June 11, 2009

Clerk of the Board
Air Resources Board
1001 I Street
Sacramento, CA 95814

SUBJECT: PROPOSED REGULATION TO REDUCE METHANE EMISSIONS FROM MUNICIPAL SOLID WASTE LANDFILLS

Honorable Chair Nichols and Board Members:

I am writing to share with you the City of Sunnyvale's very serious concerns about the proposed AB 32 regulations for control of methane emissions from municipal solid waste landfills. As proposed, the regulations will significantly raise monitoring costs at our long-closed and well-maintained landfill site without significantly reducing methane emissions at our site.

The intent of this AB 32 Early Action Item was to, "reduce methane emissions from MSW landfills by requiring gas collection and control systems on landfills where these systems are not currently required and establish statewide performance standards to maximize methane capture efficiencies."

We find the control measure developed in response to this Board direction to be well-meaning but misguided. The regulations will increase Sunnyvale's landfill post-closure maintenance costs by at least $100,000 per year, while doing virtually nothing to reduce landfill gas emissions from the Sunnyvale Landfill. In fact, some of the required actions will cause so much vehicle traffic that the regulations will arguably increase greenhouse gas emissions (GHG) associated with this landfill, which has been closed for nearly 16 years.

Sunnyvale is very concerned about the issue of global climate change and is working vigorously to reduce its greenhouse gas emissions.

- The City Council has adopted a goal of reducing GHG emissions 20% from 1990 levels by the year 2010

- In December 2007 the Council directed City staff to pursue implementation of a prioritized list of projects to meet that goal
- We have studied GHG emissions from City operations and determined that, as of 2005, those emissions were 17% below 1990 emissions
- The City has hired a full-time Sustainability Coordinator position to manage City efforts, including implementation of our GHG emissions reduction projects
- In the Solid Waste Division, we have worked with our franchised refuse hauler to use funding you've provided to convert nearly all of the collection trucks to compressed natural gas from diesel

In short, we acknowledge the threats posed by global climate change, have studied our own emissions, set goals and expended significant amounts of money to address the threat. But we view the proposed regulations as costly to implement and detrimental to our climate change efforts.

Why? Ironically, the 17% reduction in GHG emissions achieved by the City is almost entirely due to the City's advanced management of landfill gas from the closed landfill. In 1997, we invested $6 million in a Power Generation Facility. That facility makes electricity from landfill gas that had previously been flared and has reduced our purchases of utility power by 1 megawatt. At our well-managed closed landfill there is no evidence that fugitive emissions are escaping into the atmosphere. Yet the proposed regulations require the same expensive and time-consuming monitoring practices for this site as for landfills that don't even collect their landfill gas and are known to be contributing to the methane emissions problem.

Sunnyvale Landfill is already in compliance with both the very strict regulations of BAAQMD Rule 8-34 and the federal Title V requirements. The proposed CARB regulations would add a third, redundant, expensive and onerous layer of oversight.

The current regulations are proposed to be applied equally across the board, both to smaller landfills, like ours, that have already committed substantial financial resources to capturing and utilizing landfill gas in an environmentally positive way, as well as to those landfills that have invested little or no resources on such efforts. An important point to remember is that landfills that have landfill gas-to-energy projects have strong financial incentive to capture as much methane as possible and are undoubtedly spending a significant amount of time and money

optimizing their landfill gas collection systems. We feel that a more productive way for CARB to reduce GHG emissions from smaller, closed sites would be to encourage gas-to-energy projects wherever there is sufficient LFG to support them.

Instead, the current regulatory direction of CARB staff is to force all landfills to spend significant amounts of time and money scouring every square foot of the landfill surface for methane in the low parts per million range.

We have mapped the route required to perform the "25 foot grid surface sweeps" called for in the proposed regulations. The walking distance for one survey of our 93 acre site is approximately 30 miles and this must be done four times per year—all at a site with no evidence of fugitive emissions! And the sweeps must stop if average wind speeds reach 5 miles per hour or gusts reach 10 mph, making it nearly impossible to schedule staff or for consultants to even estimate the cost of providing sweeps as a contract service. The time and effort to perform this futile task will divert our attention and resources from dealing with repairs and maintenance that would produce actual results.

The additional staff hours and complicated, expensive equipment required to perform the surface scans will require expenditure of a significant amount of funds, and a large quantity of fossil fuel will be burned in getting the additional staff to remote landfill locations. And this assumes that the required staff (with the necessary expertise) and equipment are available, which is in serious doubt. In consideration of the work hours required, the additional fossil fuels consumed, and the greenhouse gases produced in the manufacture and transport of the equipment required to comply with the new regulations, it is not hard to see how in many instances the greenhouse gases released to the atmosphere in the process of complying with the additional regulatory requirements will exceed the amount of methane reduction that could result from complying with the new regulations.

