June, 2020

The Notice of Revisions to the NJDEP Division of Air Quality Risk Screening Worksheet for Long-Term Carcinogenic and Noncarcinogenic Effects and Short-Term Effects (RSW) as Listed in Technical Manual 1003 "Guidance on Preparing a Risk Assessment for Air Contaminant Emissions" was posted on May 7, 2019 on the Department's website at http://www.state.nj.us/dep/aqpp under "Program Update" and at http://www.nj.gov/dep/baqp under "What's New." In addition, the Notice of Revision was announced in a May 7, 2019 Air Quality Regulation Listserv email and discussed at the June 7, 2019 Industrial Stakeholder Groups (ISG) meeting in Trenton. The deadline in the Notice of Revisions for submission of comments was June 10, 2019. The Department announced at the ISG meeting that additional comments submitted after this deadline would be accepted and evaluated.

Summary of Public Comments and Agency Responses

The following individuals provided written comments:

1. Toby Hanna, P.E., ERM
2. Ray Cantor, New Jersey Business and Industry Association (NJBIA)
3. Karen DeChristopher, Western Fumigation
4. Stephen Anthonavage, Camden International Commodities Terminal
5. Kip Walk, Blommer Chocolate
6. Hugo van der Goes, Cocoa Merchants Association of America
7. Matthew Brauner, Brauner International Corporation
8. Tim McPherson, Douglas Products

1. COMMMENT: NJDEP should provide more detail on the background methodology of the revised RSW so that the affected community is able to comment fully. Although the methodology used in the proposed RSW was included in Technical Manual 1003, which went through public comment and was finalized in December 2018, it was not possible for the regulated community to evaluate the impact of the revised methodology without actually reviewing the updated RSW (that is the subject of this current public comment period). (1, 2)

   RESPONSE: The RSW was revised consistent with the procedures and guidance outlined in Technical Manual (TM) 1002 Guidance on Preparing an Air Quality Modeling Protocol and TM 1003 Guidance on Preparing a Risk Assessment for Air Contaminant Emissions. The methodology and assumptions used to generate the normalized air impact values for the RSW for point sources are described in Appendix C, Technical Manual (TM) 1003. The most recently available dispersion model (AERMOD Version 15181) and meteorological data (2010-2014) were the basis of this analysis.

The Department relied on the most current and accurate scientific techniques in developing its procedures in order to be protective of public health. Several advancements have occurred over the past 10 years since the original RSW had been developed. Such advancements include improvements to air quality simulation modeling, and more accurate air toxic risk factors. Technical Manual 1003, Appendix C, page 25 lists the seven conservative assumptions made to ensure that a negligible risk predicted by the RSW would not impact any residences or other sensitive receptors near a facility. No public comments were submitted for these seven assumptions.

As another example of the opportunity for stakeholder review of the RSW parameters, the methodology, inputs, and assumptions used to develop the RSW are the same as those used to derive the hazardous air pollutant (HAP) reporting thresholds listed in N.J.A.C. 7:27-17.9. These HAP reporting thresholds were proposed in the New Jersey Register (49 N.J.R. 2373(a)) on August 7, 2017 and adopted in the New Jersey Register (50 N.J.R. 454(a) on January 16, 2018. In the proposal, a link to the "Technical Support Document Updating Hazardous Air Pollutant Reporting Threshold" was given (49 N.J.R. 2379). This document provided a detailed description of the modeling methodologies, statistical analysis, and assumptions used to develop the reporting thresholds. Also, outreach was done to stakeholders during the rule development process. As a result, the inputs embedded in the revised RSW to determine the health risk impacts were formally proposed for public review and comment.

