From: Larry Hottenstein, Partner, ERM
Date: December 6, 2016

RESPONSE TO COMMENTS

Letter from Burke, Williams & Sorensen, LLP submitted to the Planning Commission on behalf of the City of Milpitas dated October 25, 2016

Page 11 – Item 3 – the specific opinions referenced from the BCH and CalRecovery reports are addressed below for each specific comment.

Letter from Paul Miller and Michael Ratte, BCH Group dated October 25, 2016

Bullet #1, Page 1 – the 4,810 odor complaints recorded by the BAAQMD represented the total number of odor complaints received from the "greater Milpitas area", which included the City of Milpitas, City of Fremont, and the City of San Jose and were not necessarily attributed to Newby Island Resource Recovery Park (NIRRP).

Bullet #2, Page 2 – the 232 "confirmed" odor complaints attributed to NIRRP represent approximately 4 percent of the total 5,717 odor complaints received during the December 2014 to June 2016 time period. In addition, these 232 complaints occurred on only approximately 109 days out of the 577 days in this time period.

Bullet #4, Page 2 – the odor modeling analysis is generally conservative by assuming that the odor emissions are constant over the time period modeled and represents potential odor occurrences somewhere in the defined area, not actual complaints. Based on actual odor complaints received during this time period, not all potential offsite odors will result in complaints. A complaint may not occur due to the spatial location of the predicted odors > 4 D/T with respect to the population. Also, the variability of the actual emissions means that the assumed constant emission rate used in the modeling may not occur simultaneously with the worst-case meteorology. To assume that each potential modeled odor occurrence results in 10 odor complaints, yielding a total of 50,050 complaints from Fremont and Milpitas, clearly overstates the issue and is not borne out by actual odor complaint records.

Bullet #5, Page 3 – electronic input and output files for the modeling analyses has been provided.

Bullet #6, Page 3 – as stated in the report, on-site odor observations and hydrogen sulfide measurements made during the two measurement programs did not show fugitive emissions of landfill gas as a major contributor to off-site odors. Because of the very high odor concentration measured for the landfill gas of > 60,000 D/T, any fugitive emissions of landfill gas would have been readily detectable. Apparently the installation of over 100 new landfill gas wells provided improved capture of landfill gas from earlier reports of fugitive landfill gas odor emissions.

Bullet #7, Page 3 – Odor emission samples were collected at different locations, at different times of day, and on different days during two seasonal periods to represent the range of emissions. Seasonal differences and a variety of meteorological conditions will influence the transport and dispersal of odors from the various NIRRP sources to off-site receptors, but will have little influence on the actual odor emission rates from these sources, which is why a dispersion model is used with a year of actual meteorological data to predict off-site odor levels from those emissions.

Bullet #8, Page 4 – the biosolids being stockpiled during the first field sampling program were relatively dry. During the second field sampling program, there was no biosolids stockpiling activity and the stockpiled area was covered with a layer of wood chips.

Bullet #9, Page 4 – due to the nature of most of the process operations, odor emission concentrations can vary greatly by specific location or activity within the process area. For example, the working face of the landfill may have a wide range of odor emissions associated with specific loads deposited. Some waste loads may be highly odorous, while others may not have any odor. In general, odor samples were only collected when odors were present. When modeling the working face as an area source (approximately 1.5 acres), it would not be appropriate to assign the highest odor concentration measured from a single truck load to represent the overall odor emission rate from the entire working face over time. Therefore, average measured odor concentrations were used. This is still considered a conservative approach, since the model assumes constant emissions during all working face operations, even when emissions may not be occurring. In addition, the model assumes that these constant emissions occur simultaneously with meteorological conditions, producing off-site odors > 4 D/T.

Bullet #10, Page 4 – an Excel Workbook has been provided that was used to convert sample odor concentration results to odor emission rates. In general, the AERMOD model requires a total mass per time emission rate (represented as grams/sec or grams per second per square meter, depending on the source type). Odors are not measured as a specific mass, but rather as a ratio of clean air volumes to odorous air volumes, which can be defined as an odor volume concentration. Thus, the total amount of odor volume must be calculated for input into the model as an emission rate. This is accomplished by multiplying the odor volume concentration (D/T) by the total volume rate that is emitting the odor. For point sources, the exhaust volumetric flow rate was used as the total volume rate. For fugitive odors being emitted out of buildings, the area of the opening times an assumed 0.1 meter per second speed of the air exiting the opening was used, representing natural draft. For fugitive odors being emitted from open surfaces, the rate of emissions exiting the surface was assumed to be 0.01 meters per second, representing volatilization. This value was multiplied by the area to estimate the total volume flow rate of odors for model input. Intermittent sources had emissions averaged over the time periods modeled.

Bullet #12, Page 4 – meteorological data and AERMET input and output files have been provided.

Bullet #13, Page 5 – a full year of valid on-site meteorological data was not available at the time of the modeling analysis. A comparison of on-site meteorological data with San Jose Airport data was performed for the months where concurrent data were available and San Jose Airport data was deemed representative of local wind direction and wind speed patterns at NIRRP. Therefore, San Jose Airport data was used because it is collected from a recognized National Weather Service station, had a full year of data corresponding to the desired time period (2015), and was determined to be representative of on-site conditions at NIRRP. The most recent year of available meteorological data (2015) was utilized for the modeling analysis to compare with 2015 odor complaint records and recent NIRRP operations.

