APPENDIX A:

Reponses to Comments on the AIR MONITORING NETWORK RESULTS FOR 2013 VOLUME 3

Comment Number	Comment	Response	Action
1.	**From CRLAF, NRDC, PANNA:** **Report's Focus on Negative Sampling Results is Misleading –** We think the report's focus on negative sampling results is misleading and conveys a false sense of security because it is based on skewed presentation of data and obscures the fact that health-based thresholds were exceeded in some locations.	DPR disagrees with this comment. All obtained results are included in the Results section of the report and in Raw Data file located in our Web Site < http://www.cdpr.ca.gov/docs/emon/airinit/2013_raw_data.pdf>. DPR staff attempts to fully and clearly state the obtained results and to compare those results with our previously established health screening levels to determine if any exceedances have occurred. If a pesticide exceeds its health screening level or any other regulatory target previously establish by DPR, further review is conducted as stated in the Results section of the report and in the Report's summary section. Every attempt is made by staff to convey the obtained results in clear and unbiased manner. Report format and presentation is consistent with previously released DPR study publications.	*No changes to report are needed. Suggestions were taken into consideration by DPR*

Comment Number	Comment	Response	Action
2.	**From CRLAF, NRDC, PANNA:** **Reporting Metrics –** Revise the draft report to present the results using clear and meaningful metrics and ensure that the conclusions clearly describe that some health based thresholds were exceeded.	DPR developed health screening levels for the monitored pesticides to place the results in a health-based context. The health screening level is the calculated air concentration based on a chemical's toxicity that is used to evaluate the possible health effects of exposure to the chemical. Although screening levels are not regulatory standards, they can be used to evaluate air monitoring results and determine if a more detailed assessment is warranted. Additionally, pesticides that have a risk management directive, regulatory goals are used instead of screening levels. Methyl bromide and chloropicrin are two pesticides for which the risk management directives specify air concentration goals for developing regulatory requirements. Data from the air network is used in part to determine the effectiveness of regulatory requirements. Therefore, it is more appropriate to compare the detected concentrations to the regulatory goals instead of screening levels. The manner in which pesticide air concentrations are stated in this Report, are consistent with previous DPR study publications. Pesticide concentrations measured in all three of our sampling locations are listed in various tables throughout the Report, and described in the Report's text and in the Report's conclusion and Executive Summary. DPR believes that Report's results are clearly and effectively presented and thus no changes are required.	*No changes to report are needed. Suggestions were taken into consideration by DPR*
3.	**From CRLAF, NRDC, PANNA:** **Site Locations –** Utilize the results of a comprehensive analysis comparing pesticide concentrations with pesticide use and weather patterns to revise the Air Monitoring Plan to more accurately assess exposures by identifying new monitoring sites where pesticide use is more representative of what is occurring regularly in communities.	DPR will take this comment along with other comments made by interested stakeholders into consideration before making a final decision on the future of the air monitoring network.	*No changes to report are needed. Suggestions were taken into consideration by DPR*

Comment Number	Comment	Response	Action
4.	**From CRLAF, NRDC, PANNA:** **Comprehensive Analysis of Data –** Conduct a comprehensive analysis comparing pesticide concentrations with pesticide use and weather patterns without further delay and publish this analysis within the next 6 months.	DPR is in the process of conducting a comprehensive evaluation of collected pesticide concentrations with reported pesticide use and weather pattern data for years 2011 – 2013. This evaluation will be included in a separate or amended report.	*No changes to report are needed. A separate or amended report will be released by DPR once described analysis is completed.*
5.	**From CRLAF, NRDC, PANNA:** **Monitoring Frequency –** Monitor more frequently during times of the year when use of specific pesticides is more frequent in order to assess peak air levels.	Increased sampling during high use peak periods is not currently feasible considering that we monitor for 32 pesticides and 5 breakdown products, all of which do not have the same use seasons. Due to budgetary constraints, increased monitoring at high use area for small subset of pesticides out of the 37 chemicals monitored is not feasible. The intent of the study if to look at long-term exposure in the areas of highest use.	*No changes to the report are needed. Suggestions were taken into consideration by DPR*
6.	**From The Chloropicrin Manufacturer's Task Force:** **Place Screening Levels in Proper Context –** While DPR states that the screening level is not a regulatory level, it should more clearly explain the screening level. Informing the reader that while average air concentration is above the screening level, it is 146 times lower than the number that DPR has set forth in its Risk Management Directive would help the reader place the number in context.	Screening level are clearly defined in Report's Summary (Page i) and on Pages 7-8 of the Report. The report clearly states that: "DPR developed health screening levels for the monitored pesticides to place the results in a health-based context. Health screening levels are calculated air concentrations based on a chemical's toxicity that is used to evaluate the possible health effects of exposure to the chemical. Although screening levels are not regulatory standards, they can be used to evaluate air monitoring results. A measured air concentration below the screening level for a given pesticide would not be considered a significant health concern and would not generally undergo further evaluation at this time. A measured concentration that is above the screening level would not necessarily indicate a significant health concern, but would indicate the need for a further, more refined evaluation. Significant exceedances of the screening levels could be a health concern and may indicate the need to explore the imposition of mitigation measures. More information on DPR determined screening levels including information on deriving screening levels for each individual pesticide have been summarized on AMN's Volume 1 report (DPR, 2013)".	*No changes to the report are needed. Suggestions were taken into consideration by DPR*