2. COMMENT: The extremely conservative nature of the proposed RSW tool makes it much less useful to the regulated community. A tool with underlying conservative modeling assumptions, and the way that it is applied, will fail four times more health risk evaluations, almost guaranteeing that an applicant will need to conduct expensive and time-consuming refined health risk analysis which ultimately, in most cases, demonstrates that the application is acceptable without any additional emission mitigation. NJDEP should not adopt the revised RSW until there is an alternative in place that prevents this default to expensive and time-consuming refined analysis. An analysis submitted to the Department by ERM on June 5, 2019 determined the following, "Overall, thirteen out of the sixteen sources that were evaluated no longer pass screening, with twenty-eight new instances where expensive and time-consuming refined analysis would be required." (1, 2)

RESPONSE: It is expected that additional refined risk assessments will occur in some cases resulting from the lowered reporting thresholds and recent air quality models and meteorological data which were used to revise the RSW. However, the Department disagrees that an alternative to the updated RSW is warranted. The RSW remains an optional first step for a facility to use to determine potential health impacts and whether actions can be taken to reduce the impacts to insignificant levels to eliminate the need for a refined modeling analysis.

Each commenter has referred to a June 5, 2019 ERM preliminary analysis of the impacts of the proposed changes to the RSW on a number of different types of emission sources. This preliminary analysis has been reviewed and the Department has the following observations:

a. Nine of the sixteen source categories that have significant risk with the revised RSW also have significant risks with the existing RSW. These are the following: 1) four dual fuel combustion turbines (CT); 2) three natural gas CT; 3) 400 million British Thermal Units per hour (MMBTU/hr natural gas CT; 4) NG CT, 400 MMBTU/hr, 5) dual fuel boilers-total 150 MMBTU/hr; 6) seven internal floating roof tanks; 7) four internal floating roof tanks; 8) fourteen vertical fixed roof storage tanks for distillates; 9) twelve internal floating roof storage tanks.

   Four sources have insignificant risks when using the existing RSW, but not the proposed RSW. These are the following: 1) seven internal floating roof tanks; 2) four internal floating roof tanks; 3) twenty-six internal floating roof tanks; 4) diesel boiler-6 MMBTU/hr.

   Three sources have insignificant risks when using either the existing RSW or the proposed RSW.

b. One of the source operations which passes the health risk assessment with the existing RSW but has a significant health risk with the proposed RSW is the 6 MMBTU/hr diesel fuel boiler. However, this source operation can be permitted under General Permit GP-018A "Boiler(s) and/or Heater(s) Each Greater than or Equal to 5 MMBTU/hr and less than 10 MMBTU/hr," which does not require the applicant to perform a health risk assessment. Also, if a facility chooses not to use this General Permit, the facility could request the risk assessment analysis that was developed for the General Permit be considered when the case specific risk evaluation is being conducted.

c. Fourteen of the sixteen scenarios assumed continuous operation (8760 hours per year). Carcinogenic risks and non-carcinogenic annual and 24-hour/8-hour non-carcinogenic risks can be decreased proportionally to any enforceable operating limitations that are taken.

d. Three of the source types involve natural gas turbines, each with a capacity of 400 MMBTU/hr. Turbines with this capacity may need refined modeling to predict the impact of the criteria pollutants. The refined modeling could also be used to evaluate the risk from the turbine's HAP emissions.

However, the analyses for these turbines demonstrate that the proposed RSW could still be used to determine that the health risks are negligible. The HAP emissions appear to be based on AP-42, Table 3.1-3 "Emission Factors for Hazardous Air Pollutants from Natural Gas-Fired Stationary Combustion Turbines." The analysis for each turbine results in a significant risk for formaldehyde. Footnote f of Table 3.1-3 states that if a SCONOX catalyst is installed, the formaldehyde emissions would decrease by approximately 97%, which would result in the revised RSW showing negligible risk from the formaldehyde emissions. In addition, each of the three RSW assumes that all of the PAH emitted are benzo(a)pyrene. If the PAH can be speciated into individual PAH, as is discussed in Footnote b of draft RSW, the benzo(a)pyrene risk level would be decreased, possibly to a negligible level.

Items a.-d. above demonstrate that the revised RSW analysis for several of the sources show negligible risk, and if certain assumptions can be made and enforceable operating limitations accepted, negligible risks could also be demonstrated for other source operations and contaminants.

3. COMMENT: During the June 7, 2019 ISG meeting, intermediate health risk screening steps between the RSW and refined analysis were discussed. This could include revising the underlying modeling in the RSW so that an applicant or permit writer can account for source parameters that will impact dispersion (e.g., exit temperature and exhaust volume) to create a more useful and still protective RSW. NJDEP should work with stakeholders to develop such options and adopt any revised RSW concurrent with those other screening tools. (1, 2)

   RESPONSE: The Department will continue to work with stakeholders to develop variations to the RSW that would allow parameters such as stack exit velocity and terrain surrounding the facility to be taken into consideration.

