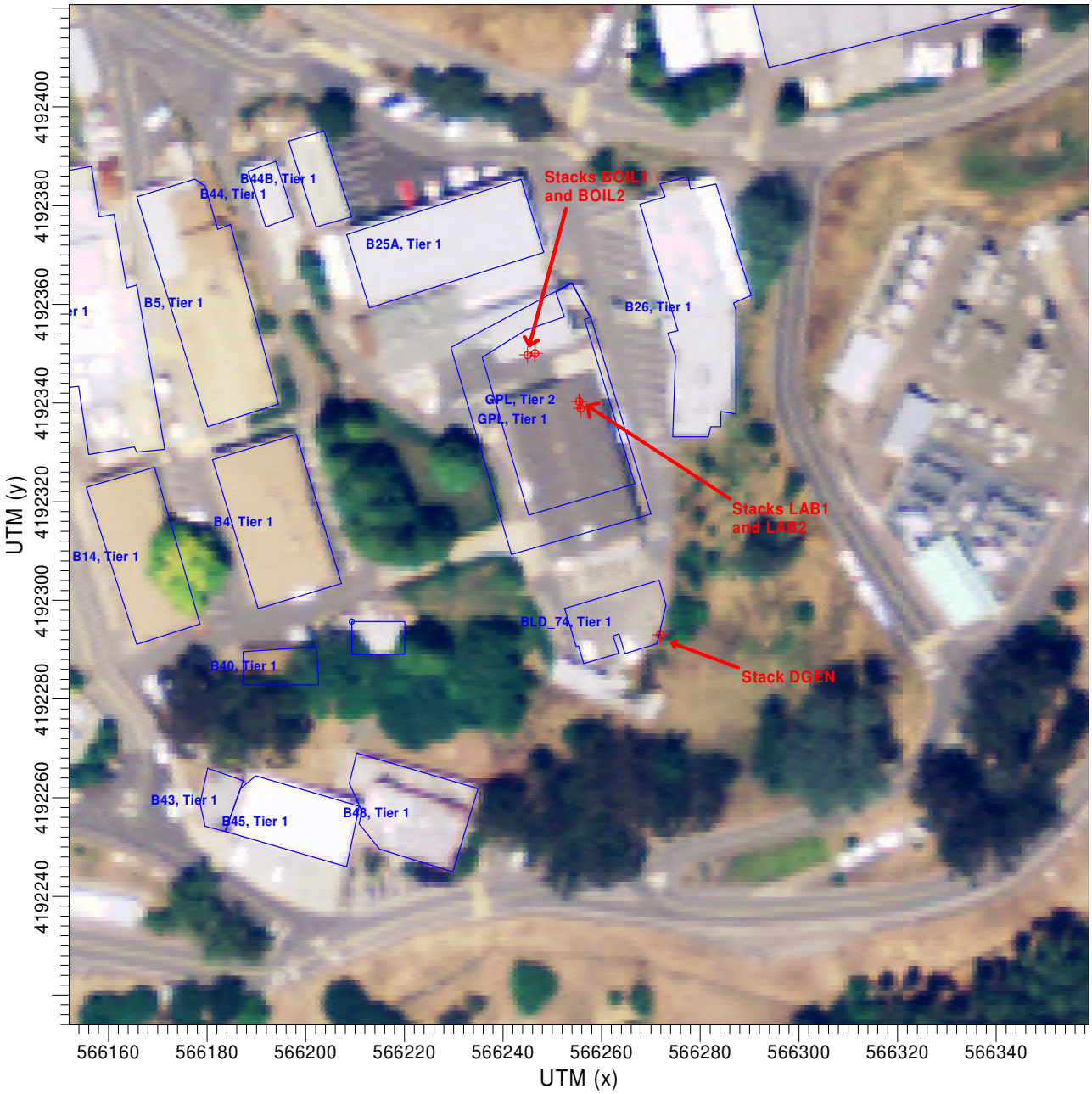
(1) Recommended values from *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* , Cal EPA/OEHHA, August 2003 (http://www.oehha.org/air/hot_spots/pdf/HRAfinalnoapp.pdf).

(2) Age sensitivity factor usage from Jan. 2010 BAAQMD guidance for air toxics NSR program.

FIGURES

PROJECT TITLE:

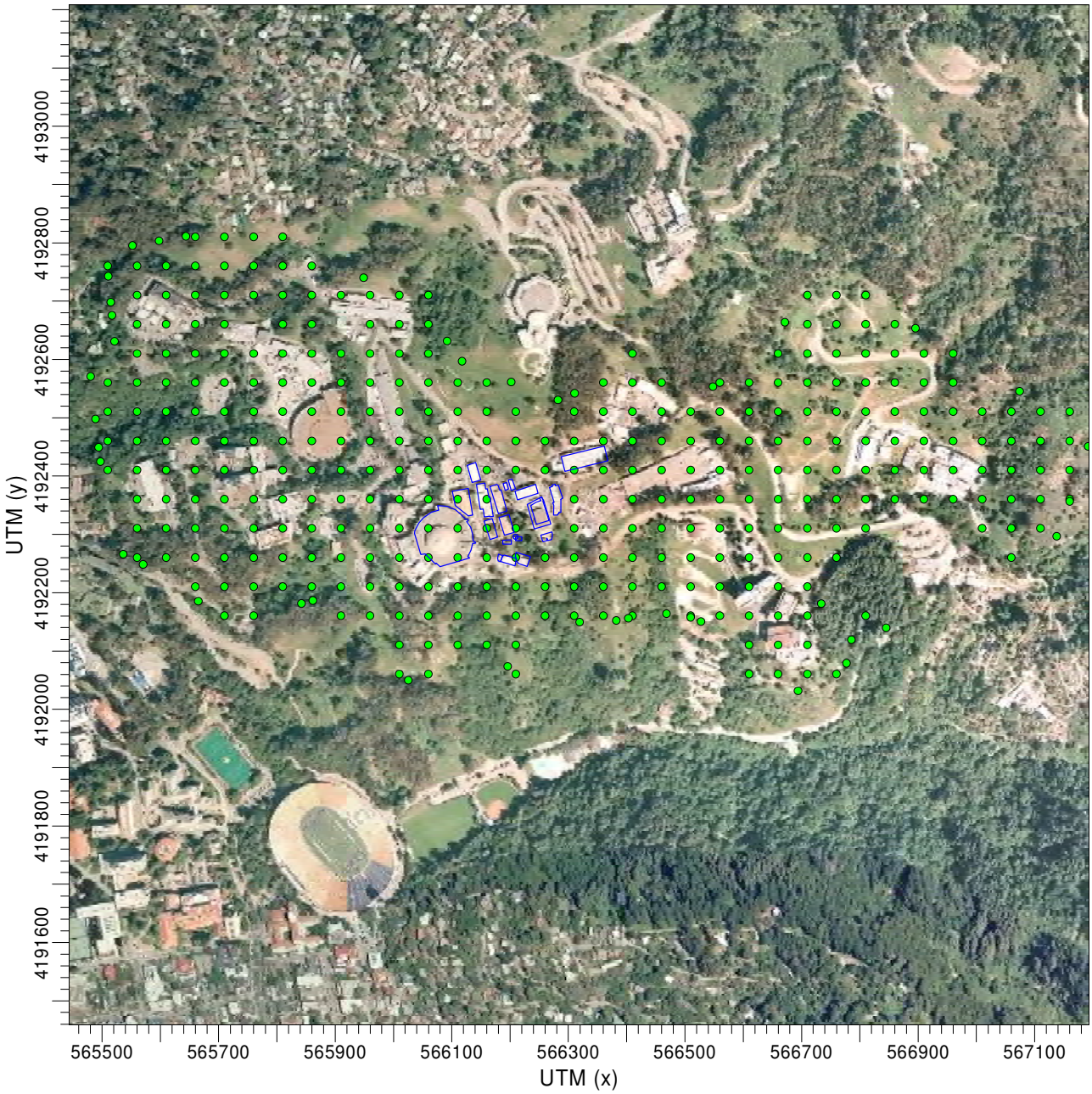
Figure 3-1. GPL Point Source Locations
Seismic Life-Safety Phase 2 Project; Lawrence Berkeley National Laboratory, Berkeley,



COMMENTS:	SOURCES:	COMPANY NAME:	
Buildings denoted in blue. Future GPL buliding shown. Sources denoted in red.	**5**	**Golder Associates Inc.**	
	RECEPTORS:	MODELER:	
	0	**Portland, OR**	
		SCALE: 1:1,300 0 0.04 km	
			PROJECT NO.:
			093-99021

AERMOD View - Lakes Environmental Software

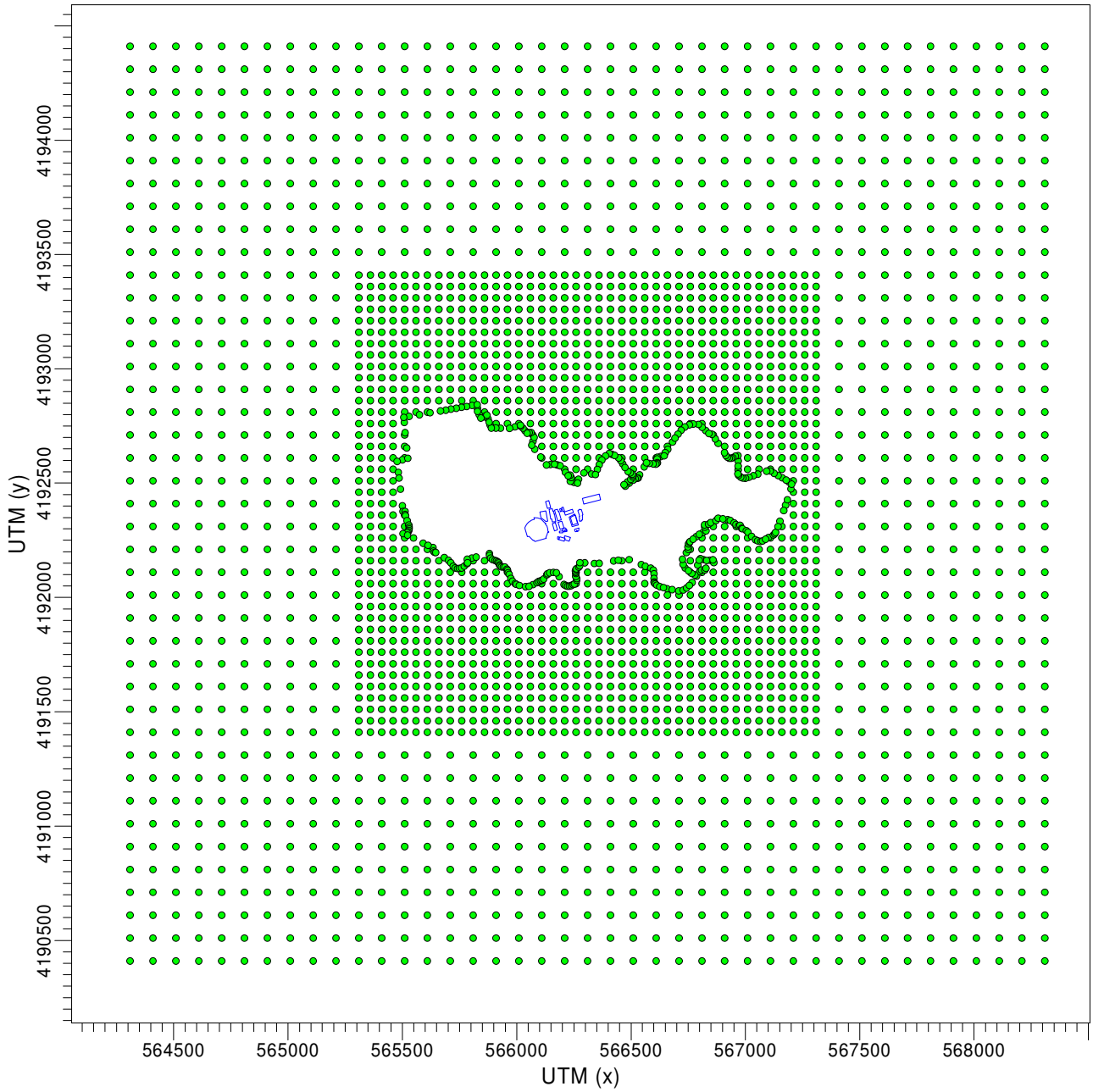
Figure 3-2. Onsite Receptor Grid
Seismic Life-Safety Phase 2 Project; Lawrence Berkeley National Laboratory, Berkeley,



COMMENTS:	SOURCES:	COMPANY NAME:	
Onsite receptors denoted with green circles. Blue denotes buildings near future GPL buliding location. Future GPL buliding is shown.	**0**	**Golder Associates Inc.**	
	RECEPTORS: **368**	MODELER: **Portland, OR**	Golder Associates
		SCALE: 1:11,000 0 0.4 km	
			PROJECT NO.: **093-99021**

AERMOD View - Lakes Environmental Software

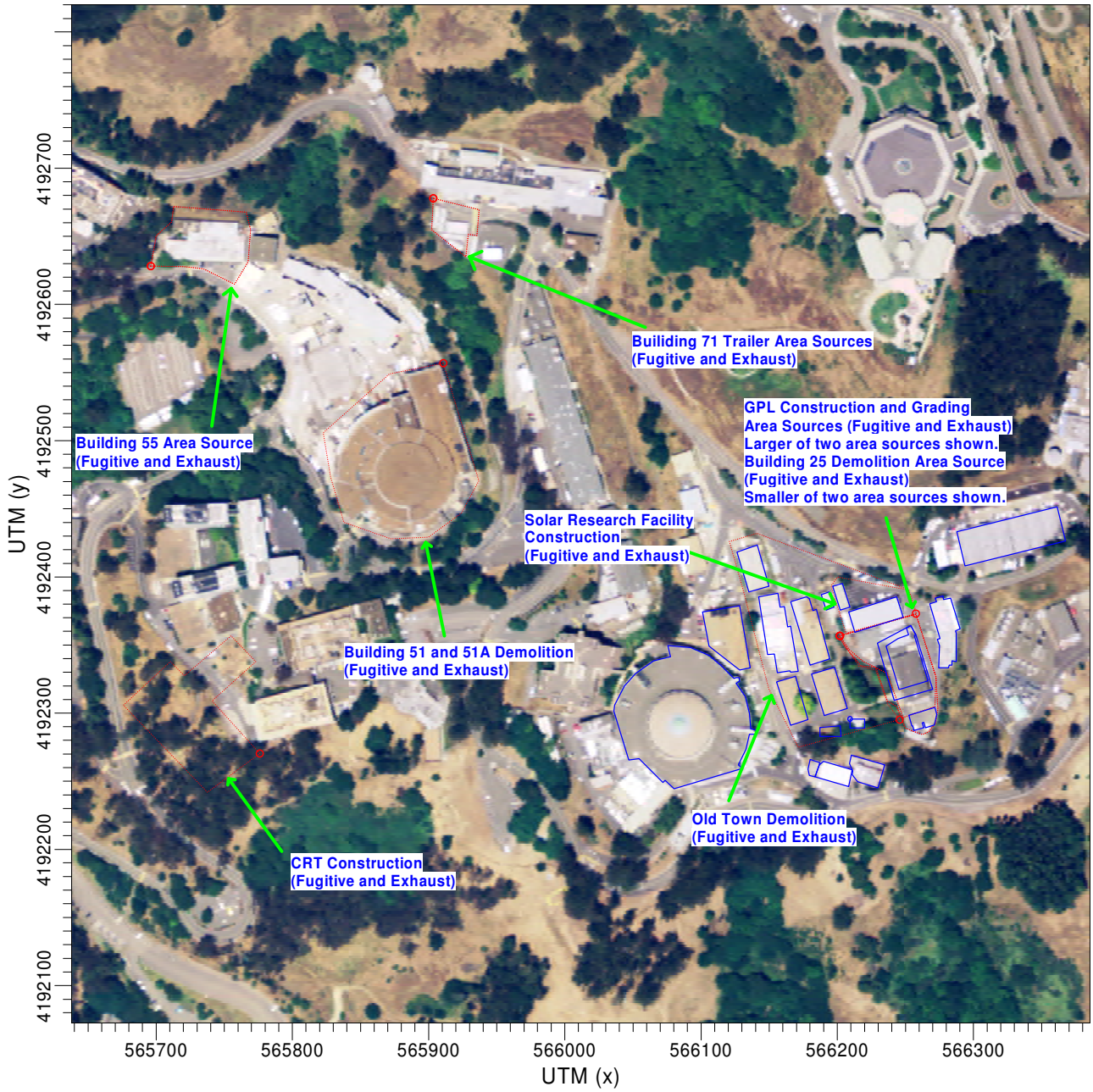
Figure 3-3. Offsite Receptor Grid
Seismic Life-Safety Phase 2 Project; Lawrence Berkeley National Laboratory, Berkeley,



COMMENTS:	SOURCES:	COMPANY NAME:	
Offsite receptors denoted with green circles. Blue denotes buildings near future GPL buliding location. Future GPL buliding is shown.	**0**	**Golder Associates Inc.**	
	RECEPTORS: **2911**	MODELER: **Portland, OR**	Golder Associates
		SCALE: 1:28,000 0 1 km	
			PROJECT NO.: **093-99021**

AERMOD View - Lakes Environmental Software

Figure 3-4. Area Source Locations for Construction/Demolition Modeling
Seismic Life-Safety Phase 2 Project; Lawrence Berkeley National Laboratory, Berkeley, CA



COMMENTS:	SOURCES:	COMPANY NAME:	
Area sources shown in red. Buildings entered into the model shown in blue. Future GPL building is shown.	**12**	**Golder Associates Inc.**	
	RECEPTORS: **0**	MODELER: **Portland, OR**	
		SCALE: 1:4,700 0 0.1 km	
			PROJECT NO.: **093-99021**

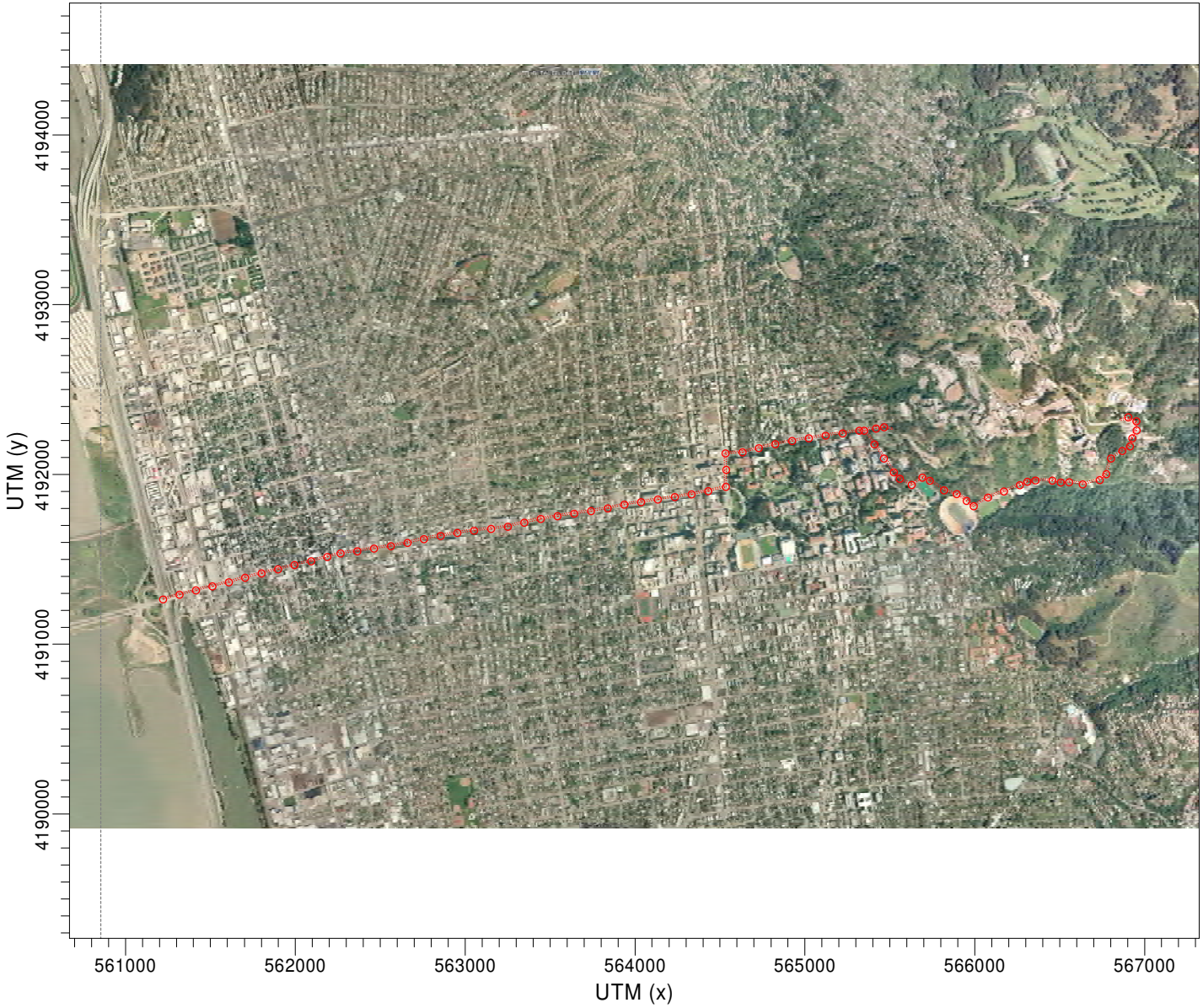
AERMOD View - Lakes Environmental Software

Figure 3-5. On-Road Construction/Demolition Truck Travel Area Sources - LBNL Vicinity Seismic Life-Safety Phase 2 Project; Lawrence Berkeley National Laboratory, Berkeley, CA

COMMENTS:	SOURCES:	COMPANY NAME:	
Red denotes area sources.	**77**	**Golder Associates Inc.**	
	RECEPTORS: **2634**	MODELER: **Portland, OR**	Golder Associates
		SCALE: 1:18,000 0 0.5 km	
			PROJECT NO.: **093-99021**

AERMOD View - Lakes Environmental Software

Figure 3-6. On-Road Construction/Demolition Truck Travel Area Sources - Entire Route Length
Seismic Life-Safety Phase 2 Project; Lawrence Berkeley National Laboratory, Berkeley, CA



COMMENTS:

Red denotes area sources.

SOURCES:

77

RECEPTORS:

2634

COMPANY NAME:

Golder Associates Inc.

MODELER:

Portland, OR

SCALE: 1:37,504

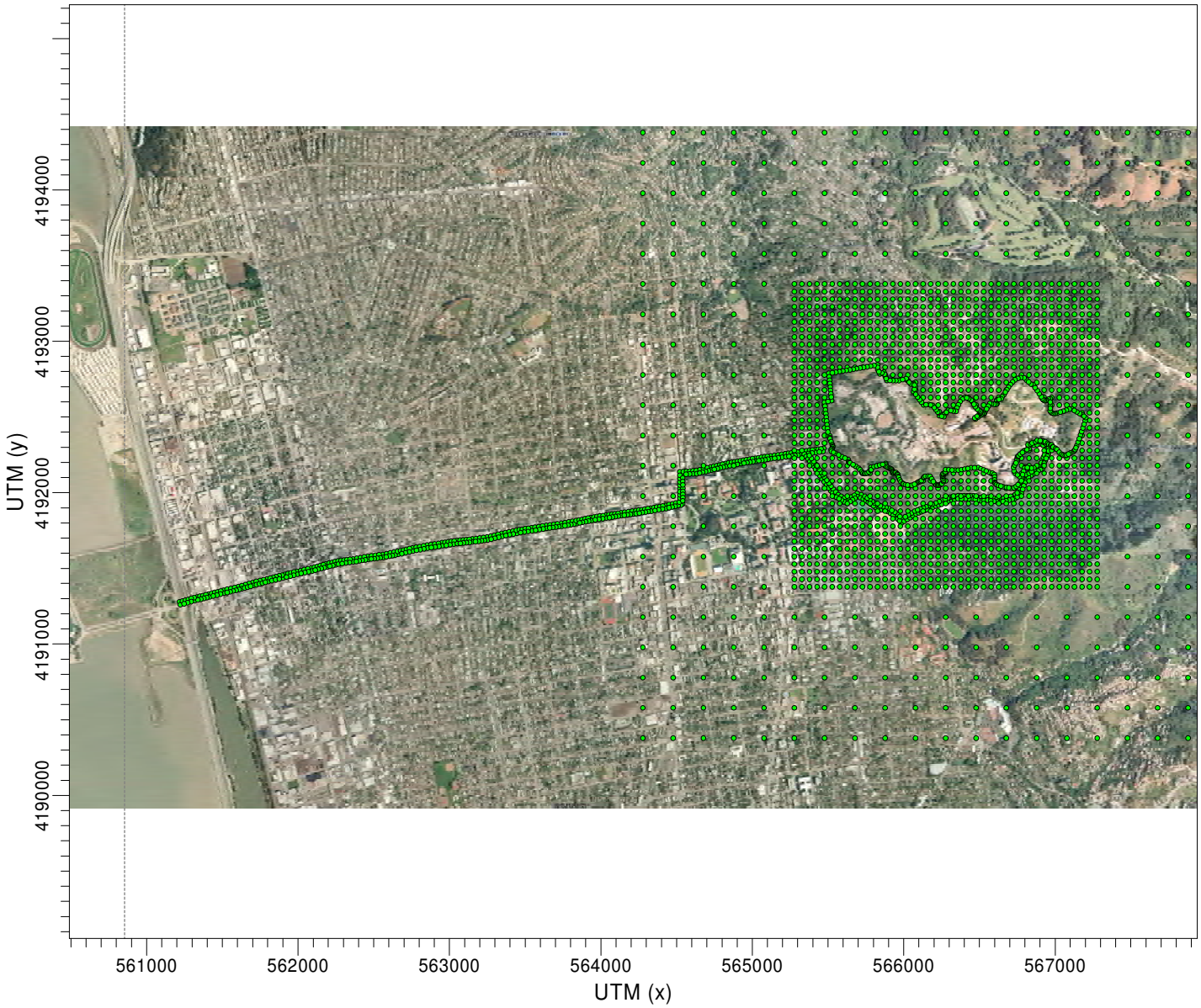
0 1 km

PROJECT NO.:

093-99021

AERMOD View - Lakes Environmental Software

Figure 3-7. On-Road Construction/Demolition Truck Travel Receptors - Entire Route Length
Seismic Life-Safety Phase 2 Project; Lawrence Berkeley National Laboratory, Berkeley, CA



COMMENTS:

Green circles denote receptor locations.