Bullet #14, Page 5 – model input and output files and assumptions used have been provided.

Bullet #15, Page 5 – building downwash was incorporated for the baghouse stacks associated with the MRF.

Bullet #16, Page 5 – duplicative modeling using both AERMOD and CALPUFF dispersion modeling systems was not performed because CALPUFF is currently only

approved by the USEPA for far-field modeling analyses (> 50 kilometers) and will soon lose its approval status for any regulatory modeling application.

Bullet #17, Page 6 – intermittent sources were modeled for specific time periods to reflect specific short-term operations or processes. Green waste grinding was, in fact, modeled as an intermittent source operating only from 6 am to 3 pm daily. It is not feasible to establish variable emission rates for all hours of the year from all of the process areas due to the variable nature of wastes received and individual process operations.

Bullet #20, Page 6 – the modeling receptor grid was established around defined communities, which presumably have known concentrations, although population density was not within the scope of this modeling analysis. Model receptors were not placed where there was no population, i.e. west of NIRRP.

Bullets #21, Page 7 – the recommendations for odor reduction were general in nature and in some cases represent best management practices. It was beyond the scope of this study to provide detailed engineering analyses of odor control measures for specific process areas and process operations.

Bullet #23, Page 7 – predicting potential off-site odor levels from the increased landfill height was beyond the scope of this study and would not be possible without a detailed landfill expansion plan showing the locations of specific process areas over the years of landfill expansion. There is no basis for the conclusion of BCH Group that "the proposed project would clearly result in a substantial increase in the severity and/or duration of the odor impacts."

<u>Letter from George Savage, CalRecovery, Inc. dated October 25, 2016</u>

Item #1, Bullet #1 – ambient odor monitoring was conducted periodically downwind of NIRRP during both field sampling programs in Milpitas and in adjacent areas. Monitoring was conducted at varying times of day, including early morning hours during calm wind conditions. For the most part, no odors attributable to NIRRP were detected off-site and never in Milpitas. On one or two occasions a faint landfill odor was observed at the entrance to NIRRP and along the frontage road downwind of the MRF.

Item #1, Bullet #2 - an Excel Workbook has been provided that was used to convert sample odor concentration results to odor emission rates. In general, the AERMOD model requires a total mass per time emission rate (represented as grams/sec or grams per second per square meter, depending on the source type). Odors are not measured as a specific mass, but rather as a ratio of clean air volumes to odorous air volumes, which can be defined as an odor volume concentration. Thus, the total amount of odor volume must be calculated for input into the model as an emission rate. This is accomplished by multiplying the odor volume concentration (D/T) by the total volume rate that is emitting the odor. For point sources, the exhaust volumetric flow rate was used as the total volume rate. For fugitive odors being emitted out of buildings, the area of the opening times an assumed 0.1 meter per second speed of the air exiting the opening was used, representing natural draft. For fugitive odors being emitted from open surfaces, the rate of emissions exiting the surface was assumed to be 0.01 meters per second, representing volatilization. This value was multiplied by the area to estimate the total volume flow rate of odors for model input. Intermittent sources had emissions averaged over the time periods modeled.

Item #1, Bullet #3 – meteorological data for the one year modeled (2015) have been provided.

Item #1, Bullet #4 - the biosolids being stockpiled during the first field sampling program were relatively dry. During the second field sampling program, there was no biosolids stockpiling activity and the stockpiled area was covered with a layer of wood chips.

Item #1, Bullet #6 - the recommendations for odor reduction were general in nature and in some cases represent best management practices. It was beyond the scope of this study to provide detailed engineering analyses of odor control measures for specific process areas and process operations.

Attachments

1) Letter from Paul Miller and Michael Ratte, BCH Group dated October 25, 2016
2) Letter from George Savage, CalRecovery, Inc. dated October 25, 2016

October 25, 2016

Stephen Velyvis
Burke, Williams & Sorensen
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Oakland, CA 94612

Re: Review of the Newby Island Resource Recovery Park (NIRRP) - Odor Assessment Report

RCH Group (RCH) received a copy of the Newby Island Resource Recovery Park (NIRRP) – Odor Assessment Report [Odor Report] (September 2016) and provides the following information for consideration at the San Jose Planning Commission meeting on October 26, 2016.

Overview:

The Odor Report provides valuable information that explains why there have been so many verified odor violations in Milpitas/Fremont resulting from the various major processes at NIRRP. The Odor Report recommends several mitigation measures to reduce the odor impacts on Milpitas/Fremont but the Odor Report does not provide any analysis or evidence that the mitigation measures would actually eliminate odor nuisance/impacts that regularly affect residences and businesses in Milpitas/Fremont.

