**Health Risk Assessment Summary Form**

1. **Checklist of Required Information Provided**
2. *Updated Health Risk Assessment Evaluation Form* □
3. *Screening Health Risk Assessment Evaluation Form* □
4. Facility name, location (address and Universal Transverse Mercator (UTM) reference □

point coordinates), county, ID #, and land use type

1. Local topography □
2. Facility plot plans identifying 1) emission sources and locations, 2) property line,  □

3) horizontal scale, and 4) building heights

1. For each release location, 1) name, UTM coordinates, and ID #, 2) release type, □

3) release parameters by release type, and 4) source ID #s associated with the release

location

1. For each source, tables showing 1) source names and ID #s, 2) number of operating □

hrs/day and hrs/yr, 3) number of operating days/wk, 4) number of operating days or wks/yr,

and 5) release location ID # associated with the source

1. Emission control equipment and efficiency by source and substance □
2. Tables showing emission rates for each toxic substance, grouped by source. Tables should □

include 1) source name and ID #, 2) substance name and chemical abstracts service (CAS)

#, and 3) annual average and hourly max emissions for each substance (lbs/yr)

1. Emissions data grouped by substance. Report total emission rate for each emitted substance □

listed in the Air Toxics “Hot Spots” Program and include 1) substance name and CAS #, and

2) annual average and hourly max emissions for each substance (lbs/yr)

1. Emission estimation/measurement methods. Indicate any emission data not reflected in the □

previously submitted emission inventory report

1. Tables listing all “Hot Spots” and non-“Hot Spots” Program substances required by the District □

and indicating which substances were evaluated for cancer risks and non-cancer health

impacts

1. 70-year lifetime cancer risk, chronic hazard index (HI), and acute HI by substance for actual □

and point-of-maximum-impact (PMI) receptors. Include associated substances, exposure

pathways that drive cancer risk, CAS #s, chronic Reference Exposure Levels (RELs), target organs/systems (for HIs only), and total hazard by target organ/system. Estimate population

cancer burden and/or population-wide risk (i.e. # of individuals within each risk isopleth) using a lifetime 70-yr exposure duration.

1. For the PMI, maximally-exposed individual resident (MEIR), and maximally-exposed individual □

worker (MEIW), provide maximum 1) estimated residential 30-yr exposure cancer risk,

2) occupational 25-yr exposure cancer risk, 3) estimated non-cancer chronic, 8-hr chronic, and

acute HIs. Specify locations for each of these receptors. Report cancer risk, non-cancer HIs, and locations for sensitive receptors. Include estimates of inhalation and multi-pathway non-

inhalation risks.

**Health Risk Assessment Summary Form**

1. **Checklist of Required Information (continued) Provided**
2. Description of zone of impact (ZOI) including a true map, drawn to scale, showing the location □

of the facility, ZOI boundaries, census tracts, emission sources, sites of maximum exposure,

and the location of all appropriate receptors. If significant development has occurred since the

user’s survey, this should be indicated.

1. Separate maps for the cancer risk ZOI and the hazard index (HI) ZOIs. The cancer ZOI should □

include isopleths down to ≤ 1/1,000,000 risk level. Three separate maps (for chronic,

8-hour, and acute HI) should be created to define the ZOI for the HI from inhalation and

non-inhalation pathways greater than or equal to 0.5. The point of maximum impact (PMI),

maximally-exposed individual at a residential receptor (MEIR), maximally-exposed individual

worker (MEIW), and any other locations of interest for cancer and non-cancer risks should be

located on the maps.

1. Tables showing population units and sensitive receptors including UTM coordinates, receptor □

ID #s, and street addresses of specified receptors

1. Heights or elevations of the receptor points
2. For each receptor type (e.g., PMI, MEIR, MEIW, and any other locations of interest) that □

will utilize spatial averaging, the domain size and grid resolution must be clearly identified.

Care should be taken to determine the proper domain size and grid resolution if something

other than a 20 m x 20 m domain with 5-m grid is used for a receptor. The use or spatial

averaging is subject to approval by the reviewing authority. This includes the size of the

domain and grid resolution that is used for spatial averaging of a worksite or

multi-pathway deposition area.

1. If meteorological data were not obtained directly from the District then 1) the HRA must clearly □

indicate the data source and time period used; and 2) meteorological data must be submitted in electronic form along with justification for their use. Indicate whether the District required the use

of a specified meteorological data set. All memos indicating the District’s approval of

meteorological data should be attached in an appendix.

