



2012 ANNUAL REPORT

Inglewood Oil Field Meteorological Station Annual Audit and Data Validation

Baldwin Hills CSD Condition E.2.j

April 2, 2013

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1.0 INTRODUCTION

1.1 BACKGROUND, CSD CONDITIONS

Plains Exploration and Production (PXP) installed and operates a Meteorological Station at the Inglewood Oil Field. Installation and operation of the station is a requirement of the Baldwin Hills Community Standards District (CSD). The station design was approved by the South Coast Air Quality Management District (SCAQMD) that has authority over air quality in the South Coast Air Basin. The SCAQMD approval was provided to the Los Angeles County Regional Planning Division, who oversees implementation of the CSD.

The CSD Section E.2.j states:

“j. Meteorological Station. The operator shall maintain and operate a meteorological station at the oil field in good operating condition and in compliance with all applicable Environmental Protection Agency ("EPA") and SCAQMD rules, regulations, and guidelines, and to the satisfaction of the director. The operator shall conduct an audit of the meteorological station on an annual basis and submit the results of the audit to the SCAQMD and the director. The operator shall maintain the data files for the meteorological station for a period of not less than 10 years. All such data shall be available upon request to the SCAQMD and the director.”

The CSD Section L.2.d further defines the schedule for the project:

“d. Meteorological Station. Within 120 days following the effective date, or at such later date as may be approved by the director for good cause shown, the operator shall submit to the SCAQMD a design for the installation of a meteorological station at the oil field that shall meet all the requirements of the United States Environmental Protection Agency ("EPA") guidelines on meteorological data as outlined in EPA Publication "Meteorological Monitoring Guidance for Regulatory Modeling Applications" (EPA-454/R-99-005) as published in February 2000. The operator shall take such actions as may be necessary to promptly secure SCAQMD approval of such design. The meteorological station shall be installed and fully operational within 180 days of receipt of approval of the design from the SCAQMD, or at such later date as may be approved by the director for good cause shown.”

1.2 PURPOSE OF THE METEOROLOGICAL STATION

Meteorological data from the West Los Angeles station for 1981 was used in the preparation of the health risk assessment (HRA) for the Baldwin Hills CSD Environmental Impact Report (EIR), in conjunction with the five-year (1985-1989) meteorological dataset from Los Angeles International Airport inherent to the Hotspots Analysis and Reporting Program (HARP) Model . PXP's meteorological station collects data representative of the local conditions at the oil field, so that after a five-year period a determination can be made if the oil field meteorological conditions are significantly different warranting a rerun of the HRA, per the CSD Condition E.2.k:

“k. Updated Health Risk Assessment. After every five years of operation of the meteorological station, the operator shall provide the previous five years of meteorological data to the SCAQMD and the director. If the SCAQMD or the director determines that the previous five years of meteorological data from the oil field could result in significant changes to the health risk assessment that was conducted as part of the Baldwin Hills Community Standards District Environmental Impact Report, then the county may elect to re-run the health risk assessment using the previous five years of meteorological data from the meteorological station.”

The purpose of the Meteorological Station is therefore two-fold:

1. To provide local representative wind speed and direction data in order to efficiently and effectively resolve potential odor complaints; and,
2. To collect representative data to determine if Inglewood Oil Field meteorological conditions are significantly different warranting a re-run of the HRA performed for the Baldwin Hills CSD EIR.

1.3 COMPLIANCE

The required Meteorological Station design was submitted to the County and the SCAQMD on March 25, 2009, which was within the CSD required deadline of 120 days of the CSD effective date. The design of the station is compliant with the United States Environmental Protection Agency (EPA) guidelines on meteorological data as outlined in EPA Publication "Meteorological Monitoring Guidance for Regulatory Modeling Applications" (EPA-454/R-99-005, February 2000). The station design was approved by the County and the SCAQMD on July 21, 2009.

The station was installed per the approved design, including the sensor sensitivities and accuracies. The station was fully operational within the CSD deadline: within 180 days after the approval of the design. The station installation started at the end of December 2009 and the station operation and meteorological data collection in full compliance started on Jan. 21, 2010.

The station collects the necessary data to enable preparation of a field-specific HRA, if a rerun of the EIR HRA is determined necessary as discussed above. The primary meteorological parameters that are measured by PXP's meteorological station, per the EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV (1995), are as follows:

- Wind speed (horizontal);
- Wind direction;
- Temperature
- Temperature difference (delta temperature); and,
- Solar radiation.

This report presents the required annual audit and data analysis per the CSD Section E.2.j requirements, for the data collected during 2012, the third year of the station operation.

2.0 METEOROLOGICAL STATION INSTALLATION & OPERATION

2.1 METEOROLOGICAL STATION LOCATION AND INSTRUMENTATION



Figure 1
Meteorological
Station at PXP's
Inglewood Oil Field

The station is comprised of a 10-meter (33 feet) tall tower, with meteorological sensors mounted on the tower, and a data logger at the base. Figure 1 shows a photo of the PXP meteorological station in April 2010.

The meteorological station is located on the well pad of well #129 on Vickers Lease (see the maps on Figure 2 "Field view" and Figure 3 "Close-up view"). Geographic Coordinates of the station are 34° 00' 32.00"N, 118° 22' 43.30" W. The location is at an elevation of 122 meters (400 ft) above sea level, is free from vegetation, and is over 100 m (330 feet) away from the closest obstruction. The distance from the nearest obstruction meets the EPA requirement that the station is at least 10 times the height of the closest obstruction.

The station tower is mounted on a secure foundation and equipped with a lightning rod grounding system. The tower is specifically designed to support meteorological instruments. The station is powered from the grid. The sensors are secured to the station tower with mounting arms specifically designed to support meteorological instruments.

There are five required sensors mounted on the station tower:

- one wind direction sensor,
- one wind speed sensor,
- two temperature sensors to measure ambient temperature and temperature difference (delta temperature) at 2 meters and 10 meters, and
- one solar radiation sensor.

The two temperature sensors are shielded from direct sun with air-aspirated shields. These shields prevent heating of the temperature sensors by direct sun exposure and thus distorting the actual temperature measurement.