Regardless of its Deficiencies, the Odor Report Confirms the History of Confirmed Odor Complaints and Related Notices of Violations in the City of Milpitas and that the NIRRP Is Causing Significant Odor Impacts:

The Odor Report clearly shows that the major facilities at NIRRP are creating ongoing significant adverse odor impacts in adjacent Milpitas and Fremont areas. In the period studied, approximately 65 percent of the odor complaints in the nine-county Bay Area Air Quality Management District (BAAQMD) jurisdiction were from one area, the City of Milpitas, and the Odor Report clarifies the cause of these odor complaints. According to the Odor Report, approximately 16.9 percent of the time (i.e., approximately 1,480 hours during the year), the NIRRP major processes are modelled to generate unacceptable odor levels within Milpitas. Furthermore, within the City of Fremont, the NIRRP's major processes are modelled to generate unacceptable odor levels approximately 6.7 percent of the time in residential areas (i.e., approximately 590 hours during the year) and 33.5 percent of the time in industrial areas (i.e., approximately 2,935 hours during the year). Key facts are shown in the following list:

- The Odor Report states that from December 2014 through March 2016 BAAQMD received a total of 4,810 odor complaints (over 10 odor complaints per day) from the City of Milpitas. This number of odor complaints represents approximately 65 percent of the 7,394 total odor complaints received by the BAAQMD within its entire nine-county jurisdiction during this time period. According to the San Jose Planning Commission Staff Report, for the 19 months between December 2014 and June 2016, BAAQMD received a total of 5,717 odor complaints from the cities of Milpitas, San José, and Fremont. That is an unacceptable level of ongoing odor complaints. This level of odor complaints clearly show a significant level of odor nuisance/impacts per BAAQMD CEQA Air Quality Guidelines.

- According to the Planning Commission Staff Report, during the 19-month period between December 2014 and June 2016, 248 odor complaints were confirmed by BAAQMD inspectors who visited the location where the odor was reported, confirmed there was an odor at that location, and then traced it back to its source. Of these odor complaints, 232 of them were attributed to the NIRRP by BAAQMD inspectors; of which 46 were attributed to the landfill and the remainder were attributed to the MRF and compost operations. Because confirming odor complaints is difficult for BAAQMD inspectors for a variety of reasons, this level of confirmed complaints is validation of the reason for all of the ongoing odor complaints. In other words, the odors from NIRRP truly are frequently and adversely affecting the public in adjacent areas. This level of confirmed odor complaints clearly show a significant level of odor nuisance and a significant odor impact according to BAAQMD CEQA Air Quality Guidelines. Notably, sometimes odor complaints are not confirmed by BAAQMD due to the length of time it takes someone to get to the location of the odor and the fact that the odor may have moved to a different location during the period it took the BAAQMD representative to arrive. Thus, an odor compliant which did not get confirmed by BAAQMD does not necessary mean that the odor did not exist and that the odor was not a community nuisance.

- The Odor Report confirms a significant level of odor nuisance/impact when stating that individuals would experience odor impact (greater than 4 D/T) approximately 16.9 percent of the time somewhere within the Milpitas area (i.e., approximately 1,480 hours during the year), approximately 33.5 percent of the time somewhere within the Fremont industrial area (i.e., approximately 2,935 hours during the year), approximately 6.7 percent of the time somewhere within the Fremont residential area (i.e., approximately 590 hours during the year).

- It is our professional opinion that NIRRP's generation of odors affecting individuals in Milpitas 16.9 percent of the time (and individuals in Fremont 33.5 and 6.8 percent of the time) is an unacceptable burden and confirms the odor complaint data which clearly show a significant level of odor nuisance/impact per BAAQMD CEQA Air Quality Guidelines. Notably, the 1,480 hours of potential odor occurrence may translate into more than 1,480 odor complaints during each of the 1,480 hours of odor events somewhere within the Milpitas area as each event is likely effecting multiple individuals simultaneously. If one assumes, based on actual odor compliant data, that 10 odor complaints occur during each odor event, then the 1,480 hours of events would equate to 14,800 odor complaints from Milpitas (as well as 29,350 odor complaints from the Fremont industrial area and 5,900 odor complaints from the Fremont residential area). If, based on available data, BAAQMD is able to confirm four percent of the odor complaints, then during the 1,480 odor events; BAAQMD would be able to confirm 590 odor complaints from Milpitas (as well as 1,175 confirmed odor complaints from the Fremont industrial area and 235 confirmed odor complaints from the Fremont residential area) during a one year period. These figures, based on the Odor Report modeling analysis, are similar (or higher) in magnitude to the actual odor complaints from Milpitas/Fremont and clearly show a significant level of odor nuisance/impact per BAAQMD CEQA Air Quality Guidelines.

Due to Significant Data Omissions, It is Impossible to Properly Peer Review the Odor Report and Its Results; and Numerous Technical Assumptions, Methodologies, and Study Limits Likely Caused The Odor Report to Under Estimate the Potential Odor Impacts:

At a macro level the Odor Report is a good scientific effort to understand the odor impacts of NIRRP. The general methodologies are consistent with the latest standards in gathering background information, measuring odors, and estimating the dispersion of odors. That said, there are many aspects of the Odor Report that cause uncertainty in its evaluation. There are also several concerns that may have led to under estimating the odor impacts from NIRRP. Key concerns are listed as follows:

- The Odor Report presents a general overview of the modeling input data and results. However, without the electronic input and output files (i.e., AERMOD and meteorological data) and a technical report of assumptions and methodologies; it is not able to provide the full scientific review of the Odor Report. We request electronic copies of all of the AERMOD input and output files necessary to duplicate the results and a complete technical report of assumptions and methodologies to fully understand the basis for the results.

