DiabloCanyonNPEm Resource

From: Stuyvenberg, Andrew
Sent: Tuesday, November 09, 2010 2:32 PM
To: Wescott, Konstance L.
Cc: DiabloCanyonNPEm Resource; Rikhoff, Jeffrey
Subject: FW: ER RAI Response DCL-10-082
Attachments: DCL-10-082.pdf

Konnie – Attached is the RAI response with the update to the archaeological reference. It also contains PG&E's accounting of the Diablo site area and transmission line corridors surveyed for archaeological resources. This document is in ADAMS at ML102240074.

Best,
Drew

_____
Drew Stuyvenberg
U.S. Nuclear Regulatory Commission
301-415-4006
Andrew.Stuyvenberg@nrc.gov

Hearing Identifier: DiabloCanyon_LicenseRenewal_NonPublic
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Created By: Andrew.Stuyvenberg@nrc.gov

Recipients:
"DiabloCanyonNPEm Resource" <DiabloCanyonNPEm.Resource@nrc.gov>
Tracking Status: None
"Rikhoff, Jeffrey" <Jeffrey.Rikhoff@nrc.gov>
Tracking Status: None
"Wescott, Konstance L." <wescott@anl.gov>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

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Recipients Received:

Pacific Gas and Electric Company®

James R. Becker
Site Vice President

Diablo Canyon Power Plant
Mail Code 104/5/601
P. O. Box 56
Avila Beach, CA 93424

805.545.3462
Internal: 691.3462
Fax: 805.545.6445

August 2, 2010

PG&E Letter DCL-10-082

U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Response to NRC Letter dated July 6, 2010, Request for Additional Information for the Applicant's Environmental Report - Operating License Renewal Stage

Dear Commissioners and Staff:

By letter dated November 23, 2009, Pacific Gas and Electric Company (PG&E) submitted an application to the U. S. Nuclear Regulatory Commission (NRC) for the renewal of Facility Operating Licenses DPR-80 and DPR-82, for Diablo Canyon Power Plant (DCPP) Units 1 and 2, respectively. The application included the license renewal application (LRA), and Applicant's Environmental Report – Operating License Renewal Stage.

By letter dated July 6, 2010, the NRC staff requested additional information needed to continue their review of the DCPP LRA. PG&E's response to the request for additional information is included in Enclosure 1. Provided in Enclosure 2 is County of San Luis Obispo Allocation of Unitary Tax Revenue from PG&E Power Plant Property Tax Bills for Fiscal Years 2007/08–2009/10.

PG&E makes no regulatory commitments (as defined in NEI 99-04) in this letter.

If you have any questions regarding this response, please contact Mr. Terence L. Grebel, License Renewal Project Manager, at (805) 545-4160.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on August 2, 2010.

Sincerely,

James R. Becker

pns/50328355
Enclosures
cc: Diablo Distribution
cc/enc: Elmo E. Collins, NRC Region IV Regional Administrator
Michael S. Peck, NRC Senior Resident Inspector
Andrew L. Stuyvenberg, NRC Environmental Project Manager,
License Renewal
Alan B. Wang, NRC Project Manager, Office of Nuclear Reactor Regulation

PG&E Response to NRC Letter dated July 6, 2010
Request for Additional Information for the Applicant's
Environmental Report – Operating License Renewal Stage

Archaeological and Historic Resources RAI #1

Please provide the updated 2010 file search results that supplement the cultural resources overview prepared by Price and Trumbly (2009), including any updates to Appendix C tables and maps.

PG&E Response to Archaeological and Historic Resources RAI #1

The following tables provide a supplementary bibliography and site record summary that are derived from the 2010 updated records search. Table 1 lists documents associated with cultural resources located on the Diablo Canyon Power Plant (DCPP) lands. Table 2 lists cultural resource sites identified within and near the DCPP lands and transmission corridors. The records search was completed by Far Western Anthropological Group in January and February of 2010. The study area lies within San Luis Obispo, Monterey, Fresno, Kings, and Kern counties. Records searches were therefore conducted at various California Historical Resources Information System facilities including the Northwest Information Center at Sonoma State University; the Southern San Joaquin Valley Information Center at California State University, Bakersfield; and the Central Coastal Information Center at the University of California, Santa Barbara.

Table 1 - Diablo Historic Properties Management Plan - 2010 Supplemental Bibliography

Date	Author	Title
1951	Pilling, A	Surface Archaeology of the Pecho Coast
1975	Hoover, R.L.	Notes on Northern Chumash Ecology and Settlement Patterns (E-265)
1978	Greenwood, R.S.	Surface Survey and Evaluation, SLO-2 at Diablo Canyon
1978	Greenwood, R.S.	Background Research Regarding Diablo Canyon and SLO-2
1978	Greenwood, R.S.	Recommendations for Cultural Resource Management at Diablo Canyon
1978	Greenwood, R.S.	Archaeological Assessment of CA-SLO-2, Diablo Canyon, San Luis Obispo County (E-27)
1980	PG&E	Archaeological Resources Management Plan Diablo Canyon Site
1987	Gibson, R.O.	Results of Archaeological Surface Survey for the Port San Luis Trail Project, San Luis Obispo County, CA
1991	Jackson, R.J. and A.G. Caruso	Working Draft; Action Plan: Development of a Cultural Resources Management Plan in Support of the Diablo Canyon Natural Resource Management and Land Stewardship Program, San Luis Obispo County, California
1993	Wickstrom, B. and K. Tremaine	A Cultural Resources Survey of Portions of Diablo Canyon Nuclear Power Plant South Property, San Luis Obispo County, California
2006	Denardo, C. and Texier, B.	Rancho Canada de los Osos y Pecho y Islay Prehistoric Archaeological District Nomination, San Luis Obsipo County, California
2009	Price, B.A. and M. Trumbly	Cultural Resources Overview for the Diablo Relicensing Feasibility Study, San Luis Obispo, Monterey, Fresno, Kings, and Kern Counties, California

Table 2 - Supplemental Site Records Search (March 2010)

P-Number	Trinomial	Map	Have Site Record?	Within 100m	Type*
P-15-13725	CA-KER-07701H	Buttonwillow	Y	Y	H
P-15-13726	CA-KER-07702H	Multiple	Y	Y	H
P-15-13717	CA-KER-7698H	Multiple	N	Y	H
P-40-001137	CA-SLO-1137	Pismo Beach	Y		P
P-40-001379	CA-SLO-1379	Morro Bay South	Y		P
P-40-001381	CA-SLO-1381/H	Morro Bay South	Y	Y	H
P-40-001468	CA-SLO-1468	Port San Luis	Y		P
P-40-001469	CA-SLO-1469	Port San Luis	Y		P
P-40-001470	CA-SLO-1470	Port San Luis	Y		P
P-40-001509	CA-SLO-1509	Port San Luis	Y		P
P-40-001744	CA-SLO-1744	Morro Bay South	Y		P
P-40-002078	CA-SLO-2078H	Templeton	Y		P
P-40-000215	CA-SLO-215	Morro Bay South	Y		P
P-40-002393	CA-SLO-2393	Morro Bay South	Y		P
P-40-002466	CA-SLO-2466	Morro Bay South	Y	Y	P
P-40-002569	CA-SLO-2569	Morro Bay South	Y		P/H
P-40-002570	CA-SLO-2570	Morro Bay South	Y		P
P-40-002571	CA-SLO-2571	Morro Bay South	Y		P
P-40-002572	CA-SLO-2572	Morro Bay South	Y		P
P-40-002573	CA-SLO-2573	Morro Bay South	Y		H
P-40-002574	CA-SLO-2574	Morro Bay South	Y		P
P-40-002592	CA-SLO-2592	Pismo Beach	Y		H
P-40-002600	CA-SLO-2600	Arroyo Grande NE	Y		H
P-40-002601	CA-SLO-2601	Arroyo Grande NE	Y		P
P-40-002602	CA-SLO-2602	Arroyo Grande NE	Y		P
P-40-002603	CA-SLO-2603	Pismo Beach	Y		P
P-40-002604	CA-SLO-2604	Pismo Beach	Y		P
P-40-002606	CA-SLO-2606	Pismo Beach	Y		P
P-40-002615H	CA-SLO-2615/H	Arroyo Grande NE	Y		H
P-40-000565	CA-SLO-565	Morro Bay South	Y		P
P-40-000773	CA-SLO-773	Port San Luis	Y	Y	P
P-40-000774	CA-SLO-774	Port San Luis	N		
P-40-000775	CA-SLO-775	Port San Luis	Y		P
P-40-000945H	CA-SLO-945H	Morro Bay South	Y		H

Table 2 - Supplemental Site Records Search (March 2010) (continued)

P-Number	Trinomial	Map	Have Site Record?	Within 100m	Type*
P-40-000957	CA-SLO-957	Morro Bay South	Y		H
P-40-000958	CA-SLO-958	Morro Bay South	Y		H
P-40-000530	CA-SLO-530	Morro Bay South	Y		P
P-40-040930	CA-SLO-930	Morro Bay South	N		H
P-40-041076	CA-SLO-1076	Pismo Beach	Y		H
P-40-041167	CA-SLO-1167	Morro Bay South	Y	Y	H
P-40-041179	CA-SLO-1179	Templeton	Y		H
P-40-041216	CA-SLO-41216	Pismo Beach	Y		H
P-40-041217	CA-SLO-41217	Arroyo Grande NE	Y		H
P-40-041218	CA-SLO-41218	Arroyo Grande NE	Y	Y	H
P-40-041219	CA-SLO-41219	Arroyo Grande NE	Y		H
P-40-041221	CA-SLO-41221	Arroyo Grande NE	Y		H

*P= prehistoric; H=historic

Archaeological and Historic Resources RAI #2

Has Pacific Gas & Electric (PG&E) observed any change in the rate of coastal erosion in the Diablo Canyon Power Plant (DCPP) discharge cove or elsewhere on the property since operation of the DCPP cooling system started? If so, please explain the direction and magnitude of the changes in coastal erosion rates. Does PG&E monitor for erosion of archaeological sites, and especially for erosion of human burials?