Finally, we believe that the proposed regulatory approach puts public safety at risk. With the extremely tight standards proposed for concentrations of methane at the landfill surface, aggressive collection of LFG will result in "over-pulling" (applying too much vacuum) of individual gas wells, which will result in oxygen being pulled into the landfill's interior. This is especially true where there is a relatively thin waste prism, such as at many landfill perimeters. Over-pulling greatly increases the potential for starting underground landfill fires, a problem

we have experienced at our site before it was closed. Such fires can burn and smolder for a very long time.

Another safety issue presented by the draft regulations is the hazard that the linear path of the surface sweeps poses for the personnel making the sweeps. Steep slopes, slippery dry grass and ground squirrel burrows make it difficult to walk an arbitrarily straight line and pose a significant risk of injury to our personnel.

We respectfully request that the Board step back, look at the big picture of what is being proposed and direct its staff to take a different approach. That approach should focus on sites that either do not collect landfill gas or that collect gas but are not compliant with regulations equivalent to BAAQMD Rule 8-34. The current approach appears to be punitive and based on the misperception that all landfills are significant emitters of fugitive greenhouse gases.

The City's detailed technical comments on the proposed regulations are attached. On behalf of the City of Sunnyvale, I appreciate your thoughtful consideration of these comments and I look forward to continued joint greenhouse gas reduction efforts in cooperation with CARB. If you have any questions regarding this matter, I encourage you to contact Mark Bowers, Solid Waste Program Manager, at 408-730-7421.

Very truly yours,

Marvin Rose
Director of Public Works

Attachment – Technical Comments

cc: Gary Luebbers, City Manager
Mark Bowers, Solid Waste Program Manager

ATTACHMENT 1

TECHNICAL COMMENTS
June 11, 2009

§ 95465 Surface Methane Emission Limits; (a) (2)

"An average methane concentration limit of 25 ppmv as determined by integrated surface emissions monitoring".

The City recommends that a 50 ppmv average methane concentration limit be utilized as an initial surface methane concentration limit, rather than the 25 ppmv limit currently proposed. This recommendation is based on the experience of landfills in southern California that currently perform integrated surface emissions monitoring. A requirement to document all occurrences over 25 ppmv would allow subsequent data analysis to see if a reduction from 50 ppmv is warranted, and practicable. If data generated indicates further ratcheting down from the 50 ppmv criteria is warranted, there would be hard data to support this revision of the regulatory criteria. Note that an initial surface methane concentration limit of 40 ppmv would be preferable to the currently proposed 25 ppmv, although the 50 ppmv value is preferred by the City.

§ 95469 Monitoring Requirements; (a) Surface Emissions Monitoring Requirements; (1) Instantaneous Surface Monitoring; (E)

"Any exceedances of the limit specified in section 95465 (a) (1) detected during any compliance inspections by the Air Resources Board will result in a return to quarterly monitoring of the affected grids".

We recommend insertion of the phrase "***that cannot be remediated within 10 calendar days***" between "**Board**" and "**will result**..." This would then read as follows: *"Any exceedances of the limit specified in section 95465 (a) (1) detected during any compliance inspections by the Air Resources Board* ***that cannot be remediated within 10 calendar days*** *will result in a return to quarterly monitoring of the affected grids".*

§ 95469 Monitoring Requirements; (b) Gas Control System Equipment Monitoring; (1) (B)

"At least one gas flow rate measuring device which shall record the flow to the control device(s) at least every 15 minutes". This is overly restrictive with respect to exactly how the measurement of flow is achieved. We recommend that this be revised to **"At least one gas flow rate measuring device which shall record the flow to the control device(s) at least every 15 minutes.** ***Alternatively, an approved***

alternate method of quantifying flow to the control devices at least every 15 minutes shall be utilized." Some piping configurations at existing facilities do not lend themselves to the placement of gas control measuring devices immediately before every control device due to the existence of short piping runs (insufficient lengths of pipe before and/or after a measuring device result in inaccurate flow measurements). Flows can be determined mathematically using other gas control measuring devices that are strategically placed and monitored.

§ 95469 Monitoring Requirements; (b) Gas Control System Equipment Monitoring; (2)

This sounds the same as the BAAQMD's "Key Emission Control System Operating Parameters". Flexibility is necessary as the City has been working with BAAQMD for some time to identify practicable Key Emission Control System Operating Parameters for our gensets. We strongly suspect we are not alone in having difficulties with identifying Key Emission Control System Operating Parameters for our gensets.