SOURCES:

77

RECEPTORS:

2634

COMPANY NAME:

Golder Associates Inc.

MODELER:

Portland, OR

SCALE: 1:42,000

0 1 km

PROJECT NO.:

093-99021

AERMOD View - Lakes Environmental Software

APPENDIX A

GPL LABORATORY CHEMICAL EMISSION ESTIMATE CALCULATIONS

Table A-1
Laboratory TAC Emissions Estimates
Seismic Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

CAS	COPC (1)	Baseline Emissions (2) (lbs/yr)	Proposed Project Emissions (a) (lbs/yr)	Proposed Project Average Hourly Emissions (b) (lbs/hr)	Proposed Project Maximum Hourly Emissions (c) (lbs/hr)
106990	1,3-Butadiene	8.9E-01	6.1E-02	3.1E-05	1.59E-04
75070	Acetaldehyde	5.4E+00	3.7E-01	1.9E-04	9.6E-04
107028	Acrolein	1.9E+00	1.3E-01	6.6E-05	3.4E-04
107131	Acrylonitrile	1.5E+00	1.1E-01	5.3E-05	2.8E-04
71432	Benzene	3.9E+01	2.7E+00	1.4E-03	7.0E-03
7637072	Boron Trifluoride	3.4E+00	2.3E-01	1.2E-04	6.1E-04
56235	Carbon Tetrachloride	3.0E+01	2.1E+00	1.0E-03	5.4E-03
7782505	Chlorine	2.8E+01	1.9E+00	9.7E-04	5.0E-03
67663	Chloroform	2.3E+02	1.6E+01	8.0E-03	4.1E-02
4170303	Crotonaldehyde	1.6E-01	1.1E-02	5.6E-06	2.9E-05
107062	Ethylene Dichloride	2.7E+01	1.9E+00	9.4E-04	4.8E-03
50000	Formaldehyde	2.9E+01	2.0E+00	9.8E-04	5.1E-03
7647010	HCl	2.6E+02	1.8E+01	8.9E-03	4.6E-02
302012	Hydrazine	4.3E-01	3.0E-02	1.5E-05	7.7E-05
75014	Vinyl Chloride	1.9E+01	1.3E+00	6.6E-04	3.4E-03
75354	Vinylidene Chloride	1.3E+00	9.1E-02	4.6E-05	2.4E-04

Notes:

(a) Project emissions [lbs/yr] = (baseline emissions [lbs/yr]) / (baseline laboratory net square feet [nsf]) x (project laboratory net square feet [nsf])

Baseline laboratory net square feet (nsf) = 236,780 (3)

Project laboratory net square feet (nsf) = 16,250 (4)

(b) Proposed Project Average Hourly Emissions (lbs/hr) = (proposed project annual emissions [lbs/yr]) / (50 [weeks/yr]) x (40 [hrs/week])

(c) Proposed project maximum hourly emissions (lbs/hr) = (proposed project avergae hourly emissions [lbs/hr]) x (converstion factor)

conversion factor = 5.18 (5)

References:

(1) Chemicals of Potential Concern (COPC) list is taken from Baseline Air Emissions Inventory Toxic Compound Emissions for Lawrence Berkeley National Laboratory (SECOR 2004), Table 33. Only COPCs which were emitted by laboratory sources have been included in this table as determined by Table 29, SECOR 2004.

(2) Taken from SECOR 2004, Table 29.

(3) Taken from SECOR 2004, Appendix A, Page 6.

(4) Provided by Lawrence Berkeley National Laboratory.

(5) Based in studies comparing maximum to average emisson rates for laboratories. See text for further information.

APPENDIX B

GPL STATIONARY SOURCE POLLUTANT EMISSION ESTIMATE CALCULATIONS

Table B-1
Natural Gas Fired Boiler TAC Emissions Estimates
Seismic Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Chemical	CAS Number	Emission Factor (lb/MMscf)		Estimated Emissions (lbs/hr)		Estimated Emissions (lbs/yr)	
ORGANICS							
Formaldehyde	50000	2.2E-01	(2)	6.3E+00	(a)	1.5E-05	(b)
7,12-Dimethylbenz(a)anthracene	57976	1.6E-05	(1)	4.5E-04	(a)	1.1E-09	(b)
Benzene	71432	4.3E-03	(2)	1.2E-01	(a)	2.9E-07	(b)
Ethane	74840	3.10	(1)	8.8E+01	(a)	2.1E-04	(b)
Propane	74986	1.60	(1)	4.5E+01	(a)	1.1E-04	(b)
Acetaldehyde	75070	8.9E-03	(2)	2.5E-01	(a)	6.0E-07	(b)
Naphthalene	91203	6.1E-04	(1)	1.7E-02	(a)	4.1E-08	(b)
Benzaldehyde	100527	1.6E-02	(2)	4.6E-01	(a)	1.1E-06	(b)
Butane	106978	2.10	(1)	6.0E+01	(a)	1.4E-04	(b)
Toluene	108883	3.4E-03	(1)	9.6E-02	(a)	2.3E-07	(b)
Pentane	109660	2.60	(1)	7.4E+01	(a)	1.7E-04	(b)
Hexane	110543	1.80	(1)	5.1E+01	(a)	1.2E-04	(b)
Fluoranthene	206440	3.0E-06	(1)	8.5E-05	(a)	2.0E-10	(b)
Dichlorobenzene	25321226	1.2E-03	(1)	3.4E-02	(a)	8.1E-08	(b)
METALS							
Lead	7439921	5.0E-04	(3)	1.4E-02	(a)	3.4E-08	(b)
Arsenic	7440382	2.0E-04	(4)	5.7E-03	(a)	1.3E-08	(b)
Barium	7440393	4.4E-03	(4)	1.2E-01	(a)	3.0E-07	(b)
Beryllium	7440417	1.2E-05	(4)	3.4E-04	(a)	8.1E-10	(b)
Cadmium	7440439	1.1E-03	(4)	3.1E-02	(a)	7.4E-08	(b)
Chromium (hexavalent)	18540299	1.4E-03	(4)	6.7E-03	(a),(c)	1.7E-02	(b),(c)
Cobalt	7440484	8.4E-05	(4)	2.4E-03	(a)	5.6E-09	(b)
Copper	7440508	8.5E-04	(4)	2.4E-02	(a)	5.7E-08	(b)
Manganese	7439965	3.8E-04	(4)	1.1E-02	(a)	2.6E-08	(b)
Mercury	7439976	2.6E-04	(4)	7.4E-03	(a)	1.7E-08	(b)
Molybdenum	7439987	1.1E-03	(4)	3.1E-02	(a)	7.4E-08	(b)
Nickel	7440020	2.1E-03	(4)	6.0E-02	(a)	1.4E-07	(b)
Selenium	7782492	2.4E-05	(4)	6.8E-04	(a)	1.6E-09	(b)
Vanadium	7440622	2.3E-03	(4)	6.5E-02	(a)	1.5E-07	(b)
Zinc	7440666	2.9E-02	(4)	8.2E-01	(a)	1.9E-06	(b)

Notes:

(a) Estimated emissions (lbs/hr) = (Boiler maximum heat input rating [MMBtu/hr]) / (1,020 MMBtu/MMscf) x (emission factor [lbs/MMscf])
Boiler maximum heat input rating (MMBtu/hr) = 3.3 (5)

(b) Estimated emissions (lbs/yr) = (Maximum annual fuel usage [therms/yr]) x (100,000 [Btu/therms]) x (1 MMBtu/1,000,000 MMBtu) / [(1,020 [MMBtu/MMscf]) x (8,760 hrs/yr)] x (emission factor [lbs/MMscf])
Maximum annual fuel usage (therms/yr) = 6,000 (5)

(c) Estimated chromium (hexavlent) emissions = (estimated emissions of total chromium) x (precent of hexavalent chromium [%] / 100)
percent of hexavalent chromium (%) = 17 (7)

References:

(1) AP-42, Fifth Edition, Section 1.4 (July 1998), Table 1.4-3; Emission Factors For Speciated Organic Compounds From Natural Gas Combustion.
(2) Taken from the California Air Toxics Emission Factors (CATEF) database located at http://www.arb.ca.gov/ei/catef/catef.htm. Mean CATEF emission factors were selected over AP-42 factors when both sources contained emission factors for the same pollutant.
(3) AP-42, Fifth Edition, Section 1.4 (July 1998), Table 1.4-2; Emission Factors For Criteria Pollutants and Green House Gases From Natural Gas Combustion.
(4) AP-42, Fifth Edition, Section 1.4 (July 1998), Table 1.4-4; Emission Factors For Metals From Natural Gas Combustion.
(5) Provided by vendor. Fuel usage is for one boiler.
(6) Provided by LBNL. The Helios project includes 4 identical boilers.
(7) Total chromium emissions were corrected by multiplying by 17% to estimate emissions of hexavalent chromium per the Plywood and Composite Wood Products (PCWP) MACT rule promulgated by EPA

Table B-2
Laboratory TAC Emissions Estimates
Seismic Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Chemical	Emission Factor (lb/MMscf)		Estimated Emissions [(a)] (lbs/hr)	Estimated Emissions [(b)] (lbs/day)	Estimated Emissions [(c)] (tons/yr)
NO_X	100	(1)	0.3	7.8	2.9E-02
CO	84	(1)	0.3	6.5	2.5E-02
CO_2	120,000	(2)	388.2	9317.6	3.5E+01
Lead	0.0005	(2)	1.6E-06	3.9E-05	1.5E-07
PM (Total)	7.6	(2)	2.5E-02	5.9E-01	2.2E-03
SO_2	0.6	(2)	1.9E-03	4.7E-02	1.8E-04
VOC	5.5	(2)	1.8E-02	4.3E-01	1.6E-03

Notes:

(a) Estimated hourly emissions (lbs/hr) = (Boiler maximum heat input rating [MMBtu/hr]) / (1,020 MMBtu/MMscf) x (emission factor [lbs/MMscf])
Boiler maximum heat input rating (MMBtu/hr) = 3.3 (3)

(b) Estimated daily emissions (lbs/day) = (estimated hourly emissions [lbs/hr]) x (daily hours of operation [hrs/day])
daily hours of operation (hrs/day) 24.0 (3)

(c) Estimated annual emissions (lbs/yr) = (Maximum annual fuel usage [therms/yr]) x (100,000 [Btu/therms]) x (scf/1,020 Btu) x (MMscf/1,000,000 scf) x (emission factor [lbs/MMscf]) x (1 ton/2,000 lbs)
Maximum annual fuel usage (therms/yr) = 6,000 (3)

References:

(1) AP-42, Fifth Edition, Section 1.4 (July 1998), Table 1.4-1; Emission Factors For Nitrogen Oxides (NOX) and Carbon Monoxide (CO) From Natural Gas Combustion; Small Boilers (<100 MMBtu).
(2) AP-42, Fifth Edition, Section 1.4 (July 1998), Table 1.4-2; Emission Factors For Criteria Pollutants and Greenhouse Gases From Natural Gas Combustion.
(3) Provided by LBNL.

Table B-3
Estimated Toxic Air Contaminant Emissions From Diesel Genetrator
Seismic Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Chemical	Emission Factor		Estimated Emissions (lbs/hr)		Estimated Emissions (lbs/day)		Estimated Emissions (tons/yr)	
NO_X	3.34 g/hp-hr	(1)	3.9	(a)	7.9	(c)	9.8E-02	(d)
CO	0.53 g/hp-hr	(1)	0.6	(a)	1.3	(c)	1.6E-02	(d)
CO_2	1.15 lbs/hp-hr	(2)	615.3	(b)	1,230.5	(c)	1.5E+01	(e)
PM_{10}	0.046 g/hp-hr	(1)	0.05	(a)	7.9	(c)	9.8E-02	(e)
$PM_{2.5}$	0.046 g/hp-hr	(6)	0.05	(6)	7.9	(6)	9.8E-02	(6)
SO_2	0.59 g/hp-hr	(4)	0.7	(a)	1.4	(c)	1.7E-02	(d)
VOC	0.04 g/hp-hr	(1)	0.0	(a)	0.1	(c)	1.2E-03	(d)

Notes:

(a) Estimated emissions(lbs/hr) = (rated horsepower of generator [hp]) x (emission factor [g/hp-hr]) / (453.59 g/lb)
rated horsepower of generator (hp) = 535 (4)

(b) Estimated emissions(lbs/hr) = (rated horsepower of generator [hp]) x (emission factor [lbs/hp-hr])
rated horsepower of generator (hp) = 535 (4)

(c) Estimated daily emissions(lbs/day) = (estimated hourly emissions [lbs/hr]) x (daily hours of operation [hrs/day])
daily hours of operation (hrs/day) 2.0 (3)

(d) Estimated emissions(lbs/yr) = (rated horsepower of generator [hp]) x (annual hours of operation [hrs/yr]) x (emission factor [g/hp-hr]) / (453.59 g/lb) / (2,000 lbs)
rated horsepower of generator (hp) = 535 (4)
annual hours of operation (hrs/yr) = 50 (5)

(e) Estimated emissions(lbs/yr) = (rated horsepower of generator [hp]) x (annual hours of operation [hrs/yr]) x (emission factor [lbs/hp-hr]) / (2,000 lbs)
rated horsepower of generator (hp) = 535 (4)
annual hours of operation (hrs/yr) = 50 (5)

References:

(1) Based on specifications for a Caterpillar STANDBY 350 ekW 438 kVA generator; assumed to represent a typical 350 ekW unit.
(2) AP-42, Fifth Edition, Section 3.3 (October 1996), Table 3.3-1; Emission Factors For Uncontrolled Gasoline and Diesel Industrial Engines.
(3) Particulate emissions are estimated in the Toxic Air Contaminant calculation page. All particulate emitted from this unit is assumed to be Diesel Particulate Matter (DPM).
(4) Based on specifications for a Cumins 350DFCC Diesel Engine; assumed to represent a typical engine used with the 350 ekW generator unit.
(5) Anticipated maximum operation of approximately twice the historical average - provided by LBNL.
(6) It is assumed that 100% of PM_{10} is $PM_{2.5}$.

Table B-4
Estimated Toxic Air Contaminant Emissions From Diesel Genetrator
Seismic Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Chemical	CAS Number/ID	Emission Factor [1]			Estimated Emissions (lbs/hr)		Estimated Emissions (lbs/yr)	
ORGANICS								
Acetaldehyde	75070	3.47E-03	lbs/Mgal	(2)	9.92E-05	(a)	4.96E-03	(c)
Acrolein	107028	1.07E-03	lbs/Mgal	(2)	3.06E-05	(a)	1.53E-03	(c)
Benzene	71432	1.93E-01	lbs/Mgal	(2)	5.52E-03	(a)	2.76E-01	(c)
Dibenz(a,h)anthracene	53703	8.22E-05	lbs/Mgal	(2)	2.35E-06	(a)	1.17E-04	(c)
Ethylbenzene	100414	6.76E-03	lbs/Mgal	(2)	1.93E-04	(a)	9.67E-03	(c)
Fluoranthene	206440	3.29E-04	lbs/Mgal	(2)	9.40E-06	(a)	4.70E-04	(c)
Formaldehyde	50000	5.06E-02	lbs/Mgal	(2)	1.45E-03	(a)	7.23E-02	(c)
Hexane	110543	1.39E-03	lbs/Mgal	(2)	3.98E-05	(a)	1.99E-03	(c)
Naphthalene	91203	1.60E-02	lbs/Mgal	(2)	4.56E-04	(a)	2.28E-02	(c)
Propylene	115071	3.41E-01	lbs/Mgal	(2)	9.75E-03	(a)	4.88E-01	(c)
Toluene	108883	6.12E-02	lbs/Mgal	(2)	1.75E-03	(a)	8.75E-02	(c)
Xylene (total)	1330207	2.10E-02	lbs/Mgal	(2)	5.99E-04	(a)	3.00E-02	(c)
METALS								
Arsenic	7440382	1.60E-03	lbs/Mgal	(3)	4.58E-05	(a)	2.29E-03	(c)
Cadmium	7440439	1.50E-03	lbs/Mgal	(3)	4.29E-05	(a)	2.15E-03	(c)
Chromium (hexavalent)	18540299	6.00E-04	lbs/Mgal	(3)	2.92E-06	(b)	1.46E-04	(d)
Copper	7440508	4.10E-03	lbs/Mgal	(3)	1.17E-04	(a)	5.86E-03	(c)
Lead	7439921	8.30E-03	lbs/Mgal	(3)	2.37E-04	(a)	1.19E-02	(c)
Manganese	7439965	3.10E-03	lbs/Mgal	(3)	8.87E-05	(a)	4.43E-03	(c)
Mercury	7439976	2.00E-03	lbs/Mgal	(3)	5.72E-05	(a)	2.86E-03	(c)
Nickel	7440020	3.90E-03	lbs/Mgal	(3)	1.12E-04	(a)	5.58E-03	(c)
Selenium	7782492	2.20E-03	lbs/Mgal	(3)	6.29E-05	(a)	3.15E-03	(c)
Zinc	7440666	2.24E-02	lbs/Mgal	(3)	6.41E-04	(a)	3.20E-02	(c)
Diesel Particulate Matter [5]	DPM	0.046	g/hp-hr	(4)	5.43E-02	(e)	2.71E+00	(f)

Notes:

(a) Estimated emissions (lbs/hr) = (fuel useage [Mgal/hr]) x (emission factor [lbs/Mgal])
fuel usage (Mgal/hr) = 0.0286 (4)

(b) Estimated emissions (lbs/hr) = (fuel useage [Mgal/hr]) x (emission factor [lbs/Mgal]) x (precent of hexavalent chromium [%] / 100)
fuel usage (Mgal/hr) = 0.0286 (4)
precent of hexavalent chromium (%) = 17 (7)

(c) Estimated emissions (lbs/yr) = (fuel useage [Mgal/hr]) x (annual hours of operation [hrs/yr]) x (emission factor [lbs/Mgal])
fuel usage (Mgal/hr) = 0.0286 (4)
annual hours of operation (hrs/yr) = 50 (6)

(d) Estimated emissions (lbs/yr) = (fuel useage [Mgal/hr]) x (annual hours of operation [hrs/yr]) x (emission factor [lbs/Mgal]) x (precent of hexavalent chromium [%] / 100)
fuel usage (Mgal/hr) = 0.0286 (4)
precent of hexavalent chromium (%) = 17 (7)
annual hours of operation (hrs/yr) = 50 (6)

(e) Estimated emissions(lbs/hr) = (rated horsepower of generator [hp]) x (emission factor [g/hp-hr]) / (453.59 g/lb)
rated horsepower of generator (hp) = 535 (4)

(f) Estimated emissions(lbs/yr) = (rated horsepower of generator [hp]) x (annual hours of operation [hrs/yr]) x (emission factor [g/hp-hr]) / (453.59 g/lb)
rated horsepower of generator (hp) = 535 (4)
annual hours of operation (hrs/yr) = 50 (6)

References:

(1) The California Air Toxics Emission Factor (CATEF) database (located at http://www.arb.ca.gov/emisinv/catef/catef.htm) was consulted for diesel fired IC Engine emission factors. There were no metal emission factors listed in CATEF or AP-42 for internal combustion engines so AB 2588 Combustion Emission Factors were used.

(2) Emission factors were taken from California Air Toxic Emission Factors (CATEF) database (located at http://www.arb.ca.gov/emisinv/catef/catef.htm). Emission factors are for internal combustion engines combusting diesel fuel with less than 13% oxygen in the exhaust. The database provides Maximum, Mean, and Median emission factors. The mean value for each entry was used. There were several chemicals that appeared in the database multiple times. The average emission factor of the duplicate chemical entries was used (the average of the "Mean" values). The database provided factors based on whether there was greater or less than 13% oxygen in the exhaust. Per vendor information, the percent oxygen in the exhaust ranges is less than 13% at loads greater than 50%. It was assumed that the generator would be run at 50% load or greater.

(3) Metal emission factors from AB 2588 Combustion Emission Factors, Diesel Combustion Factors (May 17, 2007).

(4) Based on specifications for a Caterpillar STANDBY 350 ekW 438 kVA generator; assumed to represent a typical 350 ekW unit. Fuel usage rate based on 100% load with fan. Horsepower rating is for Cummins 350DFCC diesel engine suitable for use with Caterpillar generator.

(5) Polycyclic Aromatic Hydrocarbons (PAHs) are assumed to be included in the particulate matter emission factor. PAHs that are not specifically listed in this table, but may be included in the particulate matter emission factor, include Acenaphthylene, Anthracene, Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene. For purposes of this inventory, it is assumed that all particulate is represented as Diesel Particulate Matter (DPM) (see section 1.1 of the document text for more information).

(6) Anticipated maximum operation of approximately twice the historical average - provided by LBNL.

(7) Total chromium emissions were corrected by multiplying by 17% to estimate emissions of hexavalent chromium per the Plywood and Composite Wood Products (PCWP) MACT rule promulgated by EPA

(8) Provided by LBNL.