PG&E Response to Archaeological and Historic Resources RAI #2

PG&E has not observed any significant changes in the rate of coastal erosion in the Diablo Canyon Power Plant (DCPP) discharge cove or elsewhere on the property since the operation of the DCPP cooling system started. In 2004, a study of Patton Cove, commissioned and completed by PG&E, estimated the average rate of shoreline retreat along the sea cliff at the DCPP property is on the order of approximately 0.015 to 0.22 m/yr[1]. This estimated rate of coastal erosion is consistent with a recent U.S. Geological Survey (USGS) study of the California coastline. The USGS study indicates that the average rate of coastal erosion along the Central Coast is 0.20 m/yr in the region surrounding the DCPP property[2].

Annual photogrammetric surveys of the sea cliff near Patton Cove, completed from 2006-2010 in accordance with Special Conditions 4 and 5 of the California Coastal Commission Coastal Development Permit No. A-3-SLO-04-035 for the PG&E dry cask storage facility, have not shown significant erosion or accretion of the sea cliff within the study area during this time period.[3]

Procedure EV1.ID2, "CA-SLO-2 Site Management," requires PG&E to complete monitoring at CA-SLO-2. Photo-monitoring stations have been established to monitor surface activities and any physical changes to site CA-SLO-2. At regular intervals, a PG&E cultural resources specialist or archaeological consultant conducts photographic monitoring. The photos are taken with comparable film, cameras, and lenses to allow adequate evaluation of the site over an extended period of time. Monitoring is performed on foot. The location of each photo-monitoring station is shown on a topographic map of site CA-SLO-2, which is

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[1] William Lettis & Associates, Inc.- *PG&E Diablo Canyon Power Plant Shoreline Retreat Study Diablo And Patton Coves* (2004)

[2] Hapke, C.J and D. Reid - *National Assessment of Shoreline Change Part 4: Historical Coastal Cliff Retreat along the California Coast* (2007)

[3] Pacific Gas and Electric Company - ISFSI Slope Stability and Shoreline Erosion Monitoring Annual Report No. 5 (2010)

on file with the PG&E Land & Environmental Department. Monitoring stations may be established or eliminated, as necessary, by the cultural resources specialist. Currently, many of the photo-monitoring stations are located in areas where coastal erosion is evident or "slumping" has been observed.

If human remains are encountered during the yearly monitoring, PG&E follows the procedures set forth in the California State Health and Safety Code Section 7050.5. The code states that the county coroner must be notified of the find immediately and that there shall be no disturbance of the remains until the coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are of Native American ancestry, the county coroner will notify the Native American Heritage Commission, which will identify and notify a most likely descendant (MLD). The MLD has the right, with permission of the landowner or the authorized representative, to inspect the site of discovery. Once inspected, the MLD has 48 hours to give recommendations. These recommendations may include scientific removal, nondestructive analysis of remains and/or associated constituents, and reinterment at the location of discovery or elsewhere. Final disposition of the remains and associated materials are determined by the landowner in consultation with the MLD.

Archaeological and Historic Resources RAI #3

Please provide information about two most recent training events for archaeological awareness for PG&E employees at DCPP. This information should include, at a minimum, dates for the training events, the number of PG&E staff and contractors in attendance, and a description of the material and instructions provided. Also, please indicate whether any tribal or State representatives were involved in the training, and if so, how.

PG&E Response to Archaeological and Historic Resources RAI #3

PG&E's procedure for the protection of CA-SLO-2, does not require training of staff on cultural resource awareness. In practice, PG&E does have a cultural resources program in place for training staff for a wide variety of projects (both on and off of Diablo Canyon Power Plant (DCPP) lands) that utilizes web-based training and provides material for tailboard meetings.

Moreover, all ground disturbing activities undertaken on DCPP lands are reviewed by the Land Stewardship Committee. The committee, which includes a PG&E cultural resources specialist, is charged with directing land management practices on DCPP property. In this capacity, the designated cultural resources specialist provides recommendations for avoiding impacts to cultural resources on the property and facilitates "tailboard" meetings prior to the start of ground disturbing activities.

The tailboards, which are provided on an as-needed basis, raise employee and contractor awareness of the sensitive cultural resources on the property, emphasize the need to avoid all such resources, discuss standard protection protocols, and clearly communicate PG&E's stewardship ethic. Thus, while a formal archaeological awareness training program for employees and contractors is not currently in place at DCPP, resource protection is achieved through active participation in all projects by a PG&E Cultural Resource Specialist. The following examples illustrate PG&E's approach to communicating pertinent information regarding cultural resources on DCPP lands.

Most recently, a cultural resources tailboard was provided to a DCPP contractor tasked with completing a geological reconnaissance of the property. The proposed investigation involved mapping a specific geologic unit and occasional collection of in-situ rock specimens. Prior to the initiation of fieldwork, a PG&E cultural resources specialist contacted the contract geologist via telephone and email (June 10, 2010) in order to provide general information on the presence of archaeological resources within the DCPP property, notified the contractor of strict prohibitions on collection of specimens from within archaeological sites,

and highlighted locations of particular concern without divulging the exact location of archaeological resources.

This year PG&E has hosted various events to mark the 25th anniversary of operation of Unit 1 at DCPP. The events have provided an opportunity to educate facility staff on the cultural legacy represented by the resources located on the property. An hour-long presentation was recently provided (May 26, 2010) to approximately 40 DCPP personnel that focused on the history of the property, historic and archaeological research undertaken, site stewardship efforts, and resource awareness. The well-attended presentation emphasized the nonrenewable nature of the cultural resources on the property and highlighted PG&E's efforts to protect the sites. Maps depicting the general location of resources were used to illustrate the richness of sites within the property and to highlight the environments that are most sensitive. In the course of the presentation, which was followed by a question and answer session, the Land Stewardship Committee's process for assessing DCPP ground disturbing activities and standard protection measures were discussed.

Archaeological and Historic Resources RAI #4

During the site audit, NRC staff noted that archaeological surveys were completed for placement of emergency sirens. In several cases, intact archaeological sites are located immediately adjacent to the poles (pole location only was excavated). Does PG&E or its contractors perform additional archaeological work in pole maintenance or replacement scenarios? What procedures are in place to consistently treat archaeological resources previously identified at siren locations?

PG&E Response to Archaeological and Historic Resources RAI #4

Currently the only procedure in place at Diablo Canyon Power Plant (DCPP) to review cultural resources is EV1.ID2, "CA-SLO-2 Site Management," which focuses on the protection of CA-SLO-2. EV1.ID2 states:

4.2 Planned CA-SLO-2 Site Maintenance Activities and New Projects

The following steps shall be followed to initiate planned CA-SLO-2 site activities or projects. This includes the clearing of brush surrounding the roadways as well as any roadway surface treatments, erosion repairs, and maintenance work to structures in the area.

4.2.1 The requestor shall write a clear, concise description of the proposed activity, including location, and forward to the DCPP director or designee in charge of CA-SLO-2.

4.2.2 The DCPP director or designee in charge of CA-SLO-2 shall determine if the proposed activity is acceptable under the ARMP, based on the recommendation of the company cultural resources specialist.

4.2.3 The DCPP director or designee in charge of CA-SLO-2 shall promptly coordinate any required submittals and agency contacts, provide the activity proposer with written confirmation or denial of the proposed activity, and assign personnel to coordinate area maintenance within CA-SLO-2.

4.2.4 The cultural resources specialist shall determine whether the proposed activity requires monitoring by cultural resources personnel and shall advise the manager of such need.