§ 95469 Monitoring Requirements; (c) Wellhead monitoring (2)

The City recommends removal of the previously removed and now proposed again requirement for negative pressure at wellheads. This previously recommended requirement drew criticism from both regulators and the regulated. The following is suggested in the unfortunate event that this requirement makes its way into the regulations.

Some repairs, such as mitigation of condensate blockage, may require the use of heavy equipment. The use of heavy equipment could cause significant damage to the landfill cover when it is saturated as a result of inclement weather. We suggest the following language be utilized:

"If the problem cannot be corrected within 15 days of the date the positive pressure was first measured, the owner or operator must initiate further action**, up to** expansion of the gas collection system, to mitigate any positive pressure readings. If mitigation short of expansion of the gas collection system is performed and does not result in negative pressure within 45 days of the original date the positive pressure was first measured, then expansion of the gas collection system shall be performed, and negative pressure achieved, within 120 days of the date the positive pressure was first measured".

This would allow greater flexibility to deal with weather and saturated cover conditions.

§ 95470 Recordkeeping and Reporting Requirements; (b) Reporting Requirements; (3) Annual Report

"Any owner or operator subject to the requirements of this subarticle, except section 95463, must prepare an annual report for the period of January 1 though December 31 of each year".

The City of Sunnyvale is required to prepare an annual report for the BAAQMD with a reporting time frame of November 1 through October 31, which essentially covers the same information as required by CARB. We are waiting to receive our Title V Permit which will also require reporting on an annual basis, and will cover a lot of the same information. While somewhat staggered due dates for these various reports are advantageous so as to allow time to address any specific report issues, the same reporting periods for all reports would prevent a duplication of effort with respect to data "crunching", presentation, and analysis. We understand that the BAAQMD-required reporting interval will change to be congruent with our future Title V permit reporting interval. A third annual report covering the same material seems redundant, but if CARB's reporting intervals were also keyed to that of the United States Environmental Protection Agency's Title V, preparation of a third annual report would have less of an impact on owners/operators' resources than would otherwise be the case.

§ 95471 Test Methods and Procedures; (b) Determination of Landfill Gas Heat Input Capacity (1), (2) and (3)

"GHV (Gross Heating Value) = Gross heating value of methane, which shall be 1,012 in units of British thermal units per standard cubic feet, or BTUs per scf".

The City was recently informed by the Bay Area Air Quality District (BAAQMD) that we are to use 1,013 BTUs per standard cubic foot for the gross heating value of methane, and has converted our records, which previously had used the 1,012 value, based on this directive. Please work with the other agencies requiring this data and endeavor to agree on one value that will be acceptable to all enforcement agencies to preclude the need for two sets of spreadsheets, calculations, etc.

§ 95471 Test Methods and Procedures; (c) Surface Emissions Monitoring Procedures; (1) Monitoring Area; (A)

"Testing must be performed by holding the hydrocarbon detector's probe within 3 inches of the landfill surface while traversing the grid".

We recommend changing "*within* 3 inches of the landfill surface" to "approximately 3 inches from the landfill surface" to promote uniformity of the distance of measurement from the landfill surface. As written, a landfill's staff-person or consultant could monitor at a distance of 3 inches and judge they are in compliance. A strict enforcement representative could monitor using a 2-inch distance and still be within the letter of the regulation, and find the landfill out of compliance. This proposed change minimizes the likelihood of such situations.

§ 95471 Test Methods and Procedures; (c) Surface Emissions Monitoring Procedures; (1) Monitoring Area; (B)

"The walking pattern must be no more than a 25-foot spacing interval and must traverse each monitoring grid". This tight a spacing interval may be appropriate in very arid climates, but for other areas of California it is excessively tight. Based on our current regular surface monitoring, it has been our experience that there is a very remote likelihood of having surface emissions from our San Francisco Bay Area landfill. A requirement for quarterly (or even annual) monitoring on a grid with this tight of a spacing interval, in geographic locations where there are few penetrations, seems to be an unproductive use of time and money. A more productive use of these resources could involve fine-tuning of the collection system, making repairs and improvements to the collection system, etc. Lastly, the number of vehicle trips generated and miles driven to, from and around the site by City staff and outside consultants/contractors used for the approximately 30 miles plus of walking, within specified weather (e.g., wind speed, precipitation) parameters, will likely result in generation of more greenhouse gas emissions than will be prevented by the monitoring.