Comment Number	Comment	Response	Action
7.	**From The Chloropicrin Manufacturer's Task Force:** **Risk Assessment Statements Outside of Context of the Report –** The Air Monitoring Network draft report is not a risk assessment for any specific pesticide, or an assessment of the comparative risk of monitored pesticides, but rather is report of the potential presence of the listed pesticides in ambient air above selected screening levels, which as noted are not regulatory levels. Therefore, statements regarding risks are not within the context of the report and should be removed.	DPR disagrees that a complete risk assessment is needed before any evaluation of risk can be made. As defined in the report, a screening level is a trigger for DPR to conduct a more detailed evaluation of the potential risk. DPR has followed the same process and evaluation for previous projects.	*No changes to the report are needed.*
8.	**From Dow AgroSciences:** **Speculative Characterization of 1,3-dichlropropene (1,3-D) –** The Department's draft report, "Draft Air Monitoring Network Results for 2013. Volume 3. September 2014. Report Air 4-01" asserts: "1,3-D did not exceed a DPR screening level. However 1,3-D was detected at a level, that if continued for 70 years, would be above a DPR regulatory target" DOW AgroSciences objects to this speculative characterization of 1,3-D exposures in light of the Department's own 3-year air monitoring data and the toxicological relevance of AMN detection levels. Furthermore, DPR's exposure scenarios include the assumption that 2013 levels would continue for 70 years, which is not consistent with 2011 and 2012 AMN data that prove otherwise, nor is 70 years even a realistic assumption given the robust new data on the mobility of populations in areas where 1,3-D is used.	DPR's characterization of the 1,3-D air concentrations is appropriate. The 1-year average concentrations as well as the overall 3-year average concentrations are given. This is more data to characterize a lifetime exposure than has been available previously. Dow AgroSciences has not provided the data to support the mobility of populations.	*No changes to the report are needed.*
9.	**From Dow AgroSciences:** **Results for 1,3-Dichloropropene –** DPR states in the draft AMN reports, "A concentration greater than 100% of the screening level suggests the need for further evaluation." DAS concurs that a comparison of 1,3-D monitoring results to acute, subchronic, and chronic screening levels over the past 3 years indicate no reason for concern, as all values were well below 100% of the pertinent screening levels.	Comment acknowledged by the Department. No response required.	*No changes to the report are needed.*

Comment Number	Comment	Response	Action
10.	**From Dow AgroSciences:** **1,3-D as a Carcinogen –** DPR's rationale for regulating 1,3-D as a carcinogen is based on a finding of benign tumors in lifetime high-dose animal studies. The animal toxicology studies for 1,3-D demonstrate that there are clear thresholds for tumor induction (see figure below). Concentrations that elicited increased incidences of tumors are more than 140,000 times higher than long-term average levels measured in ambient air in high demand areas and the lifetime average daily exposure that poses negligible increased risk. Based on the weight of the evidence, even if 1,3-D is considered a carcinogen, current agricultural uses of 1,3-D do not pose a cancer risk. It is therefore, overly conservative to regulate 1,3-D as a carcinogen at exposure levels that are not carcinogenic.	DPR is evaluating the new toxicology studies as part of its update to the 1,3-D risk assessment. DPR will not consider changing its regulatory target for 1,3-D until the updated risk assessment is complete.	*No changes to the report are needed.*

Comment Number	Comment	Response	Action
11.	**From Dow AgroSciences:** **Lifetime time frame assumptions used for 1,3-D Risk Assessment –** The draft AMN report further states that the cancer risk estimate: "…*assumes that the chronic exposure occurs every single day for a lifetime (70 years). However, this assumption is consistent with standard risk assessment procedures.*" (p. 40) While this assumption is used in some risk assessment procedures, it should not be applied when actual data to the contrary are available. The Department is assessing risk to 1,3-D with simple and conservative assumptions, especially regarding lifetime of exposure, even though considerable data exist to inform and refine those assumptions including a new study conducted for DAS which was targeted specifically at determining the residency and mobility patterns of residents in areas with significant 1,3-D use. The results of that study were consistent with existing national data which show that residents of the U.S. are mobile and move frequently. In fact, the assumption of 70 years living in a single dwelling in a high use area represents the 99.99th percentile. The 95th percentile of residence time in a high use area is about 50 years, while the average residence time is less than 30 years. Furthermore, the average time spent at the very same residence was 5-6 years. These new data clearly indicate that the assumption that an individual is exposed at the same location for 70 years is unrealistic and inappropriately conservative. The study also showed that residents spend an average of 13% of their time completely outside of the high use area over the course of a year. While the highly conservative assumption of 70 years may be warranted in the absence of actual data, the residency and mobility study provides those data, specific to areas of 1,3-D use, to inform the assumptions made in the risk assessment regarding potential lifetime of exposure.	Dow AgroSciences has not provided the data to support these conclusions.	*No changes to the report are needed.*

Comment Number	Comment	Response	Action
12.	**From Dow AgroSciences:** **Uncertainty of Air Concentrations – Treatment of ND and Trace Samples** DAS has previously expressed concerns that areas where product use results in no detection, and especially areas where 1,3-D is not even used, are still included as contributing to the exposure assessments when non-detections (NDs) are counted as ½ the Maximum Detection Limit (MDL). Including 1,3-D NDs to a risk assessment when it hasn't even been used, or used as such low levels as to be undetectable, artificially inflates the cancer risk calculations.	Consistent with previous DPR reports, samples with concentrations above the minimum detection limit but below the LOQ can be identified as containing a *trace* amount but the concentration cannot be measured reliably. When calculating average concentrations or other statistics, DPR assumes that samples with a trace concentration have a concentration at the midpoint between the MDL and the LOQ. As with the MDL, the LOQ is a characteristic of both the method and the chemical. Different methods can have different LOQs limits for the same chemical. The same method can have different LOQs for different chemicals. When calculating the highest 4-week rolling concentrations and overall average concentration for pesticides with at least one detectable concentration, comparisons of three different methods which treat samples with no detectable concentration and trace concentrations differently have been performed in the past and results have been presented in previous versions of the Air Monitoring Network Results Report (Page 49 of AIR MONITORING NETWORK RESULTS FOR 2011, Volume 1). Results show that replacing DPR's standard method with any of the two alternative methods tested does not affect the "% Screening Levels" by a large enough margin to alter the report's findings. Therefore, current DPR's standard method for treating samples with no detectable concentration and trace concentrations will remain the same.	*No changes to the report are needed.*
13.	**From ARB:** **Acknowledgments –** Thank you for acknowledging ARB's monitoring and lab staff, and the Quality Assurance team members. We'd suggest moving a clause from the Glossary definition of MLD to the Acknowledgments, so that it reads that the QA team members are being acknowledged for auditing the air monitoring network. That clause didn't seem appropriate in defining MLD in the Glossary. Also, we'd state that staff of MLD audited the monitoring network at the request of DPR, not at the "petition" of DPR as currently stated.	Acknowledgements section has been edited to incorporate the suggested changes. The related sections have been edited as stated below:: "We also would like to thank the Air Resources Board's monitoring and laboratory staff and the Quality Assurance team members. Staff from ARB's Monitoring and Laboratory Division audited the Air Monitoring Network at the request of the DPR". Glossary section has been edited to read: "MLD: Monitoring and Laboratory Division. The MLD is the monitoring and laboratory division of the California Air Resources Board".	*Suggested changes to the report were made.*