Additional cultural resources reviews may be required if PG&E seeks to obtain permits, approvals, or licenses from county, state or federal agencies. As noted above in response to Request for Additional Information #3, all projects on DCPP lands are screened by the Land Stewardship Committee to coordinate resource protection measures. Past archaeological studies performed on the DCPP property form the basis for assessing potential impacts to archaeological resources. These studies are referenced to determine the extent of past pedestrian surveys, the spatial extent of resources, and the need for further archaeological work. PG&E has an on-call contract in place for completing archaeological investigations and monitoring on short notice. As such, previously identified archaeological resources are considered in the course of planning all ground disturbing projects, including pole maintenance and replacement activities. Based on this assessment, monitoring and/or mitigation measure may be proposed and implemented as appropriate.

Archaeological and Historic Resources RAI #5

Please provide the total acres and percent of the PG&E lands archaeologically surveyed (indicate any overlap in survey boundaries, so acreage is not overestimated in calculating the percent). Please provide the same (total acres and percent) for all transmission line right-of-ways.

PG&E Response to Archaeological and Historic Resources RAI #5

The table below provides a summary of the survey coverage on PG&E's Diablo Canyon Power Plant (DCPP) lands, which includes the Morrow, Gates, and Midway transmission corridor rights-of-way (ROW). The DCPP property (including Parcel P) covers approximately 8,782 acres of which roughly 28 percent of the land has been surveyed for cultural resources. Parcel P, where the vast majority of development for the plant has occurred, has been nearly completely surveyed. Of the transmission corridors, the Morro ROW has received the most survey coverage at just over 21 percent of the total area, with the Midway ROW trailing slightly behind with approximately 19.4 percent coverage. Only a small portion of the Gates ROW has been surveyed (approximately 1.5 percent).

Table 1 - Cultural Resource Survey Coverage

Area	**Total Acreage**	**Total Acreage Previously Surveyed**	**Percent Previously Surveyed**
PG&E Property* (minus Parcel P)	8042.46	2243.03	27.89%
Parcel P	739.92	733.15	99.09%
Morro ROW (Outside PG&E Property)	51.30	10.78	21.01%
Gates ROW (Outside PG&E Property)	3298.61	49.02	1.49%
Midway ROW (Outside PG&E Property)	4000.59	777.46	19.43%
Total**	16132.89	3813.44	23.64%

*Generalized property extent

**Note: The areas used above have been cropped so that there is no overlap between them. For the purpose of this exercise, the transmission right-of-way areas stop at the point where they touch the PG&E property boundary.

Socioeconomics RAI #1

Please explain why tax payments from DCPP to San Luis Obispo County have risen from $20.7 million in 2007-2008 to $22.3 million in 2008-2009 and $24.5 million in 2009-2010 (see March 2010, "The Local Economic Impacts of Decommissioning the Diablo Canyon Power Plant"). Is this roughly $2 million annual increase going to continue? What future trend does PG&E anticipate and why?

PG&E Response to Socioeconomics RAI #1

Tax payments are based on the company's fair market value assessed by the State of California Board of Equalization (BOE). The BOE determines fair market value by considering market conditions, use of the property, income generated by property, replacement costs, investments in the property, regulatory climate, depreciation, and other factors.

The economic report anticipates that there will continue to be increases in tax payments because of the on-going capital maintenance program and increases in energy demand throughout the service territory. Recent capital projects at DCPP include the steam generator replacement project, reactor vessel head replacement, and the independent spent fuel storage installation project (dry cask storage); all of which add significant value to the unitary value determined by the BOE as well as unitary tax allocations by San Luis Obispo County. On-going capital maintenance will be determined by on-going operations, which in turn affect valuation.

Socioeconomics RAI #2

According to the Environmental Report (ER), annual property taxes paid to San Luis Obispo County are based on the value of DCPP (see ER Section 2.7, Taxes). According to the March 2010 report to the California Public Utilities Commission, "The Local Economic Impacts of Decommissioning the Diablo Canyon Power Plant," DCPP's assessed value is based on energy production capability rather than plant assets (see page 19). How is the assessed value determined? If there are different ways of assessing the value or taxing the value of DCPP, please describe these methods.

PG&E Response to Socioeconomics RAI #2

Ad Valorem Taxes:

PG&E is a centrally assessed company under the jurisdiction of the State of California Board of Equalization (BOE). Under current law, PG&E is not protected by Proposition 13 and is annually reappraised at fair market value for all its properties that are owned or used as of 12:01am on Jaunary 1st.

Article XIII, Section 19 of the California State Constitution, provides the BOE the authority to annually assess properties for companies transmitting or selling gas and electricity. Property taxes are levied and collected in the same manner as county assessed properties.

Property taxes are based on a fiscal year period beginning July 1st through June 30th. The calendar year property tax expense amount is determined by using two fiscal period property tax amounts. For example, the 2010 calendar year property tax is comprised of one half of fiscal year 2009-2010 and one half of fiscal year 2010-2011.

Assessment:

PG&E is appraised annually as a unit without regard to the component parts that make up the unit. The method of valuation used by the BOE is referred to as the unit concept method. Currently there are two indicators of value developed by the BOE in determining company assessments; they are the Historical Cost Less Depreciation (HCLD) indicator and the Capitalized Earnings Ability (CEA) indicator.

1. The HCLD indicator, with some modifications, approximates rate base and includes the historical or original acquisition cost of all property less nontaxable items and property assessed elsewhere. This results in the taxable historical cost. The taxable historical cost is then reduced for the regulatory accounting depreciation of the taxable property. This results in the assessable HCLD. The value of possessory interest, franchise payments, and/or leased properties are added together to arrive at the final HCLD value indicator.

2. The CEA indicator, under optimal conditions, should approximate HCLD. The CEA indicator estimates future annual income and converts this income into a value estimate by means of a capitalization rate. Property Tax Rule 8 excludes property taxes, income taxes, and capital recovery from the definition of gross outgo in the computation of capitalized earnings values.

Since the company is a closely regulated public utility, the primary indicator used by the BOE is the HCLD. However, both indicators are considered and blended to become the total value the BOE sets for the company.

Property Tax Drivers:

Five factors drive property taxes

1. The first factor is plant growth. Typically, the more investment the higher the property tax.

2. The second factor is the tax rate imposed within each county. The trend over the last few years has been for the tax rate to grow within each county. Larger populations in each county have resulted in more demand for services/programs.

3. The third factor is special assessments approved by local governments. These fees typically represent direct charges/fees imposed by newly formed assessment districts. The fees have been growing in number and dollar amount.

4. The fourth factor is revenues. Taxable operating revenues are converted to values.

5. The fifth factor is the valuation methodology used by the state.

Allocation:

PG&E's unitary assessments other than land and some directly assigned properties are allocated to the counties using an allocation factor that is based on reproduction cost new less depreciation (RCNLD). RCNLD is an estimate of the current cost to replace the existing property with a new property that is an exact replica. The allocation factor is developed by the BOE and applied to the RCNLD of each piece of property to determine its allocated assessment. These assessments are then categorized by improvements and personal property and provided to the counties where the assets are located. The county accepts the assessments and applies their individual county tax rate and later bills PG&E.

Socioeconomics RAI #3

Please indicate whether the breakdown of the 2009/2010 Unitary Tax Revenue shown in Figure 4 and discussed on pages 17 to 19 in the March 2010 report, "The Local Economic Impacts of Decommissioning the Diablo Canyon Power Plant" (provided by DCPP staff to NRC staff at the site audit) is an accurate representation of the distribution of tax revenues from DCPP to the San Luis Obispo County General Fund, San Luis Coastal Unified School District, and Port San Luis Harbor District. Can the percent distributions identified in this report be applied for each of the tax years discussed in the DCPP ER?

PG&E Response to Socioeconomics RAI #3

The breakdown of the 2009-2010 Unitary Tax Revenue is based on PG&E's actual 2009-2010 tax bill from San Luis Obispo County.

The values set by the State of California Board of Equalization (BOE) are used by county governments to levy local property taxes and determine that annual tax allocation to local entities. San Luis Obispo County allocates those tax payments based on a unitary factor in accordance with California Revenue and Tax Code 100. Based on historical unitary values and unitary factors, it is reasonable to assume the percent distributions could be applied for each of the tax years discussed in the Diablo Canyon Power Plant (DCPP) Environmental Report. Included in Enclosure 2, is a copy of the unitary factors and tax allocations to different governmental and quasi-governmental entities for the 2007-2008, 2008-2009, and 2009-2010 tax years. The state through the BOE establishes the value of the asset, in this case DCPP. In turn, the county applies its formula to distribute tax revenues to appropriate jurisdictions.

