

# TRL Response to Comments Plain Language Document, August 9, 2024

The Sunset Advisory Commission's November 22, 2022, report included recommendations for TCEQ to improve the agency's functions. Management Recommendation 1.2 was "[d]irect TCEQ's commission to vote in a public meeting on the acceptable level of health-based risk used in the development of toxicity factors for permitting and other regulatory actions." This recommendation refers to the acceptable individual-chemical excess cancer risk, or target risk level, used in air permitting and evaluating air monitoring data.

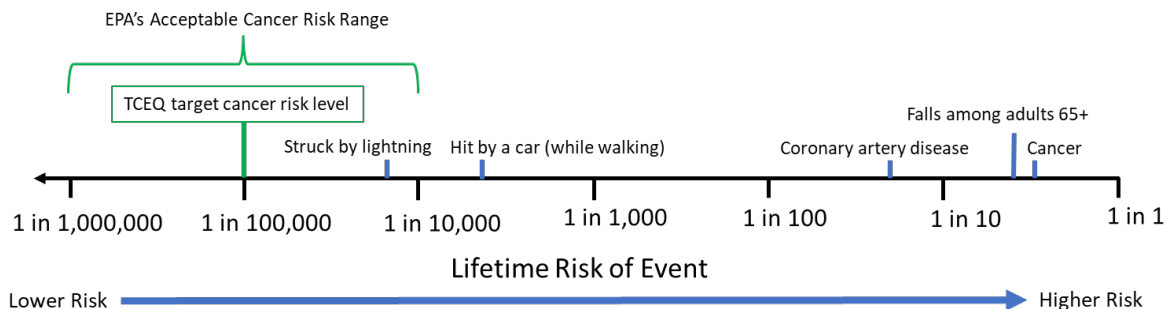
The TCEQ Executive Director proposed that the Commission of the TCEQ set a target cancer risk level of 1 in 100,000. The Commission approved the request to post the proposal for 30 days of public comment. The public comment period began on September 1, 2023, and ended on October 3, 2023. This document is a plain language summary of the public comments received on the TCEQ Executive Director's proposal to set a target cancer risk level of 1 in 100,000 and TCEQ's responses to those comments.

A target cancer risk level is the amount of cancer risk from a lifetime exposure to a chemical that can cause cancer (called a carcinogen). This is a theoretical risk, and it is in addition to the actual average lifetime cancer risk in the United States of about 1 in 3.

Many factors influence whether a person exposed to a carcinogen will develop cancer. These factors include how much of the chemical a person is exposed to and for how long, as well as other risk factors such as lifestyle choices (e.g., smoking), family history of cancer, etc.

Target risk levels describe cancer risk as a chance or probability, like 1 in 10,000 or 1 in 100,000. This is the same way that the odds of other events are described, like the chances of being struck by lightning (about 1 in 15,000). In the case of a target cancer risk level of 1 in 100,000, this means that for every 100,000 people exposed to a certain amount of chemical over their lifetime, 1 person may get cancer from that chemical exposure. This is written in different ways, such as 1 in 100,000, one in one hundred thousand, or  $1 \times 10^{-5}$ . The United States Environmental Protection Agency (EPA) accepts a range of these cancer risk levels between 1 in 10,000 and 1 in 1,000,000. Figure 1 provides a simple comparison of what is meant by various risk levels.

**Figure 1. Diagram showing the chances of different events occurring over a person’s lifetime, together with the range of cancer risks that the United States Environmental Protection Agency (EPA) considers acceptable and the TCEQ’s proposed target cancer risk level of 1 in 100,000.**



If a person’s background risk of getting cancer is 1 in 3 or 33% (meaning they have a 33% chance of developing cancer over their lifetime), then adding the theoretical increased risk of 1 in 100,000 would make the person’s total risk of developing cancer 33.001%.