Comment Number	Comment	Response	Action
14.	**From ARB:** **Glossary –** On page vi, ARB is described as being part of Cal/EPA. We suggest describing DPR in the same way. Also, QA is defined as "Quality Assurance team." We assume this should be "quality assurance."	Glossary Section has been edited to incorporate the suggested changes. The related sections have been edited as stated below: "DPR: California Department of Pesticide Regulation, part of Cal/EPA" and "QC: Quality Control"	*Suggested changes to the report were made.*

Comment Number	Comment	Response	Action
15.	**From ARB:** **Average concentrations –** Pages 23-25 describe overall average concentrations for all samples collected in 2013, with data presented in Tables 11 and 12, comparing the average concentrations with acute, subchronic, and chronic screening levels (health values). We interpret these averages as being the average of all three monitoring sites. We suggest that this be clarified. We also suggest that it would be more meaningful to present a table with the highest annual average concentration for each pesticide (a table similar to Table 11) found at any of the three monitoring sites, rather than averaging the three sites together. A network of three sites is hardly sufficient to approximate a statewide average. While the report doesn't describe this as a statewide average, we are concerned that someone reading the report may make such a conclusion. Also, it is not clear why data for Dacthal are noted as leading to the highest chronic exposure of any of the monitored pesticides, with data presented in Table 11 for average concentrations, but not in Table 12 for average concentrations for pesticides with quantifiable concentrations. If Dacthal's high chronic exposure is due to trace concentrations (concentrations between the detection limit and the limit of quantification), that point should be made in the text.	Text on Page 23 states that Table 11 refers to "all samples collected from January 1, 2013 to December 31, 2013". Text on Page 25 was amended to clearly state that pesticides listed in Table 12 refer to all sampling locations. New text reads: "Table 12 summarizes the magnitude of the air concentrations relative to the screening levels for the 14 pesticides and breakdown products that had quantifiable concentrations in at least one sample from all sampling locations". Pages 25 through 40 list pesticide and breakdown product air concentrations based on monitoring location, whereas Pages 13-24 provide collective results based on all sampling locations. Furthermore, Table 13 (Salinas), Table 16 (Shafter), and Table 19 (Ripon) present the highest annual average concentration for all pesticides in the air network within each sampling location. As illustrated on Table 11, although Dacthal's overall average concentration is 6.9 ng/m^3, the chronic screening level is 47 ng/m^3 and thus the percent of screening level is the highest of all pesticide and breakdown products included in the Air Monitoring Network. A note on Page 23 has been added to clearly state that Dacthal highest detection in 2013 from all three sampling locations was at trace levels. The note added reads as follows: (Note: The highest concentrations detected for Dacthal were at trace levels; Therefore, Dacthal's high chronic exposure is due to trace concentrations relative to its screening level.)	*Some of the suggested changes to the report were made.*

Attachments: Comments Correspondence

October 31, 2014

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RE: Comments on DPR Air Monitoring Network Draft 2013 Report

Dear Dr. Vidrio:

Thank you for providing an opportunity to comment on the Draft 2013 DPR Air Monitoring Network Report. We appreciate the detailed level of presentation of data and the tables comparing results with previous air monitoring.

However, as explained below, we think the report's focus on negative sampling results is misleading and conveys a false sense of security because it is based on a skewed presentation of the data and obscures the fact that health-based thresholds were exceeded in some locations. We also strongly disagree with the Department's statement announcing AMN results: "For the third year in a row, the CDPR air monitoring in various California rural agricultural communities shows that the majority of monitored pesticides were found well below levels that indicate a health concern or need for further evaluation." The Department has an obligation to communicate to the public the significance of the sampling results in terms of what was found and how the results correlate with weather and pesticide use patterns.

The statement that 92.9% of 6,033 samples had no detectable pesticide concentrations, which is emphasized in the report, is highly misleading because it obscures the realities of pesticide use patterns. In order to reach a total of 6,033 positive sampling results, every pesticide tested for would have to be found on each of the 159 days when samples were collected at each of the three air monitoring sites. In reality, use of most pesticides is concentrated in certain months and since pesticide use varies between crops and regions, some of the pesticides monitored for are rarely, if ever used near some of the monitoring sites. Therefore, it is meaningless to use the total number of samples for all pesticides

and at all locations, as the denominator. The detection frequency should be calculated based on what pesticides were used in the vicinity and in the time-frame being sampled.

Of far greater significance, Table 4 shows that the carcinogenic fumigant 1,3 D was detected in 20% of samples, the fumigant breakdown product MITC was detected in 30% of samples, the carcinogenic fungicide chlorothalonil was detected in 35% of samples, the neurotoxic insecticide chlorpyrifos and chlorpyrifos oxon breakdown product were detected in 33% and 26% of samples, respectively. Table 8 shows that there was at least one positive pesticide detection in Salinas on 64.2% of days when samples were collected, on 83% of sampling days in Ripon and all 100% of sampling days in Shafter.