The code is available at the following web address: http://info.sen.ca.gov/cgi-bin/displaycode?section=rtc&group=00001-01000&file=100-100.95

Severe Accident Mitigation Alternatives RAI #8

Regulatory Guide 1.23, Revision 1 states that "Whenever possible, wind measurements should be made at locations and heights that avoid airflow modifications by obstructions such as large structures, trees, and nearby terrain. The sensors should be located over level, open terrain at a distance of at least 10 times the height of any nearby obstruction if the height of the obstruction exceeds one-half the height of the wind measurement." During the Diablo Canyon Site Audit, the NRC meteorology reviewer noted that the onsite meteorological tower is within 250 feet of the Simulator building. Given that the building height is about 35 feet – approximately the same elevation as the 10 meter wind speed sensor – its proximity to the meteorological tower could influence the wind speed and direction data used in the SAMA analysis. The meteorological tower is also located within an asphalt parking lot, which could potentially affect the stability classification under certain meteorological conditions (e.g., sunny days with low windspeed). Justify that the meteorological data used in the SAMA analysis (collected at 10 meters) are high quality data representative of the Diablo Canyon site and are not adversely affected by the siting of the meteorological tower.

PG&E Response to Severe Accident Mitigation Alternatives RAI #8

Effect of the Simulator Building on Wind Direction and Wind Speed

Building and Tower Locations

The location of the primary meteorological tower and the simulator building are shown in Figure 1. The primary meteorological tower was installed in 1967; the simulator building was constructed over the period beginning in September 1983 with the interior portions of the building completed in mid-1985.

The distance between the northwest corner of the simulator building and the meteorological tower is approximately 203 ft.; the distance between the southwest corner of the simulator building and the meteorological tower is 262 ft. Assuming the simulator building 35 ft. tall, the distance between the primary meteorological tower and the simulator building is less than 10 building heights.

Figure 1 – Location of the primary meteorological tower (black dot, center of picture) and the simulator building. The map is from Google and is aligned to true north (Top of Picture). The simulator building, the inverse L-shaped building complex, was constructed in the early 1980s directly east of the primary meteorological tower.

Wind rose plots, which show the frequency of occurrence of the hourly wind directions (wind blowing from) and the frequency of occurrence of wind speeds in certain predefined bins using telescoping bars, are prepared. These plots cover the period before and after the simulator building is constructed. The plots are reviewed to determine if there are any obvious changes before and after building construction.

Wind Rose Presentations

The primary met tower has wind speed and wind direction instrumentation at the 10-meter level and the 76-meter level. Due to the proximity and the dimensions of the simulator building, the 10-meter level would be the level affected by the construction. To analyze the potential affect on the wind rose, wind rose plots of the 10-meter wind speed and wind direction are prepared. The period of record for the primary met tower begins in May 1973; therefore, the first year of complete data (i.e. January–December) is 1974. Individual wind rose based on 16-cardinal wind directions (22.5 degree sectors) for each year from 1974 through 1986 are presented; combined two-year wind roses based on 36-wind directions (10-degree sectors) are presented for 1981-82 (before) and 1985-86 (after).

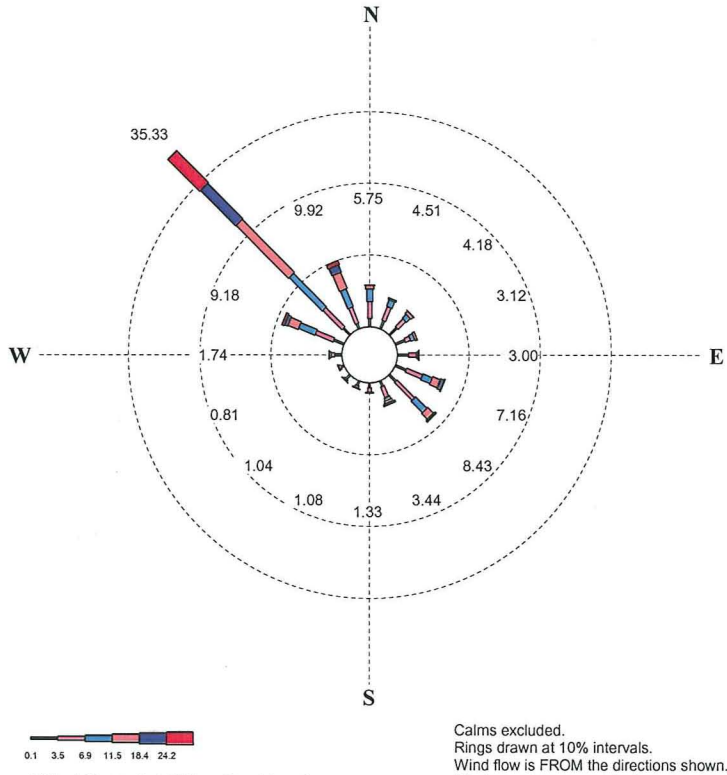
Wind Rose Description

The wind rose is the method of graphically presenting the wind conditions, direction, and speed, over a period of time at a specific location. To create a wind rose, average wind direction and wind speed values are logged at a site, at short intervals, over a period of time (e.g., one week, one month, or longer). The collected wind data are then sorted by wind direction so that the percentage of time that the wind was blowing from each direction can be determined. Typically the wind direction data is sorted into 12 or 16 equal arc segments, 30 or 22.5 degrees in each segment, in preparation for plotting a circular graph in which the radius of each of the segments represents the percentage of time that the wind blew from each of the twelve 30 degree direction segments. Within the wind rose radius, the telescoping bar indicates the frequency of occurrence of wind speed in a predefined bin. Figure 2 presents the wind rose for the 10-meter wind speed and wind direction data collected at the primary meteorological tower site for calendar year 1974. There are 16 telescoping bars emanating from the center of the circle. The length of the bar is proportional to the frequency of wind directions blowing from that 22.5 degree sector. Each bar is telescoping with each segment of the bar representing the frequency of occurrence of wind speed in each of six wind speed bins. The number at the end of each bar represents the percent of time within the year the wind direction is blowing from the direction indicated. The table at the bottom of the wind rose provides a numeric value to the frequency of occurrence of wind speeds in each bin. In Figure 2, 34.22 percent of the time in 1974 the wind direction was blowing from the northwest and 3.36 percent of the time the wind was blowing from the east.

Annual Wind Rose 1974 – 1986

The calendar year wind roses for the 10-meter level of the DCPP primary meteorological tower are presented in Figures 2 through 14. As is evident in each wind rose, the prevailing wind direction at this site is northwest. Generally, the wind direction is from the west-northwest, northwest, and north-northwest between 50 and 60 percent of the year. On average, winds from the northwest occur 33.7 percent of the time. Wind directions from the east-northeast, east, and east-southeast occur, respectively, 3.0, 3.2, and 6.6 percent of the time.

A visual year-by-year review from 1974–1982, 1983, and 1984 when the simulator building was constructed, and 1985 and 1986 (post simulator building), indicates no significant change in the wind direction distributions. The only change evident in the wind roses is in 1984 and 1985 when there was an increase in west-northwest directions, which may be the result of more frequent Pacific storms during that two-year period.



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	1.14	2.35	1.73	0.51	0.02	0.01
NNE	1.25	2.02	0.99	0.23	0.01	0.00
NE	1.44	1.52	0.74	0.45	0.03	0.00
ENE	1.44	0.75	0.56	0.36	0.01	0.00
E	1.54	1.08	0.21	0.15	0.02	0.00
ESE	1.64	2.38	1.37	1.17	0.47	0.11
SE	1.29	3.45	2.27	1.05	0.17	0.21
SSE	0.82	1.61	0.41	0.33	0.11	0.15

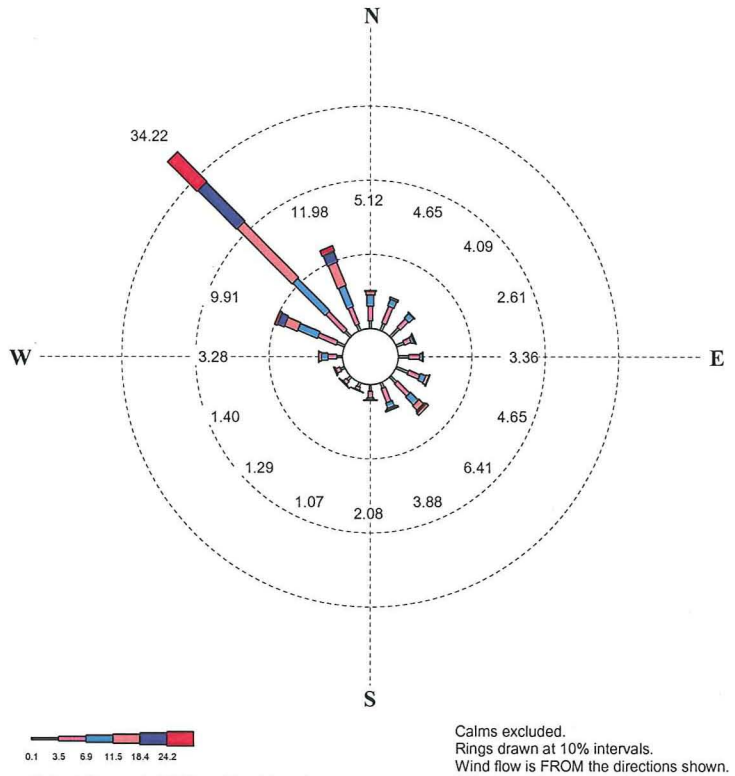
TOTAL OBS = 8694 MISSING OBS = 66

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	0.66	0.59	0.07	0.02	0.00	0.00
SSW	0.69	0.29	0.06	0.05	0.00	0.00
SW	0.75	0.24	0.02	0.02	0.00	0.00
WSW	0.43	0.31	0.06	0.01	0.00	0.00
W	0.97	0.48	0.25	0.02	0.01	0.00
WNW	1.54	2.77	2.46	1.58	0.49	0.33
NW	1.36	3.80	6.59	10.39	6.99	6.20
NNW	0.83	2.39	2.63	2.44	1.06	0.56