2.2 METEOROLOGICAL STATION OPERATION AND MAINTENANCE

The 2012 data was reviewed on a monthly basis for correct ranges, orders of magnitude, gaps, and that it was being continuously recorded.

Throughout 2012, the EHS Department conducted regular visual inspections for the following parameters:

- proper rotation (no noise or off-center rotation) of the wind anemometer and wind direction vane,
- that there are no obstructions to the sensors, and
- overall cleanliness and orderly appearance of the instruments, tower, and data logger.

PXP maintains identical sensor duplicates for each of the sensors installed on the station. This is done so that when it is time for the scheduled calibration, an identical calibrated sensor can be installed quickly, while the one that needs to be calibrated is sent to the vendor facility. A PXP technician is assigned to maintain the station and the instruments.

Met One Instruments Inc. (Met One), the vendor who provided the station and its instruments, will be contacted if a sensor needs maintenance or repair. Met One also calibrates the sensors, in their specialized laboratory. The vendor specified that calibration is recommended every 12 months of use. PXP follows the recommended schedule. The sensors were replaced with newly calibrated sensors in November 2012, and the sensors that were in use were sent to the vendor for re-calibration. The next calibration is scheduled for November 2013 per the vendor's recommendation.

PXP maintains logs of all meteorological station events, as follows. The EHS Department maintains a log of sensor malfunctions (none in 2012), repairs (none in 2012), maintenance (none in 2012), and calibration events, including shipments to the vendor for calibration.

2.3 DATA COLLECTION, ANALYSIS AND ARCHIVING

Data from the sensors is transmitted to a datalogger mounted at the base of the tower. The datalogger is located in a weatherproof case, equipped with a lock for security and to prevent data tampering. The datalogger computes and records hourly averages from all the station sensors. The data stored in the data logger is transmitted to the PXP computer system in real time, via the radio system available at the Inglewood Oil Field. Therefore, the collected meteorological data can be viewed in real time by the facility operators in the control room or the EHS personnel on an office computer. Additionally, the data can be transferred directly from the data logger to a laptop computer at the tower and then transferred to a different data storage means.

During January through December 2012, the assigned PXP personnel looked at the met station real time data daily and visually checked for proper operation and any anomalies (zero readings, power outages, too high or too low points or out of normal range data points). Every month, the data was reviewed for anomalies and out-of-range or missing data by an independent contractor (InterAct). Any missing or anomalous data was flagged. The wind speed and seasonal wind direction data was also plotted as wind roses (see Attachment 2).

The data stored in the data logger is retrieved on a regular basis. This is done to ensure that the data logger memory does not fill up and start recording over the earlier recorded and un-

retrieved data. A software package compatible with the station data logger is used to interface with the data logger. The software allows the meteorological data to be viewed, evaluated, printed, and exported in comma-separated values (CSV) format, which is accessible via Microsoft Excel software. When data is received from the datalogger in real time remotely, the software automatically collects the data from the station, and stores averaged hourly values from each meteorological instrument in a database. This enables the data to be viewed at any time and used to generate various meteorological charts and graphs from the collected data.

The data collected is sent to an off-site storage and back-up on a monthly basis, to prevent accidental deletion or damage. This data will be stored for a period of five years. After the first five years, the data will be evaluated and compared with the AQMD West Los Angeles and LAX meteorological stations data to determine if the HRA re-run is warranted. The overall storage time of the collected data will be 10 years from the collection time.

3.0 ANALYSIS OF DATA COLLECTED IN 2012

Meteorological data was collected from January 1 to December 31, 2012. The data points that were flagged on a monthly basis throughout the year were reviewed in more detail. At the end of the year, the collected data was analyzed for errors and inconsistencies per the EPA specifications on meteorological data validation.

3.1 DATA VALIDATION TECHNIQUES

The data was also compared to the AQMD's meteorological contractor T&B Systems data from a station located at the Los Angeles Airport (LAX) and available on the Internet at <http://tbsys.serveftp.net/tbsysnet/pamsdata.htm>; this set of data was QAQC'ed and recommended for use in the PXP data validation effort by Kevin Durkee of the AQMD. The AQMD- LAX data set for 2012 is from 1/1/12 to 10/31/12

Data validation was performed per the EPA's Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements (1995). The method included

- evaluating minimum, maximum and average for the whole data set for each meteorological parameter
- plotting the data versus time and looking for anomalies, data outliers such as too high or too low values, "no-activity", zero data, unusual spikes, unusual inactivity or repeated data for prolonged time periods, etc.
- comparisons with the upper and/or lower limit on the allowed data ranges, normal changes/variations in parameters, see Attachment 1 for the details on the various data validation techniques
- plotting wind roses and comparing with wind roses from other weather stations in Los Angeles area, see Attachment 2
- comparison with the validated/QCQA'ed data for the same period of time from the AQMD meteorological station which is located near LAX (T&B Systems). The validated data from the AQMD station was only available through the end of October 2012.

3.2 DATA GAPS AND ANOMALIES

Using the techniques described above, several data gaps and anomalies were identified in the 2012 data, see Table 1 for the summary of the data gaps.

Overall the data has fewer than 10% gaps, erroneous or missing data. There were several power outages throughout the year when all sensors were not operational and did not record data. After the power outages, several sensors were showing out of range data, these data

points were deleted. In several instances (see Table 1) sensors were showing out of range data, these values were deleted.

The anomalous data values were deleted. The data gaps resulting from the deleted anomalous data were filled in with averages between the last reliable (non-anomalous) data point and the first after the gap data point that was considered reliable. For the solar radiation missing data or data that was above zero at night – the night data was filled in with zeros. Table 1 summarizes the identified data gaps and anomalies.