Sampling sites: location, proximity, comparisons

Although the majority of monitoring results were well below DPR's health screening levels and many were trace level detections, the available evidence suggests that that the sampling locations are not capturing the highest exposures. The air monitoring stations are not located in areas of each community where pesticide use is highest or even typical. In particular, the Salinas monitoring site is both predominantly upwind of the high agricultural pesticide use area and on the outskirts of the community. Therefore, the low levels reported from these monitoring stations do not alleviate concerns about potentially hazardous exposures.

This draft report acknowledges that other monitoring has found significantly higher levels of pesticides in the air in other communities around the state. With the exception of EPTC, concentrations measured in Salinas and Ripon were much lower than concentrations measured in other parts of the state by ARB, PANNA and by DPR in Parlier. Concentrations of 1,3 D, chlorothalonil, chlorpyrifos and chlorpyrifos oxon measured in Shafter were higher than maximum 24 hour concentrations measured by DPR in Parlier but lower than concentrations measured by ARB and PANNA in other parts of the state. This calls into questions the suitability of the current Air Monitoring Network sites and the relevance of the results.

One of the stated scientific objectives of the Air Monitoring Network, reiterated in the introduction to this report, is to attempt to correlate concentrations with use and weather patterns. In the final report of Air Monitoring Network results for 2011, the department stated that a comparison of detected pesticide concentrations with pesticide use patterns and weather conditions would be completed once pesticide use reports for 2011 became available and that this evaluation would be included in the report of 2012 AMN results.[1] However, the 2012 report did not include or mention this analysis. Both air monitoring and pesticide use data are now available for 2011 and 2012 so this comprehensive analysis should be completed without further delay. The analysis should examine both weather patterns and use of all monitored pesticides within 1.5 miles and 5 miles of each Air Monitoring Site and report on the distance to the closest agricultural fields. We note

[1] CDPR Air Monitoring Network Results for 2011. Volume 1. March 2013. http://www.cdpr.ca.gov/docs/emon/airinit/amn_vol1_final.pdf

with concern that the discussion section of this draft report only mentions plans to conduct further analyses of 1,3 D and chloropicrin use patterns. This is insufficient and this type of analysis must not be limited to these two pesticides.

Pesticides of concern and screening levels

We are very concerned that if annual average levels of 1,3 D averaged over 2011- 2013 at each site are sustained, the cancer risk will exceed DPR's designated level of concern at both the Ripon and Shafter sites and will exceeds the 1 in one million risk level at all three sites. None of these sites are located within townships where cap exceedances have been granted illustrating that additional mitigations are needed.

The exceedance of the chloropicrin seasonal screening level at the Salinas site is especially troubling because there are many areas of heavier chloropicrin use in Salinas and other areas of the central coast. The average concentration of chloropicrin was 413 ng/m^3 in Salinas and 177 ng/m^3 in Ripon. If sustained over time, both concentrations greatly exceeds the reference concentration of 1.6 ng/m^3 for controlling cancer risk to the 1 in a million level which was established in the DPR Chloropicrin Risk Characterization document and supported in review by OEHHA and the TAC Scientific Review Panel.

We note that chlorpyrifos and its degradation product respectively were found in 75% and 55% of samples at the Shafter site. If the early-life vulnerability for the fetus and young children were to be taken into account in the acute and sub-chronic screening levels using the FQPA 10X factor (as it is in the chronic screening level), highest one day level measured at the Shafter site was three times the screening level. Similarly the highest 4-week rolling concentration, exceeded the sub-chronic screening level adjusted for early-life vulnerability. It is worrisome that the assessment of cumulative inhalation exposure to organophosphates for Shafter found an acute hazard index of 0.742. If early-life vulnerability were accounted for in the acute screening levels for organophosphates this hazard index could likely exceed 1. Similarly, this cumulative assessment does not incorporate exposures via other exposure routes. The fact that the risk cup is ¾ of the way full just from inhalation exposure and without consideration of early-life vulnerability suggests that further assessment of organophosphate exposures in the Shafter area are warranted.

The carcinogenic fungicide chlorothalonil was also found in 60% of samples in Shafter at low or trace levels and in a more centrally located site levels would be expected to be higher. In this draft, DPR uses an acute and sub-chronic screening level of 34,000 ng/m^3 based on an oral toxicity study in 2007. DPR developed a screening level of 560 ng/m^3 based on an inhalation toxicity study in 2003. In 2012, U.S. EPA proposed using an acute inhalation study as a basis for their level of concern, which would give an inhalation-based reference exposure level (equivalent to DPR's screening level) of 260 ng/m^3. The health standards for chlorothalonil have shifted several times over the past few years, indicating that DPR should prioritize and develop a proper evaluation of inhalation toxicity of chlorothalonil—including consideration of low doses.

Conclusion

In conclusion, we urge the Department to:

- Revise the draft report to present the results using clear and meaningful metrics and ensure that the conclusions clearly describe that some health based thresholds were exceeded.
- Conduct a comprehensive analysis comparing pesticide concentrations with pesticide use and weather patterns without further delay and publish this analysis within the next 6 months.
- Utilize the results of this analysis to revise the Air Monitoring Plan to more accurately assess exposures by identifying new monitoring sites where pesticide use is more representative of what is occurring regularly in communities.
- Monitor more frequently during times of the year when use of specific pesticides is most frequent in order to assess peak air levels..

These actions are needed to provide information that is useful in assessing the true nature of risk in those communities where pesticide exposure is most likely to happen. Thank you for the opportunity to provide input on the draft report. We look forward to working with you to improve the Air Monitoring Program so that it can provide critical information needed to accurately assess pesticide exposures of all Californians and prevent pesticide health impacts.

Sincerely,

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October 31, 2014

VIA EMAIL (edgar.vidrio@cdpr.ca.gov)
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Re: Draft Report on DPR Air Monitoring Network Results for 2013

Dear Mr. Vidrio:

The Chloropicrin Manufacturers' Task Force (CMTF) appreciates the opportunity to provide comments on the draft report for the Air Monitoring Network Results for 2013. The CMTF represents registrants of products containing chloropicrin that are registered for use in California. The CMTF offers the following comments on the draft report.

