UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

**October 21, 2022**

**MEMORANDUM**

**SUBJECT:** Carbon Tetrachloride: Fenceline Technical Support – Ambient Air Pathway

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This memorandum summarizes examination of reasonably available data for the fenceline analysis for the ambient air pathway to support the risk management of carbon tetrachloride (CTC) under TSCA. The ambient air pathway was not previously evaluated in the published risk evaluation for CTC for exposures to the general population.[1] However, the draft report for the March 15−17, 2022, Science Advisory Committee on Chemicals (SACC) meeting held on the Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0 (*2022 Fenceline Report*) stated a fenceline analysis for the ambient air pathway would be completed for CTC. In addition, recent work presented in this memorandum considers feedback from the 2022 Fenceline SACC. Specifically, one of the SACC's recommendations was that EPA should evaluate multiple years of chemical release data to estimate exposures and associated risks to fenceline communities.

[1] https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/final-risk-evaluation-carbon-tetrachloride#documents

The methods and results sections included in this memo highlight two approaches for evaluating exposures via inhalation and estimating associated risk to fenceline communities from CTC via the ambient air pathway. The first approach uses the methods presented during the 2022 Fenceline SACC and is referred to as the "2022 fenceline analysis." It includes both a "pre-screening" and "full-screening" analyses and uses a single year of release data (2019) from the Toxics Release Inventory (TRI). The second approach expands upon the 2022 fenceline analysis using a modified pre-screening methodology and considers multiple years (2015 through 2020) of TRI release data. The latter approach as described herein is referred to as the "multi-year analysis."

In summary, the overall CTC risk profile[2] from the multi-year analysis for both non-cancer and cancer effects is no different than the 2022 fenceline analysis—even though the multi-year analysis identified additional facilities with risk estimates above the benchmark for cancer[3] which were not captured by the original data set for the 2022 fenceline analysis.[4]

# 1 METHODS

## 1.1 2022 Fenceline Analysis

The 2022 fenceline analysis for the ambient air pathway used reasonably available data and models to quantify environmental releases, evaluate exposures via inhalation, and characterize risks associated with such releases and exposures via certain air pathways previously not evaluated in the published risk evaluation for CTC. The 2022 fenceline analysis for CTC applied the methodology presented to SACC in the draft report for the 2022 fenceline analysis[5] to evaluate exposures and associated risks to a subset of the general population defined as "fenceline communities" via the ambient air pathway. This methodology consisted of a facility-by-facility evaluation of all CTC releases reported to TRI over a single reporting year (2019).[6] Data for this reporting year were obtained from the TRI database (TRI basic plus files downloaded circa May of 2021). Annual release data for CTC were extracted from the entire TRI data set for all facilities reporting air releases of CTC for the 2019 TRI reporting year. The draft report includes a detailed description of the fenceline methodology; however, a summary of this methodology, as applied for CTC, is provided below.

### 1.1.1 Ambient Air Pre-screening Methodology

The pre-screening methodology utilized EPA's Integrated Indoor/Outdoor Air Calculator (IIOAC) model[7] to estimate high-end and central tendency (mean) CTC concentrations in ambient air at three distances from an emitting facility (100, 100 to 1,000, and 1,000 m). EPA developed and evaluated 16

[2] Occupational exposure scenarios (OES) or conditions of use (COU) with risk estimates above the benchmark for cancer at the distances evaluated.
[3] Although risk estimates above the benchmark for cancer are summarized in this memorandum, CTC also has risk estimates below the benchmarks for noncancer effects.
[4] The 2022 fenceline analysis used 2019 TRI release data extracted for use in the analysis circa May of 2021. As discussed in the assumptions and uncertainties section of this memo, TRI is constantly updated and there may be facilities that did not have reported releases in the 2019 TRI dataset at the time of extraction for the 2022 fenceline analysis but have since updated releases in TRI with newly reported or revised release values that would have been captured by the latest multi-year TRI release data extracted on August 5, 2022, for use in the multi-year analysis.
[5] https://www.regulations.gov/docket/EPA-HQ-OPPT-2021-0415/document
[6] CTC generated as a byproduct was excluded from the scope of the published risk evaluation for CTC. However, for purposes of being inclusive, rather than exclusive, EPA evaluated all releases reported as CTC to the 2019 TRI. EPA does not exclude any reporting facilities from the 2022 fenceline analysis based on the production of CTC as a byproduct.
[7] https://www.epa.gov/tsca-screening-tools/iioac-integrated-indoor-outdoor-air-calculator

different exposure scenarios for each of two categorical release values[8] designed to capture a variety of release types, topography, meteorological conditions, and release scenarios. A diagram of these exposure scenarios is provided in Appendix A, Figure A-1. Findings from the pre-screening analysis informed the need for a full-screening analysis as well as provided insight into whether risk estimates above the benchmarks are or are not expected for CTC.

### 1.1.2 Ambient Air Full-Screening Methodology

The full-screening methodology utilized the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD)[9] to estimate CTC concentrations in ambient air at eight finite distances (5, 10, 30, 60, 100, 2,500, 5,000, and 10,000 m) and one area distance (100 to 1,000 m) from an emitting facility. EPA modeled two different types of release estimates, as applicable, for CTC: (1) facility-specific chemical releases with source attribution when 2019 TRI data was available, and (2) alternative release estimates representing a generic facility when 2019 TRI data was not available for an occupational exposure scenario (OES). Daily and period average outputs were obtained via modeling and post-processing scripts were used to extract a variety of statistics from the modeled concentration distribution, including the 95th (high-end), 50th (central tendency), and 10th (low-end) percentile CTC concentrations at each distance modeled. Modeled air concentrations were then used to derive acute concentrations, average daily concentrations, and lifetime average daily concentrations (based on 33 years of continuous exposure over a 78-year lifetime).

Estimates of risk to fenceline communities were calculated based on the modeled exposure concentrations from the 2022 fenceline analysis and the acute and chronic hazard values for continuous inhalation exposure presented in the published risk evaluation for CTC and in Table 1-1. Risk estimates are interpreted in relation to the benchmark values corresponding to each hazard value.[10] For example, cancer risk estimates represent the incremental increase in probability of an individual in an exposed population developing cancer over a lifetime (excess lifetime cancer risk) following exposure to the chemical. Cancer risk estimates greater than the benchmark values are flagged. Standard cancer benchmarks used by EPA and other regulatory agencies are an increased cancer risk above benchmarks ranging from 1 in 1,000,000 to 1 in 10,000 (*i.e.,* $1\times10^{-06}$ to $1\times10^{-04}$) depending on the subpopulation exposed. In the 2022 fenceline analysis and this multi-year analysis, EPA uses $1\times10^{-06}$ as the benchmark for the cancer risk to individuals in the general population (*e.g.*, fenceline communities).[11] The $1\times10^{-06}$ value is not a bright line and EPA has discretion to make risk determinations for the chemical substance based on other benchmarks and information as appropriate.