## Summary Comments and Responses

### Recommending a Target Risk Level of 1 in 1,000,000

**Comment:** Harris County Pollution Control Services, Environmental Defense Fund, Earthjustice et al., Channelview Health and Improvement Coalition, and 195 individuals signing the same form letter, recommended that TCEQ change the target cancer risk level from 1 in 100,000 to 1 in 1,000,000. They feel that the TCEQ target risk level is not health protective and tightening the standard would provide better protection for Texans, particularly in marginalized communities.

**Response:** A target cancer risk level of 1 in 100,000 for each carcinogen provides protection to the citizens of Texas by making sure that there is no significant cancer risk from chemical exposure. This target cancer risk level is 10-times lower than the highest cancer risk that the EPA considers to be acceptable. Because the TCEQ target risk level is so much lower than the EPA’s value, it allows for potential cancer risks from exposure to multiple carcinogens, while making sure that total cancer risks from all these chemicals together is still very low. This includes risks of emissions of multiple chemicals and from multiple facilities. In addition, TCEQ generally over-estimates the cancer risk from a chemical to provide even more health protection.

As discussed in later responses, TCEQ has looked at measured concentrations of chemicals in the air of communities that share a fence line with large industrial facilities. When the cancer risks from all the measured chemicals are added together, the total cancer risk (called the cumulative risk) is still lower than EPA’s highest acceptable cancer risk level of 1 in 10,000. Therefore, TCEQ’s use of a target cancer risk level of 1 in 100,000 for each chemical has ensured

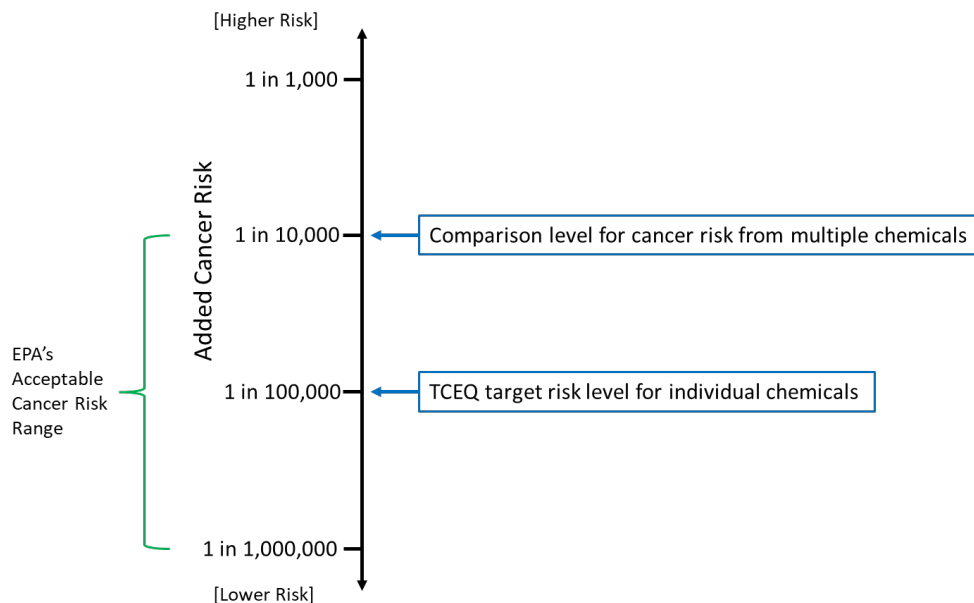
that the total cancer risk is kept at a very low level, even in communities that have the potential for higher exposure.

## Cancer Risk from Multiple Chemicals

**Comment 1:** Earthjustice et al., Channelview Health and Improvement Coalition, and the Environmental Defense Fund all commented on cancer risk from multiple chemicals. They believe that setting a lower risk level (1 in 1,000,000) could better protect communities who may be exposed to multiple chemicals at the same time.

**Response:** Setting a target risk level of 1 in 100,000 for individual chemicals helps to make sure that the estimated cancer risk from exposure to multiple chemicals added together (also called cumulative risk) is still lower than a risk of 1 in 10,000. EPA has set the highest acceptable cancer risk at 1 in 10,000. Figure 2 shows a diagram of the different cancer risks discussed in this proposal and response.