§ 95471 Test Methods and Procedures; (c) Surface Emissions Monitoring Procedures; (1) Monitoring Area; (C)

A large portion of the landfill's slopes are between 25% and 30%, and present very serious slip and fall hazards when the slopes are wet and present even more of a slip hazard when the vegetation is dry and slippery. We recommend that the proposed regulations also be revised such that areas steeper than a 25% slope are excluded from this requirement, rather than using the 30% slope criteria presently proposed.

§ 95471 Test Methods and Procedures; (c) Surface Emissions Monitoring Procedures; (1) Monitoring Area; (D)

Surface testing must be terminated when the average wind speed exceeds five miles per hour or the instantaneous wind speed exceeds 10 miles per hour. The Executive officer may approve alternatives to this wind speed surface testing termination for MSW landfills consistently having measure winds in excess of these specified limits.

Please specify the procedure and timing for making this request for alternative wind speed surface testing termination criteria for MSW landfills. Hopefully it is not after multiple attempts at performing surface monitoring are aborted due to wind speeds in excess of the current limits. This would be very wasteful of time and resources, as average and instantaneous wind speeds could be provided prior to the initial monitoring event. As you can see from the attached (History Graphs for Sunnyvale, CA"), which include average and "high" wind speed graphs for a residence that likely experiences less wind speed than the City's landfill which is directly adjacent to the Bay, average and instantaneous wind speeds rarely remain below 5 and 10 mph, respectively, over the course of a day.

§ 95471 Test Methods and Procedures; (c) Surface Emissions Monitoring Procedures; (3) Integrated Surface Emissions Monitoring; (A)

50,000 square foot grids are to be set up and traversed. Assuming our 92 acre landfill were flat, this would require approximately eighty, 50,000 sq. ft. grids. With a 25-foot spacing, each grid would require approximately 10 traverses at 2,236 feet per walked per grid. 80 such 2,236-foot "courses" equals approximately 34 miles. At the specified rate of 25 minutes for 2600 feet of traverse, if the whole landfill were traversed continuously, it would take approximately 29 hours. We feel our time, efforts and money could be more effectively spent monitoring and adjusting the gas collection system itself, and performing any repairs or improvements deemed appropriate based on that monitoring.

§ 95476 Definitions; (a) (3) "Component"

We recommend conforming the definition of "component" with the definition in the Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34 (8-34 regs), specifically 8-34-228.

The definition of component in the proposed language matches that in the BAAQMD Regulation 8, Rule 34 with one exception. In BAAQMD 8-34-228, after "*Vaults containing gas collection equipment, where the top of*

the vault is located at or near the surface of the landfill, are also considered to be components," the regulations go on to state ***"unless the operator can demonstrate to the satisfaction of the APCO that the collection system equipment contained within the vault is properly operating and not leaking in excess of the 8-34-301.2 limit".*** (The limit referred to is 1000 ppm by volume measured as methane). It our opinion that the above phrase (in bold font) should be added to the proposed regulations. In reality, if the collection system equipment contained within the vault is properly operating and not leaking in excess of the 8-34-301.2 limit, the source of the methane must be the surface. To further support this recommendation, the schedule for initial action and repair for a surface leak provides more time to mitigate the release than is provided for a component leak. Multiple attempts at repairing a surface leak are allowed under the regulations, over a maximum 20-day duration. Component leaks must be repaired within 10 days, period.

It is our experience that if initial attempts at mitigating exceedances from surface leaks are not successful, subsequent repair often requires the use of heavy equipment such as backhoes. During the rainy season it is not always possible to get a suitable break in the weather for the landfill surface to dry out within 10 days of an exceedance. It is more likely for this to occur within the 20-day window ultimately allowed for a surface repair than within the 10-day window allowed for a component repair. Additionally, the ability to work on dryer ground is not only safer, but it minimizes damage to the landfill cover that may otherwise occur while accessing the work area.

§ 95476 Definitions; (a) (5) "Closed MSW Landfill"

"Closed MSW Landfill" means that a MSW landfill is no longer accepting solid waste for disposal and had documentation that the closure was conducted in accordance with the applicable statues, regulations, and local ordinances in effect at the time of closure ***or can document that the landfill is no longer receiving solid waste".*** (emphasis added)

The City questions the *"or can document that the landfill is no longer receiving solid waste"* portion of the definition, as it appears that this would be appropriate for the definition of an inactive site, but not for a "closed" site.

§ 95476 Definitions; (a) (10) "Exceedance"

There appears to be a grammatical error/typo within the first two lines of the definition.