[8] The "pre-screening" methodology from the 2022 fenceline analysis evaluated two categorical release values across all facilities reporting releases to the 2019 TRI. The first value is the maximum single facility release reported across all facilities reporting. The second value is the mean (arithmetic average) of all releases reported across all facilities reporting.
[9] https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod
[10] When considering acute and chronic non-cancer effects risk estimates less than the associated benchmarks are flagged. When considering excess lifetime cancer risk, risk estimates greater than the associated benchmark are flagged.
[11] General Population (Gen. Pop) refers to the total of individuals inhabiting an area or making up a whole group (as defined in the 2011 Exposure Factors Handbook). For purposes of the 2022 Fenceline Analysis and the Multi-Year Analysis presented herein, the general population includes, but is not limited to, residents living near a releasing facility and individuals employed at facilities which are not the releasing facility but are within the distances where calculated risk estimates are greater than the benchmark for cancer (or less than the benchmark for non-cancer).

**Table 1-1. Inhalation Hazard Values Used in Risk Estimation for CTC (Fenceline and Multi-Year Analyses)**

| Scenario | Endpoint | Inhalation Hazard Value (Exposure Durations) | Benchmark |
|---|---|---|---|
| Acute | Temporary central nervous system effects | 37.3 ppm[a] (24 hr/day) | **10** |
| Chronic | Liver: Fatty liver changes | 2.27 ppm[b] (24 hr/day over 365 day/yr) | **30** |
| Chronic | Cancer (Threshold): Liver tumors | 1 ppm (24 hr/day over 365 day/yr) | **300** |
| Cancer | Adrenal pheochromocytomas | 4.00E−2 per ppm (24 hr/day over 365 day/yr for 33 years) | **1E−6** (Gen. Pop.) |

[a] The acute HEC was adjusted to reflect continuous (24 hr/day) general population exposures and is therefore different from the HEC used to evaluate acute non-cancer risks from occupational exposures (8 hr/day) in the final risk evaluation. The acute HEC was derived using the equation from (ten Berge et al., 1986), Cn × T = K (where C is the exposure concentration, T is the exposure duration, K is a constant, and n is an empirical value based on rat lethality data as described in the reference), based on the original study conditions of a 4-hr exposure. This equation was used to derive a 24-hr HEC, although there is significant uncertainty associated with extrapolation to a significantly longer duration. It is unknown whether this uncertainty might result in an overestimation or underestimation of toxicity.

[b] The chronic liver HEC was derived in the risk evaluation through a PBPK model on a continuous exposure basis (and was subsequently adjusted in the risk evaluation for 8-hr occupational scenarios), so no adjustment was required from the originally derived inhalation values.

### 1.1.3 Ambient Air Land Use Methodology

The land use methodology utilized geographic information systems (ESRI ArcGIS Version 10.8 and Google Maps) to characterize land use patterns within the radial distances where risk estimates are above the benchmark for cancer. This review did not include generic facilities. For facilities where residential areas, industrial/commercial businesses, or other public spaces are present within those radial distances where risk estimates are above the benchmark, EPA includes those receptors within the fenceline community category and reasonably expects an exposure will occur to fenceline communities. Where the radial distances with risk estimates above the benchmark occur within the boundaries of the facility or are limited to uninhabited areas, EPA does not expect an exposure will occur to fenceline communities.

## 1.2 Multi-Year Analysis

The multi-year analysis incorporates SACC recommendations by evaluating multiple years of chemical release data to estimate exposures and associated risks to fenceline communities. This is achieved by expanding upon the pre-screening methodology utilized for the 2022 fenceline analysis and conducting a facility-by-facility evaluation of all CTC releases reported to TRI over six reporting years (2015 through 2020). Data for these 6 years were obtained from the TRI database (TRI basic plus files downloaded on August 5, 2022). Annual release data for CTC were extracted from the entire TRI data set for all facilities reporting air releases of CTC for one or more years between 2015 and 2020. Facilities were categorized into occupational exposure scenarios for modeling purposes and later cross-walked to conditions of use (COUs) for risk management purposes. As noted in footnote 6 of this memorandum,

EPA evaluated all facility CTC releases reported to TRI between 2015 and 2020 for the multi-year analysis and did not exclude facilities based on the production of CTC as a byproduct.

The TRI data extracted for the multi-year analysis were used as direct inputs to the IIOAC model. An additional arithmetic average of the TRI data for each facility was also calculated when the facility reported releases to TRI for two or more of the years evaluated and used as a direct input to the IIOAC model. EPA then evaluated the most "conservative exposure scenario" of the 16 scenarios evaluated for the pre-screening methodology in the 2022 fenceline analysis. This most conservative exposure scenario consists of a facility that operates year-round (365 days per year, 24 hours per day, 7 days per week), a South Coastal meteorologic region, and a rural topography setting.

A land-use analysis was conducted for the multi-year analysis utilizing the same visual methodology described for the 2022 fenceline analysis but limited to land-use around facilities where the multi-year analysis (1) found risk estimates above the benchmark value extending farther out when compared to the 2022 fenceline analysis,[12] or (2) identified a new facility with risk estimates above the benchmark that was not captured by the 2022 fenceline analysis[13]. Using this methodology, EPA identified if there is an expected exposure of an individual to releases from the facility of interest within the distances where the benchmark was exceeded.

# 2 Results

EPA conducted and completed three analyses of CTC since the draft report for the 2022 fenceline analysis was originally presented to and reviewed by the SACC in March 2022. The three analyses are

1. Pre-screening analysis in accordance with the methodology in the draft report for the 2022 fenceline analysis;
2. Full-screening analysis in accordance with the methodology in the draft report for the 2022 fenceline analysis; and
3. Multi-year analysis in accordance with the methodology described in this technical support memorandum.

## 2.1 2022 Fenceline Analysis

The draft report for the 2022 fenceline analysis presented to the SACC did not include results for CTC. Therefore, EPA presents a summary of the results for both pre-screening and full-screening analyses for CTC below as well as a summary of the findings from the land use analysis for the 2022 fenceline analysis.

### 2.1.1 Ambient Air Pre-screening Results for CTC

The results from the pre-screening methodology used for the 2022 fenceline analysis of CTC found risk estimates that exceeded the benchmark for cancer at 100 m based on the maximum single-facility CTC release reported in the 2019 TRI. In accordance with the 2022 fenceline methodology as presented to the

[12] For example, a facility with risk estimates above the benchmark for cancer from 5 to 30 m based on the 2022 fenceline analysis (using 2019 TRI release data) and that same facility with risk estimates above the benchmark for cancer at 100 m based on the multi-year analysis (using releases reported to 2016 TRI that were higher than releases reported to 2019 TRI). In this situation, the land use analysis would extend out to include any land use between 30 and 100 m because the multi-year analysis had risk estimates above the benchmark for cancer that extended out to a farther distance when compared to the 2022 fenceline analysis.