- The Odor Report failed to analyze an important source – fugitive emissions of landfill gas. Landfill gas was the strongest odor by far measured during the sampling with an odor strength of greater than 60,000 D/T. This is much stronger than any of the other odor sources tested. Yet, landfill gas was not measured or modelled. In our opinion, this was a mistake in the Odor Report. Some level of fugitive landfill gas will escape the collection system in the future and affect downwind odors; adding to all the other sources that were studied in the Odor Report. According to the Odor Report, landfill gas was not modelled because "based upon on-site observations and hydrogen sulfide measurements made during the two field programs, fugitive emissions of landfill gas did not appear to contribute to off-site odors." What the Odor Report should have known is that fugitive landfill gas is such a major problem that "Reportedly, over 100 new landfill gas collection wells were installed during 2015.at the facility..." to reduce fugitive landfill gas emissions. BAAQMD staff and City of San Jose Local Enforcement Agency staff know that fugitive gas emissions have been a problem at the landfill. RCH noted in our May 5, 2015 letter to the San Jose Planning Commission that the highest of all odor measurements in the Card and Schmidt odor study at NIRRP was a measurement of fugitive landfill gas. Again, the Odor Report should have collected field measurements and modeled this odor source. Landfills are not perfect containment facilities and capture rates (by the landfill gas collection systems of modern landfills) are typically assumed be about 90 to 95 percent – but 10 percent or more can escape as fugitive landfill gas emissions. Therefore, fugitive emissions of landfill gas will be released through the surface – the only questions is how much? As described previously, landfill gas is extremely odorous (> 60,000 D/T) and raising of the height of the landfill (and the overall landfill mass) will proportionately increase the generation of landfill gas. This source of odor should have been analyzed and modelled in the Odor Report.

- The Odor Report states that source odor measurements were conducted during two separate weeks, October 5 through 9 of 2015 and December 7 through 11 of 2015. Most samples were taken during the morning (between 8 am and noon). A total of 44 odor

samples were taken; a relatively small sample size. Samples should be taken during nighttime, afternoon, and evening hours as well as morning hours. Samples should be taken during Saturday and Sunday as well as weekdays. Samples should be taken during the months of January through March; when historical odor complaints have been greatest, and samples should be taken during Spring and Summer. Samples should be taken during a variety of meteorological conditions (rain event, dry conditions, high/low winds, etc).

- Were the biosolids dry or near dry during the collection of odor samples and observation of odor at the biosolids stockpiling area? If they were dry, then the case of the potential of much more odor generation and intensity from the biosolids during the rainy season and subsequent disturbance and spreading of biosolids on the landfill was not captured within the Odor Report.

- The Odor Report states that when multiple source tests were conducted on a specific odor generating process, the average measured odor concentration of all tests was calculated for modeling purposes. However, using the averaged measured odor concentration greatly underestimates the modeling results (which are reported as 10 minute and one-hour maximum values in Tables 1 and 7). Modeled odor levels should be based on maximum measured odor concentrations; not averaged measured odor concentrations. An average odor concentration for the working face of 244 D/T (Table 5) was used in the modeling; however, the measured odor concentrations for the working face range as high as 430 D/T (Table 3). The Odor Report states that since odor complaints are generally based on short-term detection (approximately 10 minutes), the maximum one-hour modeled concentrations were adjusted using a peak-to-mean adjustment factor developed by the USEPA to reflect expected peak concentrations over a 10-minute average. However, it is not accurate to say these are maximum one-hour modeled concentrations because these values are based on the average measured odor emission concentration; which will underestimate the peak modeled concentrations. Given the relatively small sample size for source measurements (i.e., 44 samples) and limited sampling conditions (i.e., two five-weekday periods in October and December); the maximum (not average) measured odor emission concentrations should be used in the modeling analysis.

- The Odor Report provides the source odor measurement results in D/T (Table 3) and the modeled odor emission values in D/T (Table 7). It is not clear how the modeled odor emissions (in Table 7) were derived from the measured values (Table 3). It appears the modeled odor emissions (forth column in Table 7) are significantly lower than the average measured D/T (last column in Table 3). This situation may be greatly underestimating the results. For example, the average measured value for the ZWED Waste Dump is 1,230 D/T (Table 3), however, the modeled odor emissions for the ZWED Waste Dump is 308 D/T (Table 7). No explanation is given for the difference between the average D/T in Table 3 and the D/T emissions used in the modeling (Table 7).

- The Odor Report reports the frequency of occurrence for odor levels of 4 D/T (the threshold of nuisance). The frequency of occurrence for odor levels of 1 D/T (the threshold of detection) should also be reported.

- The Odor Report states that it used surface meteorological data from San Jose Airport from the year 2015. No indication is provided on the details of the processing of this data

using USEPA's AERMET. Were one-minute ASOS data used? Were wind sector surface parameters (surface roughness, Bowen Ratio, albedo) developed? Were surface parameters developed by month, season, or annually? Wind roses and wind speed distribution data documents the variability of meteorological conditions within the location and the importance of detailed temporal inputs. Thus, how the meteorological data was processed may greatly affect the modeling results.