**Figure 2. Diagram showing a scale of added cancer risk.** Lower risks (such as 1 in 1,000,000) are at the bottom of the scale, and higher risks (such as 1 in 1,000) are at the top of the scale. The brackets show the EPA's acceptable cancer risk range (from 1 in 1,000,000 to 1 in 10,000). The TCEQ proposal for a target risk level of 1 in 100,000 for individual chemicals is marked, as well as a comparison level of 1 in 10,000 that can be used to compare to cancer risk from multiple chemicals.

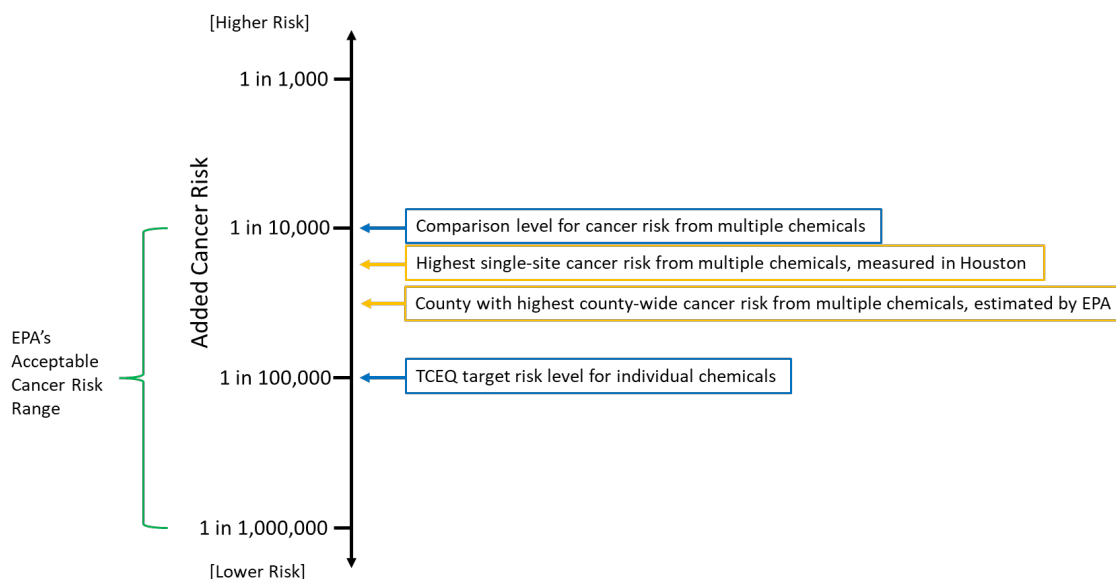


TCEQ looked at the cancer risks from chemicals measured by TCEQ's air monitors, showing that total cancer risk from multiple chemicals together is less than 1 in 10,000 in Texas. Air monitoring data from the Houston area was used because Houston is the largest city in Texas and has areas where many industrial facilities are close to where people live. Theoretical cancer risk estimates from individual chemicals were added together at each site to calculate the total (cumulative) cancer risk. The cumulative risks calculated at each site were all less than 1 in

10,000. When added together the highest total cancer risk from monitored chemicals was about 0.75 in 10,000 and is marked on the scale shown in Figure 3.

The EPA also provides estimates of how much total cancer risk is caused by chemicals in the air, through their Air Toxics Screening Assessment (AirToxScreen; [www.epa.gov/AirToxScreen](http://www.epa.gov/AirToxScreen)). AirToxScreen provides an educated guess about the concentrations of chemicals in air, not real measured concentrations, but it can give us a rough idea about cancer risks from a number of air pollutants added together. The cumulative cancer risks estimated for the entire state of Texas, as well as for each county, were all less than 1 in 10,000. The county with the highest estimated cancer risk from many chemicals added together, was 0.37 in 10,000. That risk is marked on the scale in Figure 3.