[13] For example, a facility that did not have reported releases in the 2019 TRI data set used for the 2022 fenceline analysis at the time of extraction but did report releases in the 2015, 2016, and 2018 TRI data sets that result in risk estimates above the benchmark for cancer based on the multi-year analysis.

SACC, because risk estimates exceeded the benchmark for cancer based on the pre-screening analysis, EPA conducted a full-screening analysis of all releasing facilities for CTC.

### 2.1.2 Ambient Air Full-Screening Results for CTC

The results from the full-screening methodology used for the 2022 fenceline analysis of CTC included 47 real or generic facilities. Risk estimates exceeded the benchmark for cancer risk for 31 of the 47 real or generic facilities at multiple distances, representing five OES.[14] One OES (additive) had one generic facility evaluated and showing risk, but no land use analysis could be performed. The remaining four OES included real facilities for which a land use analysis was conducted as described below and summarized in Table 2-1. A summary of the maximum risk estimates for cancer, organized by OES, for CTC based on the high-end (95th percentile) exposure concentrations are included in Appendix B, Table_Apx B-1.

### 2.1.3 Ambient Air Land Use Results for CTC

The land use analysis for the 2022 fenceline analysis of CTC was applied to 30 real facilities with risk estimates above the benchmark for cancer at one or more distances. Twenty-one of the 30 facilities also had an expected exposure to fenceline communities (results summarized in Table 2-1). For example, the first OES identified in Table 2-1 is Industrial Processing Agent/Aid. A total of five facilities identified for this OES were evaluated for the 2022 fenceline analysis. Of those five facilities, five had risk estimates above the benchmark for cancer at one or more distances between 5 and 1,000 m from the respective releasing facility. Of those five facilities, five have fenceline receptors within the distances where risk estimates were above the benchmark for cancer. These receptors might include individuals residing in a home or apartment complex or individuals working at another industrial/commercial facility located beyond the property line of the releasing facility, but within the distances where risk estimates are above the benchmark for cancer. Facilities that do not have fenceline receptors, such as those facilities surrounded by an open field or when distances where risk estimates are above the benchmark for cancer remain within the property line of the releasing facility, would not be included in the last column of Table 2-1.

**Table 2-1. Land Use Analysis Results for 2022 Fenceline Analysis of CTC**

| OES | Distances (m) with Risk Estimates above the Benchmark for Cancer and Fenceline Exposure | Number of Real Facilities | | |
|---|---|---|---|---|
| | | Evaluated[a] | With Risk Estimates above the Benchmark for Cancer[b] | With Risk Estimates above the Benchmark for Cancer and Fenceline Exposure[c] |
| Industrial Processing Agent/Aid | 5 to 1,000 | 5 | 5 | 5 |
| Manufacturing | 5 to 2,500 | 21 | 16 | 12 |
| Processing as a Reactant or Intermediate | 5 to 1,000 | 4 | 4 | 4 |
| Recycling and Disposal | 5 to 30 and 100 | 13 | 5 | 0 |

[14] Clarification: The 2022 fenceline analysis organizes facilities (and associated risks) by OES and identified 5 OES for which there were risk estimates above the benchmark for cancer. These 5 OES can be associated with one or more COUs as shown in the published risk evaluation for CTC. The multi-year analysis attempts to associate each facility with the COU category included in the published risk evaluation but does not break down COUs to the sub-category level.

| OES | Distances (m) with Risk Estimates above the Benchmark for Cancer and Fenceline Exposure | Number of Real Facilities | | |
|---|---|---|---|---|
| | | Evaluated[a] | With Risk Estimates above the Benchmark for Cancer[b] | With Risk Estimates above the Benchmark for Cancer and Fenceline Exposure[c] |

[a] Total number of facilities evaluated in the 2022 fenceline analysis and falling within the listed OES.

[b] Total number of facilities identified with risk estimates above the benchmark for cancer at some distance from the releasing facility in the 2022 fenceline analysis.

[c] Total number of facilities with one or more fenceline receptors within the distances evaluated where risk estimates exceed the benchmark for cancer.

## 2.2 Multi-Year Analysis

### 2.2.1 Ambient Air Multi-Year Results for CTC

The multi-year analysis only looks at real facilities with reported releases in TRI for one or more reporting years between 2015 and 2020 and does not include estimated releases from generic facilities. The model utilized for the multi-year analysis is the same model used in the pre-screening methodology presented to SACC (IIOAC) and is limited to evaluation of three distances (100, 100 to 1,000, and 1,000 m) from a releasing facility and therefore does not capture exposures occurring less than 100 m or greater than 1,000 m from the releasing facility.

As such, the multi-year analysis includes 60 real facilities and found risk estimates above the benchmark for cancer for 25 of those real facilities, at 100 m from the releasing facility. Based on the multi-year analysis, 4 of these 25 facilities either had risk estimates above the benchmark for cancer at distances farther out when compared to the 2022 fenceline analysis or are new facilities which were not captured in the 2022 fenceline analysis data set. Detailed results of this multi-year analysis are included in Appendix C, Table_Apx C-1.

### 2.2.2 Ambient Air Multi-Year Land Use Results for CTC

A follow-up land use analysis was conducted for the four facilities either indicating risks at distances farther out when compared to the 2022 fenceline analysis or new facilities not captured by the 2022 fenceline analysis. The results found one of these facilities had an expected exposure to fenceline communities. Results of this land use analysis are summarized below in Table 2-2.

**Table 2-2. Land Use Analysis Results for Multi-Year Analysis of CTC at 100 m**

| OES | COU | Facility TRI-FID | Risk Estimates above the Benchmark for Cancer and Exposure to Fenceline Communities |
|---|---|---|---|
| Manufacturing | Domestic Manufacturing-Byproduct | 70764LLMNXHWY40 | Y |
| Recycling and Disposal | Disposal | 29448GNTCMPOBOX | N |
| Processing as a Reactant or Intermediate | Processing as a reactant (Raw Materials) | 29045HRDWC2114L | N |
| | | 53085LDRCH6100H | N |

# 3 Closing Remarks

The combined approaches used in the analyses presented in this technical support memo are consistent with work presented to and feedback received from the SACC. For purposes of inclusivity, EPA does not exclude CTC releases that may result from production as a byproduct from either the 2022 fenceline analysis or the multi-year analysis—even though CTC generated as a byproduct was excluded from the scope of the published risk evaluation for CTC.

The multi-year analysis highlights the year-to-year variability that exists in the release data and illustrates the potential impact of considering multiple years of TRI data on exposure and risk estimates. The findings from this analysis provide additional confidence in the findings from the 2022 fenceline analysis for purposes of estimating exposures and risks to fenceline communities. The multi-year analysis did not change the overall CTC risk profile when compared to results of the 2022 fenceline analysis, although the multi-year analysis did identify additional facilities with risk estimates above the benchmark for cancer that were not captured by the 2022 fenceline analysis data set.

The multi-year analysis is intended to be a first-tier analysis designed to expand upon the pre-screening methodology presented to the SACC by considering multiple years of TRI release data and the effects of such data on the overall exposure estimates and risk calculations evaluated for the 2022 fenceline analysis. As such the results are not comprehensive.