General Comments

We recommend that CARB work with the various local air districts to identify where the various local air districts' requirements overlap with CARB's, and work to minimize the duplication of efforts on the parts of Landfill owners/operators, and within the local, State and Federal government.

Weather for Sunnyvale, CA

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For a bit of fun, I decided to invest in a wireless Davis Vantage Pro2 weather system. This is now mounted on the roof of the house, and taking readings of wind speed, wind direction, temperature, humidity, barometric pressure and rainfall. The figures are then used to calculate other figures such as the dew point, wind chill and more.

Data is downloaded from the system every 5 minutes, then uploaded to these web pages, so it should be reasonably up to date, barring any internet/computer downtime. The system went online on July 14th, 2007

Below is a summary of the current weather conditions in Sunnyvale, CA as of 06/09/09 9:46a

Temperature:	**63.3°F**	**Dewpoint:**	**48.7°F**
Humidity:	**59%**	**Wind Chill:**	**63.3°F**
Wind:	**WNW at 7.0 mph**	**THW Index:**	**62.2°F**
Barometer:	**1013.8 mb and Rising Slowly**	**Heat Index:**	**62.2°F**
Today's Rain:	**0.00 in**	**Monthly Rain:**	**0.05 in**
Storm Total:	**0.00 in**	**Yearly Rain:**	**9.45 in**
Current Rain Rate:	**0.00 in/hr**		

Sunrise: 5:47a Sunset: 8:28p

Forecast: Increasing clouds with little temperature change.

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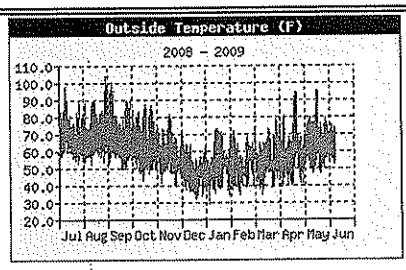
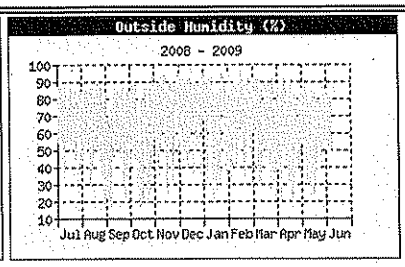
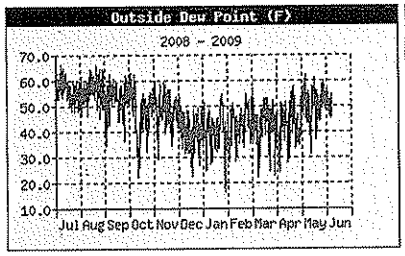
History Graphs for Sunnyvale, CA

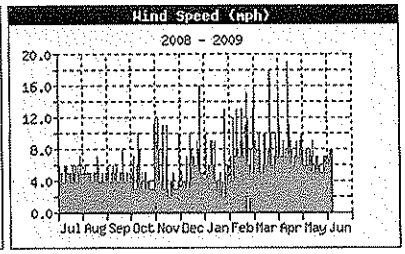
Yearly Highs/Lows	
High Temperature	96.1°F
Low Temperature	28.9°F
High Humidity	98%
Low Humidity	14 %
High Dewpoint	62.0°F
Low Dewpoint	16.0°F
High Wind Speed	34.0 mph
High Barometer	1034.9 mb
Low Barometer	999.6 mb
Rain Total	in
High Rain Rate	1.73 in/hr
Low Wind Chill	29.0°F
High Heat Index	96.0°F

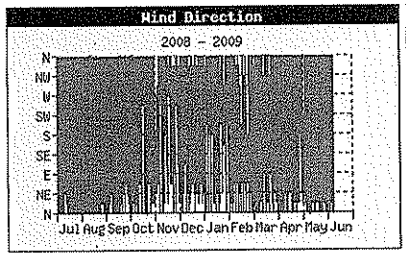
Yearly Highs/Lows	
High Temperature	96.1°F
Low Temperature	28.9°F
High Humidity	98%
Low Humidity	14 %
High Dewpoint	62.0°F
Low Dewpoint	16.0°F
High Wind Speed	34.0 mph
High Barometer	1034.9 mb
Low Barometer	999.6 mb
Rain Total	9.45 in
High Rain Rate	1.73 in/hr
High Heat Index	96.0°F
Low Wind Chill	29.0°F