1. Explanation of the air dispersion model chosen to perform the analysis and any other decisions □

made during the modeling process. Clearly indicate 1) names of the models used, 2) level of

detail (screening or refined analysis), 3) rationale behind model selection. For each air dispersion

model, report 1) version number, 2) a table of options and parameters performed, 3) modeling

domains and spacing of receptor grids. Grid spacing should be sufficient in number and detail to

capture the concentration at all receptors of interest.

**Health Risk Assessment Summary Form**

1. **Checklist of Required Information (continued) Provided**
2. Air dispersion modeling results including 1) list of annual average, maximum one-hour, and □

30-day average (lead only) concentrations of chemicals at appropriate receptors (e.g. MEIR and

MEIW) referenced to computer printouts of model outputs; 2) associated model printouts

(numbered); 3) disk with input/output files for air dispersion program; and 4) tables summarizing

annual average concentrations that are calculated for all the substances at each site. Use of tables

that present the relative contribution of each emission point to the receptor concentration is recommended. (These tables should have clear reference to the computer model that generated

the data. State how data from the computer output were transferred to these tables.) [As an

alternative, the above tables could contain just the values for sites of maximum impact (i.e. PMI,

MEIR and MEIW), and sensitive receptors, if required. All the values would be found in the

Appendices.]

OEHHA Reviewer Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Health Risk Assessment Summary Form**

1. **Background Information**

|  |  |
| --- | --- |
| Facility Name |  |
| Facility Address |  |
|  |
| UTM (m E, m N) |  |
| Land Use Type |  |
| Facility ID # |  |
| Reporting Year |  |

1. **Offsite Cancer Risk\***

|  |  |  |  |
| --- | --- | --- | --- |
| **Cancer Risk Category** | **Impact** | **UTM**  **(m E, m N)** | **Receptor #** |
| PMI |  |  |  |
| MEIR |  |  |  |
| MEIW |  |  |  |

\*Cancer risks should be presented using a 30-year duration for the PMI and MEIR, and a 25-year duration for the MEIW. The District may also request risk estimates at the MEIR using a 9- or 70-year duration.

|  |  |  |
| --- | --- | --- |
| **Cancer Risk Category** | **Primary Chemical Drivers & Impact (%)\*** | **Primary Sources & Impact (%)\*** |
| PMI |  |  |
| MEIR |  |  |
| MEIW |  |  |

\*Include chemical drivers that account for ≥90% of cancer risk.

Cancer Burden for a 70-year exposure: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Population within the Carcinogenic Zone of Impact: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Offsite Chronic Non-Cancer Hazard Indices (HIs)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chronic Risk Category** | **Impact** | **UTM**  **(m E, m N)** | **Receptor #** | **Target Organ/System** |
| PMI |  |  |  |  |
| MEIR |  |  |  |  |
| MEIW |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Chronic Risk Category** | **Primary Chemical Drivers & Impact (%)** | **Primary Sources & Impact (%)** |
| PMI |  |  |
| MEIR |  |  |
| MEIW |  |  |

**Health Risk Assessment Summary Form**

1. **Offsite 8-Hour Chronic Non-Cancer HIs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **8-hr Chronic Risk Category** | **Impact** | **UTM**  **(m E, m N)** | **Receptor #** | **Target Organ/System** |
| PMI |  |  |  |  |
| MEIW |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **8-hr Chronic Risk Category** | **Primary Chemical Drivers & Impact (%)** | **Primary Sources & Impact (%)** |
| PMI |  |  |
| MEIW |  |  |

1. **Offsite Acute Non-Cancer HIs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Acute Risk Category** | **Impact** | **UTM**  **(m E, m N)** | **Receptor #** | **Target Organ/System** |
| PMI |  |  |  |  |
| MEIR |  |  |  |  |
| MEIW |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Acute Risk Category** | **Primary Chemical Drivers & Impact (%)** | **Primary Sources & Impact (%)** |
| PMI |  |  |
| MEIR |  |  |
| MEIW |  |  |

1. **Sensitive Receptors**

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk Category** | **Impact** | **UTM**  **(m E, m N)** | **Receptor #** |
| Cancer |  |  |  |
| Chronic HI |  |  |  |
| Acute HI |  |  |  |

**Health Risk Assessment Summary Form**

1. **Public Notification and Risk Reduction**

Public notification required? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Risk reduction required? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Additional notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Reviewer Information**

OEHHA Staff Member Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Staff Member Job Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Review Completion Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_