APPENDIX C

URBEMIS OUTPUT FOR GPL OPERATION EMPLOYEE VEHICLE EMISSIONS

Appendix C-1
Detail Report for Annual Operational Unmitigated Emissions (Tons/Year)
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Urbemis 2007 Version 9.2.4

URBEMIS Model Executed On: 12/9/2009 4:08:26 PM

File Name: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\Emissions Inventory\URBEMIS\Seismic Life-Safety Phase 2.urb924
Project Name: Seismic Life-Safety Phase 2
Project Location: Bay Area Air District
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Junior college (2 yrs)	0.27	0.31	2.77	0.00	0.45	0.09	241.46
TOTALS (tons/year, unmitigated)	0.27	0.31	2.77	0.00	0.45	0.09	241.46

Includes correction for passby trips
Does not include double counting adjustment for internal trips
Analysis Year: 2011 Season: Annual
Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Junior college (2 yrs)		4.65	1000 sq ft	43.00	199.95	1,435.21
					199.95	1,435.21

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.8	0.9	98.7	0.4
Light Truck < 3750 lbs	12.8	1.6	95.3	3.1
Light Truck 3751-5750 lbs	19.8	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.2	62.5	37.5	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land						
Junior college (2 yrs)				5.0	2.5	92.5

Operational Changes to Defaults

Appendix C-2
Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)
Life-Safety Phase 2 Project
Lawrence Berkeley National Laboratory, Berkeley, California

Urbemis 2007 Version 9.2.4

URBEMIS Model Executed On: 12/9/2009 4:08:48 PM

File Name: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\Emissions Inventory\URBEMIS\Seismic Life-Safety Phase 2.urb924
Project Name: Seismic Life-Safety Phase 2
Project Location: Bay Area Air District
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Junior college (2 yrs)	1.52	1.48	14.71	0.01	2.47	0.47	1,385.64
TOTALS (lbs/day, unmitigated)	1.52	1.48	14.71	0.01	2.47	0.47	1,385.64

Includes correction for passby trips
Does not include double counting adjustment for internal trips
Analysis Year: 2011 Temperature (F): 85 Season: Summer
Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Junior college (2 yrs)		4.65	1000 sq ft	43.00	199.95	1,435.21
					199.95	1,435.21

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.8	0.9	98.7	0.4
Light Truck < 3750 lbs	12.8	1.6	95.3	3.1
Light Truck 3751-5750 lbs	19.8	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.2	62.5	37.5	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land						
Junior college (2 yrs)				5.0	2.5	92.5

Operational Changes to Defaults

APPENDIX D

URBEMIS OUTPUT FOR PROJECT AND CUMULATIVE CONSTRUCTION/DEMOLITION OFF-ROAD EQUIPMENT EMISSIONS

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12/8/2009 02:39:25 PM

Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Mitigated Emissions (Tons/Year)

File Name: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\Emissions Inventory\URBEMIS\Seismic Life-Safety Phase
Project Name: Seismic Life-Safety Phase 2
Project Location: Bay Area Air District
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2010	0.07	0.52	0.35	0.00	0.19	0.04	0.23	0.04	0.03	0.07	57.01
Demolition 08/02/2010-01/28/2011	0.07	0.52	0.35	0.00	0.19	0.04	0.23	0.04	0.03	0.07	57.01
Fugitive Dust	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.06	0.42	0.26	0.00	0.00	0.03	0.03	0.00	0.03	0.03	38.52
Demo On Road Diesel	0.01	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.89
Demo Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.61
2011	0.15	1.12	0.89	0.00	0.12	0.07	0.19	0.03	0.06	0.09	143.84
Demolition 08/02/2010-01/28/2011	0.01	0.09	0.06	0.00	0.04	0.01	0.04	0.01	0.01	0.01	10.37
Fugitive Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.07	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.00
Demo On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.34
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02
Mass Grading 04/01/2011-04/29/2011	0.03	0.25	0.14	0.00	0.09	0.01	0.10	0.02	0.01	0.03	24.67
Mass Grading Dust	0.00	0.00	0.00	0.00	0.09	0.00	0.09	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.03	0.25	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	23.60
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
Building 05/02/2011-04/26/2013	0.11	0.79	0.69	0.00	0.00	0.05	0.05	0.00	0.05	0.05	108.80
Building Off Road Diesel	0.10	0.74	0.41	0.00	0.00	0.05	0.05	0.00	0.04	0.04	78.17
Building Vendor Trips	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.07
Building Worker Trips	0.01	0.01	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.56
2012	0.20	1.42	1.23	0.00	0.13	0.09	0.22	0.03	0.08	0.11	205.16
Building 05/02/2011-04/26/2013	0.15	1.08	0.98	0.00	0.00	0.07	0.07	0.00	0.06	0.06	162.29
Building Off Road Diesel	0.13	1.03	0.60	0.00	0.00	0.06	0.06	0.00	0.06	0.06	116.59
Building Vendor Trips	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.06
Building Worker Trips	0.01	0.02	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.64
Demolition 09/03/2012-04/26/2013	0.05	0.34	0.25	0.00	0.13	0.02	0.15	0.03	0.02	0.05	42.87
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.04	0.29	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	30.11
Demo On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.37
Demo Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.39
2013	0.16	1.21	0.97	0.00	0.39	0.08	0.47	0.08	0.07	0.15	172.94
Building 05/02/2011-04/26/2013	0.04	0.32	0.30	0.00	0.00	0.02	0.02	0.00	0.02	0.02	52.24
Building Off Road Diesel	0.04	0.31	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	37.52
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.92
Building Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.80
Demolition 09/03/2012-04/26/2013	0.04	0.31	0.24	0.00	0.12	0.02	0.14	0.03	0.02	0.04	41.87
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.04	0.27	0.18	0.00	0.00	0.02	0.02	0.00	0.02	0.02	29.41
Demo On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.17
Demo Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.29
Demolition 06/03/2013-04/25/2014	0.08	0.57	0.43	0.00	0.27	0.04	0.31	0.06	0.03	0.09	78.83
Fugitive Dust	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.07	0.48	0.33	0.00	0.00	0.03	0.03	0.00	0.03	0.03	53.22
Demo On Road Diesel	0.01	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.85
Demo Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.76
2014	0.04	0.29	0.23	0.00	0.15	0.02	0.16	0.03	0.02	0.05	43.05
Demolition 06/03/2013-04/25/2014	0.04	0.29	0.23	0.00	0.15	0.02	0.16	0.03	0.02	0.05	43.05
Fugitive Dust	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.03	0.25	0.18	0.00	0.00	0.02	0.02	0.00	0.01	0.01	29.06
Demo On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.75
Demo Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.24

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 4/1/2011 - 4/29/2011 - Grading for GPL Construction - 6 months
For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:
PM10: 61% PM25: 61%

Phase Assumptions

Phase: Demolition 8/2/2010 - 1/28/2011 - Bldg 25 Demo - 6 Months
Building Volume Total (cubic feet): 343220
Building Volume Daily (cubic feet): 8384
On Road Truck Travel (VMT): 58.22
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Demolition 9/3/2012 - 4/26/2013 - Bldg 71 Trailer Demo - 8 Months
Building Volume Total (cubic feet): 40368
Building Volume Daily (cubic feet): 6960
On Road Truck Travel (VMT): 48.33
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Demolition 6/3/2013 - 4/25/2014 - Bldg 55 Demo - 7 Months
Building Volume Total (cubic feet): 288000
Building Volume Daily (cubic feet): 8400
On Road Truck Travel (VMT): 58.33
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Mass Grading 4/1/2011 - 4/29/2011 - Grading for GPL Construction - 6 months
Total Acres Disturbed: 1.97
Maximum Daily Acreage Disturbed: 0.8
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/2/2011 - 4/26/2013 - Construction of GPL - 25 months
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\Emissions Inventory\URBEMIS\Seismic Life-Safety Phase
Project Name: Seismic Life-Safety Phase 2
Project Location: Bay Area Air District
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 8/2/2010-12/31/2010 Active	1.28	9.39	6.37	0.00	3.53	0.65	4.18	0.74	0.60	1.33	1,036.62
Demolition 08/02/2010-01/28/2011	1.28	9.39	6.37	0.00	3.53	0.65	4.18	0.74	0.60	1.33	1,036.62
Fugitive Dust	0.00	0.00	0.00	0.00	3.52	0.00	3.52	0.73	0.00	0.73	0.00
Demo Off Road Diesel	1.14	7.68	4.68	0.00	0.00	0.59	0.59	0.00	0.54	0.54	700.30
Demo On Road Diesel	0.10	1.65	0.52	0.00	0.01	0.06	0.07	0.00	0.06	0.06	234.40
Demo Worker Trips	0.04	0.07	1.16	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.91
Time Slice 1/3/2011-1/28/2011 Active	1.18	8.75	6.13	0.00	3.53	0.60	4.14	0.74	0.55	1.29	1,036.68
Demolition 08/02/2010-01/28/2011	1.18	8.75	6.13	0.00	3.53	0.60	4.14	0.74	0.55	1.29	1,036.68
Fugitive Dust	0.00	0.00	0.00	0.00	3.52	0.00	3.52	0.73	0.00	0.73	0.00
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.00	0.55	0.55	0.00	0.50	0.50	700.30
Demo On Road Diesel	0.09	1.47	0.48	0.00	0.01	0.05	0.06	0.00	0.05	0.05	234.40
Demo Worker Trips	0.03	0.06	1.07	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97
Time Slice 4/1/2011-4/29/2011 Active	2.86	23.50	13.03	0.00	8.29	1.17	9.47	1.73	1.08	2.81	2,349.29
Mass Grading 04/01/2011-	2.86	23.50	13.03	0.00	8.29	1.17	9.47	1.73	1.08	2.81	2,349.29
Mass Grading Dust	0.00	0.00	0.00	0.00	8.29	0.00	8.29	1.73	0.00	1.73	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.07	0.00	0.00	0.00	0.01	0.00	0.00	0.00	101.97
Time Slice 5/2/2011-12/30/2011 Active	1.23	8.98	7.88	0.00	0.02	0.56	0.58	0.01	0.52	0.52	1,243.45
Building 05/02/2011-04/26/2013	1.23	8.98	7.88	0.00	0.02	0.56	0.58	0.01	0.52	0.52	1,243.45
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	0.02	0.31	0.26	0.00	0.00	0.01	0.01	0.00	0.01	0.01	69.42
Building Worker Trips	0.10	0.16	2.95	0.00	0.01	0.01	0.02	0.00	0.01	0.01	280.63
Time Slice 1/2/2012-8/31/2012 Active	1.14	8.30	7.53	0.00	0.02	0.50	0.52	0.01	0.46	0.47	1,243.62
Building 05/02/2011-04/26/2013	1.14	8.30	7.53	0.00	0.02	0.50	0.52	0.01	0.46	0.47	1,243.62
Building Off Road Diesel	1.03	7.87	4.56	0.00	0.00	0.49	0.49	0.00	0.45	0.45	893.39
Building Vendor Trips	0.02	0.28	0.25	0.00	0.00	0.01	0.01	0.00	0.01	0.01	69.43
Building Worker Trips	0.09	0.15	2.72	0.00	0.01	0.01	0.02	0.00	0.01	0.01	280.80
Time Slice 9/3/2012-12/31/2012 Active	2.23	16.21	13.36	0.01	2.95	1.04	3.99	0.62	0.95	1.57	2,240.54
Building 05/02/2011-04/26/2013	1.14	8.30	7.53	0.00	0.02	0.50	0.52	0.01	0.46	0.47	1,243.62
Building Off Road Diesel	1.03	7.87	4.56	0.00	0.00	0.49	0.49	0.00	0.45	0.45	893.39
Building Vendor Trips	0.02	0.28	0.25	0.00	0.00	0.01	0.01	0.00	0.01	0.01	69.43
Building Worker Trips	0.09	0.15	2.72	0.00	0.01	0.01	0.02	0.00	0.01	0.01	280.80
Demolition 09/03/2012-04/26/2013	1.08	7.91	5.84	0.00	2.94	0.54	3.47	0.61	0.49	1.11	996.93
Fugitive Dust	0.00	0.00	0.00	0.00	2.92	0.00	2.92	0.61	0.00	0.61	0.00
Demo Off Road Diesel	0.98	6.77	4.49	0.00	0.00	0.49	0.49	0.00	0.45	0.45	700.30
Demo On Road Diesel	0.07	1.09	0.36	0.00	0.01	0.04	0.05	0.00	0.04	0.04	194.59
Demo Worker Trips	0.03	0.05	0.99	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.04
Time Slice 1/1/2013-4/26/2013 Active	2.06	15.03	12.84	0.01	2.95	0.92	3.87	0.62	0.85	1.46	2,240.76
Building 05/02/2011-04/26/2013	1.05	7.67	7.21	0.00	0.02	0.44	0.46	0.01	0.41	0.41	1,243.78
Building Off Road Diesel	0.95	7.29	4.48	0.00	0.00	0.43	0.43	0.00	0.39	0.39	893.39
Building Vendor Trips	0.02	0.25	0.23	0.00	0.00	0.01	0.01	0.00	0.01	0.01	69.43
Building Worker Trips	0.08	0.14	2.50	0.00	0.01	0.01	0.02	0.00	0.01	0.01	280.96
Demolition 09/03/2012-04/26/2013	1.01	7.36	5.63	0.00	2.94	0.48	3.41	0.61	0.44	1.05	996.98
Fugitive Dust	0.00	0.00	0.00	0.00	2.92	0.00	2.92	0.61	0.00	0.61	0.00
Demo Off Road Diesel	0.91	6.35	4.40	0.00	0.00	0.44	0.44	0.00	0.41	0.41	700.30
Demo On Road Diesel	0.07	0.96	0.32	0.00	0.01	0.03	0.04	0.00	0.03	0.03	194.59
Demo Worker Trips	0.03	0.05	0.91	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.09
Time Slice 6/3/2013-12/31/2013 Active	1.02	7.56	5.70	0.00	3.54	0.49	4.03	0.74	0.45	1.18	1,037.24
Demolition 06/03/2013-04/25/2014	1.02	7.56	5.70	0.00	3.54	0.49	4.03	0.74	0.45	1.18	1,037.24
Fugitive Dust	0.00	0.00	0.00	0.00	3.53	0.00	3.53	0.73	0.00	0.73	0.00
Demo Off Road Diesel	0.91	6.35	4.40	0.00	0.00	0.44	0.44	0.00	0.41	0.41	700.30
Demo On Road Diesel	0.08	1.16	0.39	0.00	0.01	0.04	0.05	0.00	0.04	0.04	234.85
Demo Worker Trips	0.03	0.05	0.91	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.09
Time Slice 1/1/2014-4/25/2014 Active	0.94	7.02	5.52	0.00	3.54	0.43	3.97	0.74	0.39	1.13	1,037.29

Demolition 06/03/2013-04/25/2014	0.94	7.02	5.52	0.00	3.54	0.43	3.97	0.74	0.39	1.13	1,037.29
Fugitive Dust	0.00	0.00	0.00	0.00	3.53	0.00	3.53	0.73	0.00	0.73	0.00
Demo Off Road Diesel	0.84	5.95	4.33	0.00	0.00	0.39	0.39	0.00	0.36	0.36	700.30
Demo On Road Diesel	0.07	1.03	0.35	0.00	0.01	0.04	0.04	0.00	0.03	0.04	234.85
Demo Worker Trips	0.03	0.04	0.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.14

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 4/1/2011 - 4/29/2011 - Grading for GPL Construction - 6 months
For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:
PM10: 61% PM25: 61%

Phase Assumptions

Phase: Demolition 8/2/2010 - 1/28/2011 - Bldg 25 Demo - 6 Months
Building Volume Total (cubic feet): 343220
Building Volume Daily (cubic feet): 8384
On Road Truck Travel (VMT): 58.22
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Demolition 9/3/2012 - 4/26/2013 - Bldg 71 Trailer Demo - 8 Months
Building Volume Total (cubic feet): 40368
Building Volume Daily (cubic feet): 6960
On Road Truck Travel (VMT): 48.33
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Demolition 6/3/2013 - 4/25/2014 - Bldg 55 Demo - 7 Months
Building Volume Total (cubic feet): 288000
Building Volume Daily (cubic feet): 8400
On Road Truck Travel (VMT): 58.33
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Mass Grading 4/1/2011 - 4/29/2011 - Grading for GPL Construction - 6 months
Total Acres Disturbed: 1.97
Maximum Daily Acreage Disturbed: 0.8
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/2/2011 - 4/26/2013 - Construction of GPL - 25 months
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

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Detail Report for Annual Construction Mitigated Emissions (Tons/Year)

File Name: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\Emissions Inventory\URBEMIS\Solar Energy Rsrch Cntr
Project Name: Solar Energy Rsrch Cntr
Project Location: Bay Area Air District
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2011	0.15	1.14	0.89	0.00	0.03	0.07	0.10	0.01	0.06	0.07	144.89
Mass Grading 03/01/2011-03/31/2011	0.03	0.27	0.15	0.00	0.03	0.01	0.04	0.01	0.01	0.02	27.02
Mass Grading Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Mass Grading Off Road Diesel	0.03	0.27	0.14	0.00	0.00	0.01	0.01	0.00	0.01	0.01	25.84
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
Building 04/01/2011-05/31/2012	0.12	0.87	0.74	0.00	0.00	0.05	0.06	0.00	0.05	0.05	117.87
Building Off Road Diesel	0.11	0.83	0.46	0.00	0.00	0.05	0.05	0.00	0.05	0.05	87.55
Building Vendor Trips	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.01
Building Worker Trips	0.01	0.01	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.30
2012	0.06	0.45	0.39	0.00	0.00	0.03	0.03	0.00	0.03	0.03	65.56
Building 04/01/2011-05/31/2012	0.06	0.45	0.39	0.00	0.00	0.03	0.03	0.00	0.03	0.03	65.56
Building Off Road Diesel	0.06	0.43	0.25	0.00	0.00	0.03	0.03	0.00	0.02	0.02	48.69
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34
Building Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.52

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 3/1/2011 - 3/31/2011 - Solar Energy Rsrch Cntr Grading
For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:
PM10: 61% PM25: 61%

Phase Assumptions

Phase: Mass Grading 3/1/2011 - 3/31/2011 - Solar Energy Rsrch Cntr Grading
Total Acres Disturbed: 1.74
Maximum Daily Acreage Disturbed: 0.44
Fugitive Dust Level of Detail: Default
10 lbs per acre-day
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 4/1/2011 - 5/31/2012 - Solar Energy Rsrch Cntr Construction
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

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Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\Emissions Inventory\URBEMIS\CRT Construction.urb924
Project Name: CRT Construction
Project Location: Bay Area Air District
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2010	0.22	0.99	1.17	0.00	0.00	0.07	0.07	0.00	0.06	0.06	145.55
Building 08/02/2010-02/24/2012	0.22	0.99	1.17	0.00	0.00	0.07	0.07	0.00	0.06	0.06	145.55
Building Off Road Diesel	0.20	0.91	0.62	0.00	0.00	0.07	0.07	0.00	0.06	0.06	89.17
Building Vendor Trips	0.00	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.19
Building Worker Trips	0.02	0.03	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.20
2011	0.49	2.22	2.63	0.00	0.01	0.15	0.16	0.00	0.14	0.14	344.10
Building 08/02/2010-02/24/2012	0.49	2.22	2.63	0.00	0.01	0.15	0.16	0.00	0.14	0.14	344.10
Building Off Road Diesel	0.44	2.04	1.41	0.00	0.00	0.15	0.15	0.00	0.14	0.14	210.76
Building Vendor Trips	0.01	0.12	0.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	26.45
Building Worker Trips	0.04	0.06	1.12	0.00	0.01	0.00	0.01	0.00	0.00	0.00	106.90
2012	0.07	0.32	0.38	0.00	0.00	0.02	0.02	0.00	0.02	0.02	52.95
Building 08/02/2010-02/24/2012	0.07	0.32	0.38	0.00	0.00	0.02	0.02	0.00	0.02	0.02	52.95
Building Off Road Diesel	0.06	0.30	0.21	0.00	0.00	0.02	0.02	0.00	0.02	0.02	32.42
Building Vendor Trips	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.07
Building Worker Trips	0.01	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.46

Phase Assumptions

Phase: Building Construction 8/2/2010 - 2/24/2012 - CRT Construction
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\Emissions Inventory\URBEMIS\Bldg 51 51A Demolition.urb924
Project Name: Bldg 51 51A Demolition
Project Location: Bay Area Air District
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2010	0.06	0.43	0.32	0.00	0.00	0.03	0.03	0.00	0.03	0.03	44.12
Demolition 08/02/2010-03/31/2011	0.06	0.43	0.32	0.00	0.00	0.03	0.03	0.00	0.03	0.03	44.12
Fugitive Dust	0.00	0.00	0.00	0.00	0.60	0.00	0.60	0.13	0.00	0.13	0.00
Demo Off Road Diesel	0.06	0.42	0.26	0.00	0.00	0.03	0.03	0.00	0.03	0.03	38.52
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.61
2011	0.03	0.23	0.18	0.00	0.00	0.02	0.02	0.00	0.02	0.02	25.67
Demolition 08/02/2010-03/31/2011	0.03	0.23	0.18	0.00	0.00	0.02	0.02	0.00	0.02	0.02	25.67
Fugitive Dust	0.00	0.00	0.00	0.00	0.35	0.00	0.35	0.07	0.00	0.07	0.00
Demo Off Road Diesel	0.03	0.23	0.15	0.00	0.00	0.02	0.02	0.00	0.02	0.02	22.41
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26

Phase Assumptions

Phase: Demolition 8/2/2010 - 3/31/2011 - Bldg 51 51A Demolition
Building Volume Total (cubic feet): 4536171
Building Volume Daily (cubic feet): 0
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

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Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\Emissions Inventory\URBEMIS\Old Town Demolition.urb924
Project Name: Old Town Demolition
Project Location: Bay Area Air District
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2010	0.06	0.43	0.32	0.00	0.00	0.03	0.03	0.00	0.03	0.03	44.12
Demolition 08/02/2010-07/31/2013	0.06	0.43	0.32	0.00	0.00	0.03	0.03	0.00	0.03	0.03	44.12
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.06	0.42	0.26	0.00	0.00	0.03	0.03	0.00	0.03	0.03	38.52
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.61
2011	0.14	0.95	0.73	0.00	0.00	0.07	0.07	0.00	0.07	0.07	104.30
Demolition 08/02/2010-07/31/2013	0.14	0.95	0.73	0.00	0.00	0.07	0.07	0.00	0.07	0.07	104.30
Fugitive Dust	0.00	0.00	0.00	0.00	0.07	0.00	0.07	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.14	0.94	0.60	0.00	0.00	0.07	0.07	0.00	0.07	0.07	91.04
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.26
2012	0.13	0.89	0.71	0.00	0.00	0.06	0.07	0.00	0.06	0.06	104.70
Demolition 08/02/2010-07/31/2013	0.13	0.89	0.71	0.00	0.00	0.06	0.07	0.00	0.06	0.06	104.70
Fugitive Dust	0.00	0.00	0.00	0.00	0.07	0.00	0.07	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.13	0.88	0.59	0.00	0.00	0.06	0.06	0.00	0.06	0.06	91.39
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.32
2013	0.07	0.49	0.40	0.00	0.00	0.03	0.03	0.00	0.03	0.03	60.98
Demolition 08/02/2010-07/31/2013	0.07	0.49	0.40	0.00	0.00	0.03	0.03	0.00	0.03	0.03	60.98
Fugitive Dust	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.07	0.48	0.33	0.00	0.00	0.03	0.03	0.00	0.03	0.03	53.22
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.76

Phase Assumptions

Phase: Demolition 8/2/2010 - 7/31/2013 - Bldg 51 51A Demolition
Building Volume Total (cubic feet): 0
Building Volume Daily (cubic feet): 0
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

APPENDIX E

ON-ROAD TRUCK TRIP INFORMATION FOR PROJECT AND CUMULATIVE CONSTRUCTION/DEMOLITION

TABLE 1:
AVERAGE DAILY TRUCK TRIPS (ROUNDTRIPS) BY PROJECT BY MONTH

Project Name	Date Updated	2010 A	2010 S	2010 O	2010 N	2010 D	2011 J	2011 F	2011 M	2011 A	2011 M	2011 J	2011 J	2011 A	2011 S	2011 O	2011 N	2011 D	2012 J	2012 F	2012 M	2012 A	2012 M	2012 J	2012 J	2012 A	2012 S	2012 O	2012 N	2012 D	2013 J	2013 F	2013 M	2013 A	2013 M	2013 J	2013 J	2013 A	2013 S	2013 O	2013 N	2013 D	2014 J	2014 F	2014 M	2014 A
Bldg 71 BELLA	7/10/2009	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1																												
Guest House	7/10/2009																																													
Bldg 6 Seismic Upgrade	6/22/2009																																													
USB	7/10/2009	3	3																																											
Solar Energy Reasearch Center	6/18/2009												0	1	2	25	10	7	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1												
CRT Building	6/28/2009	2	2	2	1	1	2	2	3	5	1	2	7	10	7	2	2	1	7	4	4	2	2	2	1	1	1	1	1	1																
Bldg 51 & Bevatron	7/10/2009	10	10	10	10	10	2	2	2																																					
Old Town	11/9/2009	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	4	4	4	1	1	1	1	1	4	4	4	1	2	2									
Seismic Upgrades Ph 1	11/12/2009																																													
Bldg 50	11/12/2009																																													
Bldg 74	11/12/2009																																													
Bldg 74 (cont.)	11/12/2009	4	12	4	3	3	3	3	3	3	3	3	3	3	3	2	2	1	1	1	1	1	1																							
Seismic Upgrades Ph 2	11/12/2009																																													
71 Trailer Demo	11/12/2009																										2	2	2	2	2	2	2	1												
General Purpose Lab	11/12/2009									3	2	2	2	2	2	2	2	2	2	3	4	7	12	4	3	3	3	3	3	2	2	2	2	2	1	1	1	1	1	1					
Bldg 85 Slide	11/12/2009									3	3	3	3	3	3	3	3	3	3	3	3	3	2																							
Bldg 25 Demo	11/12/2009	3	4	3	3	3	3																																							
Bldg 55 Demo	11/12/2009																																			3	3	3	3	3	3	3	3	3	3	2
Student Athlete High Perf Ctr		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20																												
Law Infill		8	8	8	8	8	8	8	8	8																																				
Anna Head Housing			22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22																						
DHS Demolition																																														
Helios West		18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18																
Cal Mem Stadium Seismic						18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18																
Blum Center/Naval Architecture		4	4																																											
Berkeley Art Museum & PFA		21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21										
Li Ka-shing Center Steps 1&3		30	30	30	30	30	30	30	30	30	30	30	30	30	30																															
Campbell Replacement							12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12					
Durant Hall		4	4																																											
Utilities & ROW Piedmont Ave		2																																												
SAHPC Tree Mitigation																																														
Sewer & Storm in Gayley Rd		2	2	2	2	2																																								