**Figure 3. Diagram showing a scale of added cancer risk.** This is the same scale as Figure 2, but also displays total cancer risks from measurements of multiple chemicals in Houston, and the total cancer risks from estimated chemical risks from EPA’s AirToxScreen.



**Comment 2:** Harris County Pollution Control Services commented that it is common for multiple chemicals to be released during emergency events. These chemical releases can increase the total amount of chemicals that people are exposed to, and so they should be taken into account in TCEQ’s target risk level.

**Response:** TCEQ works closely with our federal partners, local partners, and emergency responders to stop or reduce the release of chemicals during emergency events. TCEQ gathers air concentration measurements during these events and staff determine if people who are exposed during these short duration emergency events could have potential health concerns. The chemicals released during these events are also measured by TCEQ’s permanent air monitors, and so they are included in the overall evaluation of cancer risks. As discussed above, the total estimated cancer risk from chemicals measured by TCEQ’s monitors is less than the EPA’s acceptable cancer risk of 1 in 10,000.

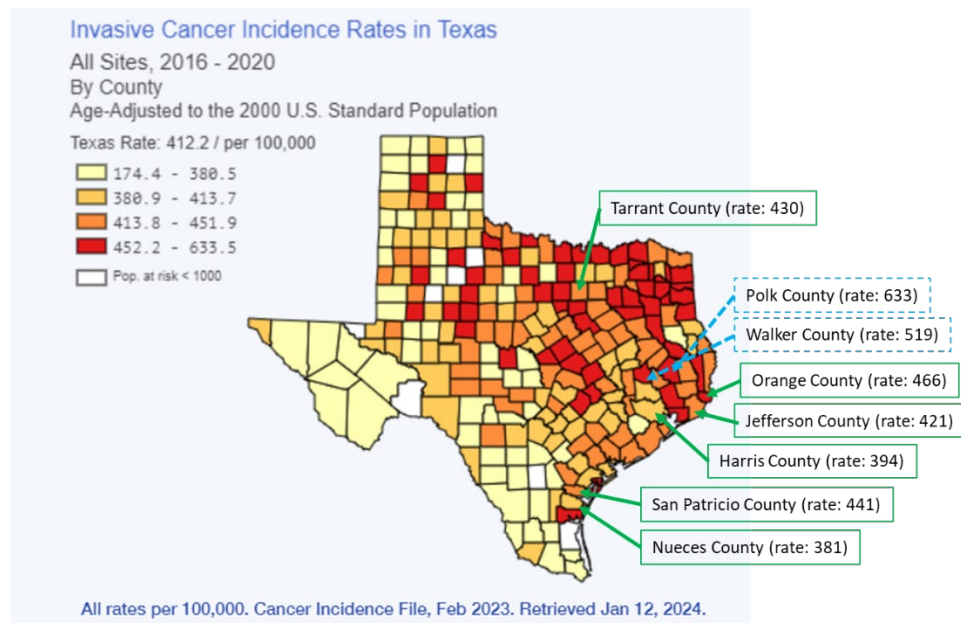
## Overburdened Communities

**Comment:** The Environmental Defense Fund, Harris County Pollution Control Services, Channelview Health and Improvement Coalition, and Earthjustice et al. stated that TCEQ should apply a lower target cancer risk level of 1 in 1,000,000 to protect the health of the most vulnerable Texans living in overburdened communities. They expressed concern that historically, industries are concentrated in areas with underserved communities that are at higher risk for cancer and other health issues. Health-challenged residents are more susceptible to health issues caused by exposure to air pollutants.

**Response:** The way that TCEQ does permitting of air pollutants protects all Texans, including those with health conditions or who may be more sensitive to chemicals (like the very young or old). TCEQ has air monitors in fenceline communities in highly industrial areas of the state (such as along the Houston Ship Channel). That air monitoring shows acceptable air concentrations that support the current permitting process.