CALM OBS = 1

Figure 2 – DCPP 10-Meter Level Wind Rose for 1974



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	1.06	1.97	1.51	0.49	0.08	0.01
NNE	1.01	2.43	0.94	0.27	0.00	0.00
NE	1.60	1.52	0.87	0.08	0.01	0.00
ENE	1.08	0.98	0.33	0.20	0.02	0.00
E	1.38	1.50	0.35	0.12	0.01	0.00
ESE	1.76	1.63	0.77	0.37	0.12	0.01
SE	1.10	2.30	1.50	0.81	0.29	0.40
SSE	0.76	2.00	0.72	0.15	0.10	0.15

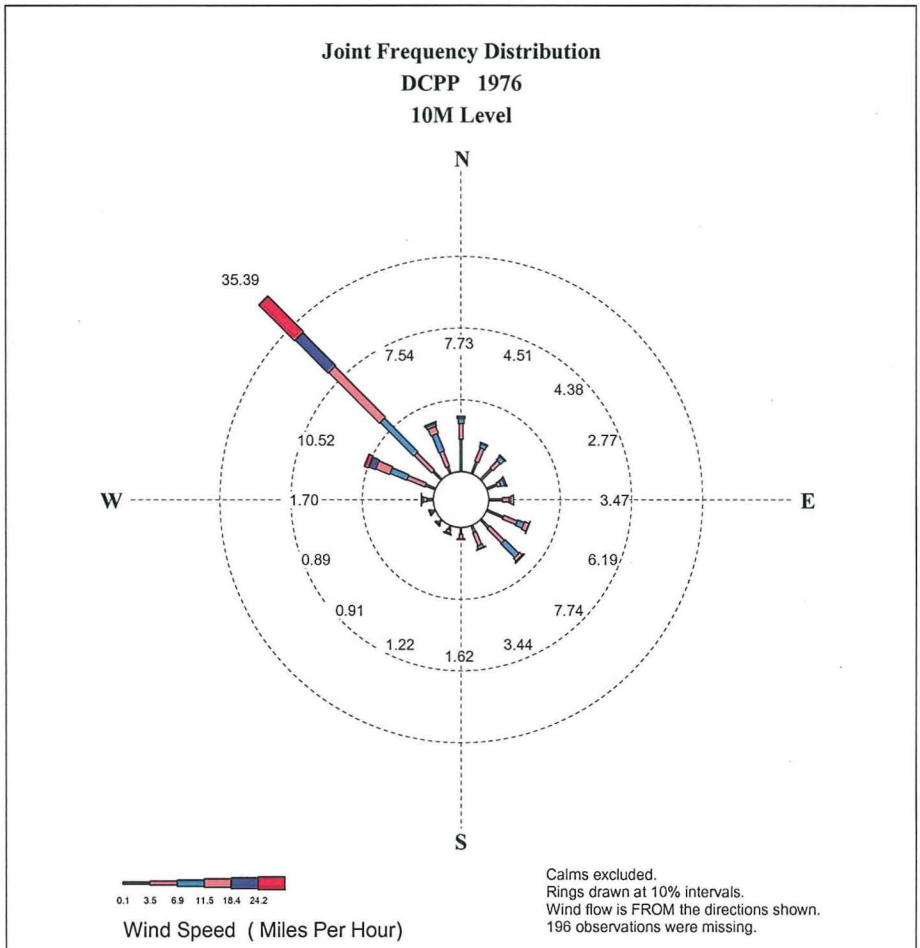
TOTAL OBS = 8599 MISSING OBS = 161

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	0.84	0.85	0.27	0.10	0.00	0.02
SSW	0.58	0.41	0.06	0.00	0.00	0.02
SW	0.66	0.48	0.09	0.02	0.01	0.02
WSW	0.60	0.55	0.16	0.08	0.00	0.00
W	0.78	1.20	0.92	0.35	0.02	0.01
WNW	1.13	2.73	2.85	1.92	0.94	0.34
NW	1.07	3.44	6.18	10.56	7.34	5.64
NNW	0.87	2.50	3.02	3.35	1.48	0.76

CALM OBS = 0

Figure 3 – DCPP 10-Meter Level Wind Rose for 1975



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	4.52	2.20	0.73	0.26	0.01	0.00
NNE	1.79	2.04	0.55	0.13	0.00	0.00
NE	2.14	1.38	0.71	0.14	0.01	0.00
ENE	1.54	0.47	0.48	0.26	0.03	0.00
E	1.88	0.91	0.30	0.34	0.05	0.00
ESE	2.48	1.99	0.97	0.68	0.05	0.02
SE	1.51	2.88	2.68	0.47	0.14	0.06
SSE	0.99	1.92	0.43	0.06	0.02	0.01

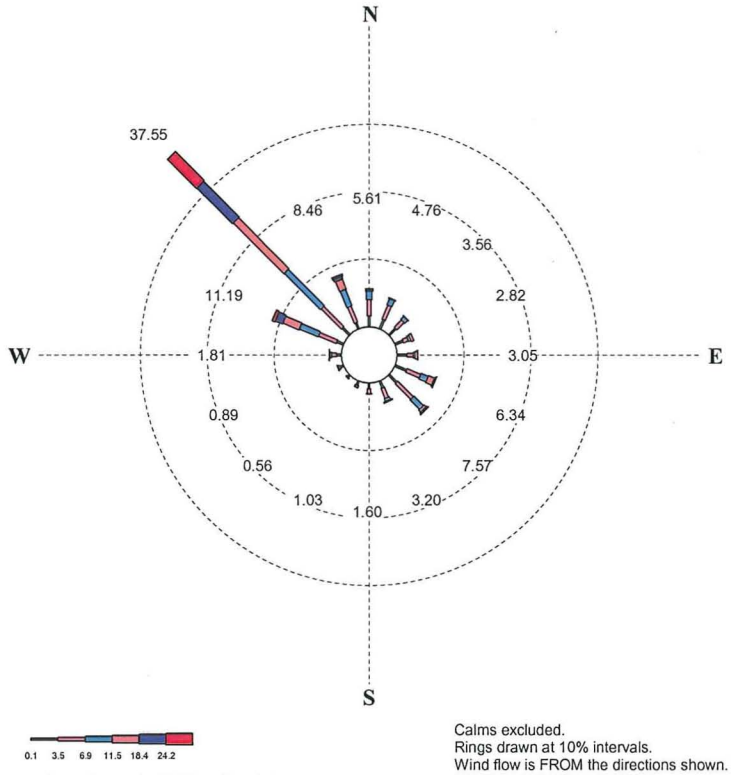
TOTAL OBS = 8588 MISSING OBS = 196

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	0.91	0.61	0.07	0.02	0.01	0.00
SSW	0.59	0.43	0.16	0.02	0.01	0.00
SW	0.57	0.21	0.13	0.00	0.00	0.00
WSW	0.48	0.26	0.13	0.01	0.01	0.00
W	0.92	0.49	0.22	0.03	0.01	0.02
WNW	1.50	2.73	2.55	2.10	1.01	0.63
NW	1.70	3.43	6.64	10.07	6.54	7.01
NNW	1.10	2.27	2.58	1.03	0.44	0.13

CALM OBS = 6

Figure 4 – DCPP 10-Meter Level Wind Rose for 1976



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	1.61	2.40	1.30	0.30	0.00	0.00
NNE	1.48	2.21	0.96	0.11	0.00	0.00
NE	1.38	1.52	0.62	0.05	0.00	0.00
ENE	1.29	0.74	0.41	0.37	0.01	0.00
E	1.46	0.90	0.27	0.36	0.06	0.00
ESE	1.85	2.16	1.18	0.90	0.20	0.06
SE	1.55	3.28	1.96	0.47	0.26	0.05
SSE	1.07	1.59	0.42	0.06	0.06	0.00