Need to Put the Screening Levels in Context

In the Summary and elsewhere in the draft report DPR notes that there was a 4-week average air concentration of 3,200 ng/m^3, which is above the DPR subchronic screening level. While DPR states that the screening level is not a regulatory level, it should more clearly explain the screening level. For example, 3,200 ng/m^3 is less than 0.5 part per billion (ppb). In its Risk Management Directive, DPR determined that "the appropriate regulatory target level to restrict acute exposure to chloropicrin is 73 parts per billion (ppb) or 0.073 ppm averaged over an eight-hour period." DPR noted that the level would protect against ocular effects. DPR further noted that "we believe that addressing the ocular effects during acute exposures will address the seasonal and chronic effects from inhalation exposures to chloropicrin." USEPA also used the 73 ppb in its risk assessment for the ReRegistration Eligibility Decision (RED). Informing the reader that while average air concentration is above the screening level, it is 146 times lower than the number that DPR has set forth in its Risk Management Directive would help the reader place the number in context. The average reader is not likely to know that 3,200 ng/m^3 is less than one-half of one part per billion, or 0.5part per billion.

The data in this draft report show that chloropicrin was detectable in only 10 out of a possible 159 detections during the monitoring period. DPR has stated that it is conducting a more detailed review. CMTF believes that more information on the applications, weather conditions, etc. for the dates of the detections would be useful.

Risk Assessment Statements Outside of the Context of the Study Draft Report

Page 25 of the draft contains statements regarding risks. The Air Monitoring draft report is not a risk assessment for any specific pesticide, or an assessment of the comparative risk of monitored pesticides, but rather is report of the potential presence of the listed pesticides in ambient air above selected screening levels, which as noted above are not regulatory levels. Therefore this statement and similar statements regarding risks are not within in the context of the report. Moreover, without contextual information on the screening levels as noted above, the statements may confuse and unnecessarily alarm the readers. We therefore believe that these risk statements should be removed from the report.

The CMTF appreciates the opportunity to provide these comments on the draft report. Should you wish to discuss these comments further, we are available to meet with you at your convenience.

Sincerely

Stephen Wilhelm
Chairman
Chloropicrin Manufacturers' Task Force

Dow AgroSciences

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31 October 2014

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DOW AGROSCIENCES COMMENTS ON AIR MONITORING NETWORK RESULTS FOR 2013

Dear Mr. Vidrio;

Dow AgroSciences (DAS) is pleased to provide comments on the Department's recently released Air Monitoring Network Results for 2013.

The California Department of Pesticide Regulation issued a press release on September 23, 2014, "DPR 2013 Air Monitoring Shows Most Pesticides Well Below Health Screening Levels." While the press release reported encouraging news that the majority of the monitored pesticides were found well below levels that indicate a health concern, it also contained a mischaracterization of risk to 1,3-dichloropropene (1,3-D). DPR wrote:

> *"1,3-D did not exceed a DPR screening level. However 1,3-D was detected at a level, that if continued for 70 years, would be above a DPR regulatory target."*.

Dow AgroSciences objects to this speculative characterization of 1,3-D exposures in light of the Department's own 3-year air monitoring data and the toxicological relevance of AMN detection levels. Further, DPR's exposure scenarios include the assumption that 2013 levels would continue for 70 years, which is not consistent with 2011 and 2012 AMN data that prove otherwise, nor is 70 years even a realistic assumption given the robust new data on the mobility of populations in areas where 1,3-D is used.

The Department's draft report, "DRAFT AIR MONITORING NETWORK RESULT FOR 2013. Volume 3. September 2014. Report AIR 4-01" asserts the same mischaracterization of potential 1,3-D exposures and contains many contradictions. More detailed comments on the Report follow.

Results for 1,3-Dichloropropene

DPR's Air Monitoring Network (AMN) provides three years of weekly monitoring results that demonstrate low levels of 1,3-D being detected and low acute and chronic risks. In each year of the monitoring program, 1,3-D detections were well below the Department's acute and chronic screening levels.

From 2011-2013, the highest single monitoring result at each of the 3 locations ranged from 7-25% of the Department's screening level of 160,000 ng/m^3, while the majority of samples resulted in no detection (ND). It is important to note that these are single monitoring events and do not represent an annual distribution of 1,3-D concentrations.

Table 1. Highest one-day concentration for 1,3-dichloropropene. (from draft AMN report).

Year	Highest 1-day concentration (ng/m^3)	1-day acute screening level (ng/m^3)	% of screening level
2011	12,250	160,000	7.660
2012	3,643	160,000	2.277
2013	39,969	160,000	24.98

The 4-week average results are also well below the subchronic screening level of 120,000 ng/m^3.

Table 2. Highest of rolling 4 week average air concentrations of 1,3-dichloropropene. (from draft AMN report).

Year	Highest 4-wk rolling concentration (ng/m^3)	Subchronic screening level (ng/m^3)	% of screening level
2011	4,020	120,000	3.352
2012	1,135	120,000	0.946
2013	18,022	120,000	15.02

Likewise, three years of data show annual average air concentrations of 1,3-D are well below the Department's chronic screening level of 120,000 ng/m^3.

Table 3. Overall average air concentration for 1,3-dichloropropene. (from 2011-2013 AMN reports).

Year	Overall average concentration (ng/m^3)	Chronic screening level (ng/m^3)	% of screening level
2011	630	120,000	0.525
2012	370.6	120,000	0.309
2013	1,488.7	120,000	1.24

DPR states in the draft AMN reports, *"A concentration greater than 100% of the screening level suggests the need for further evaluation."* DAS concurs that a comparison of 1,3-D monitoring results to acute, subchronic, and chronic screening levels over the past 3 years indicate no reason for concern, as all values were well below 100% of the pertinent screening levels.