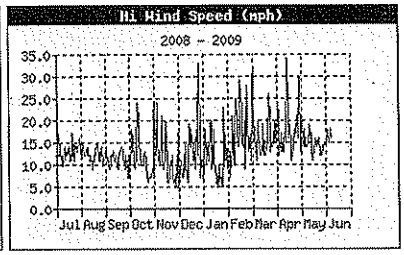


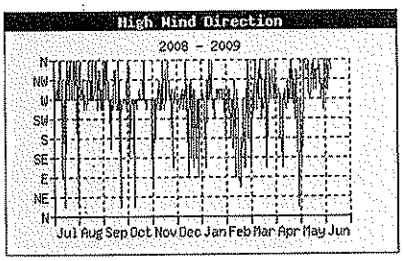


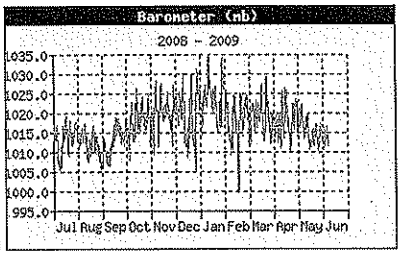


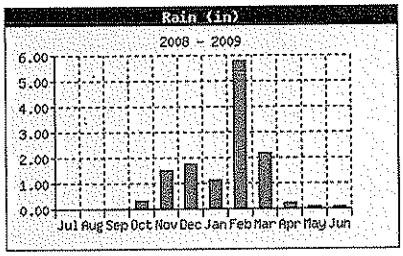


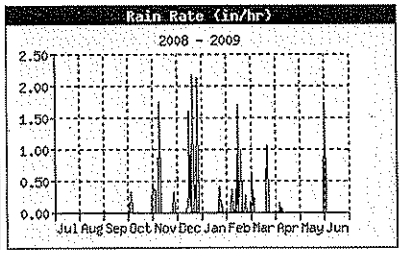


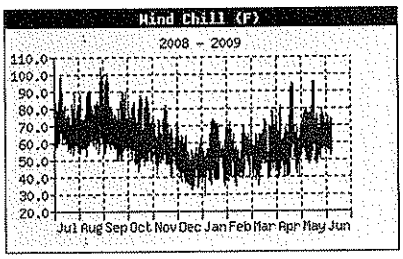


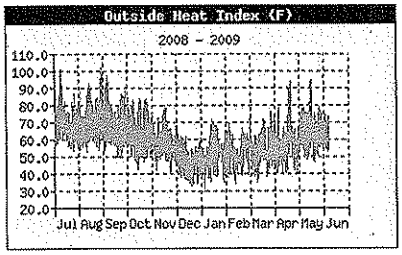












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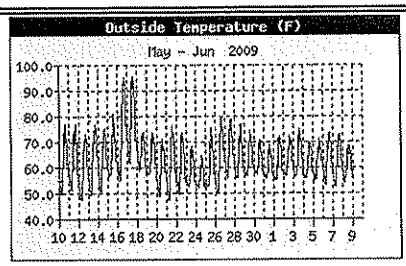
Monthly Highs/Lows

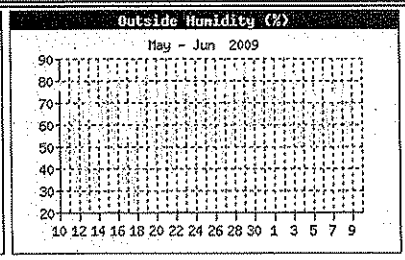
High Temperature	75.6°F
Low Temperature	52.5°F
High Humidity	86%
Low Humidity	47 %
High Dewpoint	58.0°F
Low Dewpoint	45.0°F
High Wind Speed	18.0 mph
High Barometer	1016.4 mb
Low Barometer	1011.1 mb
Rain Total	0.05 in
High Rain Rate	1.73 in/hr
Low Wind Chill	53.0°F
High Heat Index	76.0°F

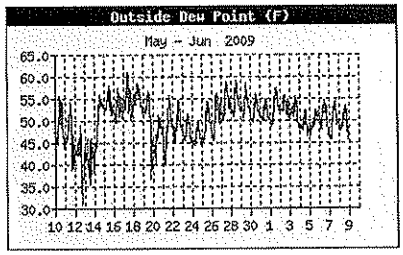
Yearly Highs/Lows

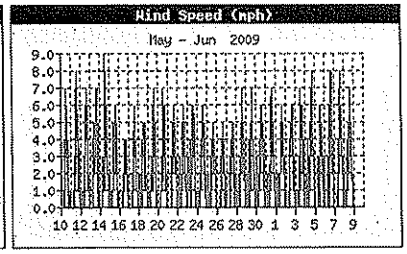
High Temperature	96.1°F
Low Temperature	28.9°F
High Humidity	98%
Low Humidity	14 %
High Dewpoint	62.0°F
Low Dewpoint	16.0°F
High Wind Speed	34.0 mph
High Barometer	1034.9 mb
Low Barometer	999.6 mb
Rain Total	9.45 in
High Rain Rate	1.73 in/hr
High Heat Index	96.0°F
Low Wind Chill	29.0°F