4. COMMENT: During DEP's analysis of source specific categories, they concluded that RSWs specific to natural-gas boilers, natural-gas turbines, and process related combustion sources (i.e., ovens) were not necessary. The reasoning provided was that these sources either: 1) Qualified for a General Permit (GP or GOP); or 2) Did not pose a significant impact relative to other sources at the large facilities where they are typically found. The Department should continue to implement these types of analyses. (1, 2)

RESPONSE: The Department will continue to evaluate source operation types which do not typically qualify for General Permits (GP or GOP) to determine if any general assumptions could be considered which would lower the health risk predicted by the RSW. The Department is evaluating natural gas engines to determine if the equipment's operating parameters are sufficiently consistent that a risk screening procedure for these sources can be developed. The findings of this evaluation will be shared with stakeholders once it is complete.

5. COMMENT: An unrealistically conservative RSW does not make the health risk assessment process more protective. Today, using the current RSW, when a permit application fails the RSW and performs the complex refined analysis, the vast majority of the applications pass the refined analysis step without making any real health risk mitigation. The proposed revisions to the RSW will kick most sources into refined modeling, and again we expect that the vast majority of applications will pass that step. (1, 2)

RESPONSE: The revised RSW is not unrealistically conservative. As mentioned in Response to Comment 1, the Department relied on the most current and accurate scientific techniques in developing its procedures as defined in TM 1003 to be protective of public health. Several advancements have occurred over the past 10 years since the original RSW had been developed. Such advancements include improvements to air quality simulation modeling, and more accurate air toxic risk factors based on the latest research conducted. In addition, the Department would expect that a refined risk analysis would be required in all cases where a source operation has a low stack height or is located close to the property line, or when the risk factors themselves become more protective.

There will be additional new and modified source operations that will no longer be able to demonstrate a negligible health risk using the revised RSW. Applications for these source operations must undergo refined air quality modeling and risk analyses. Some of the refined analyses will result in a negligible health risk and no additional risk mitigation would be necessary. However, other refined analyses will show a non-negligible risk and will result in the facility taking actions to reduce its off-site impact. Although the exact percentage of the applications which will require risk mitigation cannot be determined, the use of the revised RSW will contribute to ensuring that no permit approval is granted which will result in a significant health risk.

Please note, the current air regulations require risk evaluation which may include refined modeling. The RSW is an optional tool developed by the Department to simplify that process at the permittee's discretion. A facility always has the option to propose an alternative risk evaluation, which could include unit risk factors and reference

concentrations (RfC) which are different from those embedded in the RSW. These alternative air toxic factors may be accepted by the Department if they are generated by a recognized organization, such as the USEPA, and are based on recently issued data.

6. COMMENT: NJDEP should consider deferring the proposed changes to the RSW until after the current Subchapter 17 rulemaking effort. In particular, whereas NJDEP has indicated its intention to add sulfuryl fluoride (SF) to Subchapter 17 (N.J.A.C. 7:27-17), but has not yet done so, it would be premature to add SF to the RSW. Further, the RfCs identified by NJDEP for SF in the proposed RSW must be fully evaluated, with opportunity for robust public comment, including from affected sources. (1, 2)

   RESPONSE: The Department will not defer proposed changes to the RSW until after the current N.J.A.C. 7:27-17 is complete. The changes to the RSW involve the incorporation of the most current air quality evaluation computer models, meteorology, and toxicity factors. These inputs are independent of revisions to N.J.A.C. 7:27-17 that will be proposed for public review and comment. However, as outlined in Response to Comment 8 below, the Department is removing the SF RfC from the issued RSW, which now states that a SF RfC will be proposed for public review and comment after the Department reviews the California Environmental Protection Agency's (CalEPA) conclusions scheduled to be issued by early 2021 as well as any additional information and data published by recognized government or academic entities.