Total Average Daily Truck Trips

																																														Total Trips	Max
Seismic Phase 2 Truck Trips		3	4	3	3	3	3	0	0	6	5	5	5	5	5	5	5	5	5	6	7	10	14	4	3	3	5	5	5	4	4	4	4	3	1	4	4	4	4	4	3	3	3	3	3	2	4,101	14
																							^																									
All LBNL Truck Trips		25	35	23	21	21	14	11	12	18	13	14	18	22	20	37	21	16	16	14	15	16	20	12	10	10	9	9	8	7	6	9	9	8	2	6	6	4	4	4	3	3	3	3	3	2	12,195	37
All UCB Truck Trips		109	129	121	121	139	149	149	149	149	141	141	141	141	141	111	111	111	91	91	91	91	91	91	69	69	69	69	69	69	33	33	33	33	33	33	12	12	12	12	12	12	0	0	0	0	75,581	149
Cumulative Project Truck Trips		134	164	144	142	160	163	160	161	167	154	155	159	163	161	148	132	127	107	105	106	107	111	103	79	79	78	78	77	76	39	42	42	41	35	39	18	16	16	16	15	15	3	3	3	2	87,777	167
										^																																						

Maximum 12-Month Total Truck Trips (assumes 5 day/wk activity; i.e. 21.7 days/month)

																																														Max
Seismic Phase 2 Truck Trips		65	152	217	282	347	412	412	412	543	651	760	868	911	933	977	1,020	1,063	1,107	1,237	1,389	1,476	1,671	1,649	1,606	1,562	1,562	1,562	1,562	1,541	1,519	1,476	1,411	1,259	977	977	998	1,020	998	977	933	911	890	868	846	825	1,671
																							^																									
All LBNL Truck Trips		543	1,302	1,801	2,257	2,713	3,016	3,255	3,515	3,906	4,188	4,492	4,883	4,817	4,492	4,796	4,796	4,687	4,731	4,796	4,861	4,817	4,969	4,926	4,752	4,492	4,253	3,646	3,364	3,168	2,951	2,843	2,713	2,539	2,148	2,018	1,931	1,801	1,693	1,584	1,476	1,389	1,324	1,194	1,063	933	4,969
All UCB Truck Trips		2,365	5,165	7,790	10,416	13,432	16,666	19,899	23,132	26,366	29,425	32,485	35,545	36,239	36,499	36,282	36,065	35,458	34,199	32,941	31,682	30,423	29,338	28,253	26,691	25,129	23,566	22,655	21,743	20,832	19,573	18,315	17,056	15,798	14,539	13,280	12,044	10,807	9,570	8,333	7,096	5,859	5,143	4,427	3,711	2,995	36,499
Cumulative Project Truck Trips		2,908	6,467	9,591	12,673	16,145	19,682	23,154	26,648	30,272	33,613	36,977	40,427	41,056	40,991	41,078	40,861	40,145	38,930	37,736	36,543	35,241	34,308	33,179	31,443	29,621	27,819	26,300	25,107	24,000	22,525	21,158	19,769	18,337	16,687	15,299	13,975	12,608	11,262	9,917	8,572	7,248	6,467	5,620	4,774	3,928	41,078
																^																															

APPENDIX F

EMFAC2007 OUTPUT FILES FOR ON-ROAD TRUCK EMISSION FACTORS

Title : LBNL - BAAQMD - Annual - 2010
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/11/20 16:08:08
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	LDT1-DSL	LDT1-TOT	LDT2-NCAT	LDT2-CAT	LDT2-DSL	LDT2-TOT	MDV-NCAT	MDV-CAT	MDV-DSL
Vehicles	34217	2870270	9347	2913830	13368	646582	21104	681053	7031	995712	2537	1005280	1495	329711	1675
VMT/1000	573	89677	207	90457	287	20981	628	21896	150	34033	71	34254	31	12291	53
Trips	135498	18069100	51177	18255800	54017	4013620	129111	4196750	28532	6296200	15008	6339740	6365	2098070	10406
Total Organic Gas Emissions															
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	0.06	5.56	1.13	3.95	0.01	5.09	0.29	1.61	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.88	10.38	0	11.26	0.35	3.04	0	3.39	0.18	3.98	0	4.16	0.05	1.66	0
Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	0.06	8.95	1.31	7.93	0.01	9.25	0.34	3.28	0
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0	0.68	0.04	0.57	0	0.6	0	0.14	0
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0	1.25	0.1	1.07	0	1.16	0.01	0.28	0
Running	2.72	10.09	0	12.81	0.65	5.71	0	6.35	0.32	5.61	0	5.93	0.03	1.35	0
Resting	0.11	1.1	0	1.21	0.04	0.35	0	0.39	0.02	0.34	0	0.36	0	0.09	0
Total	8.61	35.5	0.04	44.16	3.46	14.09	0.06	17.62	1.79	15.5	0.01	17.31	0.39	5.14	0
Carbon Monoxide Emissions															
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	0.43	114.9	13.01	102.9	0.05	115.97	4.6	35.56	0.03
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	4.52	112.17	0	116.69	1.81	38.33	0	40.14	0.95	47.66	0	48.61	0.38	17.47	0
Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	0.43	155.03	13.96	150.56	0.05	164.58	4.98	53.03	0.03
Oxides of Nitrogen Emissions															
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	1.05	11.71	0.74	15.21	0.12	16.07	0.24	6.11	0.09
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.22	7.24	0	7.45	0.08	2.04	0	2.12	0.04	4.39	0	4.43	0.02	1.73	0
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	1.05	13.83	0.78	19.59	0.12	20.5	0.25	7.84	0.09
Carbon Dioxide Emissions (000)															
Run Exh	0.33	37.92	0.08	38.33	0.17	11	0.24	11.41	0.09	17.9	0.03	18.01	0.02	8.84	0.02
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0	0.41	0.01	0.63	0	0.63	0	0.28	0
Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	0.24	11.82	0.09	18.53	0.03	18.65	0.02	9.12	0.02
PM10 Emissions															
Run Exh	0.02	1.06	0.03	1.11	0.01	0.33	0.04	0.38	0.01	0.92	0.01	0.93	0	0.33	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.11	0	0.11	0	0.03	0	0.03	0	0.09	0	0.09	0	0.03	0
Total Ex	0.02	1.17	0.03	1.22	0.01	0.36	0.04	0.41	0.01	1.01	0.01	1.02	0	0.36	0
TireWear	0.01	0.79	0	0.8	0	0.19	0.01	0.19	0	0.3	0	0.3	0	0.11	0
BrakeWr	0.01	1.24	0	1.25	0	0.29	0.01	0.3	0	0.47	0	0.47	0	0.17	0
Total	0.04	3.2	0.03	3.27	0.02	0.84	0.05	0.91	0.01	1.78	0.01	1.8	0	0.64	0
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0	0.12	0	0.18	0	0.18	0	0.09	0
Fuel Consumption (000 gallons)															
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	0	1212.9	12.13	1923.25	0	1935.38	3.28	943.34	0
Diesel	0	0	7.4	7.4	0	0	21.62	21.62	0	0	2.48	2.48	0	0	1.83

Title : LBNL - BAAQMD - Annual - 2010
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/11/20 16:08:08
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day
****

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	MDV-TOT	LHDT1-NCAT	LHDT1-CAT	LHDT1-DSL	LHDT1-TOT	LHDT2-NCAT	LHDT2-CAT	LHDT2-DSL	LHDT2-TOT
Vehicles	34217	2870270	9347	2913830	13368	646582	332881	222	33624	11972	45818	239	17813	13424	31476
VMT/1000	573	89677	207	90457	287	20981	12375	5	1445	513	1963	5	632	492	1128
Trips	135498	18069100	51177	18255800	54017	4013620	2114850	7349	1111840	150592	1269780	7903	589010	168856	765770
Total Organic Gas Emissions															
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	1.91	0.04	0.36	0.12	0.52	0.04	0.42	0.17	0.62
Idle Exh	0	0	0	0	0	0	0	0	0.05	0	0.05	0	0.03	0	0.03
Start Ex	0.88	10.38	0	11.26	0.35	3.04	1.71	0.06	0.53	0	0.59	0.07	0.51	0	0.57
Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	3.62	0.1	0.94	0.12	1.17	0.1	0.95	0.17	1.22
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0.15	0	0	0	0	0	0	0	0
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0.29	0.01	0.04	0	0.05	0.01	0.05	0	0.06
Running	2.72	10.09	0	12.81	0.65	5.71	1.38	0.04	0.54	0	0.58	0.04	0.83	0	0.86
Resting	0.11	1.1	0	1.21	0.04	0.35	0.09	0	0	0	0	0	0	0	0
Total	8.61	35.5	0.04	44.16	3.46	14.09	5.53	0.14	1.53	0.12	1.8	0.15	1.83	0.17	2.15
Carbon Monoxide Emissions															
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	40.2	0.74	3.69	0.59	5.02	0.74	4.45	0.65	5.84
Idle Exh	0	0	0	0	0	0	0	0	0.29	0.01	0.3	0	0.15	0.01	0.16
Start Ex	4.52	112.17	0	116.69	1.81	38.33	17.84	0.33	6.79	0	7.12	0.35	6.6	0	6.95
Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	58.04	1.07	10.77	0.6	12.44	1.09	11.19	0.66	12.95
Oxides of Nitrogen Emissions															
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	6.44	0.01	0.6	2.37	2.98	0.01	0.63	2.84	3.47
Idle Exh	0	0	0	0	0	0	0	0	0	0.03	0.04	0	0	0.04	0.04
Start Ex	0.22	7.24	0	7.45	0.08	2.04	1.75	0.01	1.92	0	1.92	0.01	1.19	0	1.19
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	8.18	0.02	2.52	2.4	4.94	0.02	1.81	2.88	4.71
Carbon Dioxide Emissions (000)															
Run Exh	0.33	37.92	0.08	38.33	0.17	11	8.88	0.01	1.54	0.29	1.84	0	0.68	0.29	0.97
Idle Exh	0	0	0	0	0	0	0	0	0.01	0	0.01	0	0.01	0	0.01
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0.29	0	0.05	0	0.05	0	0.02	0	0.03
Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	9.17	0.01	1.6	0.3	1.91	0.01	0.7	0.29	1
PM10 Emissions															
Run Exh	0.02	1.06	0.03	1.11	0.01	0.33	0.33	0	0.02	0.03	0.05	0	0.01	0.04	0.05
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.11	0	0.11	0	0.03	0.03	0	0	0	0	0	0	0	0
Total Ex	0.02	1.17	0.03	1.22	0.01	0.36	0.36	0	0.02	0.03	0.05	0	0.01	0.04	0.05
TireWear	0.01	0.79	0	0.8	0	0.19	0.11	0	0.02	0.01	0.03	0	0.01	0.01	0.01
BrakeWr	0.01	1.24	0	1.25	0	0.29	0.17	0	0.02	0.01	0.03	0	0.01	0.01	0.02
Total	0.04	3.2	0.03	3.27	0.02	0.84	0.64	0	0.06	0.04	0.1	0	0.03	0.05	0.08
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0.09	0	0.02	0	0.02	0	0.01	0	0.01
Fuel Consumption (000 gallons)															
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	946.62	0.89	166.19	0	167.08	0.9	74.25	0	75.15
Diesel	0	0	7.4	7.4	0	0	1.83	0	0	26.71	26.71	0	0	26.24	26.24

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Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day
****

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	MHDT-NCAT	MHDT-CAT	MHDT-DSL	MHDT-TOT	HHDT-NCAT	HHDT-CAT	HHDT-DSL	HHDT-TOT	OBUS-NCAT
Vehicles	34217	2870270	9347	2913830	13368	646582	1188	9890	39734	50812	179	1714	18404	20296	52
VMT/1000	573	89677	207	90457	287	20981	9	413	2274	2696	2	145	2878	3025	0
Trips	135498	18069100	51177	18255800	54017	4013620	54241	451675	1114140	1620060	8156	78277	93131	179564	2357
Total Organic Gas Emissions															
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	0.07	0.3	0.6	0.97	0.03	0.49	3.58	4.1	0
Idle Exh	0	0	0	0	0	0	0	0.02	0.02	0.04	0	0	0.49	0.49	0
Start Ex	0.88	10.38	0	11.26	0.35	3.04	0.67	0.81	0	1.48	0.17	0.37	0	0.54	0.03
Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	0.74	1.13	0.62	2.49	0.2	0.86	4.07	5.13	0.03
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0	0	0	0	0	0	0	0	0
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0.03	0.02	0	0.05	0	0	0	0.01	0
Running	2.72	10.09	0	12.81	0.65	5.71	0.25	0.32	0	0.57	0.05	0.05	0	0.1	0.01
Resting	0.11	1.1	0	1.21	0.04	0.35	0	0	0	0	0	0	0	0	0
Total	8.61	35.5	0.04	44.16	3.46	14.09	1.01	1.47	0.62	3.1	0.26	0.92	4.07	5.24	0.04
Carbon Monoxide Emissions															
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	1.52	4.46	4.99	10.97	1.19	6.13	12.83	20.15	0.07
Idle Exh	0	0	0	0	0	0	0.02	0.13	0.11	0.26	0	0	1.74	1.74	0
Start Ex	4.52	112.17	0	116.69	1.81	38.33	3.64	13.56	0	17.2	2.22	5.32	0	7.54	0.16
Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	5.17	18.16	5.1	28.43	3.41	11.45	14.58	29.44	0.22
Oxides of Nitrogen Emissions															
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	0.03	1.21	21.35	22.6	0.05	1.91	46.73	48.69	0
Idle Exh	0	0	0	0	0	0	0	0	0.32	0.32	0	0	3.75	3.75	0
Start Ex	0.22	7.24	0	7.45	0.08	2.04	0.06	1.45	0	1.5	0.04	0.68	0	0.72	0
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	0.09	2.66	21.67	24.43	0.09	2.59	50.48	53.15	0
Carbon Dioxide Emissions (000)															
Run Exh	0.33	37.92	0.08	38.33	0.17	11	0.01	0.31	3.77	4.09	0	0.09	5.81	5.91	0
Idle Exh	0	0	0	0	0	0	0	0	0.02	0.02	0	0	0.22	0.22	0
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0.01	0.02	0	0.03	0	0	0	0	0
Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	0.02	0.33	3.79	4.14	0	0.1	6.04	6.13	0
PM10 Emissions															
Run Exh	0.02	1.06	0.03	1.11	0.01	0.33	0	0	0.64	0.65	0	0	1.76	1.76	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0.06	0.06	0
Start Ex	0	0.11	0	0.11	0	0.03	0	0	0	0	0	0	0	0	0
Total Ex	0.02	1.17	0.03	1.22	0.01	0.36	0	0.01	0.65	0.65	0	0	1.82	1.83	0
TireWear	0.01	0.79	0	0.8	0	0.19	0	0.01	0.03	0.04	0	0	0.11	0.12	0
BrakeWr	0.01	1.24	0	1.25	0	0.29	0	0.01	0.03	0.04	0	0	0.09	0.09	0
Total	0.04	3.2	0.03	3.27	0.02	0.84	0	0.02	0.71	0.73	0	0.01	2.03	2.04	0
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0	0	0.04	0.04	0	0	0.06	0.06	0
Fuel Consumption (000 gallons)															
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	3.04	37.47	0	40.51	0.93	11.94	0	12.87	0.13
Diesel	0	0	7.4	7.4	0	0	0	0	341.13	341.13	0	0	543.19	543.19	0

Title : LBNL - BAAQMD - Annual - 2010
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/11/20 16:08:08
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day
****

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	OBUS-CAT	OBUS-DSL	OBUS-TOT	SBUS-NCAT	SBUS-CAT	SBUS-DSL	SBUS-TOT	UB-NCAT	UB-CAT
Vehicles	34217	2870270	9347	2913830	13368	646582	1920	2179	4151	81	509	4577	5167	37	578
VMT/1000	573	89677	207	90457	287	20981	88	126	215	3	21	185	209	4	70
Trips	135498	18069100	51177	18255800	54017	4013620	87673	61104	151134	326	2035	18306	20667	147	2313
Total Organic Gas Emissions															
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	0.06	0.03	0.09	0.03	0.03	0.06	0.12	0.05	0.2
Idle Exh	0	0	0	0	0	0	0	0	0.01	0	0.01	0.01	0.02	0	0
Start Ex	0.88	10.38	0	11.26	0.35	3.04	0.13	0	0.16	0.01	0.01	0	0.01	0	0.01
Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	0.2	0.03	0.26	0.04	0.04	0.07	0.15	0.05	0.21
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0	0	0	0	0	0	0	0	0
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0	0	0	0	0	0	0	0	0
Running	2.72	10.09	0	12.81	0.65	5.71	0.03	0	0.05	0	0	0	0.01	0	0.01
Resting	0.11	1.1	0	1.21	0.04	0.35	0	0	0	0	0	0	0	0	0
Total	8.61	35.5	0.04	44.16	3.46	14.09	0.23	0.03	0.31	0.04	0.05	0.07	0.16	0.05	0.22
Carbon Monoxide Emissions															
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	0.87	0.27	1.21	0.61	0.36	0.48	1.45	0.93	1.19
Idle Exh	0	0	0	0	0	0	0.02	0.01	0.03	0.01	0.04	0.07	0.12	0	0
Start Ex	4.52	112.17	0	116.69	1.81	38.33	2.3	0	2.46	0.03	0.1	0	0.13	0.01	0.17
Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	3.2	0.28	3.7	0.65	0.5	0.55	1.69	0.94	1.35
Oxides of Nitrogen Emissions															
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	0.31	1.23	1.54	0.01	0.06	2.04	2.1	0.02	0.29
Idle Exh	0	0	0	0	0	0	0	0.02	0.02	0	0	0.2	0.2	0	0
Start Ex	0.22	7.24	0	7.45	0.08	2.04	0.29	0	0.29	0	0.01	0	0.01	0	0.02
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	0.6	1.25	1.85	0.01	0.06	2.24	2.31	0.02	0.31
Carbon Dioxide Emissions (000)															
Run Exh	0.33	37.92	0.08	38.33	0.17	11	0.07	0.21	0.28	0	0.02	0.31	0.33	0	0.06
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0	0
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0	0	0	0	0	0	0	0	0
Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	0.07	0.21	0.28	0	0.02	0.32	0.34	0	0.06
PM10 Emissions															
Run Exh	0.02	1.06	0.03	1.11	0.01	0.33	0	0.03	0.04	0	0	0.07	0.07	0	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.11	0	0.11	0	0.03	0	0	0	0	0	0	0	0	0
Total Ex	0.02	1.17	0.03	1.22	0.01	0.36	0	0.03	0.04	0	0	0.08	0.08	0	0
TireWear	0.01	0.79	0	0.8	0	0.19	0	0	0	0	0	0	0	0	0
BrakeWr	0.01	1.24	0	1.25	0	0.29	0	0	0	0	0	0	0	0	0
Total	0.04	3.2	0.03	3.27	0.02	0.84	0	0.04	0.04	0	0	0.08	0.08	0	0
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0	0	0	0	0	0	0	0	0
Fuel Consumption (000 gallons)															
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	7.86	0	7.99	0.42	2.01	0	2.43	0.55	6.23
Diesel	0	0	7.4	7.4	0	0	0	18.88	18.88	0	0	28.61	28.61	0	0

Title : LBNL - BAAQMD - Annual - 2010
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/11/20 16:08:08
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day
****

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	UB-DSL	UB-TOT	MH-NCAT	MH-CAT	MH-DSL	MH-TOT	MCY-NCAT	MCY-CAT	MCY-DSL
Vehicles	34217	2870270	9347	2913830	13368	646582	4350	4965	1547	27627	3406	32581	111398	52620	0
VMT/1000	573	89677	207	90457	287	20981	531	606	14	311	40	364	811	506	0
Trips	135498	18069100	51177	18255800	54017	4013620	17399	19859	155	2764	341	3259	222774	105229	0
Total Organic Gas Emissions															
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	0.49	0.74	0.1	0.17	0.01	0.27	4.1	1.26	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.88	10.38	0	11.26	0.35	3.04	0	0.01	0	0	0	0.01	0.71	0.28	0
Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	0.49	0.75	0.1	0.17	0.01	0.28	4.8	1.54	0
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0	0	0	0.01	0	0.01	0.07	0.2	0
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0	0	0	0	0	0	0.09	0.08	0
Running	2.72	10.09	0	12.81	0.65	5.71	0	0.01	0	0.01	0	0.01	0.52	0.37	0
Resting	0.11	1.1	0	1.21	0.04	0.35	0	0	0	0	0	0	0.04	0.09	0
Total	8.61	35.5	0.04	44.16	3.46	14.09	0.49	0.76	0.1	0.19	0.01	0.3	5.52	2.28	0
Carbon Monoxide Emissions															
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	2.1	4.22	2.32	4.49	0.05	6.85	50.39	8.2	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	4.52	112.17	0	116.69	1.81	38.33	0	0.18	0.01	0.07	0	0.08	1.98	1.71	0
Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	2.1	4.39	2.33	4.56	0.05	6.93	52.37	9.92	0
Oxides of Nitrogen Emissions															
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	11.4	11.71	0.05	0.61	0.41	1.07	1.23	0.63	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.22	7.24	0	7.45	0.08	2.04	0	0.02	0	0.01	0	0.01	0.09	0.03	0
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	11.4	11.72	0.05	0.62	0.41	1.08	1.31	0.66	0
Carbon Dioxide Emissions (000)															
Run Exh	0.33	37.92	0.08	38.33	0.17	11	1.56	1.63	0.01	0.23	0.07	0.31	0.1	0.1	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0	0	0	0	0	0	0.01	0	0
Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	1.56	1.63	0.01	0.23	0.07	0.31	0.12	0.11	0
PM10 Emissions															
Run Exh	0.02	1.06	0.03	1.11	0.01	0.33	0.19	0.19	0	0	0.01	0.01	0.05	0	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.11	0	0.11	0	0.03	0	0	0	0	0	0	0.01	0	0
Total Ex	0.02	1.17	0.03	1.22	0.01	0.36	0.19	0.19	0	0	0.01	0.01	0.06	0	0
TireWear	0.01	0.79	0	0.8	0	0.19	0	0.01	0	0	0	0	0	0	0
BrakeWr	0.01	1.24	0	1.25	0	0.29	0.01	0.01	0	0	0	0.01	0.01	0	0
Total	0.04	3.2	0.03	3.27	0.02	0.84	0.2	0.21	0	0.01	0.01	0.02	0.06	0.01	0
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0.01	0.02	0	0	0	0	0	0	0
Fuel Consumption (000 gallons)															
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	0	6.78	1.48	24.82	0	26.3	22.15	12.86	0
Diesel	0	0	7.4	7.4	0	0	140.81	140.81	0	0	5.93	5.93	0	0	0

Title : LBNL - BAAQMD - Annual - 2010
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/11/20 16:08:08
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day
****

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	MCY-TOT	ALL-TOT
Vehicles	34217	2870270	9347	2913830	13368	646582	164018	5292330
VMT/1000	573	89677	207	90457	287	20981	1316	170504
Trips	135498	18069100	51177	18255800	54017	4013620	328003	35265200
Total Organic Gas Emissions								
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	5.36	37.99
Idle Exh	0	0	0	0	0	0	0	0.64
Start Ex	0.88	10.38	0	11.26	0.35	3.04	0.99	24.89
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Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	6.35	63.52
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0.27	3.81
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0.16	7.17
Running	2.72	10.09	0	12.81	0.65	5.71	0.9	29.56
Resting	0.11	1.1	0	1.21	0.04	0.35	0.13	2.19
	---	---	---	---	---	---	---	---
Total	8.61	35.5	0.04	44.16	3.46	14.09	7.8	106.24
Carbon Monoxide Emissions								
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	58.59	639.81
Idle Exh	0	0	0	0	0	0	0	2.62
Start Ex	4.52	112.17	0	116.69	1.81	38.33	3.7	268.64
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Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	62.29	911.07
Oxides of Nitrogen Emissions								
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	1.86	154.64
Idle Exh	0	0	0	0	0	0	0	4.37
Start Ex	0.22	7.24	0	7.45	0.08	2.04	0.11	21.53
	---	---	---	---	---	---	---	---
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	1.97	180.53
Carbon Dioxide Emissions (000)								
Run Exh	0.33	37.92	0.08	38.33	0.17	11	0.21	92.19
Idle Exh	0	0	0	0	0	0	0	0.28
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0.02	2.94
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Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	0.23	95.41
PM10 Emissions								
Run Exh	0.02	1.06	0.03	1.11	0.01	0.33	0.05	5.62
Idle Exh	0	0	0	0	0	0	0	0.07
Start Ex	0	0.11	0	0.11	0	0.03	0.01	0.28
	---	---	---	---	---	---	---	---
Total Ex	0.02	1.17	0.03	1.22	0.01	0.36	0.06	5.97
TireWear	0.01	0.79	0	0.8	0	0.19	0.01	1.62
BrakeWr	0.01	1.24	0	1.25	0	0.29	0.01	2.4
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Total	0.04	3.2	0.03	3.27	0.02	0.84	0.07	9.98
Lead	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0	0.93
Fuel Consumption (000 gallons)								
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	35.01	8602.64
Diesel	0	0	7.4	7.4	0	0	0	1164.82