There are also some limitations and uncertainties associated with the multi-year analysis, including potential year-to-year revisions to reported releases within the TRI database and the number of individual facilities reporting to the TRI. These limitations and uncertainties may result in changes to the

- facilities mapped to any OES;
- total volume of releases per OES;
- distribution and volume of releases to stack and fugitive emissions; and/or
- universe of OES's previously mapped and captured

These changes may subsequently result in changes to the release and exposure assessments as well as associated risk estimates.

Further, certain assumptions and uncertainties related to the model used for the multi-year analysis can impact conclusions and limit direct comparison to the 2022 fenceline analysis including, but not limited to, the following:

- use of default meteorological data incorporated into the IIOAC model which may differ from the meteorological data used for the 2022 fenceline analysis;
- emission scenario used for the multi-year analysis may not represent the actual operating conditions or location used in the 2022 fenceline analysis; and
- Default stack parameters used for the multi-year analysis may not represent actual stack parameters or conditions of the modeled facility.

The multi-year analysis applied the same modeling parameters across all years of facility-specific release data. Although broad comparisons may be made regarding the impact of multi-year releases on exposure concentrations and associated risk estimates, a direct comparison between the 2022 fenceline analysis and the multi-year analysis results is marginal at best because certain components and assumptions used for either analysis can impact the overall estimated exposure concentrations and associated risk estimates.

# Appendix A Pre-screening Exposure Scenarios for 2022 Fenceline Analysis

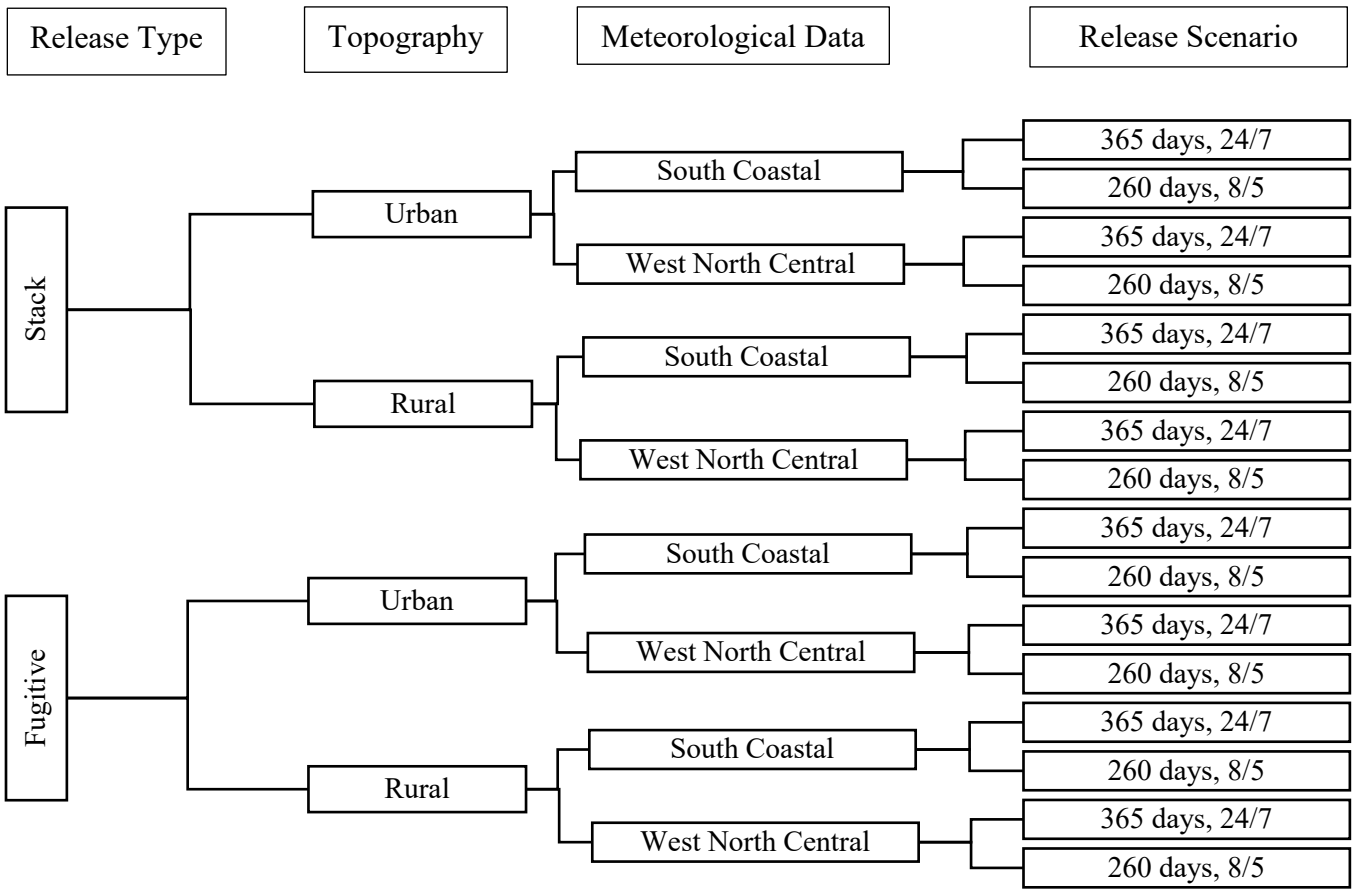


**Figure A-1. Pre-screening Exposure Scenarios Modeled Using IIOAC Model for CTC: Maximum and Mean Releases**

# Appendix B Results Summary for 2022 Fenceline Analysis

**Table_Apx B-1. Risk Estimates for Cancer for CTC Based on the High-End Exposure Concentrations for 2022 Fenceline Analysis**

| OES | Number of Real or Generic Facilities | | Maximum Extra Risk Estimate for Cancer Across Facilities Within OES by Distance (m) (Based on 95th Percentile LADC) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Evaluated | With Risk Estimates Greater than Benchmark | 5 | 10 | 30 | 60 | 100 | 100 to 1,000 | 2,500 | 5,000 | 10,000 |
| Additive | 1 | 1 | 1.63E−05 | 1.71E−05 | 5.76E−06 | 2.98E−06 | 1.63E−06 | 2.93E−07 | 1.78E−08 | 5.88E−09 | 1.93E−09 |
| Industrial Processing Agent/Aid | 5 | 5 | 9.68E−04 | 1.61E−03 | 7.36E−04 | 3.13E−04 | 1.53E−04 | 1.32E−05 | 1.00E−06 | 3.60E−07 | 1.28E−07 |
| Laboratory Chemicals | 1 | 0 | 8.96E−08 | 1.07E−07 | 4.00E−08 | 3.01E−08 | 3.49E−08 | 9.00E−09 | 1.65E−09 | 8.44E−10 | 3.35E−10 |
| Manufacturing | 21 | 16 | 3.40E−04 | 6.40E−04 | 3.06E−04 | 1.30E−04 | 6.48E−05 | 6.00E−06 | 1.00E−06 | 4.84E−07 | 1.96E−07 |
| Processing as a Reactant or Intermediate | 4 | 4 | 4.84E−04 | 8.20E−04 | 4.36E−04 | 1.81E−04 | 8.60E−05 | 8.16E−06 | 4.28E−07 | 1.37E−07 | 4.44E−08 |
| Reactive Ion Etching | 2 | 0 | 6.48E−13 | 7.80E−12 | 3.38E−10 | 3.49E−09 | 5.96E−09 | 2.03E−09 | 2.52E−10 | 1.06E−10 | 5.40E−11 |
| Recycling and Disposal | 13 | 5 | 1.84E−06 | 3.38E−06 | 1.60E−06 | 7.96E−07 | 1.06E−06 | 2.88E−07 | 2.98E−08 | 1.07E−08 | 3.71E−09 |
| Total | 47 | 31 | | | | | | | | | |