7. COMMENT: With the proposal on the draft RSW, the Department has failed to act with transparency, good faith, and open dialogue with the public and stakeholder groups. On May 1, 2019, just seven days before the draft RSW was issued for public comment, the Department stated that, "Nothing is proposed yet, nor do we have a set schedule yet." (3)

   RESPONSE: The RSW process was transparent and afforded all stakeholders sufficient opportunity to provide input. The RSW Public Notice, RSW Fact Sheet, and RSW were posted on the Department's website on May 7, 2019. Also, the announcement of the draft RSW public comment period was issued through the Air Quality Regulation Listserv, which has over 1,450 subscribers. The RSW public notice stated that public comments should be submitted by June 10, 2019.

   As stated above, a discussion on the revised RSW was held at the June 7, 2019 ISG meeting in Trenton. Several attendees requested that the comment period be extended.

All comments that have been submitted to date have been accepted for consideration and response.

The May 1, 2019 correspondence mentioned in the comment is taken out of context. This correspondence was specific to the Department's current rule making process to adopt regulations for fumigation operations and not the RSW. Once issued, the revised RSW would be available as an optional tool for fumigation facility permit applicants to determine the potential health risks from air contaminant discharges in an efficient and cost-efficient manner. Consequently, proposing and adopting a rule and issuing a revised RSW are two distinct Department activities which have unique outputs.

Prior to the May 7, 2019 Notice announcing the SF RfCs, two fumigation facilities requested to use the existing version of the RSW to determine the ambient air impacts, and consequently the potential health risks, from the SF emissions. One of these facilities structured its SF usage and discharge parameters so that negligible risk could be demonstrated using the RSW. This expedited the review of the application by eliminating the need for a refined risk assessment. Although a refined risk assessment had to be conducted for the second facility, the RSW provided information which was used in drafting the permit application and the development of the fumigation discharge parameters.

As mentioned above, the RSW is an optional tool that can be used to demonstrate impacts to the areas surrounding a facility. A facility can propose an alternative risk evaluation, which could include unit risk factors and RfCs which are different from those embedded in the RSW. These alternative air toxic factors may be accepted by the Department if they were generated by a recognized organization, such as the USEPA, and were based on recently issued data.

8. COMMENT: The Department has arbitrarily, capriciously, and unreasonably decided to embrace an SF standard that has not been adopted in any other state or by the USEPA. The Department has offered no explanation, information or support for the desired SF standard. Instead, it appears to have simply adopted the recommendations of the July 2006 California Pesticide Health Risk Assessment ("2006 CA Pesticide Report") without hesitation or further review. There are several important flaws in this action.

   Historically, the Department has developed risk standards by evaluating toxicological studies that have been "peer-reviewed and gathered into databases" such as the USEPA's Integrated Risk Information System ("IRIS") or the California Office of Environmental Health Hazard Assessment ("OEHHA"). The 2006 CA Pesticide Report's recommended standards fail to meet these criteria. No other regulatory agency in the country has attempted to adopt and apply the standards suggested in the 2006 CA Pesticide Report with respect to air quality permitting.

Despite this, the Department still intends to adopt the SF standard without any explanation of its evaluation of the standards. The public is completely in the dark as to whether the Department conducted any internal analysis to determine whether the standards are appropriate or justifiable.

Further, the Department is fully aware of the pending and imminent revision of the 2006 CA Pesticide Report with respect to certain of the recommended SF standards. On March 3, 2017, the CA Department of Pesticide Regulation issued a memorandum which stated that it acknowledged the uncertainties contained within the 2006 CA Pesticide Report and recommended the revision of certain of the standards such that they be increased by a factor of 3, i.e., the standard be revised to be three times less stringent than initially published (see March 3, 2017 "Establishing Sulfuryl Fluoride Uncertainty Factors for Acute and Short-Term Exposures" Memorandum from the California Department of Pesticide Regulation- March 3, 2017 Memorandum). The Department's efforts to adopt the standards set forth in the 2006 report are thus premature and untimely.

The Department should not institute a RfC for SF until California, or a similar entity, does and proposes that standard. (3, 4, 5, 6, 7)

RESPONSE: The draft RSW issued for public comment on May 7, 2019 incorporated the SF RfCs that were listed in the March 3, 2017 Memorandum, and not the RfCs in the 2006 CA Pesticide Report. The CalEPA, through its Department of Pesticide Regulation (DPR) and its Office of Environmental Health Hazard Assessment (OEHHA), has been researching and issuing documents on the health impacts of SF for over ten years. The Department has accepted toxicity values issued by the CalEPA for other air toxics. In addition to California, Maryland regulates SF as a toxic air contaminant.