Title : LBNL - BAAQMD - Annual - 2010
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/11/20 16:10:31
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day
****

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	LDT1-DSL	LDT1-TOT	LDT2-NCAT	LDT2-CAT	LDT2-DSL	LDT2-TOT	MDV-NCAT	MDV-CAT	MDV-DSL
Vehicles	34217	2870270	9347	2913830	13368	646582	21104	681053	7031	995712	2537	1005280	1495	329711	1675
VMT/1000	573	89677	207	90457	287	20981	628	21896	150	34033	71	34254	31	12291	53
Trips	135498	18069100	51177	18255800	54017	4013620	129111	4196750	28532	6296200	15008	6339740	6365	2098070	10406
Total Organic Gas Emissions															
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	0.06	5.56	1.13	3.95	0.01	5.09	0.29	1.61	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.88	10.38	0	11.26	0.35	3.04	0	3.39	0.18	3.98	0	4.16	0.05	1.66	0
Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	0.06	8.95	1.31	7.93	0.01	9.25	0.34	3.28	0
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0	0.68	0.04	0.57	0	0.6	0	0.14	0
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0	1.25	0.1	1.07	0	1.16	0.01	0.28	0
Running	2.72	10.09	0	12.81	0.65	5.71	0	6.35	0.32	5.61	0	5.93	0.03	1.35	0
Resting	0.11	1.1	0	1.21	0.04	0.35	0	0.39	0.02	0.34	0	0.36	0	0.09	0
Total	8.61	35.5	0.04	44.16	3.46	14.09	0.06	17.62	1.79	15.5	0.01	17.31	0.39	5.14	0
Carbon Monoxide Emissions															
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	0.43	114.9	13.01	102.9	0.05	115.97	4.6	35.56	0.03
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	4.52	112.17	0	116.69	1.81	38.33	0	40.14	0.95	47.66	0	48.61	0.38	17.47	0
Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	0.43	155.03	13.96	150.56	0.05	164.58	4.98	53.03	0.03
Oxides of Nitrogen Emissions															
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	1.05	11.71	0.74	15.21	0.12	16.07	0.24	6.11	0.09
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.22	7.24	0	7.45	0.08	2.04	0	2.12	0.04	4.39	0	4.43	0.02	1.73	0
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	1.05	13.83	0.78	19.59	0.12	20.5	0.25	7.84	0.09
Carbon Dioxide Emissions (000)															
Run Exh	0.33	37.92	0.08	38.33	0.17	11	0.24	11.41	0.09	17.9	0.03	18.01	0.02	8.84	0.02
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0	0.41	0.01	0.63	0	0.63	0	0.28	0
Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	0.24	11.82	0.09	18.53	0.03	18.65	0.02	9.12	0.02
PM2.5 Emissions															
Run Exh	0.02	0.98	0.03	1.03	0.01	0.3	0.03	0.35	0	0.86	0.01	0.87	0	0.31	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.1	0	0.11	0	0.03	0	0.03	0	0.08	0	0.08	0	0.03	0
Total Ex	0.02	1.09	0.03	1.13	0.01	0.34	0.03	0.38	0	0.94	0.01	0.95	0	0.33	0
TireWear	0	0.2	0	0.2	0	0.05	0	0.05	0	0.08	0	0.08	0	0.03	0
BrakeWr	0	0.53	0	0.54	0	0.12	0	0.13	0	0.2	0	0.2	0	0.07	0
Total	0.02	1.82	0.03	1.87	0.01	0.51	0.04	0.56	0.01	1.21	0.01	1.22	0	0.43	0
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0	0.12	0	0.18	0	0.18	0	0.09	0
Fuel Consumption (000 gallons)															
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	0	1212.9	12.13	1923.25	0	1935.38	3.28	943.34	0
Diesel	0	0	7.4	7.4	0	0	21.62	21.62	0	0	2.48	2.48	0	0	1.83

Title : LBNL - BAAQMD - Annual - 2010
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/11/20 16:10:31
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day
****

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	MDV-TOT	LHDT1-NCAT	LHDT1-CAT	LHDT1-DSL	LHDT1-TOT	LHDT2-NCAT	LHDT2-CAT	LHDT2-DSL	LHDT2-TOT
Vehicles	34217	2870270	9347	2913830	13368	646582	332881	222	33624	11972	45818	239	17813	13424	31476
VMT/1000	573	89677	207	90457	287	20981	12375	5	1445	513	1963	5	632	492	1128
Trips	135498	18069100	51177	18255800	54017	4013620	2114850	7349	1111840	150592	1269780	7903	589010	168856	765770
Total Organic Gas Emissions															
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	1.91	0.04	0.36	0.12	0.52	0.04	0.42	0.17	0.62
Idle Exh	0	0	0	0	0	0	0	0	0.05	0	0.05	0	0.03	0	0.03
Start Ex	0.88	10.38	0	11.26	0.35	3.04	1.71	0.06	0.53	0	0.59	0.07	0.51	0	0.57
Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	3.62	0.1	0.94	0.12	1.17	0.1	0.95	0.17	1.22
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0.15	0	0	0	0	0	0	0	0
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0.29	0.01	0.04	0	0.05	0.01	0.05	0	0.06
Running	2.72	10.09	0	12.81	0.65	5.71	1.38	0.04	0.54	0	0.58	0.04	0.83	0	0.86
Resting	0.11	1.1	0	1.21	0.04	0.35	0.09	0	0	0	0	0	0	0	0
Total	8.61	35.5	0.04	44.16	3.46	14.09	5.53	0.14	1.53	0.12	1.8	0.15	1.83	0.17	2.15
Carbon Monoxide Emissions															
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	40.2	0.74	3.69	0.59	5.02	0.74	4.45	0.65	5.84
Idle Exh	0	0	0	0	0	0	0	0	0.29	0.01	0.3	0	0.15	0.01	0.16
Start Ex	4.52	112.17	0	116.69	1.81	38.33	17.84	0.33	6.79	0	7.12	0.35	6.6	0	6.95
Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	58.04	1.07	10.77	0.6	12.44	1.09	11.19	0.66	12.95
Oxides of Nitrogen Emissions															
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	6.44	0.01	0.6	2.37	2.98	0.01	0.63	2.84	3.47
Idle Exh	0	0	0	0	0	0	0	0	0	0.03	0.04	0	0	0.04	0.04
Start Ex	0.22	7.24	0	7.45	0.08	2.04	1.75	0.01	1.92	0	1.92	0.01	1.19	0	1.19
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	8.18	0.02	2.52	2.4	4.94	0.02	1.81	2.88	4.71
Carbon Dioxide Emissions (000)															
Run Exh	0.33	37.92	0.08	38.33	0.17	11	8.88	0.01	1.54	0.29	1.84	0	0.68	0.29	0.97
Idle Exh	0	0	0	0	0	0	0	0	0.01	0	0.01	0	0.01	0	0.01
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0.29	0	0.05	0	0.05	0	0.02	0	0.03
Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	9.17	0.01	1.6	0.3	1.91	0.01	0.7	0.29	1
PM2.5 Emissions															
Run Exh	0.02	0.98	0.03	1.03	0.01	0.3	0.31	0	0.02	0.03	0.04	0	0.01	0.03	0.04
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.1	0	0.11	0	0.03	0.03	0	0	0	0	0	0	0	0
Total Ex	0.02	1.09	0.03	1.13	0.01	0.34	0.34	0	0.02	0.03	0.04	0	0.01	0.03	0.05
TireWear	0	0.2	0	0.2	0	0.05	0.03	0	0	0	0.01	0	0	0	0
BrakeWr	0	0.53	0	0.54	0	0.12	0.07	0	0.01	0	0.01	0	0	0	0.01
Total	0.02	1.82	0.03	1.87	0.01	0.51	0.44	0	0.03	0.03	0.06	0	0.02	0.04	0.06
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0.09	0	0.02	0	0.02	0	0.01	0	0.01
Fuel Consumption (000 gallons)															
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	946.62	0.89	166.19	0	167.08	0.9	74.25	0	75.15
Diesel	0	0	7.4	7.4	0	0	1.83	0	0	26.71	26.71	0	0	26.24	26.24

Title : LBNL - BAAQMD - Annual - 2010
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/11/20 16:10:31
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day
****

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	MHDT-NCAT	MHDT-CAT	MHDT-DSL	MHDT-TOT	HHDT-NCAT	HHDT-CAT	HHDT-DSL	HHDT-TOT	OBUS-NCAT
Vehicles	34217	2870270	9347	2913830	13368	646582	1188	9890	39734	50812	179	1714	18404	20296	52
VMT/1000	573	89677	207	90457	287	20981	9	413	2274	2696	2	145	2878	3025	0
Trips	135498	18069100	51177	18255800	54017	4013620	54241	451675	1114140	1620060	8156	78277	93131	179564	2357
Total Organic Gas Emissions															
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	0.07	0.3	0.6	0.97	0.03	0.49	3.58	4.1	0
Idle Exh	0	0	0	0	0	0	0	0.02	0.02	0.04	0	0	0.49	0.49	0
Start Ex	0.88	10.38	0	11.26	0.35	3.04	0.67	0.81	0	1.48	0.17	0.37	0	0.54	0.03
Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	0.74	1.13	0.62	2.49	0.2	0.86	4.07	5.13	0.03
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0	0	0	0	0	0	0	0	0
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0.03	0.02	0	0.05	0	0	0	0.01	0
Running	2.72	10.09	0	12.81	0.65	5.71	0.25	0.32	0	0.57	0.05	0.05	0	0.1	0.01
Resting	0.11	1.1	0	1.21	0.04	0.35	0	0	0	0	0	0	0	0	0
Total	8.61	35.5	0.04	44.16	3.46	14.09	1.01	1.47	0.62	3.1	0.26	0.92	4.07	5.24	0.04
Carbon Monoxide Emissions															
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	1.52	4.46	4.99	10.97	1.19	6.13	12.83	20.15	0.07
Idle Exh	0	0	0	0	0	0	0.02	0.13	0.11	0.26	0	0	1.74	1.74	0
Start Ex	4.52	112.17	0	116.69	1.81	38.33	3.64	13.56	0	17.2	2.22	5.32	0	7.54	0.16
Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	5.17	18.16	5.1	28.43	3.41	11.45	14.58	29.44	0.22
Oxides of Nitrogen Emissions															
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	0.03	1.21	21.35	22.6	0.05	1.91	46.73	48.69	0
Idle Exh	0	0	0	0	0	0	0	0	0.32	0.32	0	0	3.75	3.75	0
Start Ex	0.22	7.24	0	7.45	0.08	2.04	0.06	1.45	0	1.5	0.04	0.68	0	0.72	0
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	0.09	2.66	21.67	24.43	0.09	2.59	50.48	53.15	0
Carbon Dioxide Emissions (000)															
Run Exh	0.33	37.92	0.08	38.33	0.17	11	0.01	0.31	3.77	4.09	0	0.09	5.81	5.91	0
Idle Exh	0	0	0	0	0	0	0	0	0.02	0.02	0	0	0.22	0.22	0
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0.01	0.02	0	0.03	0	0	0	0	0
Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	0.02	0.33	3.79	4.14	0	0.1	6.04	6.13	0
PM2.5 Emissions															
Run Exh	0.02	0.98	0.03	1.03	0.01	0.3	0	0	0.59	0.6	0	0	1.62	1.62	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0.06	0.06	0
Start Ex	0	0.1	0	0.11	0	0.03	0	0	0	0	0	0	0	0	0
Total Ex	0.02	1.09	0.03	1.13	0.01	0.34	0	0.01	0.59	0.6	0	0	1.68	1.68	0
TireWear	0	0.2	0	0.2	0	0.05	0	0	0.01	0.01	0	0	0.03	0.03	0
BrakeWr	0	0.53	0	0.54	0	0.12	0	0	0.01	0.02	0	0	0.04	0.04	0
Total	0.02	1.82	0.03	1.87	0.01	0.51	0	0.01	0.62	0.63	0	0.01	1.74	1.75	0
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0	0	0.04	0.04	0	0	0.06	0.06	0
Fuel Consumption (000 gallons)															
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	3.04	37.47	0	40.51	0.93	11.94	0	12.87	0.13
Diesel	0	0	7.4	7.4	0	0	0	0	341.13	341.13	0	0	543.19	543.19	0

Title : LBNL - BAAQMD - Annual - 2010
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/11/20 16:10:31
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day
****

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	OBUS-CAT	OBUS-DSL	OBUS-TOT	SBUS-NCAT	SBUS-CAT	SBUS-DSL	SBUS-TOT	UB-NCAT	UB-CAT
Vehicles	34217	2870270	9347	2913830	13368	646582	1920	2179	4151	81	509	4577	5167	37	578
VMT/1000	573	89677	207	90457	287	20981	88	126	215	3	21	185	209	4	70
Trips	135498	18069100	51177	18255800	54017	4013620	87673	61104	151134	326	2035	18306	20667	147	2313
Total Organic Gas Emissions															
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	0.06	0.03	0.09	0.03	0.03	0.06	0.12	0.05	0.2
Idle Exh	0	0	0	0	0	0	0	0	0.01	0	0.01	0.01	0.02	0	0
Start Ex	0.88	10.38	0	11.26	0.35	3.04	0.13	0	0.16	0.01	0.01	0	0.01	0	0.01
Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	0.2	0.03	0.26	0.04	0.04	0.07	0.15	0.05	0.21
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0	0	0	0	0	0	0	0	0
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0	0	0	0	0	0	0	0	0
Running	2.72	10.09	0	12.81	0.65	5.71	0.03	0	0.05	0	0	0	0.01	0	0.01
Resting	0.11	1.1	0	1.21	0.04	0.35	0	0	0	0	0	0	0	0	0
Total	8.61	35.5	0.04	44.16	3.46	14.09	0.23	0.03	0.31	0.04	0.05	0.07	0.16	0.05	0.22
Carbon Monoxide Emissions															
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	0.87	0.27	1.21	0.61	0.36	0.48	1.45	0.93	1.19
Idle Exh	0	0	0	0	0	0	0.02	0.01	0.03	0.01	0.04	0.07	0.12	0	0
Start Ex	4.52	112.17	0	116.69	1.81	38.33	2.3	0	2.46	0.03	0.1	0	0.13	0.01	0.17
Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	3.2	0.28	3.7	0.65	0.5	0.55	1.69	0.94	1.35
Oxides of Nitrogen Emissions															
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	0.31	1.23	1.54	0.01	0.06	2.04	2.1	0.02	0.29
Idle Exh	0	0	0	0	0	0	0	0.02	0.02	0	0	0.2	0.2	0	0
Start Ex	0.22	7.24	0	7.45	0.08	2.04	0.29	0	0.29	0	0.01	0	0.01	0	0.02
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	0.6	1.25	1.85	0.01	0.06	2.24	2.31	0.02	0.31
Carbon Dioxide Emissions (000)															
Run Exh	0.33	37.92	0.08	38.33	0.17	11	0.07	0.21	0.28	0	0.02	0.31	0.33	0	0.06
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0	0
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0	0	0	0	0	0	0	0	0
Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	0.07	0.21	0.28	0	0.02	0.32	0.34	0	0.06
PM2.5 Emissions															
Run Exh	0.02	0.98	0.03	1.03	0.01	0.3	0	0.03	0.03	0	0	0.07	0.07	0	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.1	0	0.11	0	0.03	0	0	0	0	0	0	0	0	0
Total Ex	0.02	1.09	0.03	1.13	0.01	0.34	0	0.03	0.03	0	0	0.07	0.07	0	0
TireWear	0	0.2	0	0.2	0	0.05	0	0	0	0	0	0	0	0	0
BrakeWr	0	0.53	0	0.54	0	0.12	0	0	0	0	0	0	0	0	0
Total	0.02	1.82	0.03	1.87	0.01	0.51	0	0.03	0.04	0	0	0.07	0.07	0	0
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0	0	0	0	0	0	0	0	0
Fuel Consumption (000 gallons)															
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	7.86	0	7.99	0.42	2.01	0	2.43	0.55	6.23
Diesel	0	0	7.4	7.4	0	0	0	18.88	18.88	0	0	28.61	28.61	0	0

Title : LBNL - BAAQMD - Annual - 2010
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/11/20 16:10:31
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day
****

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	UB-DSL	UB-TOT	MH-NCAT	MH-CAT	MH-DSL	MH-TOT	MCY-NCAT	MCY-CAT	MCY-DSL
Vehicles	34217	2870270	9347	2913830	13368	646582	4350	4965	1547	27627	3406	32581	111398	52620	0
VMT/1000	573	89677	207	90457	287	20981	531	606	14	311	40	364	811	506	0
Trips	135498	18069100	51177	18255800	54017	4013620	17399	19859	155	2764	341	3259	222774	105229	0
Total Organic Gas Emissions															
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	0.49	0.74	0.1	0.17	0.01	0.27	4.1	1.26	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.88	10.38	0	11.26	0.35	3.04	0	0.01	0	0	0	0.01	0.71	0.28	0
Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	0.49	0.75	0.1	0.17	0.01	0.28	4.8	1.54	0
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0	0	0	0.01	0	0.01	0.07	0.2	0
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0	0	0	0	0	0	0.09	0.08	0
Running	2.72	10.09	0	12.81	0.65	5.71	0	0.01	0	0.01	0	0.01	0.52	0.37	0
Resting	0.11	1.1	0	1.21	0.04	0.35	0	0	0	0	0	0	0.04	0.09	0
Total	8.61	35.5	0.04	44.16	3.46	14.09	0.49	0.76	0.1	0.19	0.01	0.3	5.52	2.28	0
Carbon Monoxide Emissions															
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	2.1	4.22	2.32	4.49	0.05	6.85	50.39	8.2	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	4.52	112.17	0	116.69	1.81	38.33	0	0.18	0.01	0.07	0	0.08	1.98	1.71	0
Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	2.1	4.39	2.33	4.56	0.05	6.93	52.37	9.92	0
Oxides of Nitrogen Emissions															
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	11.4	11.71	0.05	0.61	0.41	1.07	1.23	0.63	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.22	7.24	0	7.45	0.08	2.04	0	0.02	0	0.01	0	0.01	0.09	0.03	0
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	11.4	11.72	0.05	0.62	0.41	1.08	1.31	0.66	0
Carbon Dioxide Emissions (000)															
Run Exh	0.33	37.92	0.08	38.33	0.17	11	1.56	1.63	0.01	0.23	0.07	0.31	0.1	0.1	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0	0	0	0	0	0	0.01	0	0
Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	1.56	1.63	0.01	0.23	0.07	0.31	0.12	0.11	0
PM2.5 Emissions															
Run Exh	0.02	0.98	0.03	1.03	0.01	0.3	0.18	0.18	0	0	0.01	0.01	0.04	0	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.1	0	0.11	0	0.03	0	0	0	0	0	0	0	0	0
Total Ex	0.02	1.09	0.03	1.13	0.01	0.34	0.18	0.18	0	0	0.01	0.01	0.04	0	0
TireWear	0	0.2	0	0.2	0	0.05	0	0	0	0	0	0	0	0	0
BrakeWr	0	0.53	0	0.54	0	0.12	0	0	0	0	0	0	0	0	0
Total	0.02	1.82	0.03	1.87	0.01	0.51	0.18	0.18	0	0	0.01	0.01	0.05	0	0
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0.01	0.02	0	0	0	0	0	0	0
Fuel Consumption (000 gallons)															
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	0	6.78	1.48	24.82	0	26.3	22.15	12.86	0
Diesel	0	0	7.4	7.4	0	0	140.81	140.81	0	0	5.93	5.93	0	0	0

Title : LBNL - BAAQMD - Annual - 2010
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/11/20 16:10:31
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Bay Area AQMD Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 43 San Francisco (SF)
Emissions: Tons Per Day
****

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	MCY-TOT	ALL-TOT
Vehicles	34217	2870270	9347	2913830	13368	646582	164018	5292330
VMT/1000	573	89677	207	90457	287	20981	1316	170504
Trips	135498	18069100	51177	18255800	54017	4013620	328003	35265200
Total Organic Gas Emissions								
Run Exh	4.27	8.32	0.04	12.63	2.18	3.32	5.36	37.99
Idle Exh	0	0	0	0	0	0	0	0.64
Start Ex	0.88	10.38	0	11.26	0.35	3.04	0.99	24.89
	---	---	---	---	---	---	---	---
Total Ex	5.15	18.7	0.04	23.89	2.53	6.36	6.35	63.52
Diurnal	0.17	1.93	0	2.1	0.07	0.61	0.27	3.81
Hot Soak	0.46	3.68	0	4.14	0.18	1.06	0.16	7.17
Running	2.72	10.09	0	12.81	0.65	5.71	0.9	29.56
Resting	0.11	1.1	0	1.21	0.04	0.35	0.13	2.19
	---	---	---	---	---	---	---	---
Total	8.61	35.5	0.04	44.16	3.46	14.09	7.8	106.24
Carbon Monoxide Emissions								
Run Exh	50.44	203.83	0.18	254.46	25.14	89.33	58.59	639.81
Idle Exh	0	0	0	0	0	0	0	2.62
Start Ex	4.52	112.17	0	116.69	1.81	38.33	3.7	268.64
	---	---	---	---	---	---	---	---
Total Ex	54.96	316.01	0.18	371.15	26.94	127.66	62.29	911.07
Oxides of Nitrogen Emissions								
Run Exh	2.91	21.15	0.34	24.4	1.42	9.24	1.86	154.64
Idle Exh	0	0	0	0	0	0	0	4.37
Start Ex	0.22	7.24	0	7.45	0.08	2.04	0.11	21.53
	---	---	---	---	---	---	---	---
Total Ex	3.13	28.39	0.34	31.85	1.51	11.28	1.97	180.53
Carbon Dioxide Emissions (000)								
Run Exh	0.33	37.92	0.08	38.33	0.17	11	0.21	92.19
Idle Exh	0	0	0	0	0	0	0	0.28
Start Ex	0.03	1.45	0	1.48	0.01	0.4	0.02	2.94
	---	---	---	---	---	---	---	---
Total Ex	0.36	39.36	0.08	39.81	0.18	11.4	0.23	95.41
PM2.5 Emissions								
Run Exh	0.02	0.98	0.03	1.03	0.01	0.3	0.04	5.17
Idle Exh	0	0	0	0	0	0	0	0.07
Start Ex	0	0.1	0	0.11	0	0.03	0	0.26
	---	---	---	---	---	---	---	---
Total Ex	0.02	1.09	0.03	1.13	0.01	0.34	0.04	5.5
TireWear	0	0.2	0	0.2	0	0.05	0	0.4
BrakeWr	0	0.53	0	0.54	0	0.12	0	1.03
	---	---	---	---	---	---	---	---
Total	0.02	1.82	0.03	1.87	0.01	0.51	0.05	6.93
Lead	0	0	0	0	0	0	0	0
SOx	0	0.38	0	0.39	0	0.11	0	0.93
Fuel Consumption (000 gallons)								
Gasoline	47.31	4086.31	0	4133.61	23.3	1189.6	35.01	8602.64
Diesel	0	0	7.4	7.4	0	0	0	1164.82