Table 4. Overall air concentrations relative to the screening levels for 1,3-dichloropropene. (from 2011-2013 AMN reports).

Year	% of acute screening level	% of subchronic screening level	% of chronic screening level
2011	7.625	3.352	0.525
2012	2.28	0.950	0.31
2013	24.98	15.018	1.095

Cancer Risk Estimates

DPR states that:

> *"1,3-D is classified as a probable human carcinogen by U.S.EPA and is listed as a carcinogen under Proposition 65"* (p. 40).

To date, DAS has chosen not to contest DPR's regulation of 1,3-D as a carcinogen given the current classification. We do note, however, that DPR's rationale for regulating 1,3-D as a carcinogen is based on a finding of benign tumors in lifetime high-dose animal studies. The animal toxicology studies for 1,3-D demonstrate that there are clear thresholds for tumor induction (see figure below). Concentrations that elicited increased incidences of tumors are more than 140,000 times higher than long-term average levels measured in ambient air in high demand areas and the lifetime average daily exposure that poses negligible increased risk. Based on the weight of the evidence, even if 1,3-D is considered a carcinogen, current agricultural uses of 1,3-D do not pose a cancer risk. It is therefore, overly conservative to regulate 1,3-D as a carcinogen at exposure levels that are not carcinogenic.

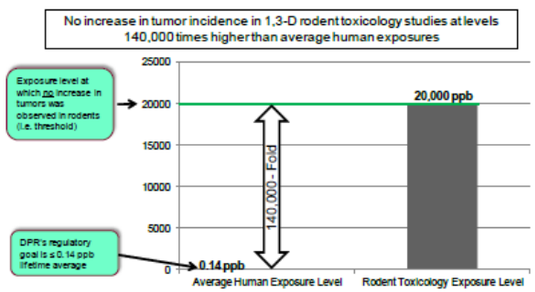

Figure 1. Comparison of CA DPR's regulatory goal of 0.14 ppb (650 ng/m^3) lifetime average vs. threshold exposure level of 20,000 ppb at which no increase in tumors was observed.

The draft AMN report further states that the cancer risk estimate:

> *"...assumes that the chronic exposure occurs every single day for a lifetime (70 years). However, this assumption is consistent with standard risk assessment procedures."* (p. 40)

While this assumption is used in some risk assessment procedures, it should not be applied when actual data to the contrary are available. The Department is assessing risk to 1,3-D with simple and conservative assumptions, especially regarding lifetime of exposure, even though considerable data exist to inform and refine those assumptions including a new study conducted for DAS which was targeted specifically at determining the residency and mobility patterns of residents in areas with significant 1,3-D use. The results of that study were consistent with existing national data which show that residents of the U.S. are mobile and move frequently. In fact, the assumption of 70 years living in a single dwelling in a high use area represents the 99.99th percentile. The 95th percentile of residence time in a high use area is about 50 years, while the average residence time is less than 30 years. Furthermore, the average time spent at the very same residence was 5-6 years. These new data clearly indicate that the assumption that an individual is exposed at the same location for 70 years is unrealistic and inappropriately conservative. The study also showed that residents spend an average of 13% of their time completely outside of the high use area over the course of a year. While the highly conservative assumption of 70 years may be warranted in the absence of actual data, the residency and mobility study provides those data, specific to areas of 1,3-D use, to inform the assumptions made in the risk assessment regarding potential lifetime of exposure.

DPR also concluded that 1,3-dichloropropene was one of only two pesticides that exceeded any of its screening levels for any of the exposure periods:

> *"The maximum annual average air concentration for 1,3-dichloropropene was 2,600 ng/m^3 at the Shafter site, or 3.47x of the 650 ng/m^3 regulatory goal for cancer risk, assuming the 2013 average concentration represents the average concentration for a 70-year lifetime."* (pg. 49)

As previously stated, DPR makes an unrealistic and inappropriate assumption by assuming the 2,600 ng/m^3 concentration measured at the Shafter site would represent a 70-year lifetime, but that ignores its own prior results. For the prior 2 years of monitoring in Shafter, 1,3-D levels were not detected (2011) and at level of only 453 ng/m^3 (2012). Clearly a 70 year lifetime exposure to levels seen in 2013 has NOT occurred. Extrapolating for the past 3 years of data, the Department could just as easily conclude that such levels measured in 2013 would only occur every 1 in 3 years.

The Departments AMN data corroborates what has been shown in multi-year simulation modeling over a multi-township region, which is that the <u>location</u> of the maximum annual average 1,3-D concentrations in air occur at <u>different</u> locations in each year, depending on the spatial and temporal dynamics of 1,3-D product use and the variability in weather. This is clearly shown by DPR's AMN data, where the annual average air concentration data for a single fixed location in space varies widely from year to year, and from location to location.

<u>Uncertainty of Air Concentrations – Treatment of ND and Trace Samples (p. 41)</u>

DAS has previously expressed concerns that areas where product use results in no detection, and especially areas where 1,3-D is not even used, are still included as contributing to the exposure assessments when non-detections (NDs) are counted as ½ the Maximum Detection Limit (MDL). Including 1,3-D NDs to a risk assessment when it hasn't even been used, or used as such low levels as to be undetectable, artificially inflates the cancer risk calculations. For example, the lack of detections in Shafter in 2013 can be largely explained by lack of use based on Pesticide Use Reporting for township:range 28S:25E which encompasses the city of Shafter as shown below:

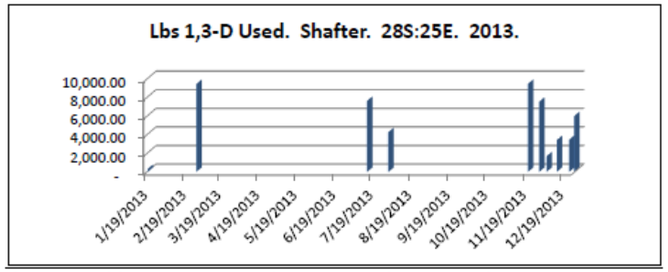

Figure 2. Pesticide use data for 1,3-dichloropropene in the township:range 28S:25E for Shafter, CA

For the past three years, the Department has provided an analysis of three different approaches to dealing with non-detects (NDs): treat as zero, treat as ½ the MDL, or treat as the MDL.