The following table summarizes the documents issued by the CalEPA concerning its findings on the health impacts resulting from the discharge of SF to the ambient air:

CalEPA document	Sulfuryl Fluoride Toxicity Finding[5]
July 1, 2005-Memorandum Findings on the Health Effects of the Active Ingredient: Sulfuryl Fluoride[1]	1. The OEHHA identifies sulfuryl fluoride as a candidate toxic air contaminant 2. The OEHHA concurs with issuance of sulfuryl fluoride reference concentrations
July 2006-Sulfuryl Fluoride (Vikane®) Risk Characterization Document Volume I Health Risk Assessment[2]	Lists a 24-hour sulfuryl fluoride reference concentration of 510 $\mu g/m^3$ and a long-term or chronic reference concentration of 10 $\mu g/m^3$
September 2006 - Sulfuryl Fluoride (Vikane®) Risk Characterization Document Executive Summary[3]	2006 CA Pesticide Report's recommended standards met the OEHHA criteria for including the standards as toxicity factors
March 3, 2017-Memorandum Establishing Sulfuryl Fluoride Uncertainty Factors for Acute and Short-term Exposures[4]	Lists an updated 24-hour sulfuryl fluoride reference concentration of 1,700 $\mu g/m^3$ and a long-term or chronic reference concentration of 60 $\mu g/m^3$

[1] https://www.cdpr.ca.gov/docs/emon/pubs/tac/tacpdfs/sulfluor/oehha_findings.pdf

[2] https://www.cdpr.ca.gov/docs/emon/pubs/tac/tacpdfs/sulfluor/final_rcd_vol1.pdf

[3] http://www.fluoridealert.org/wp-content/pesticides/sf.calif.sept.06.risk.summary.pdf

[4] https://www.cdpr.ca.gov/docs/risk/rcd/establishing_sulfuryl_fluoride.pdf

[5] $\mu g/m^3$ - micrograms per cubic meter

The CalEPA has informed the Department that it is currently reviewing all available data concerning the potential health risks resulting from the inhalation of SF and will be issuing its findings, including an updated SF RfC, by early 2021. As a result, the Department is removing the SF RfC from the issued RSW, which now states that a SF RfC will be proposed for public review and comment after the Department reviews the CalEPA conclusions as well as any additional information and data published by recognized government or academic entities.

9. COMMENT: The Department had relied on and adopted, without discussion, the analyses in the 2006 CA Pesticide Report and March 3, 2017 Memorandum, utilizing the draft SF RfCs from the March 3, 2017 Memorandum. However, the Department has failed to acknowledge that those documents have been recognized as flawed and the RfCs presented are not final. A 2014 Dow AgroSciences novel non-guideline postnatal DNT/toxicokinetic study (termed a special study) concluded that juveniles, compared to adults, were not more susceptible to SF. The 2014 special study, along with the existing SF toxicological database, demonstrated that the short-term SF RfC should be 1.2 ppm (5,010 $\mu g/m^3$).

   In June, 2017, Douglas Products submitted a written response prepared by toxicological experts to the March 3, 2017 Memorandum. These experts identified DPR's failure to consider the extensive existing SF toxicological database. These experts found that DPR used statistical methods and methods for deriving uncertainty factors which were not consistent with established guidelines by USEPA. Further, these expert reports explained how the special study in combination with the SF toxicology database document that young animals are not more sensitive than adults, contradicting the unjustified assumptions by DPR. In fact, these studies suggest that young animals may be less sensitive. This expert analysis confirmed that the uncertainty factor for intraspecies differences in susceptibility to SF should be 1X (= 1.2 ppm or 5,010 $\mu g/m^3$). (8)

RESPONSE: As outlined in Response to Comment 8 above, the RSW states that a SF RfC will be proposed for public review and comment after the Department reviews the CalEPA conclusions scheduled to be issued by early 2021 as well as any additional information and data published by recognized government or academic entities.