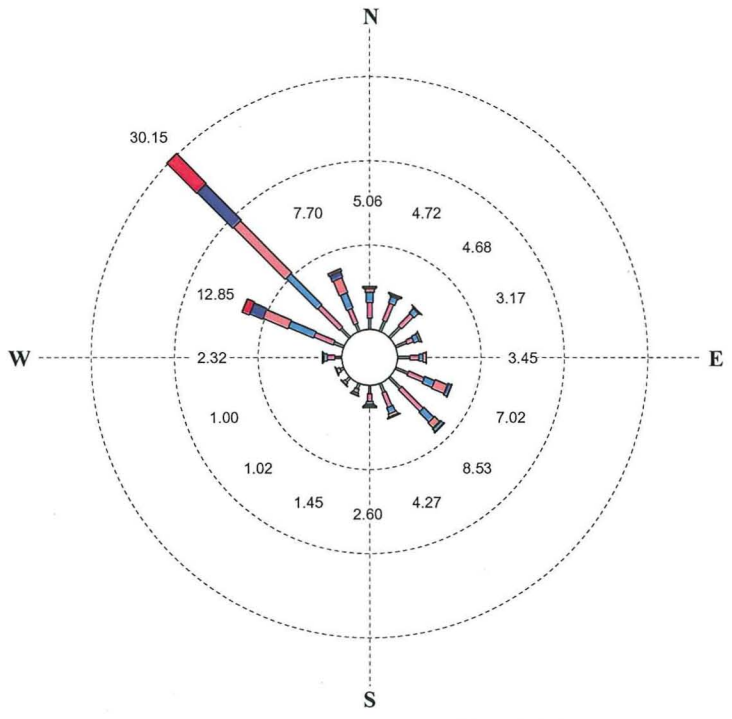
TOTAL OBS = 8559 MISSING OBS = 201

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	0.84	0.71	0.04	0.00	0.01	0.00
SSW	0.64	0.36	0.01	0.01	0.00	0.00
SW	0.36	0.18	0.01	0.01	0.00	0.00
WSW	0.55	0.27	0.07	0.00	0.00	0.00
W	0.72	0.71	0.27	0.08	0.00	0.02
WNW	1.09	2.86	3.04	2.61	1.19	0.41
NW	1.53	4.25	7.57	10.63	7.47	6.10
NNW	1.02	2.62	2.56	1.61	0.42	0.23

CALM OBS = 0

Figure 5 – DCPP 10-Meter Level Wind Rose for 1977



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	1.31	1.87	1.22	0.42	0.09	0.16
NNE	1.35	2.21	0.81	0.18	0.05	0.13
NE	1.76	2.02	0.74	0.10	0.03	0.04
ENE	1.43	0.80	0.65	0.25	0.03	0.01
E	1.47	1.07	0.50	0.36	0.06	0.00
ESE	1.61	2.01	1.28	1.60	0.46	0.06
SE	1.83	3.60	1.68	0.86	0.46	0.10
SSE	1.14	1.82	0.79	0.34	0.15	0.03

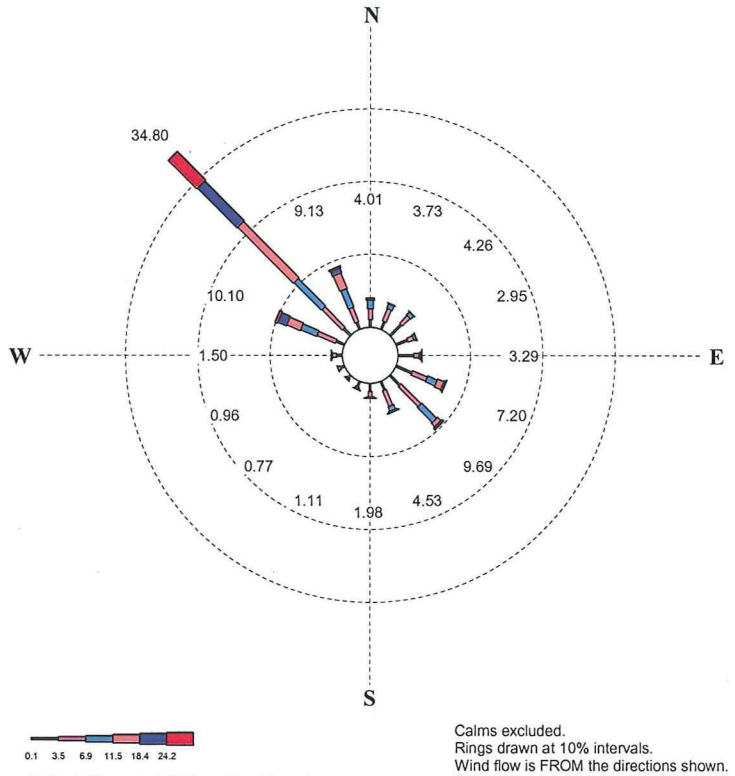
TOTAL OBS = 7878 MISSING OBS = 882

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	0.99	0.90	0.32	0.14	0.13	0.13
SSW	0.67	0.46	0.27	0.04	0.00	0.01
SW	0.63	0.32	0.04	0.03	0.00	0.00
WSW	0.48	0.37	0.11	0.04	0.00	0.00
W	0.83	0.90	0.36	0.16	0.06	0.01
WNW	1.28	2.49	3.25	3.22	1.71	0.89
NW	1.52	3.63	5.23	8.72	5.99	5.05
NNW	0.96	1.90	1.95	1.89	0.69	0.30

CALM OBS = 0

Figure 6 – DCPP 10-Meter Level Wind Rose for 1978



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	1.05	1.53	1.17	0.25	0.01	0.00
NNE	1.17	1.83	0.68	0.05	0.00	0.00
NE	2.14	1.47	0.58	0.06	0.00	0.00
ENE	1.71	0.83	0.33	0.08	0.00	0.00
E	2.12	0.72	0.24	0.11	0.04	0.06
ESE	2.34	2.18	1.41	0.95	0.28	0.04
SE	1.92	3.87	2.91	0.62	0.13	0.25
SSE	1.26	2.29	0.66	0.16	0.08	0.08

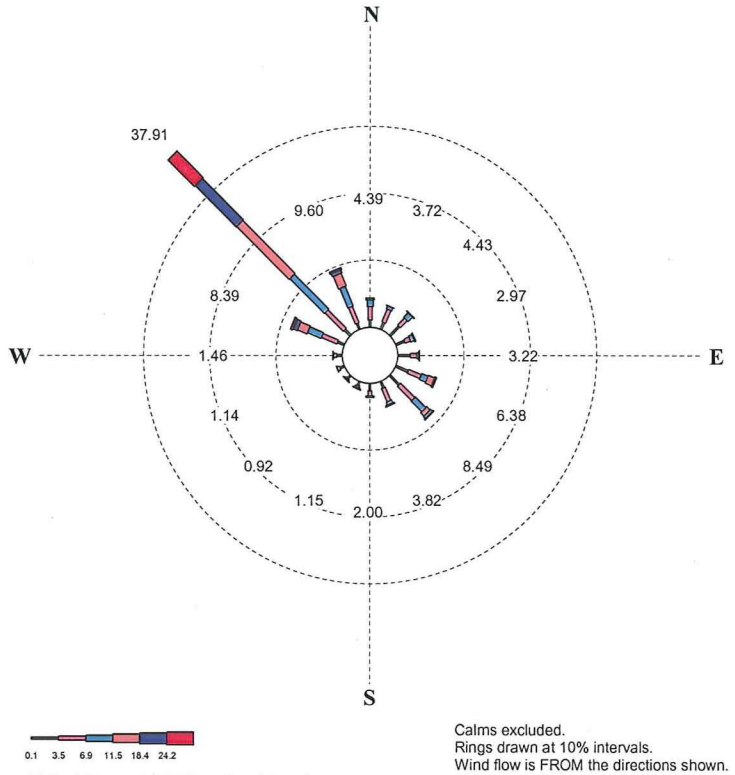
TOTAL OBS = 7933 MISSING OBS = 826

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	1.07	0.76	0.05	0.03	0.05	0.03
SSW	0.73	0.29	0.06	0.03	0.00	0.00
SW	0.47	0.24	0.06	0.00	0.00	0.00
WSW	0.63	0.29	0.03	0.01	0.00	0.00
W	0.79	0.52	0.09	0.05	0.05	0.00
WNW	1.26	2.79	2.36	2.02	1.30	0.38
NW	1.36	4.00	5.32	10.89	7.73	5.51
NNW	1.06	2.14	2.71	2.26	0.74	0.21

CALM OBS = 0

Figure 7 – DCPP 10-Meter Wind Rose for 1979



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	1.10	2.05	0.98	0.25	0.01	0.00
NNE	1.17	2.04	0.46	0.05	0.00	0.00
NE	1.98	1.48	0.88	0.07	0.02	0.00
ENE	1.46	0.84	0.51	0.17	0.00	0.00
E	1.86	0.95	0.27	0.12	0.02	0.00
ESE	2.00	2.00	1.02	1.07	0.30	0.00
SE	2.01	3.00	2.25	0.70	0.40	0.13
SSE	1.02	2.18	0.44	0.12	0.07	0.00