In addition, Texas counties with high numbers of industrial facilities do not have higher cancer rates than counties with less industry. The cancer rate, or cancer incidence rate, is the number of people who are diagnosed with cancer for a specific area and year. These rates are shown as the number of people diagnosed with cancer out of every 100,000 people in the population. Although cancer rates vary throughout Texas, there are examples of counties with little industry that have higher cancer rates than those with much more industry. Figure 4 shows a map of the cancer rates in Texas, by county, for 2016-2020 (source: Texas Department of State Health Services). We added markers on the map for six Texas counties that have a lot of industry (outlined in solid green), with cancer incidence rates from 381 to 466 per 100,000 people. On the other hand, two counties without very much industry (outlined in dashed blue) have cancer rates of 519 and 633 per 100,000 people. Cancer is a disease that has many causes, including family history and age, and this map shows that having a lot of industry in a county doesn't mean that the cancer rates will be higher.

**Figure 4. Map of Texas counties showing cancer incidence rates for 2016-2020.** Source: Texas Department of State Health Services, [www.cancer-rates.com/tx/](http://www.cancer-rates.com/tx/). TCEQ added to the map arrows pointing to 6 counties with a lot of industry (outlined in solid green), and two counties with very little industry (outlined in dashed blue).



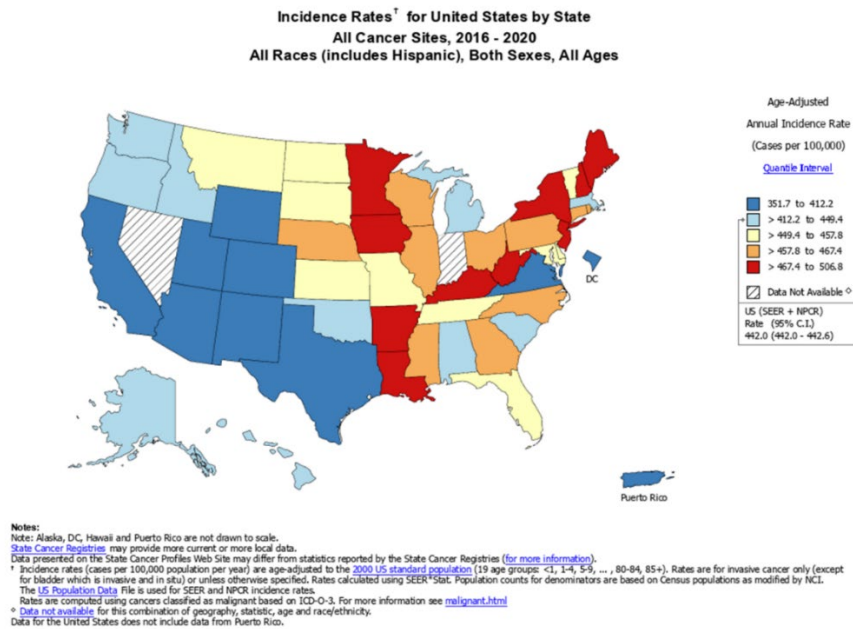
## Background Cancer Risk/Cancer Hotspots

**Comment 1:** Environmental Defense Fund and Earthjustice et al. commented that the TCEQ’s information about background cancer rates (a lifetime risk of about 1 in 3) is misleading because this overall cancer rate includes cancers that are caused by chemical exposure. Earthjustice et al. wrote that the current cancer risk is so high because of all the chemicals in the air Texans breathe and the water Texans drink.

**Response:** The background cancer rate of 1 in 3 means that about 1 in 3 people in the general population will get cancer in their lifetime. A person’s cancer risk is quite high because a lot of factors can contribute to cancer formation. These factors can include family history of cancer, smoking, obesity, alcohol consumption, some types of viral infections, older age, and exposure to chemicals, radiation, and sunlight. Exposure to chemicals is only one small part of the background cancer rate.

Data from the US Centers for Disease Control (CDC) demonstrate that Texas has some of the lowest cancer rates in the country. This is shown in the map below (Figure 5), where the states colored in dark blue have the lowest cancer rates.