- The Odor Report states that an on-site meteorological station was installed on August 19 of 2015. The modeling analysis should be conducted using a full year of on-site meteorological data as well as the San Jose Airport data. This on-site meteorological data provides better representative conditions for the modeling analysis. Wind roses and wind speed distribution data documents the variability of meteorological conditions within a nearby location (Alviso Marina County Park) and San Jose Airport (see attached). On-site meteorological data would provide an opportunity to analyze the odor impacts while accounting for this variability. Secondly, general practice is to use five years of off-site meteorological data (and report the worst-case analysis year) or one year of on-site meteorological data to conduct dispersion modeling analyses. The Odor Study used only one year of offsite meteorological data which may underestimate the reported odor impacts.

- Critical model options such as whether or not flagpole receptors were used and if so, at which breathing height, the use of either rural or urban coefficients, the adjustment methodology to equate a 10-minute odor level from a one-hour odor concentration, terrain influences, and the methodology to determine an emissions rate (in grams per second) from an odor emission measurement level (in D/T) were not documented. This is a substantive omission in terms of a peer reviewer evaluating the appropriateness and validity of the test methods and evaluating the results and findings. A complete technical report of assumptions and methodologies to fully understand the basis for the results must be provided.

- Building downwash is the influence building structures on the wind flow and thus the emissions from point sources such as generators, boilers, and fume hoods (and baghouse vents associated with the MRF). The Odor Report does not indicate that building downwash was incorporated for the point source associated with the MRF. Inclusion of building downwash can greatly influence the results of point source emissions such as those associated with the MRF baghouses.

- The Odor Report used the USEPA's AERMOD dispersion modeling system. However, the analysis should also be conducted using the USEPA's CALPUFF dispersion modeling system which is designed to simulate the dispersion of buoyant, puff or continuous point and area pollution sources as well as the dispersion of buoyant, continuous line sources. CALPUFF is a three dimensional non-steady state model and therefore can use multiple meteorological data. In effect, CALPUFF builds three dimensional wind fields for every time period processed. These wind fields allow the odor plume to change direction as it proceeds downwind. CALPUFF can use 15-minute average meteorological data (compared to hourly data for AERMOD) which can provide greater precision to the modeling results. Both modeling systems results should be reported, as the types of emission sources, meteorological conditions, and terrain influences are not handled completely by either modeling system.

- The Odor Report defines emission source as continuous or intermittent sources; operating either 24 hours per day or for a specific time period (e.g., only during October for the biosolids and 4 am through 6 pm for the working face). The Odor Report does not appear to vary emission rates by time of day, day of week, or season and as previously noted, the Odor Report set the emission rate to the average of the measured odor concentration. That is, for the Green Waste Receiving and Grinding, the average measured concentration was assumed to occur 24 hours per day. 7 days per week, and 52 weeks per year without variation. The Odor Report does not include a variable emission rate based on operating conditions and meteorological condition (i.e., wind speed, precipitation) which, if included, would provide greater accuracy.

- The Odor Report summarizes (Table 1) the modeled odor D/T levels predicted for each neighboring community attributable to each process area at the facility. The results are presented as the frequency of occurrence, or percentage of time in a year, that odors might be experienced in a specific community resulting from a certain process area. For example, odor levels greater than 4 D/T could occur up to 16.9 percent of the time (1,480 hours) somewhere within the Milpitas area, approximately 33.5 percent of the time somewhere within the Fremont industrial area (i.e., approximately 2,935 hours during the year), and approximately 6.7 percent of the time somewhere within the Fremont residential area (i.e., approximately 590 hours during the year). This data is helpful to understand the overall odor nuisance/impacts; however, it does not present the only statistic to evaluate the relative nuisance level of the emission source groups.

- The following are other statistical analysis which should be conducted to better understand the level of odor nuisance and source group contribution: 1) The Odor Report does not document the geographical extent of the odor impact. If a result for a particular modeled hour shows that at least one receptor point within the Milpitas area has a value that exceeds 4 D/T that is counted within the frequency of occurrence (as one hour) for Table 1. However, the geographical coverage impacted by that particular event is also important to better understand the magnitude of the odor impact. An event (modeled values greater than 4 D/T) covering 20 square miles is likely to result in greater odor nuisance/complaints than an event covering two square miles. 2) Secondly, the number of population impacted by the event would also effect the potential number of odor complaints. An event (modeled values greater than 4 D/T) impacting a population of 50,000 is likely to result in greater odor nuisance/complaints than an event impacting a population of 1,000. 3) Thirdly, the Odor Report does not present the frequency of occurrence of elevated odor impacts (e.g., greater than 10 D/T) which may elicit a higher level of nuisance. 4) Lastly, the duration of the event (number of continuous hours) in which the modeled odor level exceeds 4 D/T is also important. If an event occurs over an event which lasts 18 hours it may elicit more odor complaints than a single hour event.