APPENDIX G
AERSURFACE OUTPUT FILE

```
** Generated by AERSURFACE, dated 08009
** Center Latitude (decimal degrees):     37.750000
** Center Longitude (decimal degrees):  -122.200000
** Datum: NAD83
** Study radius (km) for surface roughness:   1.0
** Airport? N, Continuous snow cover? N
** Surface moisture? Wet, Arid region? N
** Month/Season assignments? Default
** Late autumn after frost and harvest, or winter with no snow: 12 1 2
** Winter with continuous snow on the ground: 0
** Transitional spring (partial green coverage, short annuals): 3 4 5
** Midsummer with lush vegetation: 6 7 8
** Autumn with unharvested cropland: 9 10 11
**
  FREQ_SECT  SEASONAL 12
  SECTOR   1    0   30
  SECTOR   2   30   60
  SECTOR   3   60   90
  SECTOR   4   90  120
  SECTOR   5  120  150
  SECTOR   6  150  180
  SECTOR   7  180  210
  SECTOR   8  210  240
  SECTOR   9  240  270
  SECTOR  10  270  300
  SECTOR  11  300  330
  SECTOR  12  330  360
**          Season   Sect    Alb      Bo       Zo
  SITE_CHAR    1       1    0.17    0.55    0.613
  SITE_CHAR    1       2    0.17    0.55    0.623
  SITE_CHAR    1       3    0.17    0.55    0.733
  SITE_CHAR    1       4    0.17    0.55    0.747
  SITE_CHAR    1       5    0.17    0.55    0.740
  SITE_CHAR    1       6    0.17    0.55    0.485
  SITE_CHAR    1       7    0.17    0.55    0.664
  SITE_CHAR    1       8    0.17    0.55    0.242
  SITE_CHAR    1       9    0.17    0.55    0.246
  SITE_CHAR    1      10    0.17    0.55    0.273
  SITE_CHAR    1      11    0.17    0.55    0.660
  SITE_CHAR    1      12    0.17    0.55    0.618
  SITE_CHAR    2       1    0.16    0.52    0.637
  SITE_CHAR    2       2    0.16    0.52    0.639
  SITE_CHAR    2       3    0.16    0.52    0.744
  SITE_CHAR    2       4    0.16    0.52    0.749
  SITE_CHAR    2       5    0.16    0.52    0.748
  SITE_CHAR    2       6    0.16    0.52    0.559
  SITE_CHAR    2       7    0.16    0.52    0.686
  SITE_CHAR    2       8    0.16    0.52    0.297
  SITE_CHAR    2       9    0.16    0.52    0.320
  SITE_CHAR    2      10    0.16    0.52    0.350
  SITE_CHAR    2      11    0.16    0.52    0.679
  SITE_CHAR    2      12    0.16    0.52    0.662
  SITE_CHAR    3       1    0.16    0.53    0.653
```

SITE_CHAR	3	2	0.16	0.53	0.652
SITE_CHAR	3	3	0.16	0.53	0.749
SITE_CHAR	3	4	0.16	0.53	0.752
SITE_CHAR	3	5	0.16	0.53	0.753
SITE_CHAR	3	6	0.16	0.53	0.598
SITE_CHAR	3	7	0.16	0.53	0.699
SITE_CHAR	3	8	0.16	0.53	0.325
SITE_CHAR	3	9	0.16	0.53	0.359
SITE_CHAR	3	10	0.16	0.53	0.392
SITE_CHAR	3	11	0.16	0.53	0.692
SITE_CHAR	3	12	0.16	0.53	0.685
SITE_CHAR	4	1	0.16	0.55	0.653
SITE_CHAR	4	2	0.16	0.55	0.652
SITE_CHAR	4	3	0.16	0.55	0.749
SITE_CHAR	4	4	0.16	0.55	0.752
SITE_CHAR	4	5	0.16	0.55	0.753
SITE_CHAR	4	6	0.16	0.55	0.598
SITE_CHAR	4	7	0.16	0.55	0.699
SITE_CHAR	4	8	0.16	0.55	0.325
SITE_CHAR	4	9	0.16	0.55	0.359
SITE_CHAR	4	10	0.16	0.55	0.392
SITE_CHAR	4	11	0.16	0.55	0.692
SITE_CHAR	4	12	0.16	0.55	0.685

APPENDIX H

HARP MODEL OUTPUT FILES FOR ONSITE WORKER RECEPTORS

```
This file: c:\HARP\projects\Rep_Can_70yr_DerOEH_Rec181_AllSrc_AllCh_BySrc_ByChem_Site.txt

Created by HARP Version 1.4a  Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 12/4/2009 2:06:05 PM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\HARP\Onsite\ONSITE.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: ONSITE.EMS
   Site parameters file: C:\HARP\PROJECTS\project.sit

Coordinate system: UTM NAD83

Screening mode is OFF

Exposure duration: 70 year (adult resident)
Analysis method:   Derived (OEHHA) Method
Health effect:     Cancer Risk
Receptor(s):       181
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)             0.05

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source          0.15
   Fraction of ingested exposed vegetable
     from home grown source          0.15
   Fraction of ingested protected vegetable
```

```
     from home grown source          0.15
   Fraction of ingested root vegetable
     from home grown source          0.15

PIGS, CHICKENS AND EGGS

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway enabled ***
```

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0002	57976	7,12-DB[a]anthr	7,12-Dimethylbenz[a]anthracene	0.000E+00
0003	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0004	107028	Acrolein	Acrolein	0.000E+00
0005	107131	Acrylonitrile	Acrylonitrile	0.000E+00
0006	7440382	Arsenic	Arsenic	0.000E+00
0007	7440393	Barium	Barium	0.000E+00
0008	71432	Benzene	Benzene	0.000E+00
0009	7440417	Beryllium	Beryllium	0.000E+00
0010	7440439	Cadmium	Cadmium	0.000E+00
0011	56235	CCl4	Carbon tetrachloride	0.000E+00
0012	7782505	Chlorine	Chlorine	0.000E+00
0013	67663	Chloroform	Chloroform	0.000E+00
0014	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0015	7440484	Cobalt	Cobalt	0.000E+00
0016	7440508	Copper	Copper	0.000E+00
0017	4170303	Crotonaldehyde	Crotonaldehyde	0.000E+00
0018	25321226	DiClBenzenes	Dichlorobenzenes (mixed isomers)	0.000E+00
0019	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00
0020	107062	EDC	Ethylene dichloride {EDC}	0.000E+00
0021	206440	Fluoranthene	Fluoranthene	0.000E+00
0022	50000	Formaldehyde	Formaldehyde	0.000E+00
0023	7647010	HCl	Hydrochloric acid	0.000E+00
0024	110543	Hexane	Hexane	0.000E+00
0025	302012	Hydrazine	Hydrazine	0.000E+00
0026	7439921	Lead	Lead	0.000E+00
0027	7439965	Manganese	Manganese	0.000E+00
0028	7439976	Mercury	Mercury	0.000E+00
0029	91203	Naphthalene	Naphthalene	0.000E+00
0030	7440020	Nickel	Nickel	0.000E+00

0031	7782492	Selenium	Selenium	0.000E+00
0032	108883	Toluene	Toluene	0.000E+00
0033	7440622	Vanadium	Vanadium (fume or dust)	0.000E+00
0034	75014	Vinyl Chloride	Vinyl chloride	0.000E+00
0035	75354	Vinylid Chlorid	Vinylidene chloride	0.000E+00
0036	7440666	Zinc	Zinc	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3
0001	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0002	57976	7,12-DB[a]anthr	2.50E+02	2.50E+02	*	*	*
0003	75070	Acetaldehyde	1.00E-02	*	1.40E+02	*	4.70E+02
0004	107028	Acrolein	*	*	3.50E-01	*	2.50E+00
0005	107131	Acrylonitrile	1.00E+00	*	5.00E+00	*	*
0006	7440382	Arsenic	1.20E+01	1.50E+00	1.50E-02	3.50E-06	2.00E-01
0007	7440393	Barium	*	*	*	*	*
0008	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0009	7440417	Beryllium	8.40E+00	*	7.00E-03	2.00E-03	*
0010	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0011	56235	CCl4	1.50E-01	*	4.00E+01	*	1.90E+03
0012	7782505	Chlorine	*	*	2.00E-01	*	2.10E+02
0013	67663	Chloroform	1.90E-02	*	3.00E+02	*	1.50E+02
0014	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0015	7440484	Cobalt	*	*	*	*	*
0016	7440508	Copper	*	*	*	*	1.00E+02
0017	4170303	Crotonaldehyde	*	*	*	*	*
0018	25321226	DiClBenzenes	*	*	*	*	*
0019	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*
0020	107062	EDC	7.20E-02	*	4.00E+02	*	*
0021	206440	Fluoranthene	*	*	*	*	*
0022	50000	Formaldehyde	2.10E-02	*	9.00E+00	*	5.50E+01
0023	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0024	110543	Hexane	*	*	7.00E+03	*	*
0025	302012	Hydrazine	1.70E+01	*	2.00E-01	*	*
0026	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0027	7439965	Manganese	*	*	9.00E-02	*	*
0028	7439976	Mercury	*	*	3.00E-02	1.60E-04	6.00E-01
0029	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0030	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0031	7782492	Selenium	*	*	2.00E+01	*	*
0032	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0033	7440622	Vanadium	*	*	*	*	3.00E+01
0034	75014	Vinyl Chloride	2.70E-01	*	*	*	1.80E+05
0035	75354	Vinylid Chlorid	*	*	7.00E+01	*	*
0036	7440666	Zinc	*	*	*	*	*

EMISSIONS DATA SOURCE: Emission rates loaded from file: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\HARP\Onsite\ONSITE.EMS
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=1 NAME=BOIL1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00
57976	7,12-Dimethylben	1	0	4.71E-06	2.59E-08
75070	Acetaldehyde	1	0	2.61E-03	1.43E-05
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	5.88E-05	3.24E-07
7440393	Barium	1	0	1.29E-03	7.12E-06
71432	Benzene	1	0	1.27E-03	6.97E-06
7440417	Beryllium	1	0	3.53E-06	1.94E-08
7440439	Cadmium	1	0	3.24E-04	1.78E-06
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00
18540299	Chromium (hexava	1	0	7.00E-05	3.85E-07
7440484	Cobalt	1	0	2.47E-05	1.36E-07
7440508	Copper	1	0	2.50E-04	1.38E-06
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	3.53E-04	1.94E-06
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	8.82E-07	4.85E-09
50000	Formaldehyde	1	0	6.50E-02	3.58E-04
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	5.29E-01	2.91E-03
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	1.47E-04	8.09E-07
7439965	Manganese	1	0	1.12E-04	6.15E-07
7439976	Mercury	1	0	7.65E-05	4.21E-07
91203	Naphthalene	1	0	1.79E-04	9.87E-07
7440020	Nickel	1	0	6.18E-04	3.40E-06
7782492	Selenium	1	0	7.06E-06	3.88E-08
108883	Toluene	1	0	1.00E-03	5.50E-06
7440622	Vanadium	1	0	6.76E-04	3.72E-06
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	8.53E-03	4.69E-05

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=2 NAME=BOIL2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00
57976	7,12-Dimethylben	1	0	4.71E-06	2.59E-08
75070	Acetaldehyde	1	0	2.61E-03	1.43E-05
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	5.88E-05	3.24E-07
7440393	Barium	1	0	1.29E-03	7.12E-06
71432	Benzene	1	0	1.27E-03	6.97E-06
7440417	Beryllium	1	0	3.53E-06	1.94E-08
7440439	Cadmium	1	0	3.24E-04	1.78E-06
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00

18540299	Chromium (hexava	1	0	7.00E-05	3.85E-07
7440484	Cobalt	1	0	2.47E-05	1.36E-07
7440508	Copper	1	0	2.50E-04	1.38E-06
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	3.53E-04	1.94E-06
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	8.82E-07	4.85E-09
50000	Formaldehyde	1	0	6.50E-02	3.58E-04
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	5.29E-01	2.91E-03
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	1.47E-04	8.09E-07
7439965	Manganese	1	0	1.12E-04	6.15E-07
7439976	Mercury	1	0	7.65E-05	4.21E-07
91203	Naphthalene	1	0	1.79E-04	9.87E-07
7440020	Nickel	1	0	6.18E-04	3.40E-06
7782492	Selenium	1	0	7.06E-06	3.88E-08
108883	Toluene	1	0	1.00E-03	5.50E-06
7440622	Vanadium	1	0	6.76E-04	3.72E-06
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	8.53E-03	4.69E-05

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=3 NAME=LAB1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	3.07E-02	7.95E-05
57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	1.86E-01	4.82E-04
107028	Acrolein	1	0	6.55E-02	1.70E-04
107131	Acrylonitrile	1	0	5.31E-02	1.38E-04
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	1.35E+00	3.50E-03
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	1.04E+00	2.69E-03
7782505	Chlorine	1	0	9.70E-01	2.51E-03
67663	Chloroform	1	0	7.96E+00	2.06E-02
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	5.56E-03	1.44E-05
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	9.35E-01	2.42E-03
206440	Fluoranthene	1	0	0.00E+00	0.00E+00
50000	Formaldehyde	1	0	9.79E-01	2.53E-03
7647010	HCl	1	0	8.92E+00	2.31E-02
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	1.49E-02	3.86E-05
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00

7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	6.62E-01	1.71E-03
75354	Vinylidene Chlor	1	0	4.57E-02	1.18E-04
7440666	Zinc	1	0	0.00E+00	0.00E+00

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=4 NAME=LAB2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	3.07E-02	7.95E-05
57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	1.86E-01	4.82E-04
107028	Acrolein	1	0	6.55E-02	1.70E-04
107131	Acrylonitrile	1	0	5.31E-02	1.38E-04
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	1.35E+00	3.50E-03
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	1.04E+00	2.69E-03
7782505	Chlorine	1	0	9.70E-01	2.51E-03
67663	Chloroform	1	0	7.96E+00	2.06E-02
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	5.56E-03	1.44E-05
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	9.35E-01	2.42E-03
206440	Fluoranthene	1	0	0.00E+00	0.00E+00
50000	Formaldehyde	1	0	9.79E-01	2.53E-03
7647010	HCl	1	0	8.92E+00	2.31E-02
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	1.49E-02	3.86E-05
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00
7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	6.62E-01	1.71E-03
75354	Vinylidene Chlor	1	0	4.57E-02	1.18E-04
7440666	Zinc	1	0	0.00E+00	0.00E+00

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=5 NAME=DGEN EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00

57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	0.00E+00	0.00E+00
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	0.00E+00	0.00E+00
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	2.71E+00	1.09E-01
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	0.00E+00	0.00E+00
50000	Formaldehyde	1	0	0.00E+00	0.00E+00
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00
7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	0.00E+00	0.00E+00

CANCER RISK REPORT

RECEPTOR 181

SOURCE 1 RISK BY PATHWAY

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	2.66E-10	2.88E-09	4.31E-10	0.00E+00	0.00E+00	0.00E+00	1.05E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-08	1.41E-08
0003	8.56E-12	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.56E-12
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	1.60E-10	1.06E-09	5.18E-10	0.00E+00	0.00E+00	0.00E+00	9.78E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-09	2.72E-09
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	4.17E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.17E-11
0009	9.73E-12	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.73E-12
0010	1.59E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-09
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	1.17E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-08
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	4.48E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.48E-10
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	1.40E-12	2.23E-13	7.34E-12	0.00E+00	0.00E+00	0.00E+00	1.51E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-11	2.41E-11
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	7.05E-12	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.05E-12
0030	1.85E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-10
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	1.44E-08	3.94E-09	9.57E-10	0.00E+00	0.00E+00	0.00E+00	1.15E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-08	3.09E-08

SOURCE 2 RISK BY PATHWAY

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	2.64E-10	2.86E-09	4.28E-10	0.00E+00	0.00E+00	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-08	1.40E-08
0003	8.50E-12	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.50E-12
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	1.58E-10	1.06E-09	5.14E-10	0.00E+00	0.00E+00	0.00E+00	9.70E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.54E-09	2.70E-09
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	4.13E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.13E-11
0009	9.65E-12	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.65E-12
0010	1.58E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-09
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	1.16E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-08
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	4.44E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.44E-10
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	1.39E-12	2.21E-13	7.28E-12	0.00E+00	0.00E+00	0.00E+00	1.50E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-11	2.39E-11

0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	6.99E-12	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.99E-12
0030	1.83E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-10
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	1.43E-08	3.91E-09	9.49E-10	0.00E+00	0.00E+00	0.00E+00	1.14E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-08	3.06E-08

SOURCE 3 RISK BY PATHWAY

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	1.19E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-09
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	1.20E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-10
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	3.43E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-09
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	8.72E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.72E-09
0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	1.01E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-08
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	9.77E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.77E-09
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	4.35E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.35E-09
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	1.33E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-09
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	1.64E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-08
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	1.16E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-08
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	6.69E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.69E-08

SOURCE 4 RISK BY PATHWAY

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL

0001	1.18E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E-09
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	1.20E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-10
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	3.41E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.41E-09
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	8.67E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.67E-09
0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	1.00E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-08
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	9.72E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.72E-09
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	4.33E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.33E-09
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	1.32E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.32E-09
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	1.63E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-08
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	1.15E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-08
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	6.65E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.65E-08

SOURCE 5 RISK BY PATHWAY

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	3.43E-07	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-07
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	3.43E-07	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-07

Total risk of all sources

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	2.37E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-09
0002	5.31E-10	5.73E-09	8.59E-10	0.00E+00	0.00E+00	0.00E+00	2.10E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-08	2.81E-08
0003	2.57E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.57E-10
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	6.84E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.84E-09
0006	3.18E-10	2.12E-09	1.03E-09	0.00E+00	0.00E+00	0.00E+00	1.95E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.10E-09	5.42E-09
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	1.75E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-08
0009	1.94E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-11
0010	3.18E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.18E-09
0011	2.01E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-08
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	1.95E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-08
0014	2.33E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.33E-08
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	3.43E-07	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-07
0020	8.68E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.68E-09
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	3.54E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.54E-09
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	3.26E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.26E-08
0026	2.78E-12	4.44E-13	1.46E-11	0.00E+00	0.00E+00	0.00E+00	3.01E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.52E-11	4.79E-11
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0029	1.40E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-11
0030	3.68E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.68E-10
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	2.30E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.30E-08
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	5.05E-07	7.86E-09	1.91E-09	0.00E+00	0.00E+00	0.00E+00	2.30E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.27E-08	5.38E-07

```
This file: c:\HARP\projects\Rep_Chr_Wrk_PtEst_Rec189_AllSrc_AllCh_BySrc_ByChem_Site.txt

Created by HARP Version 1.4a  Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 12/4/2009 2:08:10 PM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\HARP\Onsite\ONSITE.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: ONSITE.EMS
   Site parameters file: C:\HARP\PROJECTS\project.sit

Coordinate system: UTM NAD83

Screening mode is OFF


USER-DEFINED WORKER ADJUSTMENT AND EXPOSURE PARAMETERS
   GLC Adjustment Factor: 1
   Exposure Duration (years): 40
   Exposure Frequency (days/year): 245
   Explanatory Note: a

Analysis method:   Point estimate
Health effect:     Chronic HI
Receptor(s):       189
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)             0.05

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE
```

```
   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source          0.15
   Fraction of ingested exposed vegetable
     from home grown source          0.15
   Fraction of ingested protected vegetable
     from home grown source          0.15
   Fraction of ingested root vegetable
     from home grown source          0.15

PIGS, CHICKENS AND EGGS

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway enabled ***
```

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0002	57976	7,12-DB[a]anthr	7,12-Dimethylbenz[a]anthracene	0.000E+00
0003	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0004	107028	Acrolein	Acrolein	0.000E+00
0005	107131	Acrylonitrile	Acrylonitrile	0.000E+00
0006	7440382	Arsenic	Arsenic	0.000E+00
0007	7440393	Barium	Barium	0.000E+00
0008	71432	Benzene	Benzene	0.000E+00
0009	7440417	Beryllium	Beryllium	0.000E+00
0010	7440439	Cadmium	Cadmium	0.000E+00
0011	56235	CCl4	Carbon tetrachloride	0.000E+00
0012	7782505	Chlorine	Chlorine	0.000E+00
0013	67663	Chloroform	Chloroform	0.000E+00
0014	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0015	7440484	Cobalt	Cobalt	0.000E+00
0016	7440508	Copper	Copper	0.000E+00
0017	4170303	Crotonaldehyde	Crotonaldehyde	0.000E+00
0018	25321226	DiClBenzenes	Dichlorobenzenes (mixed isomers)	0.000E+00
0019	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00
0020	107062	EDC	Ethylene dichloride {EDC}	0.000E+00
0021	206440	Fluoranthene	Fluoranthene	0.000E+00
0022	50000	Formaldehyde	Formaldehyde	0.000E+00
0023	7647010	HCl	Hydrochloric acid	0.000E+00
0024	110543	Hexane	Hexane	0.000E+00

0025	302012	Hydrazine	Hydrazine	0.000E+00
0026	7439921	Lead	Lead	0.000E+00
0027	7439965	Manganese	Manganese	0.000E+00
0028	7439976	Mercury	Mercury	0.000E+00
0029	91203	Naphthalene	Naphthalene	0.000E+00
0030	7440020	Nickel	Nickel	0.000E+00
0031	7782492	Selenium	Selenium	0.000E+00
0032	108883	Toluene	Toluene	0.000E+00
0033	7440622	Vanadium	Vanadium (fume or dust)	0.000E+00
0034	75014	Vinyl Chloride	Vinyl chloride	0.000E+00
0035	75354	Vinylid Chlorid	Vinylidene chloride	0.000E+00
0036	7440666	Zinc	Zinc	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3
0001	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0002	57976	7,12-DB[a]anthr	2.50E+02	2.50E+02	*	*	*
0003	75070	Acetaldehyde	1.00E-02	*	1.40E+02	*	4.70E+02
0004	107028	Acrolein	*	*	3.50E-01	*	2.50E+00
0005	107131	Acrylonitrile	1.00E+00	*	5.00E+00	*	*
0006	7440382	Arsenic	1.20E+01	1.50E+00	1.50E-02	3.50E-06	2.00E-01
0007	7440393	Barium	*	*	*	*	*
0008	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0009	7440417	Beryllium	8.40E+00	*	7.00E-03	2.00E-03	*
0010	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0011	56235	CCl4	1.50E-01	*	4.00E+01	*	1.90E+03
0012	7782505	Chlorine	*	*	2.00E-01	*	2.10E+02
0013	67663	Chloroform	1.90E-02	*	3.00E+02	*	1.50E+02
0014	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0015	7440484	Cobalt	*	*	*	*	*
0016	7440508	Copper	*	*	*	*	1.00E+02
0017	4170303	Crotonaldehyde	*	*	*	*	*
0018	25321226	DiClBenzenes	*	*	*	*	*
0019	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*
0020	107062	EDC	7.20E-02	*	4.00E+02	*	*
0021	206440	Fluoranthene	*	*	*	*	*
0022	50000	Formaldehyde	2.10E-02	*	9.00E+00	*	5.50E+01
0023	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0024	110543	Hexane	*	*	7.00E+03	*	*
0025	302012	Hydrazine	1.70E+01	*	2.00E-01	*	*
0026	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0027	7439965	Manganese	*	*	9.00E-02	*	*
0028	7439976	Mercury	*	*	3.00E-02	1.60E-04	6.00E-01
0029	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0030	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0031	7782492	Selenium	*	*	2.00E+01	*	*
0032	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0033	7440622	Vanadium	*	*	*	*	3.00E+01
0034	75014	Vinyl Chloride	2.70E-01	*	*	*	1.80E+05
0035	75354	Vinylid Chlorid	*	*	7.00E+01	*	*
0036	7440666	Zinc	*	*	*	*	*

EMISSIONS DATA SOURCE: Emission rates loaded from file: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\HARP\Onsite\ONSITE.EMS
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=1 NAME=BOIL1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00
57976	7,12-Dimethylben	1	0	4.71E-06	2.59E-08
75070	Acetaldehyde	1	0	2.61E-03	1.43E-05
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	5.88E-05	3.24E-07
7440393	Barium	1	0	1.29E-03	7.12E-06
71432	Benzene	1	0	1.27E-03	6.97E-06
7440417	Beryllium	1	0	3.53E-06	1.94E-08
7440439	Cadmium	1	0	3.24E-04	1.78E-06
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00
18540299	Chromium (hexava	1	0	7.00E-05	3.85E-07
7440484	Cobalt	1	0	2.47E-05	1.36E-07
7440508	Copper	1	0	2.50E-04	1.38E-06
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	3.53E-04	1.94E-06
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	8.82E-07	4.85E-09
50000	Formaldehyde	1	0	6.50E-02	3.58E-04
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	5.29E-01	2.91E-03
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	1.47E-04	8.09E-07
7439965	Manganese	1	0	1.12E-04	6.15E-07
7439976	Mercury	1	0	7.65E-05	4.21E-07
91203	Naphthalene	1	0	1.79E-04	9.87E-07
7440020	Nickel	1	0	6.18E-04	3.40E-06
7782492	Selenium	1	0	7.06E-06	3.88E-08
108883	Toluene	1	0	1.00E-03	5.50E-06
7440622	Vanadium	1	0	6.76E-04	3.72E-06
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	8.53E-03	4.69E-05