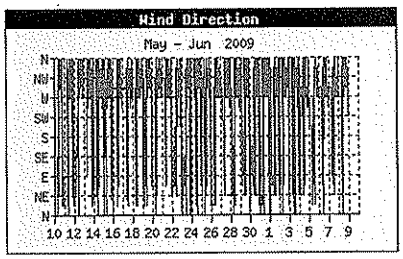
History Graphs for Sunnyvale, CA

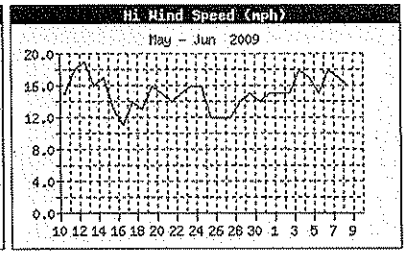


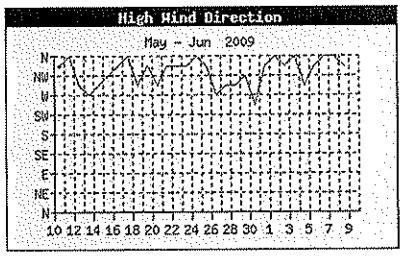


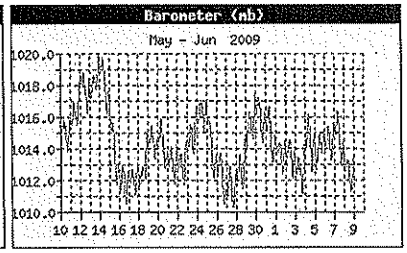


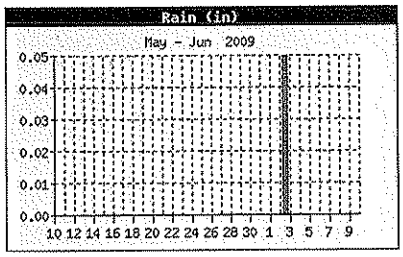


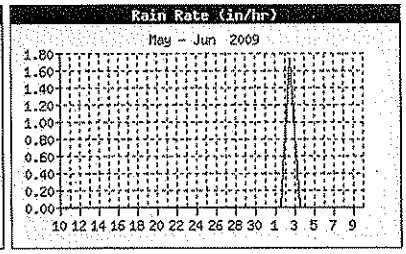


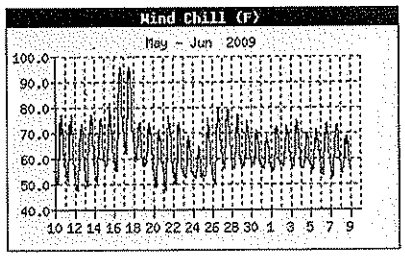


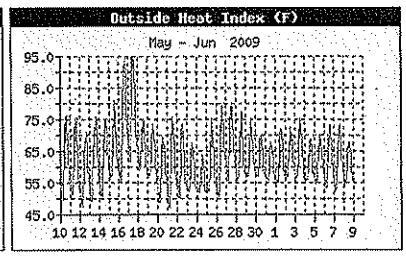












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DaVis

This Month's Highs & Lows: High Temperature 74.8°F Low Tem

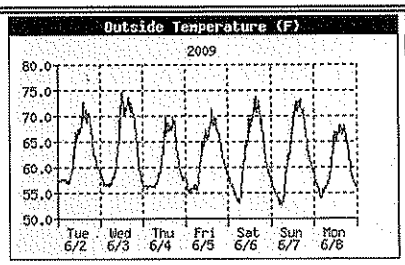
History Graphs for Sunnyvale, CA

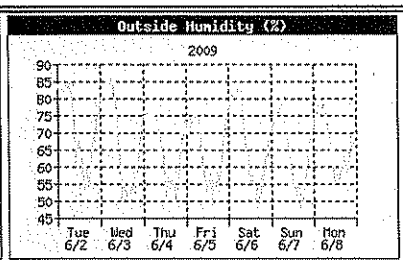
Monthly Highs/Lows

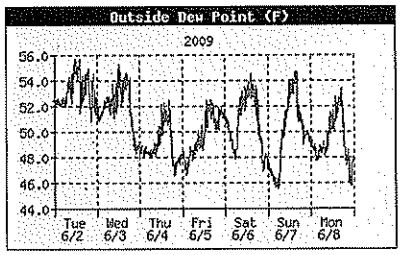
High Temperature	75.6°F
Low Temperature	52.5°F
High Humidity	86%
Low Humidity	47 %
High Dewpoint	58.0°F
Low Dewpoint	45.0°F
High Wind Speed	18.0 mph
High Barometer	1016.4 mb
Low Barometer	1011.1 mb
Rain Total	0.05 in
High Rain Rate	1.73 in/hr
Low Wind Chill	53.0°F
High Heat Index	76.0°F