- The Odor Report should discuss the average geographical extent of the events found in Table 1 (e.g., 1,480 hours of odor impact within the Milpitas area). The Odor Report should discuss the average population impacted of the events found in Table 1. The Odor Report should discuss the frequency of occurrence of elevated odor impacts (greater than 10 D/T) as well as the level of nuisance (4 D/T). The Odor Report should discuss the modeled duration of the events found in Table 1. These statistical analyses would help better describe the modeled odor D/T levels predicted for each neighboring community attributable to each process area at the facility. The conclusions based on these statistics

would enhance the conclusions drawn from the frequency of occurrence found in Table 1 and/or these statistics may help to draw further conclusions and provide new information.

The Odor Report Recommends Mitigation Measures to Address the Projected Offsite Odor Events but does not Quantify, in any Manner, that the Mitigation Measures will Effectively Eliminate or Reduce the Significance of the Odor Impact on Adjacent Landowners:

The Odor Report and Staff Report offer several Mitigation Measures but fail to document the effectiveness of the proposed measures or otherwise demonstrate that the Mitigation Measures would eliminate the significant odor impact:

- The Odor Report recommends six odor reduction measures. One of the benefits of conducting a modeling analysis is that future conditions can be analyzed to determine the effectiveness of proposed mitigation measures. The modeling analysis should have analyzed the effectiveness of the recommended odor mitigation measures in reducing the frequency of occurrence of the modeled 4 D/T odor levels; similar to the existing condition of which results are summarized in Table 1. If these odor mitigation measures are not shown to effectively reduce the odor nuisance/impacts then additional odor mitigation measures should be included and their effectiveness should be proven. All feasible Mitigation Measures (or more effective Mitigation Measures) should be implemented immediately to relieve the odor nuisance issue.

- The Staff Report states that potential odor impacts from the increased landfill height would be offset by increased air dispersion and dilution and increased distance from Milpitas, and thus would not be significant. There is no scientific basis given for this conclusion. Thus, the Odor Report should analyze the proposed increased landfill height and capacity to determine the change in potential odor impacts and the change in the estimate odor nuisance for comparison to the BAAQMD significance thresholds. Reducing the size of the working face and eliminating highly odorous loads has been recommended for years by various reports. Eliminating the vertical expansion and thus size of the future working face and/or relocating the Recyclery would truly minimize the odor nuisance/impact of the working face.

- The First Amendment to the DEIR states that the landfill would be expanded vertically, raising its profile. This would result in an increased capacity and increased landfill gas emissions. The raised vertical profile will expose a greater surface area of the landfill to meteorological conditions. As a result, the additional waste and subsequent landfilling activities would be more susceptible to the advection pathway. However, an increase in the vertical profile of the landfill will also result in an increase in the distance which the odors must travel to reach sensitive receptors, as well as a greater air dispersion of emissions before they reach ground level. This would allow further dilution of the odiferous compounds resulting in decrease of the intensity and concentration of the odors. Although the expansion of the landfill, regarding advection and dilution, would affect the transport of odiferous compounds in an opposite manner, it is more likely that dilution would not sufficiently reduce the concentration of odiferous compounds to acceptable levels. It is probable that the receptors in Milpitas/Fremont would continue to be affected by the transport of odiferous compounds through advection. The Odor Report shows that the current conditions are resulting in odor impacts; the proposed project

would clearly result in a substantial increase in the severity and/or duration of the odor impacts.

- The Odor Report lists several "possible" recommended Mitigation Measures to reduce odors, but does quantify their effectiveness. The Odor Report does not indicate the control efficiency of the Mitigation Measures, the level of odor impact in Milpitas after implementation of these Mitigation Measures (if they are actually implemented). Mitigation Measure 3 is another in a long line of reports that indicates there should be "consideration given to the use of aerated static piles or other advanced technology to reduce the amount of odorous emissions from this process [Compost windrows]" This Mitigation Measure must be implemented not just considered. The effectiveness of aerated static piles or other advanced technology should be modeled to determine the effectiveness of eliminating the odor impacts.

Conclusion:

Based on the previous discussion and analysis, it is our professional opinion that: (1) while it is impossible to adequately peer review the Odor Report due to the omission of key information, and it is likely that the Odor Report under estimated the severity of the odor impacts based on its noted deficiencies, it nonetheless confirms frequent odor emissions will continue to create significant odor impacts and adversely affect adjacent citizens; and (2) the Odor Report fails to demonstrate that any of the measures it recommends to mitigate the acknowledged odor impacts will be effective as it did not model how the anticipated odor events will change, if at all, under conditions assuming one or more of the mitigation measures are implemented.

Sincerely,

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Michael Ratte
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October 25, 2016

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RE: Comments on ERM Odor Study, dated September 2016

Dear Mr. Velyvis and Ms. Nickel:

At your request, I have reviewed the Newby Island Resource Recovery Park - Odor Assessment Report, dated September 2016, prepared by ERM (ERM Odor Study), and I am providing my professional comments and findings pertaining to various areas and topics of the document. My comments are organized under two opinions, each supported by analysis and discussion.

1. Failure to provide critical and fundamental data and include other information in the Study renders the Study incomplete and may result in the understatement of the estimated odor impacts on the affected communities

- The collection of odor observations during the ERM Odor Study (Study) did not include olfactory observations by a trained investigator made off site in the affected communities, including the city of Milpitas, in particularly during near worse-case or worst-case processing conditions and meteorological conditions. Poor meteorological conditions (thermal inversions, calm winds, etc.) are well known for their substantial frequencies during the late fall and winter months in the East and South Bay regions. A comprehensive odor study such as the one that was needed in this case should not only have modeled odor dispersion but also should have included off-site odor observations during worse-case conditions for off-site odor impacts in the communities.