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=2 NAME=BOIL2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00
57976	7,12-Dimethylben	1	0	4.71E-06	2.59E-08
75070	Acetaldehyde	1	0	2.61E-03	1.43E-05
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	5.88E-05	3.24E-07
7440393	Barium	1	0	1.29E-03	7.12E-06

71432	Benzene	1	0	1.27E-03	6.97E-06
7440417	Beryllium	1	0	3.53E-06	1.94E-08
7440439	Cadmium	1	0	3.24E-04	1.78E-06
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00
18540299	Chromium (hexava	1	0	7.00E-05	3.85E-07
7440484	Cobalt	1	0	2.47E-05	1.36E-07
7440508	Copper	1	0	2.50E-04	1.38E-06
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	3.53E-04	1.94E-06
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	8.82E-07	4.85E-09
50000	Formaldehyde	1	0	6.50E-02	3.58E-04
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	5.29E-01	2.91E-03
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	1.47E-04	8.09E-07
7439965	Manganese	1	0	1.12E-04	6.15E-07
7439976	Mercury	1	0	7.65E-05	4.21E-07
91203	Naphthalene	1	0	1.79E-04	9.87E-07
7440020	Nickel	1	0	6.18E-04	3.40E-06
7782492	Selenium	1	0	7.06E-06	3.88E-08
108883	Toluene	1	0	1.00E-03	5.50E-06
7440622	Vanadium	1	0	6.76E-04	3.72E-06
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	8.53E-03	4.69E-05

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=3 NAME=LAB1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	3.07E-02	7.95E-05
57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	1.86E-01	4.82E-04
107028	Acrolein	1	0	6.55E-02	1.70E-04
107131	Acrylonitrile	1	0	5.31E-02	1.38E-04
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	1.35E+00	3.50E-03
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	1.04E+00	2.69E-03
7782505	Chlorine	1	0	9.70E-01	2.51E-03
67663	Chloroform	1	0	7.96E+00	2.06E-02
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	5.56E-03	1.44E-05
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	9.35E-01	2.42E-03
206440	Fluoranthene	1	0	0.00E+00	0.00E+00

50000	Formaldehyde	1	0	9.79E-01	2.53E-03
7647010	HCl	1	0	8.92E+00	2.31E-02
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	1.49E-02	3.86E-05
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00
7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	6.62E-01	1.71E-03
75354	Vinylidene Chlor	1	0	4.57E-02	1.18E-04
7440666	Zinc	1	0	0.00E+00	0.00E+00

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=4 NAME=LAB2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	3.07E-02	7.95E-05
57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	1.86E-01	4.82E-04
107028	Acrolein	1	0	6.55E-02	1.70E-04
107131	Acrylonitrile	1	0	5.31E-02	1.38E-04
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	1.35E+00	3.50E-03
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	1.04E+00	2.69E-03
7782505	Chlorine	1	0	9.70E-01	2.51E-03
67663	Chloroform	1	0	7.96E+00	2.06E-02
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	5.56E-03	1.44E-05
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	9.35E-01	2.42E-03
206440	Fluoranthene	1	0	0.00E+00	0.00E+00
50000	Formaldehyde	1	0	9.79E-01	2.53E-03
7647010	HCl	1	0	8.92E+00	2.31E-02
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	1.49E-02	3.86E-05
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00
7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	6.62E-01	1.71E-03
75354	Vinylidene Chlor	1	0	4.57E-02	1.18E-04

7440666	Zinc	1	0	0.00E+00	0.00E+00

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=5 NAME=DGEN EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00
57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	0.00E+00	0.00E+00
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	0.00E+00	0.00E+00
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	2.71E+00	1.09E-01
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	0.00E+00	0.00E+00
50000	Formaldehyde	1	0	0.00E+00	0.00E+00
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00
7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	0.00E+00	0.00E+00

CHRONIC HI REPORT

RECEPTOR 189

SOURCE 1 HI BY ENDPOINT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	7.32E-09	0.00E+00	0.00E+00	7.32E-09
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	1.30E-04	1.30E-04	0.00E+00	1.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-04	1.30E-04	0.00E+00	1.30E-04

0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	0.00E+00	8.31E-09	0.00E+00	8.31E-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	8.31E-09	8.31E-09
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.39E-09	1.98E-07	0.00E+00	0.00E+00	1.98E-07	0.00E+00	0.00E+00	1.98E-07
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.92E-06	0.00E+00	6.36E-06	0.00E+00	0.00E+00	7.92E-06
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	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	0.00E+00	1.37E-07	0.00E+00	1.27E-08	1.37E-07
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	2.84E-06	0.00E+00	0.00E+00	2.84E-06
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	0.00E+00	2.97E-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	0.00E+00	0.00E+00	2.97E-08
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	0.00E+00	4.89E-07	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	0.00E+00	0.00E+00	4.89E-07
0028	0.00E+00	8.53E-06	0.00E+00	8.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.53E-06
0029	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	0.00E+00	7.81E-09	0.00E+00	0.00E+00	7.81E-09
0030	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.47E-08	0.00E+00	0.00E+00	0.00E+00	4.85E-06	0.00E+00	4.85E-06	4.85E-06
0031	1.39E-10	1.39E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-10
0032	0.00E+00	1.31E-09	0.00E+00	1.31E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-09	0.00E+00	0.00E+00	1.31E-09
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	1.30E-04	1.39E-04	0.00E+00	1.39E-04	0.00E+00	0.00E+00	1.01E-07	1.98E-07	1.65E-05	0.00E+00	1.45E-04	1.30E-04	4.87E-06	1.45E-04

SOURCE 2 HI BY ENDPOINT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	7.25E-09	0.00E+00	0.00E+00	7.25E-09
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	1.29E-04	1.29E-04	0.00E+00	1.29E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-04	1.29E-04	0.00E+00	1.29E-04
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	0.00E+00	8.23E-09	0.00E+00	8.23E-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	8.23E-09	8.23E-09
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.33E-09	1.96E-07	0.00E+00	0.00E+00	1.96E-07	0.00E+00	0.00E+00	1.96E-07
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.85E-06	0.00E+00	6.30E-06	0.00E+00	0.00E+00	7.85E-06
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	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	0.00E+00	1.36E-07	0.00E+00	1.26E-08	1.36E-07
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	2.81E-06	0.00E+00	0.00E+00	2.81E-06
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	0.00E+00	2.94E-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	0.00E+00	0.00E+00	2.94E-08
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	0.00E+00	4.84E-07	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	0.00E+00	0.00E+00	4.84E-07
0028	0.00E+00	8.45E-06	0.00E+00	8.45E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.45E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.45E-06
0029	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	0.00E+00	7.74E-09	0.00E+00	0.00E+00	7.74E-09
0030	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.38E-08	0.00E+00	0.00E+00	0.00E+00	4.81E-06	0.00E+00	4.81E-06	4.81E-06
0031	1.37E-10	1.37E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-10
0032	0.00E+00	1.30E-09	0.00E+00	1.30E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-09	0.00E+00	0.00E+00	1.30E-09
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	1.29E-04	1.38E-04	0.00E+00	1.38E-04	0.00E+00	0.00E+00	1.00E-07	1.96E-07	1.63E-05	0.00E+00	1.43E-04	1.29E-04	4.83E-06	1.43E-04

SOURCE 3 HI BY ENDPOINT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	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	3.84E-07	0.00E+00	0.00E+00	0.00E+00	3.84E-07
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	3.32E-07	0.00E+00	0.00E+00	3.32E-07
0004	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	0.00E+00	4.68E-05	0.00E+00	0.00E+00	4.68E-05
0005	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	0.00E+00	2.65E-06	0.00E+00	0.00E+00	2.65E-06
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	0.00E+00	5.62E-06	0.00E+00	5.62E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.62E-06	5.62E-06
0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	0.00E+00	6.50E-06	0.00E+00	6.50E-06	0.00E+00	0.00E+00	6.50E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.50E-06
0012	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	0.00E+00	1.21E-03	0.00E+00	0.00E+00	1.21E-03
0013	0.00E+00	0.00E+00	0.00E+00	6.63E-06	0.00E+00	0.00E+00	6.63E-06	0.00E+00	6.63E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.63E-06
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-07
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	2.72E-05	0.00E+00	0.00E+00	2.72E-05
0023	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	0.00E+00	2.48E-04	0.00E+00	0.00E+00	2.48E-04
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-05	0.00E+00	1.86E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-05
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0035	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-07
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	0.00E+00	1.21E-05	0.00E+00	1.88E-05	1.86E-05	0.00E+00	3.25E-05	0.00E+00	6.63E-06	3.84E-07	1.54E-03	0.00E+00	5.62E-06	1.54E-03

SOURCE 4 HI BY ENDPOINT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	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	3.88E-07	0.00E+00	0.00E+00	0.00E+00	3.88E-07
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	3.36E-07	0.00E+00	0.00E+00	3.36E-07
0004	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	0.00E+00	4.73E-05	0.00E+00	0.00E+00	4.73E-05
0005	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	0.00E+00	2.68E-06	0.00E+00	0.00E+00	2.68E-06
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	0.00E+00	5.69E-06	0.00E+00	5.69E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.69E-06	5.69E-06
0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	0.00E+00	6.57E-06	0.00E+00	6.57E-06	0.00E+00	0.00E+00	6.57E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.57E-06
0012	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	0.00E+00	1.23E-03	0.00E+00	0.00E+00	1.23E-03
0013	0.00E+00	0.00E+00	0.00E+00	6.71E-06	0.00E+00	0.00E+00	6.71E-06	0.00E+00	6.71E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.71E-06
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.91E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.91E-07
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	2.75E-05	0.00E+00	0.00E+00	2.75E-05
0023	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	0.00E+00	2.51E-04	0.00E+00	0.00E+00	2.51E-04
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-05	0.00E+00	1.88E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-05
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-07
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	0.00E+00	1.23E-05	0.00E+00	1.90E-05	1.88E-05	0.00E+00	3.29E-05	0.00E+00	6.71E-06	3.88E-07	1.55E-03	0.00E+00	5.69E-06	1.55E-03

SOURCE 5 HI BY ENDPOINT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	1.11E-04	0.00E+00	0.00E+00	1.11E-04
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	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	0.00E+00	1.11E-04	0.00E+00	0.00E+00	1.11E-04

Total risk of all sources

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	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	7.72E-07	0.00E+00	0.00E+00	0.00E+00	7.72E-07
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	6.82E-07	0.00E+00	0.00E+00	6.82E-07
0004	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	0.00E+00	9.41E-05	0.00E+00	0.00E+00	9.41E-05
0005	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	0.00E+00	5.34E-06	0.00E+00	0.00E+00	5.34E-06
0006	2.59E-04	2.59E-04	0.00E+00	2.59E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-04	2.59E-04	0.00E+00	2.59E-04
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	0.00E+00	1.13E-05	0.00E+00	1.13E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-05	1.13E-05
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-08	3.94E-07	0.00E+00	0.00E+00	3.94E-07	0.00E+00	0.00E+00	3.94E-07
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-05	0.00E+00	1.27E-05	0.00E+00	0.00E+00	1.58E-05
0011	0.00E+00	1.31E-05	0.00E+00	1.31E-05	0.00E+00	0.00E+00	1.31E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-05
0012	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	0.00E+00	2.44E-03	0.00E+00	0.00E+00	2.44E-03
0013	0.00E+00	0.00E+00	0.00E+00	1.33E-05	0.00E+00	0.00E+00	1.33E-05	0.00E+00	1.33E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-05
0014	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	0.00E+00	2.74E-07	0.00E+00	2.52E-08	2.74E-07
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	1.11E-04	0.00E+00	0.00E+00	1.11E-04
0020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-06
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	6.03E-05	0.00E+00	0.00E+00	6.03E-05

0023	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	0.00E+00	4.98E-04	0.00E+00	0.00E+00	4.98E-04
0024	0.00E+00	5.91E-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	0.00E+00	0.00E+00	5.91E-08
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.74E-05	0.00E+00	3.74E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.74E-05
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	0.00E+00	9.73E-07	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	0.00E+00	0.00E+00	9.73E-07
0028	0.00E+00	1.70E-05	0.00E+00	1.70E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-05
0029	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	0.00E+00	1.55E-08	0.00E+00	0.00E+00	1.55E-08
0030	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-07	0.00E+00	0.00E+00	0.00E+00	9.66E-06	0.00E+00	9.66E-06	9.66E-06
0031	2.76E-10	2.76E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-10
0032	0.00E+00	2.61E-09	0.00E+00	2.61E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.61E-09	0.00E+00	0.00E+00	2.61E-09
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.28E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.28E-07
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	2.59E-04	3.02E-04	0.00E+00	3.14E-04	3.74E-05	0.00E+00	6.56E-05	3.94E-07	4.61E-05	7.72E-07	3.49E-03	2.59E-04	2.10E-05	3.49E-03

APPENDIX I

HARP MODEL OUTPUT FILES FOR OFFSITE RESIDENT RECEPTORS

```
This file: c:\HARP\projects\Rep_Can_70yr_Avg_Rec2851_AllSrc_AllCh_BySrc_ByChem_Site.txt

Created by HARP Version 1.4a  Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 12/4/2009 1:58:00 PM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\HARP\Offsite\OFFSITE.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: OFFSITE.EMS
   Site parameters file: C:\HARP\PROJECTS\project.sit

Coordinate system: UTM NAD83

Screening mode is OFF

Exposure duration: 70 year (adult resident)
Analysis method:   Average point estimate
Health effect:     Cancer Risk
Receptor(s):       2851
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)             0.05

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source          0.15
   Fraction of ingested exposed vegetable
     from home grown source          0.15
   Fraction of ingested protected vegetable
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     from home grown source          0.15
   Fraction of ingested root vegetable
     from home grown source          0.15

PIGS, CHICKENS AND EGGS

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway enabled ***
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CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0002	57976	7,12-DB[a]anthr	7,12-Dimethylbenz[a]anthracene	0.000E+00
0003	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0004	107028	Acrolein	Acrolein	0.000E+00
0005	107131	Acrylonitrile	Acrylonitrile	0.000E+00
0006	7440382	Arsenic	Arsenic	0.000E+00
0007	7440393	Barium	Barium	0.000E+00
0008	71432	Benzene	Benzene	0.000E+00
0009	7440417	Beryllium	Beryllium	0.000E+00
0010	7440439	Cadmium	Cadmium	0.000E+00
0011	56235	CCl4	Carbon tetrachloride	0.000E+00
0012	7782505	Chlorine	Chlorine	0.000E+00
0013	67663	Chloroform	Chloroform	0.000E+00
0014	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0015	7440484	Cobalt	Cobalt	0.000E+00
0016	7440508	Copper	Copper	0.000E+00
0017	4170303	Crotonaldehyde	Crotonaldehyde	0.000E+00
0018	25321226	DiClBenzenes	Dichlorobenzenes (mixed isomers)	0.000E+00
0019	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00
0020	107062	EDC	Ethylene dichloride {EDC}	0.000E+00
0021	206440	Fluoranthene	Fluoranthene	0.000E+00
0022	50000	Formaldehyde	Formaldehyde	0.000E+00
0023	7647010	HCl	Hydrochloric acid	0.000E+00
0024	110543	Hexane	Hexane	0.000E+00
0025	302012	Hydrazine	Hydrazine	0.000E+00
0026	7439921	Lead	Lead	0.000E+00
0027	7439965	Manganese	Manganese	0.000E+00
0028	7439976	Mercury	Mercury	0.000E+00
0029	91203	Naphthalene	Naphthalene	0.000E+00
0030	7440020	Nickel	Nickel	0.000E+00

0031	7782492	Selenium	Selenium	0.000E+00
0032	108883	Toluene	Toluene	0.000E+00
0033	7440622	Vanadium	Vanadium (fume or dust)	0.000E+00
0034	75014	Vinyl Chloride	Vinyl chloride	0.000E+00
0035	75354	Vinylid Chlorid	Vinylidene chloride	0.000E+00
0036	7440666	Zinc	Zinc	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3
0001	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0002	57976	7,12-DB[a]anthr	2.50E+02	2.50E+02	*	*	*
0003	75070	Acetaldehyde	1.00E-02	*	1.40E+02	*	4.70E+02
0004	107028	Acrolein	*	*	3.50E-01	*	2.50E+00
0005	107131	Acrylonitrile	1.00E+00	*	5.00E+00	*	*
0006	7440382	Arsenic	1.20E+01	1.50E+00	1.50E-02	3.50E-06	2.00E-01
0007	7440393	Barium	*	*	*	*	*
0008	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0009	7440417	Beryllium	8.40E+00	*	7.00E-03	2.00E-03	*
0010	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0011	56235	CCl4	1.50E-01	*	4.00E+01	*	1.90E+03
0012	7782505	Chlorine	*	*	2.00E-01	*	2.10E+02
0013	67663	Chloroform	1.90E-02	*	3.00E+02	*	1.50E+02
0014	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0015	7440484	Cobalt	*	*	*	*	*
0016	7440508	Copper	*	*	*	*	1.00E+02
0017	4170303	Crotonaldehyde	*	*	*	*	*
0018	25321226	DiClBenzenes	*	*	*	*	*
0019	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*
0020	107062	EDC	7.20E-02	*	4.00E+02	*	*
0021	206440	Fluoranthene	*	*	*	*	*
0022	50000	Formaldehyde	2.10E-02	*	9.00E+00	*	5.50E+01
0023	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0024	110543	Hexane	*	*	7.00E+03	*	*
0025	302012	Hydrazine	1.70E+01	*	2.00E-01	*	*
0026	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0027	7439965	Manganese	*	*	9.00E-02	*	*
0028	7439976	Mercury	*	*	3.00E-02	1.60E-04	6.00E-01
0029	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0030	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0031	7782492	Selenium	*	*	2.00E+01	*	*
0032	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0033	7440622	Vanadium	*	*	*	*	3.00E+01
0034	75014	Vinyl Chloride	2.70E-01	*	*	*	1.80E+05
0035	75354	Vinylid Chlorid	*	*	7.00E+01	*	*
0036	7440666	Zinc	*	*	*	*	*

EMISSIONS DATA SOURCE: Emission rates loaded from file: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\HARP\Offsite\OFFSITE.EMS
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=1 NAME=BOIL1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00
57976	7,12-Dimethylben	1	0	4.71E-06	2.59E-08
75070	Acetaldehyde	1	0	2.61E-03	1.43E-05
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	5.88E-05	3.24E-07
7440393	Barium	1	0	1.29E-03	7.12E-06
71432	Benzene	1	0	1.27E-03	6.97E-06
7440417	Beryllium	1	0	3.53E-06	1.94E-08
7440439	Cadmium	1	0	3.24E-04	1.78E-06
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00
18540299	Chromium (hexava	1	0	7.00E-05	3.85E-07
7440484	Cobalt	1	0	2.47E-05	1.36E-07
7440508	Copper	1	0	2.50E-04	1.38E-06
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	3.53E-04	1.94E-06
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	8.82E-07	4.85E-09
50000	Formaldehyde	1	0	6.50E-02	3.58E-04
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	5.29E-01	2.91E-03
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	1.47E-04	8.09E-07
7439965	Manganese	1	0	1.12E-04	6.15E-07
7439976	Mercury	1	0	7.65E-05	4.21E-07
91203	Naphthalene	1	0	1.79E-04	9.87E-07
7440020	Nickel	1	0	6.18E-04	3.40E-06
7782492	Selenium	1	0	7.06E-06	3.88E-08
108883	Toluene	1	0	1.00E-03	5.50E-06
7440622	Vanadium	1	0	6.76E-04	3.72E-06
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	8.53E-03	4.69E-05

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=2 NAME=BOIL2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00
57976	7,12-Dimethylben	1	0	4.71E-06	2.59E-08
75070	Acetaldehyde	1	0	2.61E-03	1.43E-05
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	5.88E-05	3.24E-07
7440393	Barium	1	0	1.29E-03	7.12E-06
71432	Benzene	1	0	1.27E-03	6.97E-06
7440417	Beryllium	1	0	3.53E-06	1.94E-08
7440439	Cadmium	1	0	3.24E-04	1.78E-06
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00

18540299	Chromium (hexava	1	0	7.00E-05	3.85E-07
7440484	Cobalt	1	0	2.47E-05	1.36E-07
7440508	Copper	1	0	2.50E-04	1.38E-06
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	3.53E-04	1.94E-06
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	8.82E-07	4.85E-09
50000	Formaldehyde	1	0	6.50E-02	3.58E-04
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	5.29E-01	2.91E-03
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	1.47E-04	8.09E-07
7439965	Manganese	1	0	1.12E-04	6.15E-07
7439976	Mercury	1	0	7.65E-05	4.21E-07
91203	Naphthalene	1	0	1.79E-04	9.87E-07
7440020	Nickel	1	0	6.18E-04	3.40E-06
7782492	Selenium	1	0	7.06E-06	3.88E-08
108883	Toluene	1	0	1.00E-03	5.50E-06
7440622	Vanadium	1	0	6.76E-04	3.72E-06
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	8.53E-03	4.69E-05

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=3 NAME=LAB1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	3.07E-02	7.95E-05
57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	1.86E-01	4.82E-04
107028	Acrolein	1	0	6.55E-02	1.70E-04
107131	Acrylonitrile	1	0	5.31E-02	1.38E-04
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	1.35E+00	3.50E-03
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	1.04E+00	2.69E-03
7782505	Chlorine	1	0	9.70E-01	2.51E-03
67663	Chloroform	1	0	7.96E+00	2.06E-02
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	5.56E-03	1.44E-05
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	9.35E-01	2.42E-03
206440	Fluoranthene	1	0	0.00E+00	0.00E+00
50000	Formaldehyde	1	0	9.79E-01	2.53E-03
7647010	HCl	1	0	8.92E+00	2.31E-02
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	1.49E-02	3.86E-05
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00

7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	6.62E-01	1.71E-03
75354	Vinylidene Chlor	1	0	4.57E-02	1.18E-04
7440666	Zinc	1	0	0.00E+00	0.00E+00

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=4 NAME=LAB2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	3.07E-02	7.95E-05
57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	1.86E-01	4.82E-04
107028	Acrolein	1	0	6.55E-02	1.70E-04
107131	Acrylonitrile	1	0	5.31E-02	1.38E-04
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	1.35E+00	3.50E-03
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	1.04E+00	2.69E-03
7782505	Chlorine	1	0	9.70E-01	2.51E-03
67663	Chloroform	1	0	7.96E+00	2.06E-02
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	5.56E-03	1.44E-05
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	9.35E-01	2.42E-03
206440	Fluoranthene	1	0	0.00E+00	0.00E+00
50000	Formaldehyde	1	0	9.79E-01	2.53E-03
7647010	HCl	1	0	8.92E+00	2.31E-02
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	1.49E-02	3.86E-05
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00
7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	6.62E-01	1.71E-03
75354	Vinylidene Chlor	1	0	4.57E-02	1.18E-04
7440666	Zinc	1	0	0.00E+00	0.00E+00

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=5 NAME=DGEN EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00

57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	0.00E+00	0.00E+00
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	0.00E+00	0.00E+00
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	2.71E+00	1.09E-01
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	0.00E+00	0.00E+00
50000	Formaldehyde	1	0	0.00E+00	0.00E+00
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00
7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	0.00E+00	0.00E+00

CANCER RISK REPORT

RECEPTOR 2851

SOURCE 1 RISK BY PATHWAY

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	2.99E-11	1.91E-11	4.84E-11	0.00E+00	0.00E+00	0.00E+00	3.33E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E-10	4.30E-10
0003	6.63E-13	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.63E-13
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	1.79E-11	7.07E-12	5.82E-11	0.00E+00	0.00E+00	0.00E+00	3.08E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.61E-11	1.14E-10
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	3.23E-12	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.23E-12
0009	7.54E-13	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.54E-13
0010	1.24E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-10
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	9.07E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.07E-10
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	3.47E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.47E-11
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	1.57E-13	2.50E-14	8.25E-13	0.00E+00	0.00E+00	0.00E+00	4.78E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-12	1.48E-12
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	5.46E-13	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.46E-13
0030	1.43E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-11
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	1.13E-09	2.62E-11	1.07E-10	0.00E+00	0.00E+00	0.00E+00	3.64E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.98E-10	1.63E-09

SOURCE 2 RISK BY PATHWAY

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	2.98E-11	1.90E-11	4.83E-11	0.00E+00	0.00E+00	0.00E+00	3.32E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.99E-10	4.29E-10
0003	6.61E-13	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.61E-13
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	1.79E-11	7.04E-12	5.80E-11	0.00E+00	0.00E+00	0.00E+00	3.07E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.58E-11	1.14E-10
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	3.22E-12	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.22E-12
0009	7.51E-13	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.51E-13
0010	1.23E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-10
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	9.05E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.05E-10
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	3.46E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.46E-11
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	1.56E-13	2.49E-14	8.22E-13	0.00E+00	0.00E+00	0.00E+00	4.76E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.32E-12	1.48E-12

0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	5.44E-13	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.44E-13
0030	1.42E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E-11
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	1.13E-09	2.61E-11	1.07E-10	0.00E+00	0.00E+00	0.00E+00	3.63E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.96E-10	1.63E-09

SOURCE 3 RISK BY PATHWAY

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	3.57E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.57E-10
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	3.61E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.61E-11
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	1.03E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-09
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	2.62E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.62E-09
0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	3.03E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.03E-09
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	2.93E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-09
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	1.31E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-09
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	3.99E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.99E-10
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	4.91E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.91E-09
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	3.47E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.47E-09
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	2.01E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-08

SOURCE 4 RISK BY PATHWAY

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL

0001	3.50E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.50E-10
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	3.54E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.54E-11
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	1.01E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-09
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	2.57E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.57E-09
0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	2.97E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.97E-09
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	2.88E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-09
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	1.28E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-09
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	3.91E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.91E-10
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	4.82E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.82E-09
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	3.40E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E-09
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	1.97E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-08

SOURCE 5 RISK BY PATHWAY

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	5.70E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.70E-08
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	5.70E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.70E-08

Total risk of all sources

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	7.08E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.08E-10
0002	5.98E-11	3.82E-11	9.67E-11	0.00E+00	0.00E+00	0.00E+00	6.64E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.99E-10	8.59E-10
0003	7.28E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.28E-11
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	2.04E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-09
0006	3.58E-11	1.41E-11	1.16E-10	0.00E+00	0.00E+00	0.00E+00	6.16E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-10	2.28E-10
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	5.19E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-09
0009	1.51E-12	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-12
0010	2.47E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47E-10
0011	5.99E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.99E-09
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	5.81E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.81E-09
0014	1.81E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-09
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	5.70E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.70E-08
0020	2.59E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-09
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	8.59E-10	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.59E-10
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	9.73E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.73E-09
0026	3.13E-13	5.00E-14	1.65E-12	0.00E+00	0.00E+00	0.00E+00	9.54E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-12	2.96E-12
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0029	1.09E-12	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-12
0030	2.85E-11	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.85E-11
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	6.87E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.87E-09
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	9.90E-08	5.23E-11	2.15E-10	0.00E+00	0.00E+00	0.00E+00	7.27E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.94E-10	1.00E-07