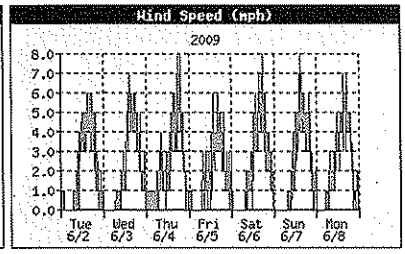
Yearly Highs/Lows

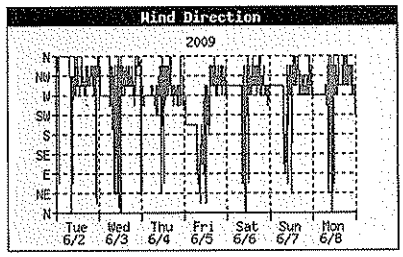
High Temperature	96.1°F
Low Temperature	28.9°F
High Humidity	98%
Low Humidity	14 %
High Dewpoint	62.0°F
Low Dewpoint	16.0°F
High Wind Speed	34.0 mph
High Barometer	1034.9 mb
Low Barometer	999.6 mb
Rain Total	9.45 in
High Rain Rate	1.73 in/hr
High Heat Index	96.0°F
Low Wind Chill	29.0°F

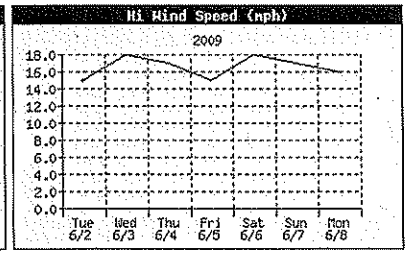


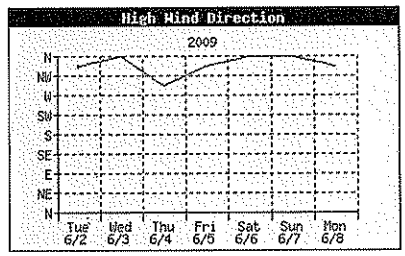


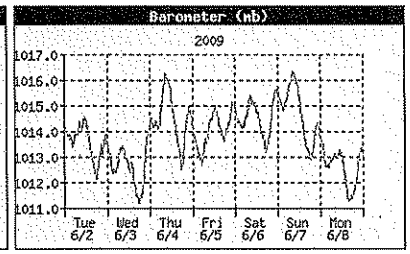


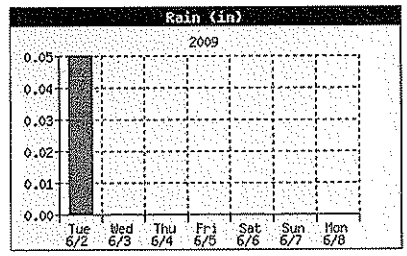


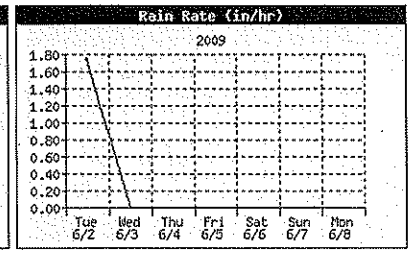


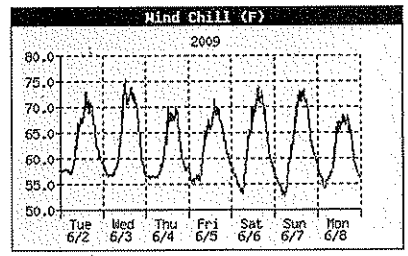


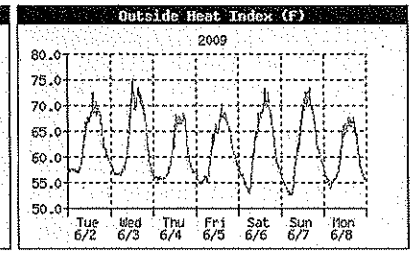












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