# Appendix C Results Summary Comparison for 2022 Fenceline Analysis and Multi-Year Analysis at 100 m from Releasing Facility

**Table_Apx C-1. Risk Estimates for Cancer at 100 m from Releasing Facility for CTC Based on Estimated High-End and Central Tendency Exposure Concentrations**

| OES | COU | Facility TRI-FID | Statistic | 2022 Fenceline Analysis | | Multi-Year Analysis | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Distance with Risk Estimates above Benchmark | Risk Estimate @ 100 m | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Arithmetic Average |
| Industrial Processing Agent/Aid | Industrial/ Commercial Use as an Industrial Processing Aid in the Manufacture of Petrochemicals Derived Products and Agricultural Products | 44622DVRCHWESTF | CT | 5 to 1,000 | 1.5E−04 | 8.9E−06 | 6.1E−05 | 3.0E−05 | 4.2E−05 | 6.4E−05 | 2.2E−04 | 7.0E−05 |
| | | | HE | 5 to 1,000 | 4.8E−05 | 9.7E−06 | 6.8E−05 | 3.4E−05 | 4.6E−05 | 6.9E−05 | 2.4E−04 | 7.7E−05 |
| | | 49512TSTYL5050K | CT | N/A | N/A | | | | | | 5.8E−09 | 5.8E−09 |
| | | | HE | N/A | N/A | | | | | | 6.4E−09 | 6.4E−09 |
| | | 5318WGCWST1245C | CT | N/A | N/A | | | | | 3.5E−08 | 1.7E−07 | 1.0E−07 |
| | | | HE | N/A | N/A | | | | | 3.8E−08 | 1.9E−07 | 1.1E−07 |
| | | 7751WNSLGM15916 | CT | N/A | N/A | | | | | | 0.0E+00 | 0.0E+00 |
| | | | HE | N/A | N/A | | | | | | 0.0E+00 | 0.0E+00 |
| | | 77520MBYCR8500W | CT | 5 to 100 | 3.7E−06 | | 9.3E−08 | 9.3E−08 | 2.7E−06 | 2.7E−06 | 2.7E−06 | 1.7E−06 |
| | | | HE | 5 to 100 | 1.6E−06 | | 1.0E−07 | 1.0E−07 | 2.9E−06 | 2.9E−06 | 2.9E−06 | 1.8E−06 |
| | | 77541THDWCBUILD | CT | 5 to 100 | 2.2E−06 | 1.9E−05 | 3.4E−05 | 5.1E−05 | 4.4E−05 | 1.2E−06 | 3.1E−07 | 2.5E−05 |
| | | | HE | 5 to 60 | 9.4E−07 | 2.1E−05 | 3.8E−05 | 5.6E−05 | 4.8E−05 | 1.3E−06 | 3.4E−07 | 2.7E−05 |
| | | 7754WCRTVF698MI | CT | 5 to 1,000 | 5.4E−05 | | | | | 1.7E−08 | 8.5E−09 | 1.3E−08 |
| | | | HE | 5 to 1,000 | 2.4E−05 | | | | | 1.9E−08 | 9.3E−09 | 1.4E−08 |
| | | 77580NTRPR10207 | CT | 5 to 100 | 3.7E−06 | 0.0E+00 | 0.0E+00 | 2.7E−06 | 2.7E−06 | 2.7E−06 | 2.7E−06 | 1.8E−06 |
| | | | HE | 5 to 100 | 1.6E−06 | 0.0E+00 | 0.0E+00 | 2.9E−06 | 2.9E−06 | 2.9E−06 | 2.9E−06 | 2.0E−06 |