Table 1 Summary of 2012 Data Anomalies and Gaps

Gap / anomaly date, time	Data description	Action on the station or data
1/1; 6:00 (6am)	High delta temperature of 6.13.	Noted, discarded & filled with an average between immediately previous and immediately following data points.
1/7; 11:00 (11am)	Wind speed at 21.5 mph immediately following power outage was considered in error (too high).	Discarded & filled with an average between immediately previous and immediately following data points.
3/1; 3:00 (3am)	Wind speed at 42.1 mph considered in error (too high).	Did not correspond to regional high winds. Discarded & filled with an average between immediately previous and immediately following data points.
4/3; 15:00 (3pm)	Wind speed at 51.3 mph immediately following power outage was considered in error (too high).	Discarded & filled with an average between immediately previous and immediately following data points.
4/13; 7:00 – 20:00 (7am – 8pm)	Solar radiation daytime values very low, perhaps this was a cloudy day.	Verified low solar radiation with AQMD verified data and kept as valid.
4/17; 20:00 (8pm)	Wind speed at 70.8 mph immediately following power outage was considered in error (too high).	Discarded, the “before outage” value is too high to use in the average calculation
5/11; 23:00 (11pm)	Wind speed at 59.2 mph immediately following power outage was considered in error (too high).	Discarded & filled with an average between immediately previous and immediately following data points.
5/20; 23:00 (11pm)	Wind speed at 37.8 mph considered in error (too high).	Did not correspond to regional high winds. Discarded & filled with an average between immediately previous and immediately following data points.
7/26; 15:00 (3pm)	Wind speed at 64.3 mph and solar radiation at 95.0 immediately following power outage was considered in error wind (too high) and solar radiation (too low).	Discarded & filled with an average between immediately previous and immediately following data points.
9/13; 11:00 (11am)	Low delta temperature of -4.59.	Noted as possibly anomalous but kept as valid data.
9/26; 21:00 (8pm)	Wind speed at 25.5 mph immediately following power outage was	Discarded, the “before outage” value is too high to use in the

Gap / anomaly date, time	Data description	Action on the station or data
	considered in error (too high).	average calculation
10/30; 8:00 (8am)	Low delta temperature of -4.26.	Noted as possibly anomalous but kept as valid data.
11/23; 11:00 (11am)	Low delta temperature of -4.42.	Noted as possibly anomalous but kept as valid data.
11/24; 5:00 (5am)	High delta temperature of 5.77.	Discarded because it is out of order in addition to being too high
12/4; 10:00 (10am)	Low ambient temperature of 47.7.	Discarded because it is out of order in addition to being too low
1/7; 6:00 – 10:00 (6am – 10am) 2/15; 8:00 – 23:00 (8am – 11pm) 2/25; 11:00 – 12:00 (11 am – 12 pm) 2/25; 20:00 – 21:00 (9pm – 10pm) 2/27; 13:00 (1pm) 3/15; 8:00 (8am) 4/3; 14:00 (2pm) 4/17; 17:00 – 19:00 (5pm – 7pm) 5/11; 19:00 – 22:00 (7pm – 10pm) 5/22 – 5/23; 7:00 – 1:00 next day (7am – 1am) 5/23; 7:00, (7am) 7/26; 13:00 – 14:00 (1pm – 2pm) 8/12; 9:00 – 12:00 (9am – Noon)	Data from all 5 sensors is missing due to power outages for a total of 73 hours.	Data from all sensors were missing.

Gap / anomaly date, time	Data description	Action on the station or data
8/28; 6:00 – 8:00 (6am – 8am)	Data from all 5 sensors is missing due to power outages for a total of 73 hours.	Data from all sensors were missing.
9/26; 16:00 – 21:00 (4pm – 8pm)		
10/31 3:00 – 4:00 (3am – 4am)		
11/9; 16:00 (4pm)		
12/11 16:00 (4pm)		

After the erroneous and missing data gaps were filled in as discussed above, the following data ranges and averages resulted, see Table 2, which also contains the 2012 AQMD (T&B Systems at LAX) station data ranges for comparison purposes.

Table 2 Year 2012 Data Summary: PXP Met Station Data as Compared to AQMD Met Station Data (Ref. T&B Systems)

Parameter	Range	AQMD St.	PXP St.	Notes / Conclusions
Wind Speed, mph	Average	7.6	7.4	At PXP slightly lower average wind speed, this indicates a good correlation between the two met stations data. Maximum wind speed recorded is ~17% higher at the AQMD station.
	Minimum	0.1	1.0	
	Maximum	37.8	31.4	
Wind Direction, degrees	Average	206.6	184.4	Wind direction correlates well although at LAX, winds have strong west-southwest component, while PXP station shows more of a southwest component (see wind roses in Attachment 2).
	Minimum	0.2	0.0	
	Maximum	360.0	359.7	
Temperature, deg F	Average	61.2	62.5	Max temperature was higher at PXP, Min temp. was slightly lower, and average slightly higher. Small difference, good correlation.
	Minimum	42.7	41.4	
	Maximum	86.1	96.9	
Delta Temperature, deg F	Average	No AQMD data	-1.1	No data on temperature difference is provided for the AQMD station, thus no comparison.
	Minimum		-4.6	
	Maximum		6.1	
Solar Radiation, w/m ²	Average	245.3	228.4	Solar radiation is slightly lower at PXP. AQMD station is on the Coast, thus the conditions are sunnier, less shielded. The difference is small, good correlation.
	Minimum	0.0	0.0	
	Maximum	1106.0	1089.5	

Maximum and average wind speed data obtained from the PXP station is slightly lower than those values obtained from the AQMD station. The average wind speed is ~2.5% higher at the AQMD station. Thus it appears that the data between the two stations correlates well. Although the AQMD station location is characterized by stronger wind gusts, it makes sense because the station is located closer to the coast and has more unobstructed wind exposure.

PXP wind speed and direction data was plotted as wind roses (see Attachment 2), and compared to the AQMD weather station wind roses (they are plotted on one sheet next to each other for each of the seasons – Winter, Spring, Summer and Fall). Attachment 2 presents the resulting graphs. It can be seen that the winds have similar patterns. The winds at the LAX station are stronger (higher speed), as compared to the winds at the PXP station. The patterns of the wind directions vary slightly. The wind direction at the LAX station varies more than that at the PXP location. This can be explained by the fact that the PXP station is located in the area that is shielded somewhat by terrain. The wind direction pattern at the PXP station appears to be in-line with the terrain, while at the coastal open location of the AQMD station at the LAX, is not influenced or obstructed by the terrain.