> *"... the cancer risk estimates for 1,3-D were calculated by treating samples with no detectable concentrations as having concentrations of 0 (Minimum), 1/2MDL (Standard), or MDL(Maximum):..."* (pg. 40)

> *"The method of calculation determines whether the risk is considered negligible or above that. Risk in the range of 10^{-5} to 10^{-6} or less is generally considered to be at the limit of what is considered to be negligible. DPR has set a cancer risk regulatory goal of 10^{-5} for 1,3-D. When calculated with concentrations of 1/2 MDL or the MDL the risk is greater than DPR's regulatory goal, and merits further evaluation. Therefore, it is evident that additional data and refined detection limits are necessary to determine a better estimate of risk."* (pg. 41)

DPR concludes in the 2013 AMN draft that handling of ND and/or trace samples does not appreciably impact the overall cancer risk assessment calculations. Use of zero vs. ½ MDL may have had minimal effect on the results of 2013 monitoring, but a comparison to 2011 and 2012 show a significant impact, often times dropping the cancer risk estimates by an entire order of magnitude.

In 2011, the difference between ND = 0 and ND = ½ MDL was an order of magnitude and decreased cancer risks from just over 1E-05 to less than 1E-06 in Salinas and Ripon. No quantifiable detections were made in Shafter in 2011. As seen in the bottom line of the table below, using zero vs. ½ MDL for Shafter results in a difference in cancer risk of zero risk vs. 3.5 x 10^{-6}.

Table 5. Minimum, standard, and maximum cancer risk estimates for 1,3-D in 2011. (see Table 32. DPR AMN Reports)

	Minimum (ND = 0*MDL)	Standard (ND = 1/2 MDL)	Maximum (ND = MDL)
Salinas	9.70E-06	1.37E-05	1.77E-05
Ripon	6.95E-06	1.13E-05	1.56E-05
Shafter	No quantifiable detections		
Shafter[1]	0	3.50E-06	7.00E-06

[1]Includes non-detects at 0, one half the MDL of 454 ng/m^3, or at the MDL of 454 ng/m^3 to calculate cancer risks where there were no quantifiable detections.

In 2012, the difference between using ND = 0 and using ND = ½ MDL was an order of magnitude in Salinas (7.26E-07 vs. 5.27E-06), and decreased cancer risks in Shafter by over 50% (3.38E-06 vs. 7.65E-06). No quantifiable detections were made in Ripon in 2012. As seen in the bottom line of the table below, using zero vs. ½ MDL for Ripon in 2012 results in a difference in cancer risk from zero risk vs. 3.5 x 10^{-6}.

Table 6. Minimum, standard, and maximum cancer risk estimates for 1,3-D in 2012. (see Table 32. DPR AMN Reports)

Sampling Location	Minimum (ND = 0*MDL)	Standard (ND = 1/2 MDL)	Maximum (ND = MDL)
Salinas	7.26E-07	5.27E-06	9.82E-06
Ripon	No quantifiable detections		
Shafter	3.38E-06	7.65E-06	1.19E-05
Ripon[1]	0	3.50E-06	7.00E-06

[1]Include non-detects at 454 ng/m3 to calculate cancer risks where no quantifiable detections.

The impact on the use of zero vs. ½ MDL is significant. DPR provides an estimate of the average cancer risk based on the past three years of monitoring. However, it appears the average risk for Shafter and Ripon are calculated only for those years where quantifiable levels of 1,3-D were detected.

Table 8. 1,3-D Cancer risk estimate comparisons for all three AMN sampling locations for sampling years 2011, 2012, and 2013. (see Table 33. DPR AMN Reports)

Sampling Location	2011	2012	2013	Average
Salinas	1.37E-05	5.27E-06	6.07E-06	8.35E-06
Shafter	----	7.65E-06	3.47E-05	2.12E-05
Ripon	1.13E-05	----	1.38E-05	1.26E-05

† Cancer risk estimates were calculated using 1/2MDL for samples with no detectable concentrations (standard method)

---- No quantifiable detections were measured at location during the sampling year.

A more accurate assessment of the average risk should include all three years, including those years when no quantifiable levels were detected: 2011 in Shafter and 2012 in Ripon. Using ½ the MDL of 454 ng/m^3 when no quantifiable levels were detected results in a cancer risk of 3.50E-06. When this is averaged with the other two years for Shafter and Ripon, the average cancer risk decreases to less than 1.0E-05 in Ripon and just barely above the 1.0E-05 for Shafter.

Table 9. Revision 1 of 1,3-D Cancer risk estimate comparisons for all three AMN sampling locations for sampling years 2011, 2012, and 2013, using all three year, with 1/2MDL for years with no quantifiable detections. (from Table 33. DPR AMN Reports)

Sampling Location	2011	2012	2013	3 Year Average
Salinas	1.37E-05	5.27E-06	6.07E-06	8.35E-06
Shafter	3.50E-06	7.65E-06	3.47E-05	1.53E-05
Ripon	1.13E-05	3.50E-06	1.38E-05	9.53E-06

Using zero when no quantifiable levels were detected and averaging with the other two years for Shafter and Ripon, the average cancer risk calculation decreases even further in Ripon and Shafter.

Table 10. Revision 2 of 1,3-D Cancer risk estimate comparisons for all three AMN sampling locations for sampling years 2011, 2012, and 2013, using all three year, with 0 for years with no quantifiable detections. (from Table 33. DPR AMN Reports)

Sampling Location	2011	2012	2013	3 Year Average
Salinas	1.37E-05	5.27E-06	6.07E-06	8.35E-06
Shafter	0	7.65E-06	3.47E-05	1.41E-05
Ripon	1.13E-05	0	1.38E-05	8.37E-06

Application of empirical values for residency and mobility to replace the conservative assumption of a 70 year lifetime of exposure, the theoretical lifetime cancer risk is less than 1.00E-05 for all three cities.