| OES | COU | Facility TRI-FID | Statistic | 2022 Fenceline Analysis | | Multi-Year Analysis | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Distance with Risk Estimates above Benchmark | Risk Estimate @ 100 m | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Arithmetic Average |
| Laboratory Chemicals | Industrial/ Commercial Use as a Laboratory Chemical | 41129CLGN CUSROU | CT | N/A | 3.5E−08 | | | | | 1.8E−08 | | 1.8E−08 |
| | | | HE | N/A | 1.6E−08 | | | | | 2.1E−08 | | 2.1E−08 |
| Manufacturing | Domestic Manufacturing | 36752GPLS TONEPL | CT | 5 to 100 | 4.9E−06 | 4.6E−07 | 6.0E−07 | 5.1E−07 | 3.8E−06 | 3.8E−06 | 5.2E−06 | 2.4E−06 |
| | | | HE | 5 to 100 | 3.0E−06 | 5.0E−07 | 6.5E−07 | 5.6E−07 | 4.2E−06 | 4.2E−06 | 5.7E−06 | 2.6E−06 |
| | | 67215VLCN C6200S | CT | 5 to 1,000 | 1.3E−05 | 2.0E−05 | 2.0E−05 | 2.4E−05 | 3.3E−05 | 9.8E−06 | 9.5E−06 | 1.9E−05 |
| | | | HE | 5 to 100 | 4.1E−06 | 2.2E−05 | 2.2E−05 | 2.6E−05 | 3.6E−05 | 1.1E−05 | 1.0E−05 | 2.1E−05 |
| | | 70734VLCN MASHLA | CT | 5 to 2,500 | 4.0E−05 | 7.1E−06 | 7.0E−06 | 7.9E−06 | 9.7E−06 | 2.0E−05 | 4.0E−05 | 1.5E−05 |
| | | | HE | 5 to 1,000 | 1.3E−05 | 7.9E−06 | 7.8E−06 | 8.7E−06 | 1.1E−05 | 2.2E−05 | 4.4E−05 | 1.7E−05 |
| | | 7076WBLC BP21255 | CT | 5 to 1,000 | 6.5E−05 | 3.5E−06 | 2.0E−05 | 2.0E−05 | 2.6E−05 | 2.9E−05 | 2.4E−05 | 2.0E−05 |
| | | | HE | 5 to 100 | 1.3E−05 | 3.8E−06 | 2.2E−05 | 2.2E−05 | 2.8E−05 | 3.1E−05 | 2.6E−05 | 2.2E−05 |
| | | 70776CBGG YRIVER | CT | 5 to 100 | 3.2E−06 | 1.5E−06 | 1.2E−06 | 1.2E−06 | 1.3E−06 | 1.5E−06 | 1.3E−06 | 1.3E−06 |
| | | | HE | 5 to 60 | 7.7E−07 | 1.6E−06 | 1.3E−06 | 1.3E−06 | 1.4E−06 | 1.6E−06 | 1.4E−06 | 1.4E−06 |
| | | 7754WBLC BP231NB | CT | 5 to 1,000 | 4.2E−05 | 4.0E−06 | 8.3E−06 | 1.8E−05 | 2.2E−05 | 2.2E−05 | 1.4E−05 | 1.5E−05 |
| | | | HE | 5 to 1,000 | 1.8E−05 | 4.4E−06 | 9.1E−06 | 2.0E−05 | 2.4E−05 | 2.5E−05 | 1.6E−05 | 1.6E−05 |
| | | 77571LPRT C2400M | CT | 5 to 100 | 2.0E−06 | 1.7E−06 | 2.2E−06 | 2.6E−06 | 2.1E−06 | 1.9E−06 | 2.3E−06 | 2.1E−06 |
| | | | HE | 5 to 60 | 9.8E−07 | 1.9E−06 | 2.4E−06 | 2.9E−06 | 2.3E−06 | 2.1E−06 | 2.5E−06 | 2.3E−06 |
| | | 94565DWC HMFOOTO | CT | 5 to 100 | 5.0E−06 | 2.6E−05 | 7.9E−06 | 5.7E−06 | 5.1E−06 | 4.7E−06 | 7.2E−06 | 9.4E−06 |
| | | | HE | 5 to 100 | 2.2E−06 | 2.8E−05 | 8.7E−06 | 6.2E−06 | 5.5E−06 | 5.1E−06 | 7.9E−06 | 1.0E−05 |
| | Domestic Manufacturing – Byproduct | 25015DPNT B901WE | CT | N/A | N/A | 3.4E−08 | 8.5E−08 | 8.3E−08 | 7.3E−08 | | | 6.9E−08 |
| | | | HE | N/A | N/A | 3.9E−08 | 9.5E−08 | 9.3E−08 | 8.2E−08 | | | 7.7E−08 |
| | | | CT | N/A | N/A | 5.4E−09 | | | | | | 5.4E−09 |

| OES | COU | Facility TRI-FID | Statistic | 2022 Fenceline Analysis | | Multi-Year Analysis | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Distance with Risk Estimates above Benchmark | Risk Estimate @ 100 m | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Arithmetic Average |
| Manufacturing | Domestic Manufacturing – Byproduct | 27306HMNTS149HO | HE | N/A | N/A | 6.2E−09 | | | | | | 6.2E−09 |
| | | 70391DWCHMLOUIS | CT | N/A | N/A | 0.0E+00 | 0.0E+00 | 0.0E+00 | | | | 0.0E+00 |
| | | | HE | N/A | N/A | 0.0E+00 | 0.0E+00 | 0.0E+00 | | | | 0.0E+00 |
| | | 70669GRGGL1600V | CT | 5 to 100 | 1.4E−06 | 1.0E−06 | 1.1E−06 | 1.1E−06 | 1.1E−06 | 1.0E−06 | 1.4E−06 | 1.1E−06 |
| | | | HE | 5 to 60 | 7.6E−07 | 1.1E−06 | 1.2E−06 | 1.2E−06 | 1.3E−06 | 1.1E−06 | 1.5E−06 | 1.2E−06 |
| | | 70669PPGNDCOLUM | CT | 5 to 1,000 | 1.7E−05 | 1.2E−05 | 1.4E−05 | 1.4E−05 | 1.2E−05 | 1.3E−05 | 1.3E−05 | 1.3E−05 |
| | | | HE | 5 to 100 | 9.2E−06 | 1.3E−05 | 1.5E−05 | 1.6E−05 | 1.3E−05 | 1.4E−05 | 1.4E−05 | 1.4E−05 |
| | | 70734BRDNCLOUIS | CT | N/A | 4.1E−07 | 1.7E−07 | 2.1E−07 | 2.8E−07 | 3.5E−07 | 3.1E−07 | 3.1E−07 | 2.7E−07 |
| | | | HE | N/A | 3.3E−07 | 1.9E−07 | 2.4E−07 | 3.1E−07 | 3.9E−07 | 3.5E−07 | 3.5E−07 | 3.1E−07 |
| | | 70734BSFCRRIVER | CT | N/A | 5.2E−07 | 4.0E−07 | 3.9E−07 | 4.2E−07 | 4.2E−07 | 3.9E−07 | 3.1E−07 | 3.9E−07 |
| | | | HE | N/A | 4.0E−07 | 4.6E−07 | 4.4E−07 | 4.8E−07 | 4.8E−07 | 4.4E−07 | 3.5E−07 | 4.4E−07 |
| | | 70734RBCNN9156H | CT | 5 to 1,000 | 1.5E−05 | 8.6E−06 | 8.3E−06 | 9.1E−06 | 8.9E−06 | 8.6E−06 | 7.8E−06 | 8.5E−06 |
| | | | HE | 5 to 1,000 | 7.1E−06 | 9.6E−06 | 9.3E−06 | 1.0E−05 | 9.9E−06 | 9.6E−06 | 8.6E−06 | 9.5E−06 |
| | | 70764LLMNXHWY40 | CT | N/A | 3.7E−10 | 1.9E−06 | 2.8E−06 | 1.7E−06 | 1.7E−06 | 1.6E−06 | 1.2E−06 | 1.8E−06 |
| | | | HE | N/A | 2.8E−10 | 2.1E−06 | 3.1E−06 | 1.8E−06 | 1.8E−06 | 1.8E−06 | 1.4E−06 | 2.0E−06 |
| | | 70765GRGGLHIGHW | CT | 5 to 30 | 2.3E−07 | 1.6E−07 | 9.4E−08 | 6.7E−08 | 4.7E−08 | 1.2E−07 | 1.1E−07 | 9.9E−08 |
| | | | HE | N/A | 6.8E−08 | 1.8E−07 | 1.0E−07 | 7.5E−08 | 5.3E−08 | 1.3E−07 | 1.2E−07 | 1.1E−07 |
| | | 70765THDWCHIGHW | CT | N/A | N/A | 9.0E−09 | 9.7E−10 | 6.2E−09 | | | 8.4E−08 | 2.5E−08 |
| | | | HE | N/A | N/A | 1.0E−08 | 1.1E−09 | 6.8E−09 | | | 9.2E−08 | 2.8E−08 |
| | | 7076WDDPSP21255 | CT | N/A | N/A | | | | 0.0E+00 | | | 0.0E+00 |
| | | | HE | N/A | N/A | | | | 0.0E+00 | | | 0.0E+00 |