The wind patterns were also compared to the ones from 2011, and the two year winds – 2011 and 2012 correlate well.

Temperatures obtained from both stations correlate well, with the average temperatures different by ~2%, and minimum temperatures different by just over 3%. The LAX station maximum temperature is lower by ~11% perhaps because the location is on the Coast where temperatures are lower because of the water body proximity.

Obtained solar radiation data correlates well with the sunrise and sunset times in the area during the various seasons. The solar radiation data is within the similar ranges as the AQMD data for 2012. There was one day (4/13/2012, see Table above) where the solar radiation seems low, these data points were compared to the AQMD data. The AQMD data for that day also shows lower solar radiation with a similar pattern, thus this similarity confirms that the PXP station solar radiation data for that day is valid.

The EPA allows for 10% missing or erroneous data, to consider the data valid for further studies. Table 3 below summarizes the missing data. For all the sensors the missing or discarded data is significantly less than 10%, at 0.86%, and thus meets the EPA requirement.

Table 3 Year 2012 PXP Met Station Missing Data

Parameter	Value	Notes
Total hours recorded	8784	Jan 1 – Dec 31, 2012, hourly averages recorded (note: 2012 is a leap year)
Five Sensors, TOTAL data points recorded	43,920	
Number of missing data points	(73 x 5 sensors) + 8 + 1 + 2 + 1 = 377 377 / 43,920 = 0.0086 or 0.86%	Data from all five sensors is missing during 73 hours. Additionally, 8 wind speed data points, 1 solar radiation point 2 Delta T points and one Temperature were discarded or discarded and replaced with non-erroneous data averages
Percentage (%) missing data – all 5 sensors	<0.86%	Missing data <10% = valid

3.3 FOURTH QUARTER 2011 SCAQMD-LAX SOLAR RADIATION DATA VERIFICATION

At the time of the 2011 annual data validation report preparation, the SCAQMD validated meteorological data from the LAX monitoring station was not available for the fourth quarter of 2011, it was only available through September 2011. It was noted in the 2011 report that some solar radiation data in the last 3 months of 2011 appeared anomalously low. It was noted in the 2011 report that the missing LAX station solar radiation data would be compared to the PXP data in the next annual report. This section addresses this comparison.

The LAX station data and the potential solar radiation anomalies noted in the PXP station data from October 1, 2011 (10/1/2011) to December 30, 2011 (12/30/2011) are compared in this section of the report.

Table 4 Year 2011 Noted Low Solar Radiation Values

10/5; 7:00 – 17:00 (7am – 5pm)	Solar radiation daytime values very low, perhaps this was a cloudy day	These data points have been compared to the AQMD validated data. The periods of low solar radiation have been compared to the same time periods for the LAX station. The low solar radiation at the PXP station correlates directly with low solar radiation recorded by the LAX station during the same time periods. Therefore, the solar radiation data has been retained as valid data for the year 2011 data set.
10/25; 8:00 – 17:00 (8am – 5pm)		
11/4; 11:00 – 12:00 (11am – Noon)		
11/20; 7:00 – 17:00 (7am – 5pm)		
12/19; 13:00 – 17:00 (1pm – 5pm)		

4.0 CONCLUSIONS

The PXP station was collecting the CSD-required data during the entire 2012 year: January 1 – Dec. 31, 2012. The process of maintaining the station in good working condition is being practiced per the CSD requirements. The collected data is being stored as required. The data is valid with less than 10% missing or discarded data at 0.86%. Therefore, the entire year data can be used (if determined necessary) for a Health Risk Assessment of the facility or other uses.

5.0 REFERENCES

1. EPA. 1995. Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements.
2. EPA. 2000. Meteorological Monitoring Guidance for Regulatory Modeling Applications, EPA-454/R-99-005.