- The Odor Study does not describe the procedures and methods that were employed during the Study to determine the mass rates of emissions (g/s (i.e., grams/second)) that are listed in Table 5. Nor does the Study report the collected emission rate measurements and data analysis or include completed emission rate data collection forms anywhere in the report (For example, rates of emission are not shown in Table 3 "Field Program Odor Results"; however, D/T values are shown). Consequently, the reader is left to wonder the source, accuracy, reliability, representiveness, and relevancy

of the emission data. The reader is also left to wonder if the samples collected for D/T analyses and the subsequently reported values reflect the same conditions (e.g., date, time of day, meteorology, etc.) under which the rate of emissions were measured for each of the sources. The lack of information related to the emission rates is a substantive omission in terms of a peer reviewer evaluating the appropriateness and validity of the test methods and evaluating those of the results, findings, and conclusions of the Study.

- The meteorological conditions during the testing periods and during a representative 12-month period are inadequately described and compared in the Study. A peer reviewer cannot determine the representiveness of the few cases of measurements and immediately preceding meteorological conditions in relation to those that would be experienced over a 12-month period of time. The lack of meteorological data includes the atmospheric stability, wind speed and direction, near the time (e.g., prior 6 to 24 hours) and after the time of gas samples were collected (e.g., 10 to 30 minutes (when flow reversal could occur)). Thus, the reader cannot determine if odor samples and measurements were collected during near worst-case or worst-case conditions, e.g., during or after temperature inversions and calm or near calm wind speeds.

- The physical characteristics of the solid materials at the time samples of gas were collected are inadequately described. For example, the physical characteristics are particularly important in the case of the biosolids in the biosolids stockpiling area and when biosolids are applied as alternative daily cover or used on site for any other uses. The reason why the omission of such physical characteristics is important is that if the biosolids were relatively dry when observed, then the odor intensity likely would be much less than if the biosolids were relatively wet; thus, the impact of biosolids with regard to odor generation and impact of odors offsite would be understated.

  While the Study sampled odor from dried biosolids, the Study does not discuss that fact that "dry" biosolids in a stockpile or elsewhere become wetted due to winter and spring rains, the moisture promotes microbial generation of high intensities of very offensive anaerobic odors. The Study does not discuss or acknowledge this inevitable condition during this time of the year, nor does the Study present any evidence that the frequency of these adverse conditions were analyzed as part of the determination of what conditions are representative of biosolids use and methods of management and utilization at Newby Island when compared to the case of solely considering dried biosolids at the stockpile as a source of odors.

- Despite the statement of ERM that use of the AERMOD model is justified through EPA pre-approval of the model, the AERMOD model cannot accurately predict the flow characteristics of odors under atmospheric conditions composed of temperature inversions, zero or very low wind speeds, pure molecular diffusion, wind direction

reversals, and meandering winds, all of which are present in some combination during much of the late fall and winter months. CalRecovery knows these conditions exist in the city of Milpitas as a result of personally analyzing meteorological and atmospheric data from weather stations in the vicinity of Milpitas and through direct observation, including observations in the field in January 2015.

- Lastly, the Study recommends six possible odor reduction measures in Section 4.1 based upon ERM's estimates of the potential for off-site odors from the Newby Island facility affecting the nearby communities. The fact that the Study recommends methods of odor reduction is a statement that the sources of emission at the Newby Island facilities have the potential to illicit substantial numbers of complaints of offensive odors from human receptors in these communities, including those in the city of Milpitas. The six recommendations, however, are only comprised of proposed, general methods of controlling malodors from the various sources, without any estimates or evidence to support the degree of control necessary and potential for reducing the estimated current odor intensities to less than significant levels (i.e., less than 4 D/T) in the communities. Estimates or evidence to support the degree of control necessary and potential for reducing the estimated current odor intensities should have been described and presented in the Study in the form of specific types of control technologies and specific operating conditions, etc. and modeled to estimate the performance and level of odor reduction in order to demonstrate to the reader the viability and technical performance of each of the recommended methods, singularly or in combination.

2. Notwithstanding the above findings and criticism, if the results of the Study are taken at face value, then the planned facilities and operations will continue to create significant odor impacts on the affected communities

The ERM Odor Study provides data that can be used to calculate estimates of the number of odor events due to Newby Island facilities over a 12-month period of time that could rise to the level of a confirmed odor complaint from human receptors in the city of Milpitas. These estimates can then be compared to levels of significance that have been used to determine if a source or sources of malodors could cause significant impacts under CEQA.

Data from the ERM Study are shown in the two tables below along with applicable significance criteria with regard to whether or not alleged odor complaints, averaged over a 3-year period, have been confirmed or have not been confirmed. Table 1 and Table 2 contain data and analysis for the city of Milpitas and for the city of Fremont-Industrial area, respectively. The data in columns X and Y present CalRecovery's estimates for the average number of instances per year that may rise to the level of a confirmed or an unconfirmed, respectively, odor complaint over a 3-year period. Columns XX and YY, respectively, present the Significance Criteria in the case of confirmed odor complaints (1 over 3-year period) and of unconfirmed complaints (3 over a 3-year period).