| OES | COU | Facility TRI-FID | Statistic | 2022 Fenceline Analysis | | Multi-Year Analysis | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Distance with Risk Estimates above Benchmark | Risk Estimate @ 100 m | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Arithmetic Average |
| Manufacturing | Domestic Manufacturing - Byproduct | 70805FRMSPGULFS | CT | 5 to 100 | 9.2E−06 | 4.9E−06 | 3.4E−06 | 4.4E−06 | 5.1E−06 | 6.7E−06 | 4.1E−06 | 4.8E−06 |
| | | | HE | 5 to 100 | 2.7E−06 | 5.4E−06 | 3.7E−06 | 4.8E−06 | 5.6E−06 | 7.3E−06 | 4.4E−06 | 5.2E−06 |
| | | 77015FRMNT2239H | CT | 5 to 100 | 2.0E−06 | 3.0E−07 | 6.6E−07 | 1.7E−06 | 1.2E−06 | 1.1E−06 | | 9.9E−07 |
| | | | HE | 5 to 60 | 8.2E−07 | 3.4E−07 | 7.3E−07 | 1.9E−06 | 1.3E−06 | 1.2E−06 | | 1.1E−06 |
| | | 77536CCDNTTIDAL | CT | N/A | 1.1E−08 | 8.7E−09 | 1.1E−08 | 1.1E−08 | 1.0E−08 | 1.1E−08 | 8.9E−09 | 1.0E−08 |
| | | | HE | N/A | 5.4E−09 | 9.5E−09 | 1.2E−08 | 1.3E−08 | 1.1E−08 | 1.2E−08 | 9.7E−09 | 1.1E−08 |
| | | 77978FRMSPPOBOX | CT | N/A | 1.2E−08 | 0.0E+00 | 1.6E−08 | 1.0E−08 | 1.0E−08 | 1.6E−08 | 3.2E−08 | 1.4E−08 |
| | | | HE | N/A | 7.8E−09 | 0.0E+00 | 1.7E−08 | 1.1E−08 | 1.1E−08 | 1.7E−08 | 3.5E−08 | 1.5E−08 |
| | | 78359CCDNTHWY36 | CT | 5 to 10 | 1.5E−07 | 9.6E−08 | 1.4E−07 | 1.1E−07 | 9.6E−08 | 1.4E−07 | 9.7E−08 | 1.1E−07 |
| | | | HE | N/A | 4.4E−08 | 1.0E−07 | 1.6E−07 | 1.2E−07 | 1.0E−07 | 1.5E−07 | 1.1E−07 | 1.2E−07 |
| | | 84074MXMGNROWLE | CT | 10 | 1.7E−07 | 8.8E−08 | 2.5E−07 | 1.8E−07 | 1.6E−07 | 1.2E−07 | | 1.6E−07 |
| | | | HE | N/A | 5.3E−08 | 9.6E−08 | 2.7E−07 | 2.0E−07 | 1.8E−07 | 1.3E−07 | | 1.7E−07 |
| Processing as a Reactant or Intermediate | Processing as a Reactant (Feedstocks) | 70805LLDSGCORNE | CT | 5 to 100 | 8.2E−06 | 3.8E−06 | | 3.7E−06 | 2.6E−06 | 6.0E−06 | 5.8E−06 | 4.4E−06 |
| | | | HE | 5 to 100 | 2.3E−06 | 4.2E−06 | | 4.1E−06 | 2.8E−06 | 6.6E−06 | 6.4E−06 | 4.8E−06 |
| | Processing as a Reactant (Raw Materials) | 29045HRDWC2114L | CT | N/A | N/A | 2.7E−06 | | | | | | 2.7E−06 |
| | | | HE | N/A | N/A | 2.9E−06 | | | | | | 2.9E−06 |
| | | 53085LDRCH6100H | CT | N/A | N/A | | | | 2.7E−06 | | | 2.7E−06 |
| | | | HE | N/A | N/A | | | | 2.9E−06 | | | 2.9E−06 |
| | | 71730DPNTL322SU | CT | 5 to 1,000 | 8.0E−06 | 7.0E−06 | 5.7E−06 | 6.6E−06 | 7.4E−06 | 5.4E−06 | | 6.4E−06 |
| | | | HE | 5 to 100 | 5.0E−06 | 7.7E−06 | 6.3E−06 | 7.3E−06 | 8.1E−06 | 5.9E−06 | | 7.0E−06 |

| OES | COU | Facility TRI-FID | Statistic | 2022 Fenceline Analysis | | Multi-Year Analysis | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Distance with Risk Estimates above Benchmark | Risk Estimate @ 100 m | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Arithmetic Average |
| Processing as a Reactant or Intermediate | Processing as a reactant in the production of hydrochlorofluorocarbons, hydrofluorocarbon, hydrofluoroolefin, and perchloroethylene | 42029WSTLK2468I | CT | 5 to 1,000 | 6.3E−05 | 5.6E−05 | 4.8E−05 | 5.5E−05 | 6.2E−05 | 4.6E−05 | 5.1E−05 | 5.3E−05 |
| | | | HE | 5 to 1,000 | 3.5E−05 | 6.2E−05 | 5.2E−05 | 6.0E−05 | 6.8E−05 | 5.1E−05 | 5.6E−05 | 5.8E−05 |
| | Processing for incorporation into formulation, mixtures or reaction products (petrochemicals derived manufacturing; agricultural products manufacturing; other basic organic and inorganic chemical manufacturing) | 78362DPNTCHIGHW | CT | 5 to 1,000 | 8.6E−05 | | | | 1.9E−05 | 7.1E−05 | 5.4E−05 | 4.8E−05 |
| | | | HE | 5 to 1,000 | 2.5E−05 | | | | 2.1E−05 | 7.7E−05 | 5.9E−05 | 5.2E−05 |
| Recycling and Disposal | Disposal | 12047NRLTC628SO | CT | N/A | 3.9E−08 | 1.9E−08 | 5.1E−09 | 8.9E−09 | 5.9E−09 | 4.2E−08 | 8.3E−08 | 2.7E−08 |
| | | | HE | N/A | 2.3E−08 | 2.0E−08 | 5.6E−09 | 9.8E−09 | 6.5E−09 | 4.6E−08 | 9.1E−08 | 3.0E−08 |
| | | 18014KYSTNRT329 | CT | N/A | N/A | | | | | | 2.7E−08 | 2.7E−08 |
| | | | HE | N/A | N/A | | | | | | 2.9E−08 | 2.9E−08 |
| | | 29448GNTCMPOBOX | CT | 10 | 1.4E−07 | 2.4E−06 | 1.1E−06 | 1.9E−06 | 2.5E−06 | 9.0E−08 | 2.1E−06 | 1.7E−06 |
| | | | HE | N/A | 6.2E−08 | 2.6E−06 | 1.2E−06 | 2.1E−06 | 2.7E−06 | 9.8E−08 | 2.3E−06 | 1.8E−06 |
| | | 43920VNRLL1250S | CT | N/A | 1.4E−09 | 1.7E−09 | 1.1E−09 | 1.1E−09 | 1.3E−09 | 1.1E−09 | 1.5E−09 | 1.3E−09 |
| | | | HE | N/A | 7.9E−10 | 1.8E−09 | 1.2E−09 | 1.2E−09 | 1.4E−09 | 1.2E−09 | 1.6E−09 | 1.4E−09 |
| | | 44011CHMTR35850 | CT | N/A | 6.7E−09 | 3.0E−08 | 9.1E−09 | 1.6E−07 | 1.0E−08 | 7.3E−09 | | 4.4E−08 |
| | | | HE | N/A | 2.5E−09 | 3.3E−08 | 9.9E−09 | 1.8E−07 | 1.1E−08 | 8.0E−09 | | 4.8E−08 |
| | | | CT | N/A | 1.1E−09 | 8.0E−08 | 7.8E−08 | 6.3E−08 | 2.1E−08 | 1.1E−09 | 9.5E−11 | 4.1E−08 |