Figure 2 PXP Meteorological Station Location – Field View

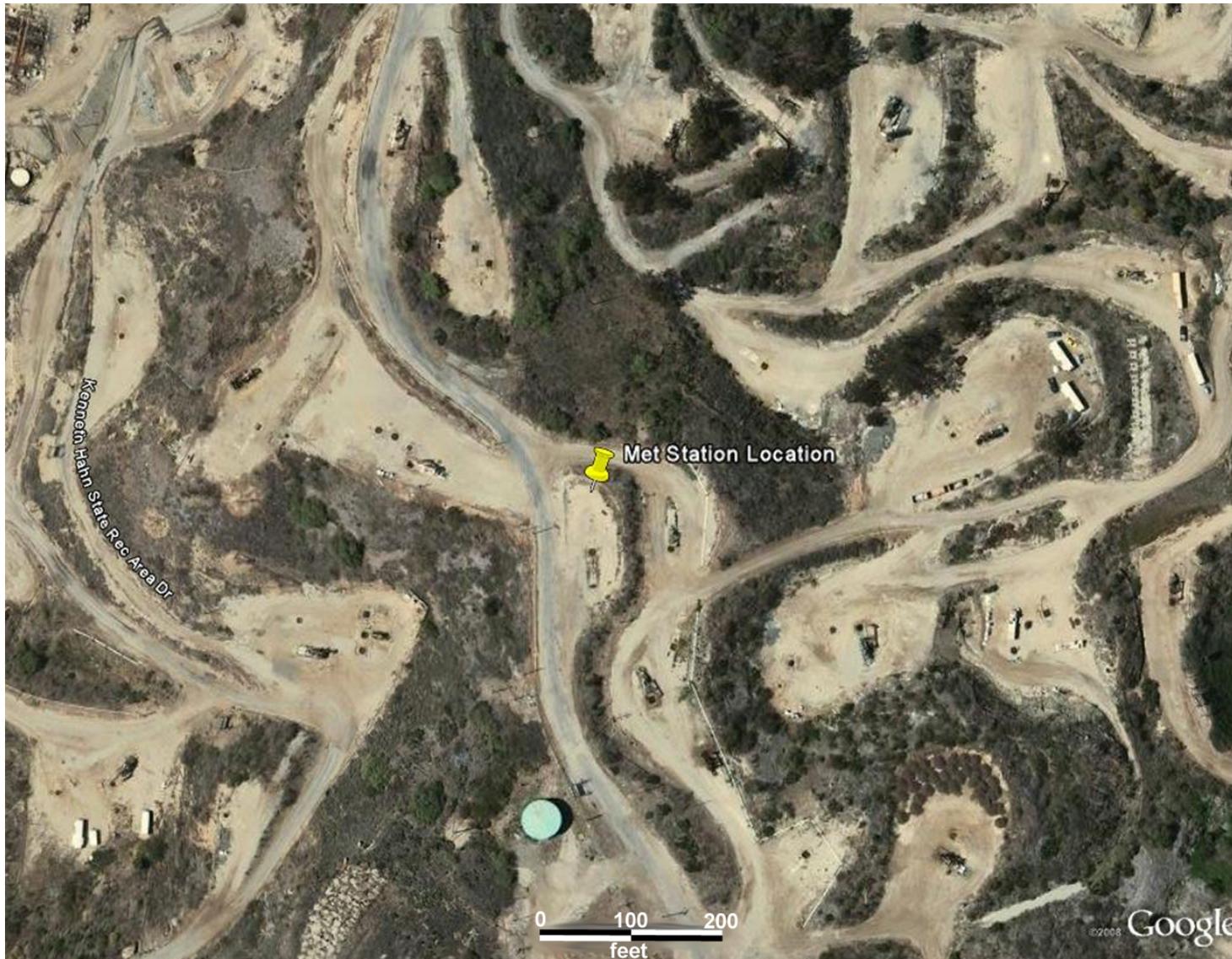


Figure 3 PXP Meteorological Station Location – Close-up View

ATTACHMENT 1

Data Validation Techniques

Variable	Criteria: flag data if the value
Wind Speed	<ul style="list-style-type: none"> - is less than zero or greater than 25 m/s (56 mph) - does not vary by more than 0.1 m/s (0.22 mph) for 3 consecutive hours - does not vary by more than 0.5 m/s (1.1 mph) for 12 consecutive hours - correlates well with data from other stations in the same area
Wind Direction	<ul style="list-style-type: none"> - is less than zero or greater than 360° - does not vary by more than 1 degree for more than 3 consecutive hours - does not vary by more than 10 degrees for 18 consecutive hours - correlates well with data from other stations in the same area
Temperature	<ul style="list-style-type: none"> - is greater than the local record high - is less than the local record low - is greater than a 5 °C (9 °F) change from the previous hour - does not vary by more than 0.5 °C (0.8 °F) for 12 consecutive hours - correlates well with data from other stations in the same area
Temperature Difference	<ul style="list-style-type: none"> - is greater than 0.1 °C/m (1.8 °F for 10 meters) during the daytime - is less than -0.1 °C/m (-1.8 °F for 10 meters) during the night time - is greater than 5.0 °C (9.0 °F) or less than -3.0 °C (-5.4 °F)
Radiation	<ul style="list-style-type: none"> - is greater than zero at night - is greater than the maximum possible for the season and latitude - correlates well with data from other stations in the same area

Source: http://www.webmet.com/met_monitoring/863.html

ATTACHMENT 2

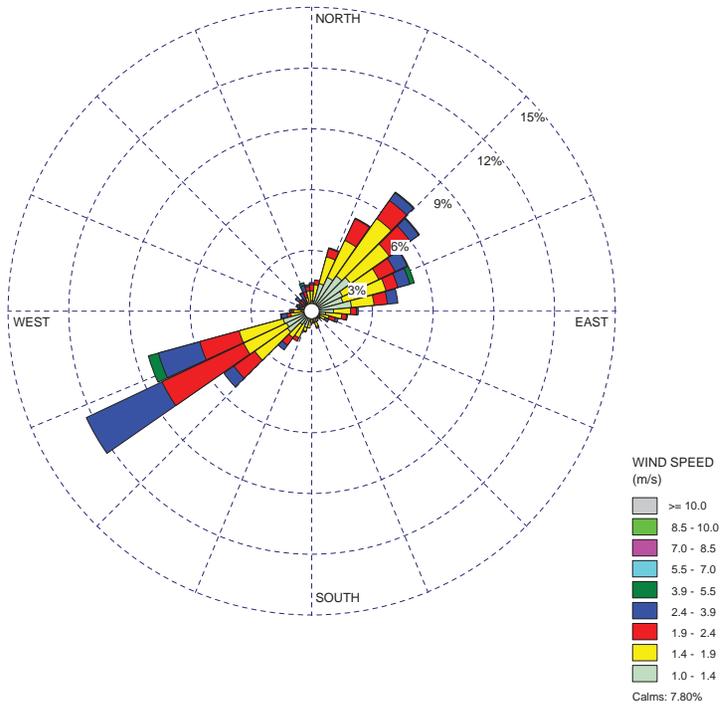
Wind Roses: T&B Systems, PAMS Monitoring Network Surface Wind Data, 2012 as compared with PXP Wind Data, 2012

IMPORTANT NOTE on reading the wind roses:

The graphs' colored segments show the winds as **BLOWING FROM** that direction.

WIND ROSE PLOT:
 WINTER - December-February - 2012
 PXP Inglewood Meteorological Station

DISPLAY:
 Wind Speed
 Direction (blowing from)