```
This file: c:\HARP\projects\Rep_Chr_Res_DerOEH_Rec2850_AllSrc_AllCh_BySrc_ByChem_Site.txt

Created by HARP Version 1.4a  Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 12/4/2009 2:02:55 PM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\HARP\Offsite\OFFSITE.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: OFFSITE.EMS
   Site parameters file: C:\HARP\PROJECTS\project.sit

Coordinate system: UTM NAD83

Screening mode is OFF

Exposure duration: resident
Analysis method:   Derived (OEHHA) Method
Health effect:     Chronic HI
Receptor(s):       2850
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)             0.05

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source          0.15
   Fraction of ingested exposed vegetable
     from home grown source          0.15
   Fraction of ingested protected vegetable
```

```
     from home grown source          0.15
   Fraction of ingested root vegetable
     from home grown source          0.15

PIGS, CHICKENS AND EGGS

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway enabled ***
```

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0002	57976	7,12-DB[a]anthr	7,12-Dimethylbenz[a]anthracene	0.000E+00
0003	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0004	107028	Acrolein	Acrolein	0.000E+00
0005	107131	Acrylonitrile	Acrylonitrile	0.000E+00
0006	7440382	Arsenic	Arsenic	0.000E+00
0007	7440393	Barium	Barium	0.000E+00
0008	71432	Benzene	Benzene	0.000E+00
0009	7440417	Beryllium	Beryllium	0.000E+00
0010	7440439	Cadmium	Cadmium	0.000E+00
0011	56235	CCl4	Carbon tetrachloride	0.000E+00
0012	7782505	Chlorine	Chlorine	0.000E+00
0013	67663	Chloroform	Chloroform	0.000E+00
0014	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0015	7440484	Cobalt	Cobalt	0.000E+00
0016	7440508	Copper	Copper	0.000E+00
0017	4170303	Crotonaldehyde	Crotonaldehyde	0.000E+00
0018	25321226	DiClBenzenes	Dichlorobenzenes (mixed isomers)	0.000E+00
0019	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00
0020	107062	EDC	Ethylene dichloride {EDC}	0.000E+00
0021	206440	Fluoranthene	Fluoranthene	0.000E+00
0022	50000	Formaldehyde	Formaldehyde	0.000E+00
0023	7647010	HCl	Hydrochloric acid	0.000E+00
0024	110543	Hexane	Hexane	0.000E+00
0025	302012	Hydrazine	Hydrazine	0.000E+00
0026	7439921	Lead	Lead	0.000E+00
0027	7439965	Manganese	Manganese	0.000E+00
0028	7439976	Mercury	Mercury	0.000E+00
0029	91203	Naphthalene	Naphthalene	0.000E+00
0030	7440020	Nickel	Nickel	0.000E+00

0031	7782492	Selenium	Selenium	0.000E+00
0032	108883	Toluene	Toluene	0.000E+00
0033	7440622	Vanadium	Vanadium (fume or dust)	0.000E+00
0034	75014	Vinyl Chloride	Vinyl chloride	0.000E+00
0035	75354	Vinylid Chlorid	Vinylidene chloride	0.000E+00
0036	7440666	Zinc	Zinc	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3
0001	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0002	57976	7,12-DB[a]anthr	2.50E+02	2.50E+02	*	*	*
0003	75070	Acetaldehyde	1.00E-02	*	1.40E+02	*	4.70E+02
0004	107028	Acrolein	*	*	3.50E-01	*	2.50E+00
0005	107131	Acrylonitrile	1.00E+00	*	5.00E+00	*	*
0006	7440382	Arsenic	1.20E+01	1.50E+00	1.50E-02	3.50E-06	2.00E-01
0007	7440393	Barium	*	*	*	*	*
0008	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0009	7440417	Beryllium	8.40E+00	*	7.00E-03	2.00E-03	*
0010	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0011	56235	CCl4	1.50E-01	*	4.00E+01	*	1.90E+03
0012	7782505	Chlorine	*	*	2.00E-01	*	2.10E+02
0013	67663	Chloroform	1.90E-02	*	3.00E+02	*	1.50E+02
0014	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0015	7440484	Cobalt	*	*	*	*	*
0016	7440508	Copper	*	*	*	*	1.00E+02
0017	4170303	Crotonaldehyde	*	*	*	*	*
0018	25321226	DiClBenzenes	*	*	*	*	*
0019	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*
0020	107062	EDC	7.20E-02	*	4.00E+02	*	*
0021	206440	Fluoranthene	*	*	*	*	*
0022	50000	Formaldehyde	2.10E-02	*	9.00E+00	*	5.50E+01
0023	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0024	110543	Hexane	*	*	7.00E+03	*	*
0025	302012	Hydrazine	1.70E+01	*	2.00E-01	*	*
0026	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0027	7439965	Manganese	*	*	9.00E-02	*	*
0028	7439976	Mercury	*	*	3.00E-02	1.60E-04	6.00E-01
0029	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0030	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0031	7782492	Selenium	*	*	2.00E+01	*	*
0032	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0033	7440622	Vanadium	*	*	*	*	3.00E+01
0034	75014	Vinyl Chloride	2.70E-01	*	*	*	1.80E+05
0035	75354	Vinylid Chlorid	*	*	7.00E+01	*	*
0036	7440666	Zinc	*	*	*	*	*

EMISSIONS DATA SOURCE: Emission rates loaded from file: S:\Projects\2009\09 Air Group Projects\DC&E (093-99021) LBNL Seismic 2 Project\HARP\Offsite\OFFSITE.EMS
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=1 NAME=BOIL1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00
57976	7,12-Dimethylben	1	0	4.71E-06	2.59E-08
75070	Acetaldehyde	1	0	2.61E-03	1.43E-05
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	5.88E-05	3.24E-07
7440393	Barium	1	0	1.29E-03	7.12E-06
71432	Benzene	1	0	1.27E-03	6.97E-06
7440417	Beryllium	1	0	3.53E-06	1.94E-08
7440439	Cadmium	1	0	3.24E-04	1.78E-06
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00
18540299	Chromium (hexava	1	0	7.00E-05	3.85E-07
7440484	Cobalt	1	0	2.47E-05	1.36E-07
7440508	Copper	1	0	2.50E-04	1.38E-06
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	3.53E-04	1.94E-06
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	8.82E-07	4.85E-09
50000	Formaldehyde	1	0	6.50E-02	3.58E-04
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	5.29E-01	2.91E-03
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	1.47E-04	8.09E-07
7439965	Manganese	1	0	1.12E-04	6.15E-07
7439976	Mercury	1	0	7.65E-05	4.21E-07
91203	Naphthalene	1	0	1.79E-04	9.87E-07
7440020	Nickel	1	0	6.18E-04	3.40E-06
7782492	Selenium	1	0	7.06E-06	3.88E-08
108883	Toluene	1	0	1.00E-03	5.50E-06
7440622	Vanadium	1	0	6.76E-04	3.72E-06
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	8.53E-03	4.69E-05

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=2 NAME=BOIL2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00
57976	7,12-Dimethylben	1	0	4.71E-06	2.59E-08
75070	Acetaldehyde	1	0	2.61E-03	1.43E-05
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	5.88E-05	3.24E-07
7440393	Barium	1	0	1.29E-03	7.12E-06
71432	Benzene	1	0	1.27E-03	6.97E-06
7440417	Beryllium	1	0	3.53E-06	1.94E-08
7440439	Cadmium	1	0	3.24E-04	1.78E-06
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00

18540299	Chromium (hexava	1	0	7.00E-05	3.85E-07
7440484	Cobalt	1	0	2.47E-05	1.36E-07
7440508	Copper	1	0	2.50E-04	1.38E-06
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	3.53E-04	1.94E-06
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	8.82E-07	4.85E-09
50000	Formaldehyde	1	0	6.50E-02	3.58E-04
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	5.29E-01	2.91E-03
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	1.47E-04	8.09E-07
7439965	Manganese	1	0	1.12E-04	6.15E-07
7439976	Mercury	1	0	7.65E-05	4.21E-07
91203	Naphthalene	1	0	1.79E-04	9.87E-07
7440020	Nickel	1	0	6.18E-04	3.40E-06
7782492	Selenium	1	0	7.06E-06	3.88E-08
108883	Toluene	1	0	1.00E-03	5.50E-06
7440622	Vanadium	1	0	6.76E-04	3.72E-06
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	8.53E-03	4.69E-05

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=3 NAME=LAB1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	3.07E-02	7.95E-05
57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	1.86E-01	4.82E-04
107028	Acrolein	1	0	6.55E-02	1.70E-04
107131	Acrylonitrile	1	0	5.31E-02	1.38E-04
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	1.35E+00	3.50E-03
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	1.04E+00	2.69E-03
7782505	Chlorine	1	0	9.70E-01	2.51E-03
67663	Chloroform	1	0	7.96E+00	2.06E-02
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	5.56E-03	1.44E-05
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	9.35E-01	2.42E-03
206440	Fluoranthene	1	0	0.00E+00	0.00E+00
50000	Formaldehyde	1	0	9.79E-01	2.53E-03
7647010	HCl	1	0	8.92E+00	2.31E-02
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	1.49E-02	3.86E-05
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00

7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	6.62E-01	1.71E-03
75354	Vinylidene Chlor	1	0	4.57E-02	1.18E-04
7440666	Zinc	1	0	0.00E+00	0.00E+00

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=4 NAME=LAB2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	3.07E-02	7.95E-05
57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	1.86E-01	4.82E-04
107028	Acrolein	1	0	6.55E-02	1.70E-04
107131	Acrylonitrile	1	0	5.31E-02	1.38E-04
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	1.35E+00	3.50E-03
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	1.04E+00	2.69E-03
7782505	Chlorine	1	0	9.70E-01	2.51E-03
67663	Chloroform	1	0	7.96E+00	2.06E-02
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	5.56E-03	1.44E-05
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	0.00E+00	0.00E+00
107062	Ethylene Dichlor	1	0	9.35E-01	2.42E-03
206440	Fluoranthene	1	0	0.00E+00	0.00E+00
50000	Formaldehyde	1	0	9.79E-01	2.53E-03
7647010	HCl	1	0	8.92E+00	2.31E-02
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	1.49E-02	3.86E-05
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00
7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	6.62E-01	1.71E-03
75354	Vinylidene Chlor	1	0	4.57E-02	1.18E-04
7440666	Zinc	1	0	0.00E+00	0.00E+00

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=5 NAME=DGEN EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
106990	1,3-Butadiene	1	0	0.00E+00	0.00E+00

57976	7,12-Dimethylben	1	0	0.00E+00	0.00E+00
75070	Acetaldehyde	1	0	0.00E+00	0.00E+00
107028	Acrolein	1	0	0.00E+00	0.00E+00
107131	Acrylonitrile	1	0	0.00E+00	0.00E+00
7440382	Arsenic	1	0	0.00E+00	0.00E+00
7440393	Barium	1	0	0.00E+00	0.00E+00
71432	Benzene	1	0	0.00E+00	0.00E+00
7440417	Beryllium	1	0	0.00E+00	0.00E+00
7440439	Cadmium	1	0	0.00E+00	0.00E+00
56235	Carbon Tetrachlo	1	0	0.00E+00	0.00E+00
7782505	Chlorine	1	0	0.00E+00	0.00E+00
67663	Chloroform	1	0	0.00E+00	0.00E+00
18540299	Chromium (hexava	1	0	0.00E+00	0.00E+00
7440484	Cobalt	1	0	0.00E+00	0.00E+00
7440508	Copper	1	0	0.00E+00	0.00E+00
4170303	Crotonaldehyde	1	0	0.00E+00	0.00E+00
25321226	Dichlorobenzene	1	0	0.00E+00	0.00E+00
9901	DPM	1	0	2.71E+00	1.09E-01
107062	Ethylene Dichlor	1	0	0.00E+00	0.00E+00
206440	Fluoranthene	1	0	0.00E+00	0.00E+00
50000	Formaldehyde	1	0	0.00E+00	0.00E+00
7647010	HCl	1	0	0.00E+00	0.00E+00
110543	Hexane	1	0	0.00E+00	0.00E+00
302012	Hydrazine	1	0	0.00E+00	0.00E+00
7439921	Lead	1	0	0.00E+00	0.00E+00
7439965	Manganese	1	0	0.00E+00	0.00E+00
7439976	Mercury	1	0	0.00E+00	0.00E+00
91203	Naphthalene	1	0	0.00E+00	0.00E+00
7440020	Nickel	1	0	0.00E+00	0.00E+00
7782492	Selenium	1	0	0.00E+00	0.00E+00
108883	Toluene	1	0	0.00E+00	0.00E+00
7440622	Vanadium	1	0	0.00E+00	0.00E+00
75014	Vinyl Chloride	1	0	0.00E+00	0.00E+00
75354	Vinylidene Chlor	1	0	0.00E+00	0.00E+00
7440666	Zinc	1	0	0.00E+00	0.00E+00

CHRONIC HI REPORT

RECEPTOR 2850

SOURCE 1 HI BY ENDPOINT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	1.74E-09	0.00E+00	0.00E+00	1.74E-09
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	5.48E-05	5.48E-05	0.00E+00	5.48E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.48E-05	5.48E-05	0.00E+00	5.48E-05
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	0.00E+00	1.97E-09	0.00E+00	1.97E-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	1.97E-09	1.97E-09
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.26E-09	4.70E-08	0.00E+00	0.00E+00	4.70E-08	0.00E+00	0.00E+00	4.70E-08
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.07E-06	0.00E+00	1.51E-06	0.00E+00	0.00E+00	6.07E-06
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	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	0.00E+00	3.26E-08	0.00E+00	6.41E-09	3.26E-08
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	6.73E-07	0.00E+00	0.00E+00	6.73E-07
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	0.00E+00	7.04E-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	0.00E+00	0.00E+00	7.04E-09
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	0.00E+00	1.16E-07	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	0.00E+00	0.00E+00	1.16E-07
0028	0.00E+00	6.31E-06	0.00E+00	6.31E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.31E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.31E-06
0029	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	0.00E+00	0.00E+00	1.85E-09	0.00E+00	1.85E-09
0030	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.74E-08	0.00E+00	0.00E+00	0.00E+00	1.15E-06	0.00E+00	1.15E-06	1.15E-06
0031	3.29E-11	3.29E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-11
0032	0.00E+00	3.11E-10	0.00E+00	3.11E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-10	0.00E+00	0.00E+00	3.11E-10
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	5.48E-05	6.12E-05	0.00E+00	6.11E-05	0.00E+00	0.00E+00	6.07E-08	4.70E-08	1.24E-05	0.00E+00	5.82E-05	5.48E-05	1.16E-06	6.12E-05

SOURCE 2 HI BY ENDPOINT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	1.73E-09	0.00E+00	0.00E+00	1.73E-09
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	5.46E-05	5.46E-05	0.00E+00	5.46E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.46E-05	5.46E-05	0.00E+00	5.46E-05
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	0.00E+00	1.97E-09	0.00E+00	1.97E-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	1.97E-09	1.97E-09
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.25E-09	4.69E-08	0.00E+00	0.00E+00	4.69E-08	0.00E+00	0.00E+00	4.69E-08
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.06E-06	0.00E+00	1.51E-06	0.00E+00	0.00E+00	6.06E-06
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	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	0.00E+00	3.25E-08	0.00E+00	6.39E-09	3.25E-08
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	6.71E-07	0.00E+00	0.00E+00	6.71E-07
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	0.00E+00	7.02E-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	0.00E+00	0.00E+00	7.02E-09
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0027	0.00E+00	1.16E-07	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	0.00E+00	0.00E+00	1.16E-07
0028	0.00E+00	6.29E-06	0.00E+00	6.29E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.29E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.29E-06
0029	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	0.00E+00	1.85E-09	0.00E+00	0.00E+00	1.85E-09
0030	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.73E-08	0.00E+00	0.00E+00	0.00E+00	1.15E-06	0.00E+00	1.15E-06	1.15E-06
0031	3.28E-11	3.28E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.28E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.28E-11
0032	0.00E+00	3.10E-10	0.00E+00	3.10E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-10	0.00E+00	0.00E+00	3.10E-10
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	5.46E-05	6.11E-05	0.00E+00	6.09E-05	0.00E+00	0.00E+00	6.06E-08	4.69E-08	1.23E-05	0.00E+00	5.81E-05	5.46E-05	1.16E-06	6.11E-05

SOURCE 3 HI BY ENDPOINT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	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	1.25E-07	0.00E+00	0.00E+00	0.00E+00	1.25E-07
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	1.08E-07	0.00E+00	0.00E+00	1.08E-07
0004	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	0.00E+00	1.52E-05	0.00E+00	0.00E+00	1.52E-05
0005	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	0.00E+00	8.62E-07	0.00E+00	0.00E+00	8.62E-07
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	0.00E+00	1.83E-06	0.00E+00	1.83E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-06	1.83E-06
0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	0.00E+00	2.11E-06	0.00E+00	2.11E-06	0.00E+00	0.00E+00	2.11E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-06
0012	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	0.00E+00	3.94E-04	0.00E+00	0.00E+00	3.94E-04
0013	0.00E+00	0.00E+00	0.00E+00	2.15E-06	0.00E+00	0.00E+00	2.15E-06	0.00E+00	2.15E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.15E-06
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E-07
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	8.83E-06	0.00E+00	0.00E+00	8.83E-06
0023	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	0.00E+00	8.04E-05	0.00E+00	0.00E+00	8.04E-05
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.05E-06	0.00E+00	6.05E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.05E-06
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.30E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.30E-08
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	0.00E+00	3.94E-06	0.00E+00	6.09E-06	6.05E-06	0.00E+00	1.06E-05	0.00E+00	2.15E-06	1.25E-07	4.99E-04	0.00E+00	1.83E-06	4.99E-04

SOURCE 4 HI BY ENDPOINT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX

0001	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	1.22E-07	0.00E+00	0.00E+00	0.00E+00	1.22E-07
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	1.06E-07	0.00E+00	0.00E+00	1.06E-07
0004	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	0.00E+00	1.49E-05	0.00E+00	0.00E+00	1.49E-05
0005	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	0.00E+00	8.47E-07	0.00E+00	0.00E+00	8.47E-07
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	0.00E+00	1.80E-06	0.00E+00	1.80E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E-06	1.80E-06
0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	0.00E+00	2.07E-06	0.00E+00	2.07E-06	0.00E+00	0.00E+00	2.07E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-06
0012	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	0.00E+00	3.87E-04	0.00E+00	0.00E+00	3.87E-04
0013	0.00E+00	0.00E+00	0.00E+00	2.12E-06	0.00E+00	0.00E+00	2.12E-06	0.00E+00	2.12E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.12E-06
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-07
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	8.68E-06	0.00E+00	0.00E+00	8.68E-06
0023	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	0.00E+00	7.91E-05	0.00E+00	0.00E+00	7.91E-05
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.94E-06	0.00E+00	5.94E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.94E-06
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.21E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.21E-08
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	0.00E+00	3.87E-06	0.00E+00	5.99E-06	5.94E-06	0.00E+00	1.04E-05	0.00E+00	2.12E-06	1.22E-07	4.91E-04	0.00E+00	1.80E-06	4.91E-04

SOURCE 5 HI BY ENDPOINT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0004	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0005	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0006	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0009	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	3.67E-05	0.00E+00	0.00E+00	3.67E-05
0020	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0023	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0024	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0030	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	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	0.00E+00	3.67E-05	0.00E+00	0.00E+00	3.67E-05

Total risk of all sources

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	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	2.47E-07	0.00E+00	0.00E+00	0.00E+00	2.47E-07
0002	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0003	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	0.00E+00	2.17E-07	0.00E+00	0.00E+00	2.17E-07
0004	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	0.00E+00	3.01E-05	0.00E+00	0.00E+00	3.01E-05
0005	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	0.00E+00	1.71E-06	0.00E+00	0.00E+00	1.71E-06
0006	1.09E-04	1.09E-04	0.00E+00	1.09E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-04	1.09E-04	0.00E+00	1.09E-04
0007	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	0.00E+00	3.62E-06	0.00E+00	3.62E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.62E-06	3.62E-06
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.51E-09	9.38E-08	0.00E+00	0.00E+00	9.38E-08	0.00E+00	0.00E+00	9.38E-08
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-05	0.00E+00	3.01E-06	0.00E+00	0.00E+00	1.21E-05
0011	0.00E+00	4.18E-06	0.00E+00	4.18E-06	0.00E+00	0.00E+00	4.18E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.18E-06
0012	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	0.00E+00	7.81E-04	0.00E+00	0.00E+00	7.81E-04
0013	0.00E+00	0.00E+00	0.00E+00	4.27E-06	0.00E+00	0.00E+00	4.27E-06	0.00E+00	4.27E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.27E-06
0014	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	0.00E+00	6.51E-08	0.00E+00	1.28E-08	6.51E-08
0015	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	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	0.00E+00	3.67E-05	0.00E+00	0.00E+00	3.67E-05
0020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.76E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.76E-07
0021	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0022	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	0.00E+00	1.88E-05	0.00E+00	0.00E+00	1.88E-05
0023	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	0.00E+00	1.59E-04	0.00E+00	0.00E+00	1.59E-04
0024	0.00E+00	1.41E-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	0.00E+00	0.00E+00	1.41E-08
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-05	0.00E+00	1.20E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-05
0026	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0027	0.00E+00	2.32E-07	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	0.00E+00	0.00E+00	2.32E-07
0028	0.00E+00	1.26E-05	0.00E+00	1.26E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-05

0029	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	0.00E+00	3.70E-09	0.00E+00	0.00E+00	3.70E-09
0030	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-07	0.00E+00	0.00E+00	0.00E+00	2.30E-06	0.00E+00	2.30E-06	2.30E-06
0031	6.57E-11	6.57E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.57E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.57E-11
0032	0.00E+00	6.20E-10	0.00E+00	6.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.20E-10	0.00E+00	0.00E+00	6.20E-10
0033	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-07
0036	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	1.09E-04	1.30E-04	0.00E+00	1.34E-04	1.20E-05	0.00E+00	2.10E-05	9.38E-08	2.90E-05	2.47E-07	1.14E-03	1.09E-04	5.94E-06	1.14E-03