The results of the analyses and of the comparisons in Tables 1 and 2 show that the ERM-modeled odor sources consisting of the MRF, green waste receiving and grinding, landfill working face, and compost windrows are all estimated to substantially exceed the Significance Criteria for malodors regardless of whether the basis of the criteria is confirmed or unconfirmed odor complaints over a 3-year period. The ERM Odor Study does not provide results or the data and information from which a reader could estimate the number of individuals off site that might be affected during each odor incident of 4 D/Ts or greater. The CalRecovery analysis estimates the number of times annually that off-site odor events could yield confirmed complaints. Each odor event could affect more than one individual depending on the distances to and distributions of human receptors from the source and the direction of the plume of odor.

Table 1. Model Results--Frequency of Exceeding Complaint Level of 4 Dilutions-to-Threshold (D/T)(a), a level which *may elicit odor complaints in a community* (b)

City/Area: Milpitas
Annual Hours ERM Modeled: 8,760

				X	XX(d)	Y	YY
				Based on ERM Results and CalRecovery Assumptions	Significance Criteria-Confirmed	Based on ERM Results	Significance Criteria-Unconfirmed
Major Process Group	% of Time from ERM Odor Study Table 1	Calculated Hrs/Year	Number of Instances per Year that May Rise to the Level of a Confirmed Odor Complaint (rounded)	Average Number of Instances that May Rise to the Level of a Confirmed Odor Complaint over a 3-Year Period, assuming 25% of the hours of odor impacts are comfirmed complaints(c)	Exceeds more than 1 Confirmed Odor Complaint per Year Averaged Over a 3-Year Period	Average Number of Instances per Year that May Rise to the Level of an Unconfirmed Odor Complaint over a 3-Year Period	Equals or Exceeds 3 Unconfirmed Odor Complaints per Year Averaged over a 3-Year Period
MRF	12.90%	1130.04	1,130	283	Yes	1,130	Yes
Green Waste Receiving and Grinding	2.20%	192.72	193	48	Yes	193	Yes
Working Face	0.40%	35.04	35	9	Yes	35	Yes
Compost Windrows	1.40%	122.64	123	31	Yes	123	Yes
Biosolids Stockpiling	0.00%	0	-	-	No	-	No
Landfill Gas	0.00%	0	-	-	No	-	No

Footnotes:

a) detection threshold

b) text in *italicized font* is from ERM Report

c) asuming 25% of the hours are confirmed odor complaints and the other 75% of the hours of impacts occur at night when the population is sleeping, may not be of sufficient intensity at 4 D/T to offend impacted human receptors, and to account for inadequate time for BAAQMD to respond and investigate the odor complaints

d) 1999 BAAQMD CEQA guidelines and thresholds of significance

Table 2. Model Results--Frequency of Exceeding Complaint Level of 4 Dilutions-to-Threshold (D/T)(a), a level which *may elicit odor complaints in a community* (b)

City/Area: Fremont-Industrial
Annual Hours ERM Modeled: 8,760

				X	XX(d)	Y	YY
				Based on ERM Results and CalRecovery Assumptions	Significance Criteria-Confirmed	Based on ERM Results	Significance Criteria-Unconfirmed
Major Process Group	% of Time from ERM Odor Study Table 1	Calculated Hrs/Year	Number of Instances per Year that May Rise to the Level of a Confirmed Odor Complaint (rounded)	Average Number of Instances that May Rise to the Level of a Confirmed Odor Complaint over a 3-Year Period, assuming 25% of the hours of odor impacts are comfirmed complaints(c)	Exceeds more than 1 Confirmed Odor Complaint per Year Averaged Over a 3-Year Period	Average Number of Instances per Year that May Rise to the Level of an Unconfirmed Odor Complaint over a 3-Year Period	Equals or Exceeds 3 Unconfirmed Odor Complaints per Year Averaged over a 3-Year Period
MRF	11.90%	1042.44	1,042	261	Yes	1,042	Yes
Green Waste Receiving and Grinding	16.50%	1445.4	1,445	361	Yes	1,445	Yes
Working Face	3.20%	280.32	280	70	Yes	280	Yes
Compost Windrows	1.90%	166.44	166	42	Yes	166	Yes
Biosolids Stockpiling	0.00%	0	-	-	No	-	No
Landfill Gas	0.00%	0	-	-	No	-	No

Footnotes:

a) detection threshold

b) text in *italicized font* is from ERM Report

c) asuming 25% of the hours are confirmed odor complaints and the other 75% of the hours of impacts occur at night when the population is sleeping, may not be of sufficient intensity at 4 D/T to offend impacted human receptors, and to account for inadequate time for BAAQMD to respond and investigate the odor complaints

d) 1999 BAAQMD CEQA guidelines and thresholds of significance

Please let me know if you have any questions.

Sincerely,

GM Savage

George M. Savage, P.E. (CA M20108)
Executive Vice President

CalRecovery, Inc.
Enc: CV Odor, short form