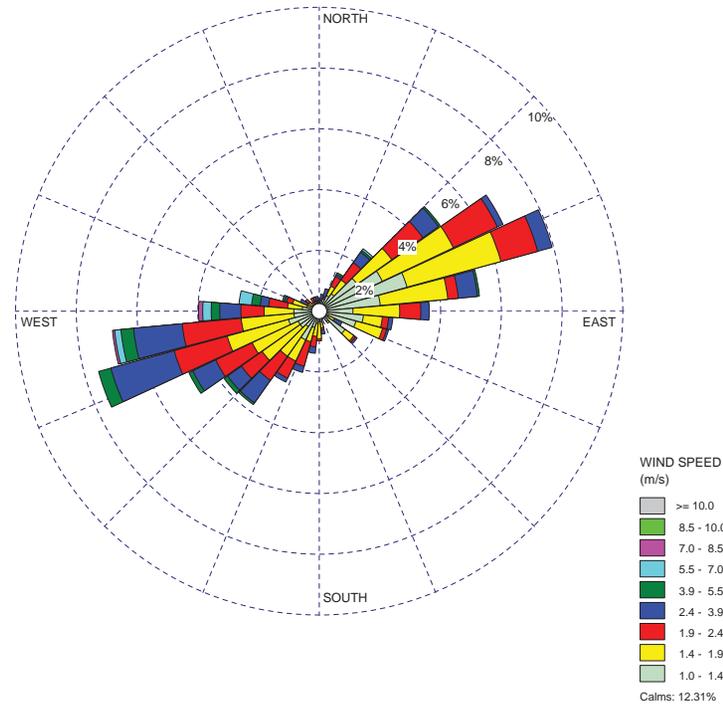


COMMENTS:	DATA PERIOD: Jan, Feb, Dec, 2012	COMPANY NAME: PXP, 5640 S. Fairfax Ave., Los Angeles, CA	
		MODELER: InterAct, tel. 805-658-5600	InterAct
	CALM WINDS: 7.80%	TOTAL COUNT: 2133 hrs.	
	AVG. WIND SPEED: 1.55 m/s	DATE: 1/14/2013	PROJECT: Met Data Validation-CSD

WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:
 WINTER - January-February - 2012
 LAX AQMD Meteorological Station

DISPLAY:
 Wind Speed
 Direction (blowing from)

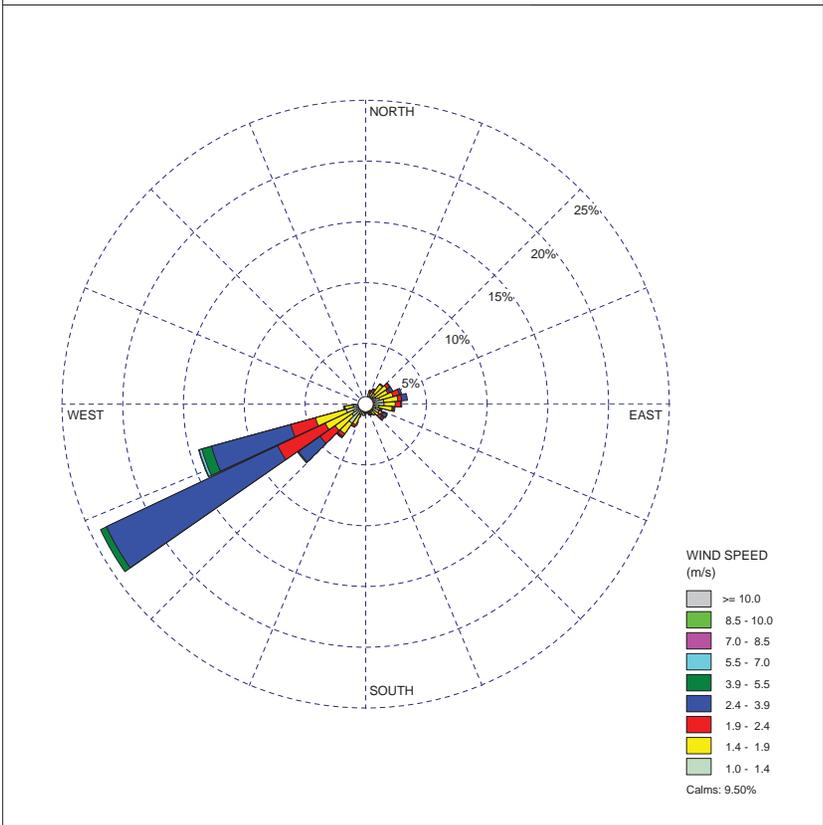


COMMENTS:	DATA PERIOD: Start Date: 1/1/2012 - 00:00 End Date: 2/29/2012 - 23:00	AGENCY NAME: South Coast Air Quality Management District (AQMD)	
		MODELER: InterAct, tel. 805-658-5600	InterAct
	CALM WINDS: 12.31%	TOTAL COUNT: 1437 hrs.	
	AVG. WIND SPEED: 1.58 m/s	DATE: 1/14/2013	PROJECT: Met Data Validation-CSD

WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:
 SPRING - March-May - 2012
 PXP Inglewood Meteorological Station

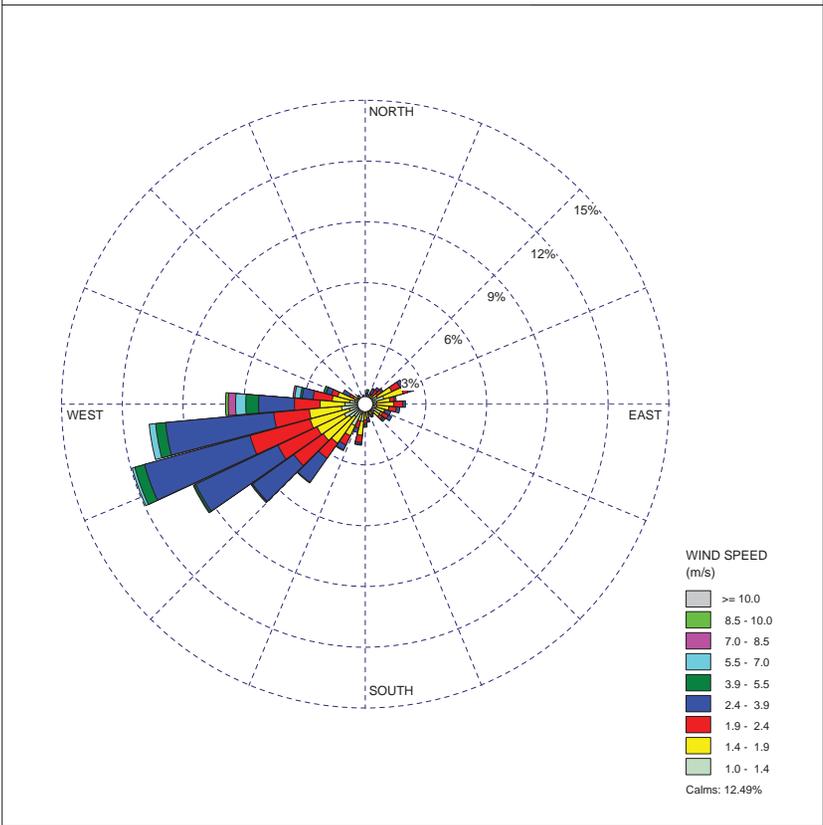
DISPLAY:
 Wind Speed
 Direction (blowing from)