**Figure 5. United State map showing incidence rates for all cancer sites, for 2016-2020.** Source: United States Surveillance, Epidemiology, and End Results Program, [www.statecancerprofiles.cancer.gov/map/map.noimage.php](http://www.statecancerprofiles.cancer.gov/map/map.noimage.php), Accessed January 25, 2024.



**Comment 2:** Harris County Pollution Control Services, Earthjustice et al., and CREAM stated that there are many communities in Texas with cancer rates that are higher than EPA’s “acceptable” excess cancer risk of 1 in 10,000. CREAM commented that 3.26 million Texans live in counties where the cancer incidence rate is higher than the national average.

**Response:** The cancer rates for a particular area show the number of people, in a specific year, who were diagnosed with cancer. These cancers have many different causes, as discussed above. The cancer rate is different from the target risk level that is the topic of this proposal. The target risk level refers to the added cancers that could theoretically be caused by exposure to a chemical. That risk is added on top of the cancer rate that is seen in the population. For example, the target risk level of 1 in 100,000 used by TCEQ is added to the background cancer rate of 1 in 3 (which is the same as a rate of 33,000 in 100,000). This means that, if we have a group of 100,000 people, then in their lives, 33,000 of those people will likely get cancer. If all those people are also exposed for 70 years to a chemical dose at the target risk level, then 33,001 people might get cancer. That is a very small change in cancer rates from chemical exposure. In addition, TCEQ generally over-estimates the cancer risk from a chemical to provide even more health protection, so the real risk would be even lower than 1 in 100,000.

## Childhood Exposure to Carcinogens

**Comment:** CREAM commented that TCEQ’s proposal does not include any actions or policies to consider the extra sensitivity of children to carcinogens.

**Response:** TCEQ makes sure that children are being protected from carcinogens when estimating how toxic a particular chemical is. The toxicity of a chemical is often called its

potency, with more potent chemicals able to cause harmful health effects at lower concentrations than chemicals that are less potent. The more potent a chemical is, the less of that chemical the TCEQ will allow in the environment. TCEQ uses scientific data for a chemical to decide what concentrations can cause a certain amount of cancer risk, which tells us about the chemical's potency. Then, consistent with EPA and TCEQ guidelines, we evaluate whether children can be even more sensitive to the chemical. If the data shows that children might be more sensitive to cancer caused by the chemical, we estimate that a chemical is even more potent and don't allow as much of it into the environment. This process makes sure that children are protected from chemical carcinogens emitted into the environment.

Thus, TCEQ already has methods to ensure protection of children from chemicals that cause cancer. Therefore, they are not specifically identified in this target risk level proposal.

## **Noncancer Health Effects**

**Comment:** Harris County Pollution Control, Earthjustice et. al., and CREAM commented that this proposal does not address non-cancer health effects, which are just as important to human health as cancer risks when making permitting and regulatory decisions.

**Response:** The Sunset Commission recommendation stated that TCEQ had to look at the "acceptable level of health-based risk." Health-based risk specifically refers to cancer risk, so non-cancer health effects are not included in this proposal.

However, TCEQ already has a process for considering non-cancer health effects. TCEQ restricts the amounts of chemicals released into the air, so that those chemicals do not cause any non-cancer health effects, even in people who are particularly sensitive to air pollutants.

## **Other Sunset Advisory Commission Recommendations**

**Comment:** CREAM and Earthjustice et al. commented that TCEQ is not addressing all the recommendations from the Sunset Advisory Commission Staff Report for management action 1.2.

**Response:** The Sunset Advisory Commission Staff Report has a summary of all the recommended actions for the TCEQ. That summary is called the Sunset Commission Decisions, and for Recommendation 1.2, it says, "Direct TCEQ's commission to vote in a public meeting on the acceptable level of health-based risk used in the development of toxicity factors for permitting and other regulatory actions. (Management action — nonstatutory)". This proposal responds to that recommendation.