| OES | COU | Facility TRI-FID | Statistic | 2022 Fenceline Analysis | | Multi-Year Analysis | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Distance with Risk Estimates above Benchmark | Risk Estimate @ 100 m | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Arithmetic Average |
| Recycling and Disposal | Disposal | 44044RSSNC36790 | HE | N/A | 4.0E−10 | 8.8E−08 | 8.6E−08 | 6.9E−08 | 2.3E−08 | 1.2E−09 | 1.0E−10 | 4.4E−08 |
| | | 44109CHMCL1010D | CT | N/A | 1.6E−08 | 2.7E−08 | 2.7E−08 | 2.7E−08 | 2.7E−08 | 2.7E−08 | 2.7E−08 | 2.7E−08 |
| | | | HE | N/A | 9.4E−09 | 2.9E−08 | 2.9E−08 | 2.9E−08 | 2.9E−08 | 2.9E−08 | 2.9E−08 | 2.9E−08 |
| | | 62201TRDWS7MOBI | CT | N/A | N/A | 0.0E+00 | 0.0E+00 | 1.4E−10 | 0.0E+00 | 0.0E+00 | | 2.8E−11 |
| | | | HE | N/A | N/A | 0.0E+00 | 0.0E+00 | 1.6E−10 | 0.0E+00 | 0.0E+00 | | 3.2E−11 |
| | | 63401CNTNNHIGHW | CT | N/A | N/A | | | | 1.1E−08 | | | 1.1E−08 |
| | | | HE | N/A | N/A | | | | 1.2E−08 | | | 1.2E−08 |
| | | 63701LNSTR2524S | CT | 5 to 30 | 3.2E−07 | | | | 3.4E−07 | 3.3E−07 | 1.4E−10 | 2.2E−07 |
| | | | HE | 5 to 30 | 2.7E−07 | | | | 3.7E−07 | 3.6E−07 | 1.6E−10 | 2.4E−07 |
| | | 7080WCSRVC131AI | CT | N/A | 2.0E−09 | 6.9E−10 | 1.1E−09 | 1.7E−09 | 5.4E−10 | 1.6E−09 | 1.6E−09 | 1.2E−09 |
| | | | HE | N/A | 6.1E−10 | 7.5E−10 | 1.2E−09 | 1.9E−09 | 5.9E−10 | 1.7E−09 | 1.7E−09 | 1.3E−09 |
| | | 77643WSTMNHWY73 | CT | 10 | 1.0E−07 | 1.3E−07 | 1.5E−07 | 3.7E−07 | 2.7E−07 | 1.0E−07 | 1.0E−07 | 1.9E−07 |
| | | | HE | N/A | 6.5E−08 | 1.4E−07 | 1.7E−07 | 4.0E−07 | 3.0E−07 | 1.1E−07 | 1.1E−07 | 2.1E−07 |
| | | 85344WSTTS2523M | CT | N/A | 4.3E−09 | 2.8E−09 | | 6.0E−09 | 5.9E−09 | 5.1E−09 | | 4.9E−09 |
| | | | HE | N/A | 2.6E−09 | 3.0E−09 | | 6.5E−09 | 6.4E−09 | 5.5E−09 | | 5.4E−09 |
| | | 88220SDWST3MILE | CT | 100 | 1.1E−06 | | | 3.3E−07 | 3.4E−07 | 3.5E−07 | | 3.4E−07 |
| | | | HE | N/A | 4.9E−07 | | | 3.8E−07 | 4.0E−07 | 4.1E−07 | | 3.9E−07 |
| | | 97812CHMCL17629 | CT | N/A | N/A | 6.9E−08 | 5.5E−08 | 5.4E−08 | 6.5E−08 | | | 6.1E−08 |
| | | | HE | N/A | N/A | 7.5E−08 | 6.0E−08 | 5.9E−08 | 7.1E−08 | | | 6.6E−08 |
| | Recycling | 69145CLNHR5MISO | CT | 10 | 1.8E−07 | 4.2E−08 | 2.0E−08 | 1.6E−07 | 8.3E−08 | 2.6E−07 | 3.8E−07 | 1.6E−07 |
| | | | HE | 10 | 9.6E−08 | 4.5E−08 | 2.2E−08 | 1.8E−07 | 9.1E−08 | 2.8E−07 | 4.2E−07 | 1.7E−07 |

| OES | COU | Facility TRI-FID | Statistic | 2022 Fenceline Analysis | | Multi-Year Analysis | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Distance with Risk Estimates above Benchmark | Risk Estimate @ 100 m | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Arithmetic Average |
| Recycling and Disposal | Recycling | 71730NVRNM309AM | CT | N/A | 5.1E−08 | 2.7E−07 | 6.9E−08 | 7.1E−08 | 1.3E−07 | 3.6E−08 | 1.7E−08 | 1.0E−07 |
| | | | HE | N/A | 3.2E−08 | 3.0E−07 | 7.5E−08 | 7.8E−08 | 1.5E−07 | 3.9E−08 | 1.9E−08 | 1.1E−07 |
| | | 77536SFTYK2027B | CT | N/A | 3.3E−08 | 7.5E−07 | 5.3E−08 | 7.2E−08 | 1.0E−10 | 3.4E−08 | 1.1E−07 | 1.7E−07 |
| | | | HE | N/A | 1.6E−08 | 8.2E−07 | 5.8E−08 | 7.8E−08 | 1.2E−10 | 3.7E−08 | 1.2E−07 | 1.9E−07 |
| | | 84029SFTYK11600 | CT | 10 | 1.6E−07 | 6.1E−08 | 1.3E−07 | 1.8E−07 | 6.8E−08 | 1.2E−07 | 6.1E−11 | 9.3E−08 |
| | | | HE | N/A | 5.1E−08 | 6.8E−08 | 1.5E−07 | 2.0E−07 | 7.4E−08 | 1.3E−07 | 6.7E−11 | 1.0E−07 |