COMMENTS:	DATA PERIOD: Start Date: 3/1/2012 - 00:00 End Date: 5/31/2012 - 23:00	COMPANY NAME: PXP, 5640 S. Fairfax Ave., Los Angeles, CA		
	CALM WINDS: 9.50%	MODELER: InterAct, tel. 805-658-5600		TOTAL COUNT: 2179 hrs.
	AVG. WIND SPEED: 1.78 m/s	DATE: 1/14/2013		PROJECT: Met Data Validation-CSD

WIND ROSE PLOT:
 SPRING - March-May - 2012
 LAX AQMD Meteorological Station

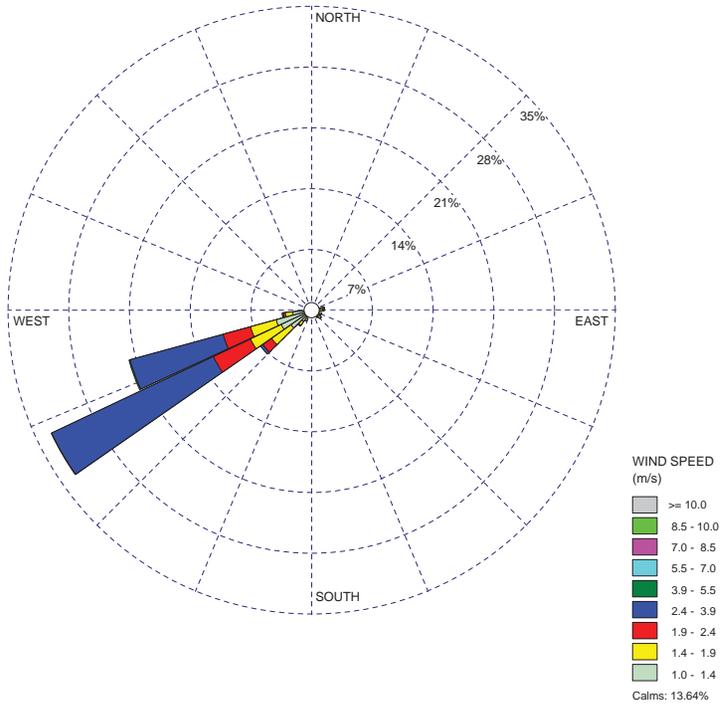
DISPLAY:
 Wind Speed
 Direction (blowing from)



COMMENTS:	DATA PERIOD: Start Date: 3/1/2012 - 00:00 End Date: 5/31/2012 - 23:00	AGENCY NAME: South Coast Air Quality Management District (AQMD)		
	CALM WINDS: 12.49%	MODELER: InterAct, tel. 805-658-5600		TOTAL COUNT: 2208 hrs.
	AVG. WIND SPEED: 1.85 m/s	DATE: 1/14/2013		PROJECT: Met Data Validation-CSD

WIND ROSE PLOT:
 SUMMER - June-August - 2012
 PXP Inglewood Meteorological Station

DISPLAY:
 Wind Speed
 Direction (blowing from)

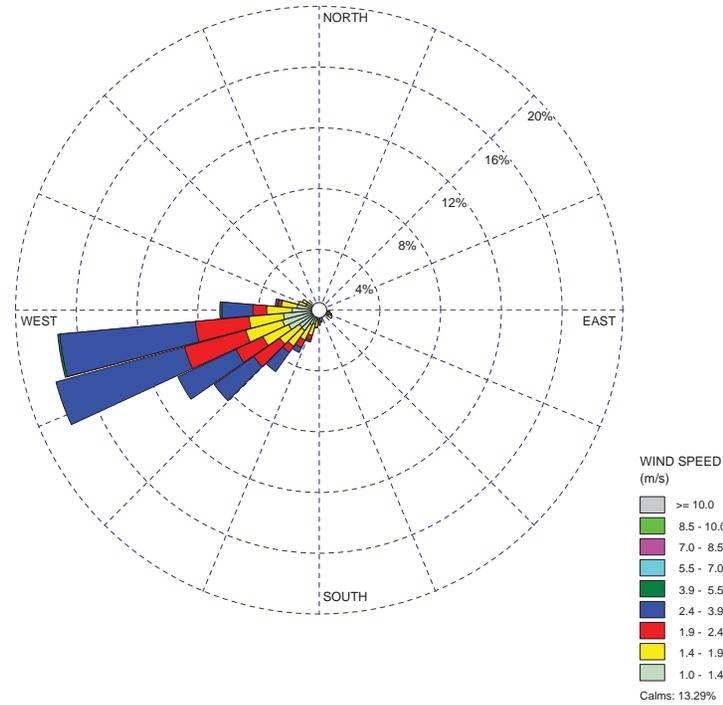


COMMENTS:	DATA PERIOD: Start Date: 6/1/2012 - 00:00 End Date: 8/31/2012 - 23:00	COMPANY NAME: PXP, 5640 S. Fairfax Ave., Los Angeles, CA		
	CALM WINDS: 13.64%	MODELER: InterAct, tel. 805-658-5600		TOTAL COUNT: 2199 hrs.
	AVG. WIND SPEED: 1.68 m/s	DATE: 1/14/2013		PROJECT: Met Data Validation-CSD

WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:
 SUMMER - June-August - 2012
 LAX AQMD Meteorological Station

DISPLAY:
 Wind Speed
 Direction (blowing from)