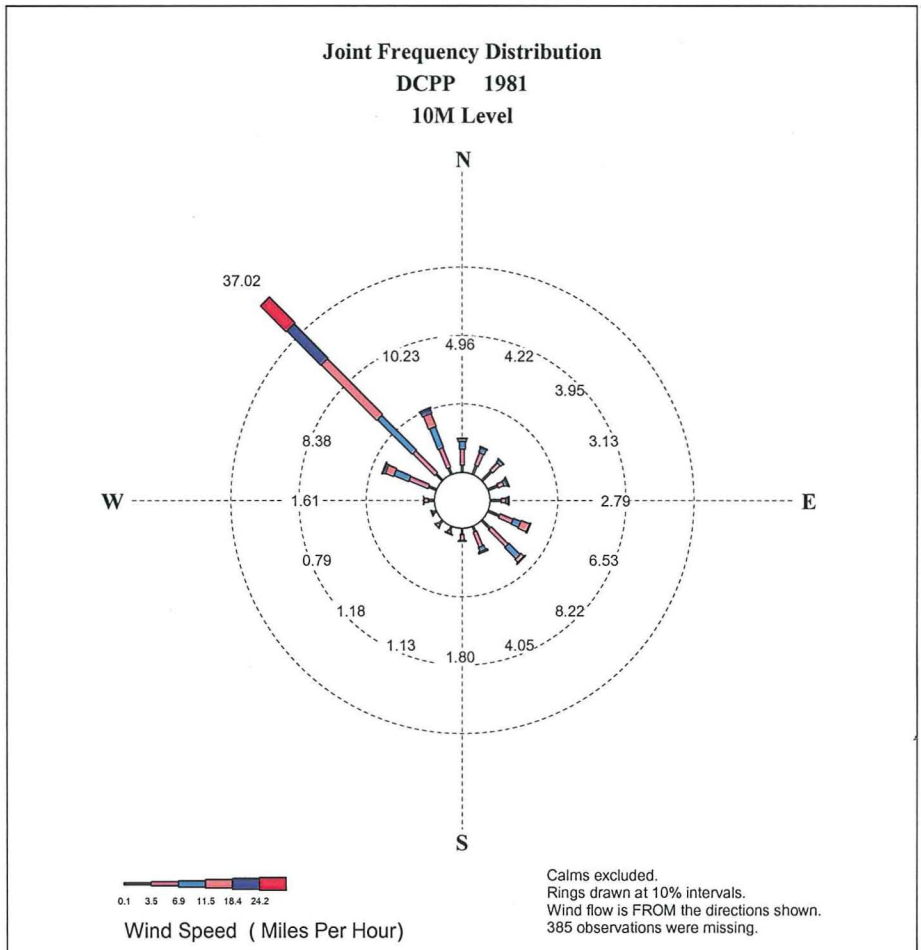
TOTAL OBS = 8446 MISSING OBS = 338

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	1.09	0.73	0.07	0.11	0.00	0.00
SSW	0.64	0.32	0.12	0.07	0.00	0.00
SW	0.59	0.22	0.08	0.02	0.00	0.00
WSW	0.72	0.37	0.05	0.00	0.00	0.00
W	0.82	0.47	0.11	0.05	0.01	0.00
WNW	1.14	2.49	2.21	1.55	0.69	0.32
NW	1.26	3.86	7.35	11.19	8.68	5.58
NNW	0.98	2.65	3.13	2.05	0.53	0.26

CALM OBS = 0

Figure 8 – DCPP 10-Meter Level Wind Rose for 1980



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	1.07	2.33	1.13	0.38	0.04	0.00
NNE	1.42	1.92	0.78	0.10	0.00	0.00
NE	1.89	1.53	0.47	0.07	0.00	0.00
ENE	1.54	0.87	0.42	0.25	0.04	0.01
E	1.60	0.64	0.36	0.18	0.00	0.01
ESE	1.78	2.05	1.17	1.31	0.22	0.00
SE	1.65	3.50	2.29	0.60	0.11	0.07
SSE	0.87	2.28	0.61	0.17	0.11	0.01

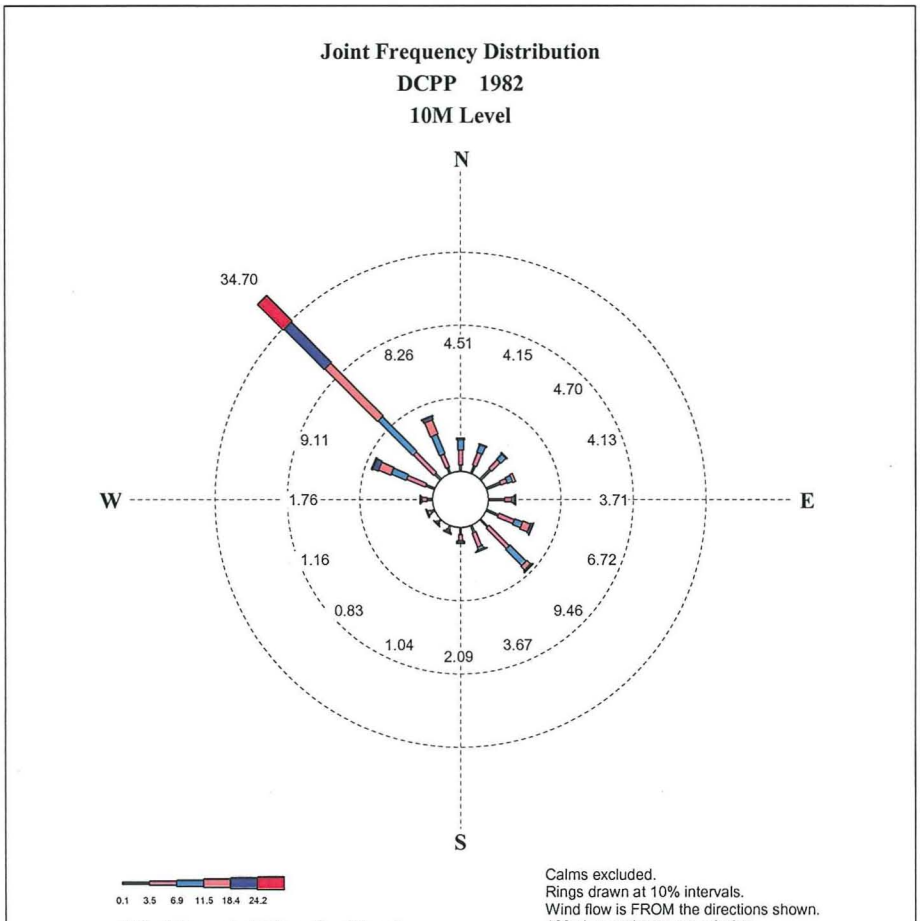
TOTAL OBS = 8375 MISSING OBS = 385

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	0.85	0.87	0.06	0.02	0.00	0.00
SSW	0.69	0.30	0.07	0.07	0.00	0.00
SW	0.74	0.41	0.02	0.01	0.00	0.00
WSW	0.53	0.22	0.05	0.00	0.00	0.00
W	0.88	0.62	0.06	0.05	0.00	0.00
WNW	1.27	3.03	2.30	1.25	0.42	0.11
NW	1.37	4.53	7.20	11.49	7.11	5.33
NNW	1.05	3.08	3.25	2.03	0.70	0.12

CALM OBS = 1

Figure 9 – DCPP 10-Meter Level Wind Rose for 1981



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	0.85	2.06	1.43	0.18	0.00	0.00
NNE	1.14	1.87	1.05	0.08	0.00	0.00
NE	1.90	1.68	1.00	0.11	0.00	0.00
ENE	2.06	0.93	0.75	0.40	0.00	0.00
E	2.21	0.97	0.29	0.22	0.02	0.00
ESE	1.78	2.27	1.16	1.13	0.32	0.07
SE	1.41	3.96	3.07	0.71	0.20	0.11
SSE	1.03	2.03	0.40	0.13	0.05	0.03