Summary

DPR's Air Monitoring Network (AMN) provides three years of weekly monitoring results that demonstrate that the low levels of 1,3-D detected pose low acute and chronic risks. In each year of the monitoring program, 1,3-D detections were well below the Department's acute and chronic screening levels.

Dow AgroSciences objects to the general and speculative characterization that detected levels if continued for 70 years, would exceed a DPR regulatory target. As detailed above, this objection is based on analysis of the Department's 3-year air monitoring data, the toxicological relevance of detection levels, and in consideration of realistic exposure scenarios based on data about population residency and mobility in areas where 1,3-D is used.

The Department's AMN data corroborates what has been shown in multi-year simulation modeling over a multi-township region, that the location of the maximum annual average 1,3-D concentration in air occurs at a different location each year depending on the spatial and temporal dynamics of 1,3-D product use and the variability in weather. This is shown in the AMN data, where the annual average air concentration data for a single fixed location in space varies widely from year to year, and from location to location.

The low levels of 1,3-D detected in the AMN program pose low acute and chronic risks and do not pose a cancer risk.

Thank you for your consideration of these comments.

Sincerely,

Brian

Brian L. Bret, Ph.D.
State Regulatory Manager

Cc: CA Correspondence File
Jim Baxter, Federal Regulatory Mgr
Randy Segawa, DPR
Aron Lindgren, DPR

Via Email Correspondence:

From: Lynn Baker
Subject: Comments on draft air monitoring network report

Pam/Edgar,

We reviewed DPR's draft report "Air Monitoring Network Results for 2013" and have a few minor comments. We appreciate you being willing to accept our comments beyond your comment period.

1. Acknowledgments – Thank you for acknowledging ARB's monitoring and lab staff, and the Quality Assurance team members. We'd suggest moving a clause from the Glossary definition of MLD to the Acknowledgments, so that it reads that the QA team members are being acknowledged for auditing the air monitoring network. That clause didn't seem appropriate in defining MLD in the Glossary. Also, we'd state that staff of MLD audited the monitoring network at the request of DPR, not at the "petition" of DPR as currently stated.

2. Glossary – On page vi, ARB is described as being part of Cal/EPA. We suggest describing DPR in the same way. Also, QA is defined as "Quality Assurance team." We assume this should be "quality assurance."

3. Average concentrations – Pages 23-25 describe overall average concentrations for all samples collected in 2013, with data presented in Tables 11 and 12, comparing the average concentrations with acute, subchronic, and chronic screening levels (health values). We interpret these averages as being the average of all three monitoring sites. We suggest that this be clarified. We also suggest that it would be more meaningful to present a table with the highest annual average concentration for each pesticide (a table similar to Table 11) found at any of the three monitoring sites, rather than averaging the three sites together. A network of three sites is hardly sufficient to approximate a statewide average. While the report doesn't describe this as a statewide average, we are concerned that someone reading the report may make such a conclusion.

   Also, it is not clear why data for Dacthal are noted as leading to the highest chronic exposure of any of the monitored pesticides, with data presented in Table 11 for average concentrations, but not in Table 12 for average concentrations for pesticides with quantifiable concentrations. If Dacthal's high chronic exposure is due to trace concentrations (concentrations between the detection limit and the limit of quantification), that point should be made in the text.

Please contact me with any questions regarding these comments.

Lynn

APPENDIX B:

California Air Resources Board's 2013 Flow Audits and Siting Evaluations of the Department of Pesticide Regulation's Air Monitoring Network Pesticide Samplers

Air Resources Board

Mary D. Nichols, Chairman
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov

Matthew Rodriquez
Secretary for Environmental Protection

Edmund G. Brown Jr.
Governor

November 14, 2013

Mr. Randy Segawa
Environmental Program Manager
Department of Pesticide Regulation
California Environmental Protection Agency
1001 I Street
Sacramento, California 95812

Dear Mr. Segawa:

The Quality Assurance Section (QAS) conducted flow audits and siting evaluations of the pesticide samplers at the Ripon, Salinas, and Shafter pesticide monitoring sites. The pesticide samplers at all three monitoring sites passed the established audit criteria of ±10 percent. The audit results are attached. One possible siting issue was observed and is detailed below.

For the flow audits, a mass flow meter (MFM) or flow transfer standard was connected in series with each pesticide sampler through the sampling cartridge to simulate actual operating conditions. The MFM readings were corrected to actual flow and compared to the sampler's actual flow. Flow transfer standard readings were taken under actual flow conditions.

QAS evaluated the sampler siting to determine compliance with the siting criteria specified in your 2010 Draft Air Monitoring Network Study Plan. The distance between a sample inlet to a tree drip line at the Ripon monitoring site was measured to be 38 feet. According to the Network Study Plan, there should be no obstruction within 65 feet from the nearest sample inlet. The tree foliage at Ripon could be an obstruction, depending upon the predominant wind direction. The wind patterns should be determined to decide whether the tree is an obstruction or could grow to be one in the future.

If you have any questions or comments about the audit, please contact Harnek Nijjar at (916) 322-7317, or via email at hnijjar@arb.ca.gov.

Sincerely,

/s/

Ranjit Bhullar, Manager
Quality Assurance Section
Monitoring and Laboratory Division

Attachment

cc: Pam Wofford
Senior Environmental Scientist
Department of Pesticide Regulation
California Environmental Protection Agency
1001 I Street
Sacramento, California 95812

Mike Miguel
Monitoring and Laboratory Division

Patrick Rainey
Monitoring and Laboratory Division

Lynn Baker
Stationary Source Division

Harnek Nijjar
Monitoring and Laboratory Division