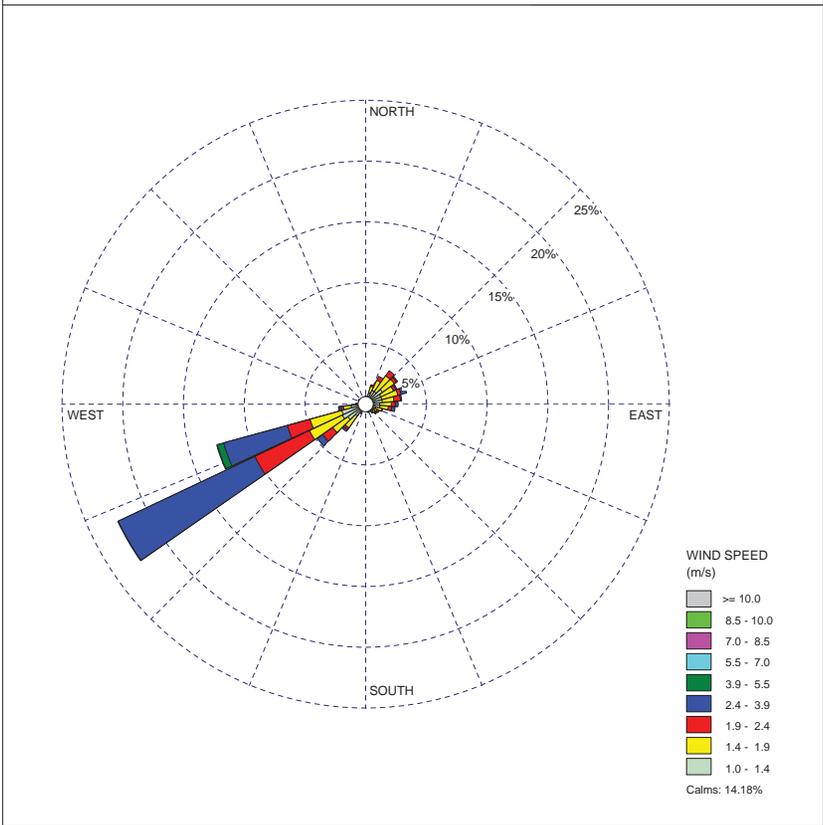


COMMENTS:	DATA PERIOD: Start Date: 6/1/2012 - 00:00 End Date: 8/31/2012 - 23:00	AGENCY NAME: South Coast Air Quality Management District (AQMD)		
	CALM WINDS: 13.29%	MODELER: InterAct, tel. 805-658-5600		TOTAL COUNT: 2203 hrs.
	AVG. WIND SPEED: 1.66 m/s	DATE: 1/14/2013		PROJECT: Met Data Validation-CSD

WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:
 FALL - September-November - 2012
 PXP Inglewood Meteorological Station

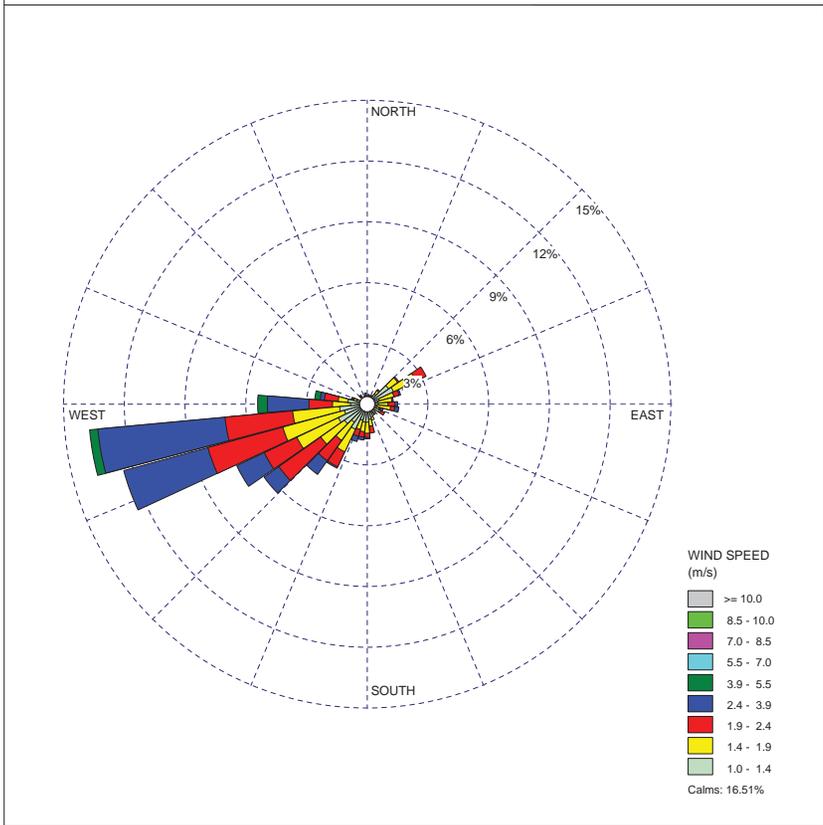
DISPLAY:
 Wind Speed
 Direction (blowing from)



COMMENTS:	DATA PERIOD: Start Date: 9/1/2012 - 00:00 End Date: 11/30/2012 - 23:00	COMPANY NAME: PXP, 5640 S. Fairfax Ave., Los Angeles, CA		
	CALM WINDS: 14.18%	MODELER: InterAct, tel. 805-658-5600		TOTAL COUNT: 2176 hrs.
	AVG. WIND SPEED: 1.53 m/s	DATE: 1/14/2013		PROJECT: Met Data Validation-CSD

WIND ROSE PLOT:
 FALL - September-October - 2012
 LAX AQMD Meteorological Station

DISPLAY:
 Wind Speed
 Direction (blowing from)



COMMENTS:	DATA PERIOD: Start Date: 9/1/2012 - 00:00 End Date: 10/31/2012 - 23:00	AGENCY NAME: South Coast Air Quality Management District (AQMD)		
	CALM WINDS: 16.51%	MODELER: InterAct, tel. 805-658-5600		TOTAL COUNT: 1463 hrs.
	AVG. WIND SPEED: 1.54 m/s	DATE: 1/14/2013		PROJECT: Met Data Validation-CSD