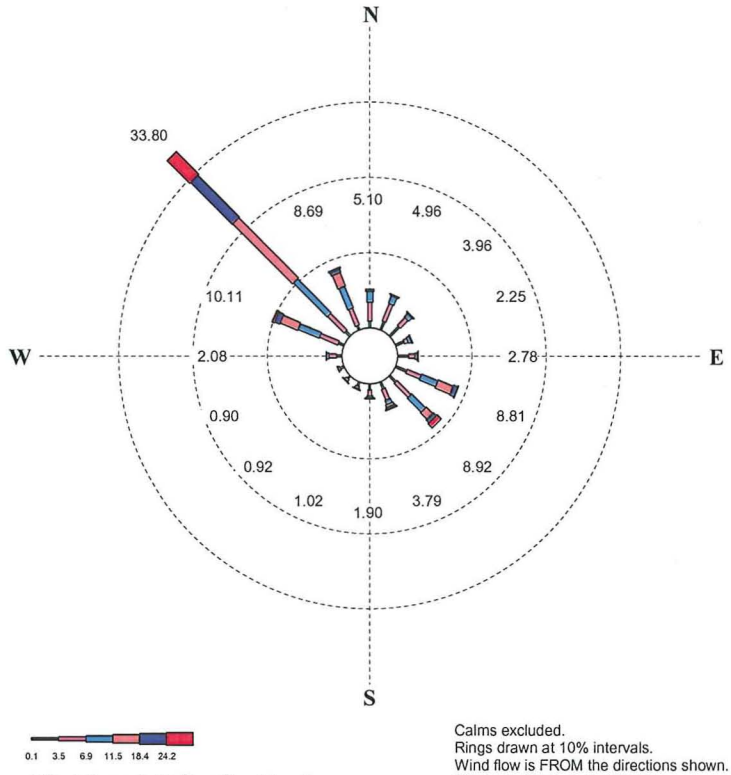
TOTAL OBS = 8561 MISSING OBS = 199

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	0.93	0.77	0.15	0.22	0.01	0.00
SSW	0.54	0.30	0.09	0.11	0.00	0.00
SW	0.50	0.23	0.07	0.02	0.00	0.00
WSW	0.61	0.29	0.11	0.14	0.00	0.01
W	0.75	0.70	0.16	0.14	0.01	0.00
WNW	1.33	2.79	2.21	1.82	0.74	0.22
NW	1.14	3.94	6.70	10.19	7.81	4.92
NNW	0.86	1.94	2.86	2.04	0.41	0.14

CALM OBS = 0

Figure 10 – DCPP 10-Meter Level Wind Rose for 1982



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	0.91	2.50	1.43	0.25	0.01	0.00
NNE	1.23	2.50	1.04	0.16	0.03	0.00
NE	1.78	1.44	0.59	0.12	0.03	0.00
ENE	1.21	0.54	0.38	0.12	0.00	0.00
E	1.46	0.82	0.32	0.13	0.03	0.01
ESE	1.59	2.02	2.35	2.19	0.59	0.08
SE	1.15	2.61	2.64	1.24	0.50	0.78
SSE	0.99	1.54	0.56	0.37	0.24	0.08

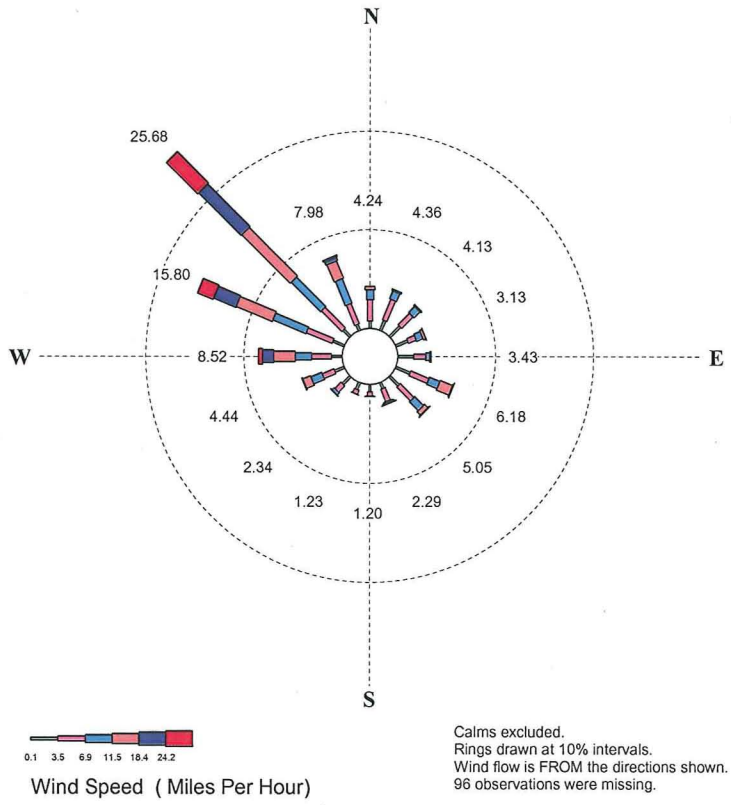
TOTAL OBS = 8684 MISSING OBS = 76

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	0.78	0.77	0.22	0.09	0.03	0.00
SSW	0.56	0.31	0.10	0.05	0.00	0.00
SW	0.50	0.29	0.09	0.03	0.01	0.00
WSW	0.52	0.32	0.05	0.00	0.01	0.00
W	0.75	0.97	0.30	0.06	0.01	0.00
WNW	0.81	2.67	3.05	2.54	0.73	0.31
NW	0.88	3.13	6.38	11.31	7.89	4.21
NNW	0.67	2.42	3.05	1.95	0.46	0.15

CALM OBS = 0

Figure 11 – DCPP 10-Meter Level Wind Rose for 1983



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	0.75	2.16	1.01	0.30	0.01	0.00
NNE	1.09	2.24	0.87	0.15	0.00	0.00
NE	1.46	1.65	0.87	0.14	0.01	0.00
ENE	1.30	0.86	0.69	0.25	0.02	0.00
E	1.61	1.22	0.41	0.17	0.01	0.00
ESE	1.58	1.99	1.15	1.32	0.12	0.02
SE	1.28	1.95	1.27	0.47	0.07	0.02
SSE	0.64	1.34	0.07	0.12	0.09	0.03

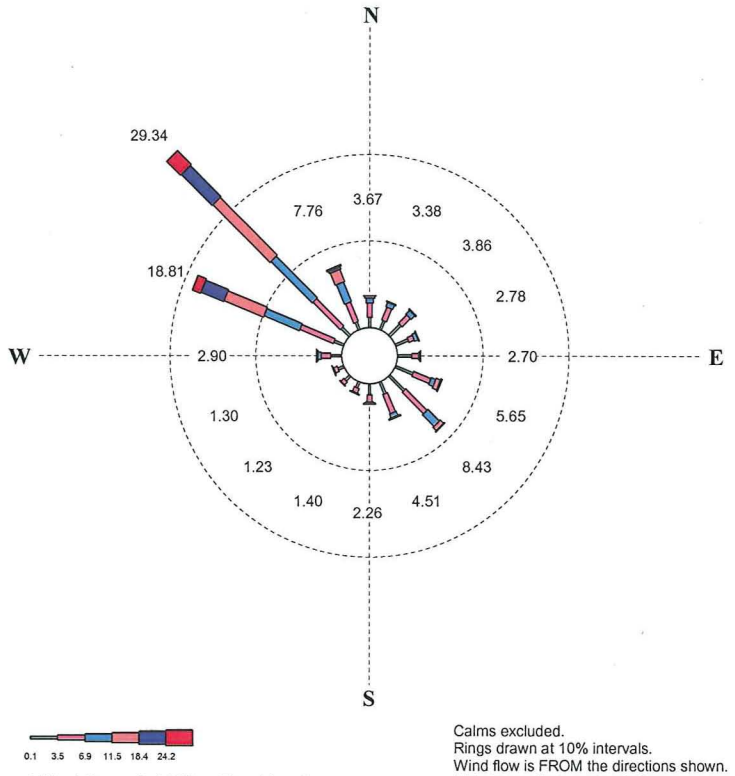
TOTAL OBS = 8688 MISSING OBS = 96

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	0.70	0.44	0.02	0.03	0.00	0.00
SSW	0.74	0.46	0.03	0.00	0.00	0.00
SW	1.11	0.91	0.30	0.02	0.00	0.00
WSW	1.07	1.25	1.19	0.83	0.09	0.01
W	1.09	2.01	1.66	2.18	1.14	0.44
WNW	1.25	2.85	3.58	3.96	2.45	1.70
NW	1.00	2.95	4.22	6.94	6.09	4.48
NNW	0.67	2.21	2.67	1.90	0.38	0.15

CALM OBS = 0

Figure 12 – DCPP 10-Meter Level Wind Rose for 1984



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	1.20	1.67	0.53	0.23	0.03	0.00
NNE	1.14	1.57	0.56	0.12	0.00	0.00
NE	1.79	1.33	0.60	0.14	0.00	0.00
ENE	1.57	0.68	0.44	0.09	0.00	0.00
E	1.66	0.75	0.20	0.08	0.01	0.00
ESE	2.20	2.16	0.55	0.57	0.16	0.01
SE	2.38	3.52	1.88	0.55	0.12	0.00
SSE	1.47	2.36	0.50	0.09	0.09	0.00

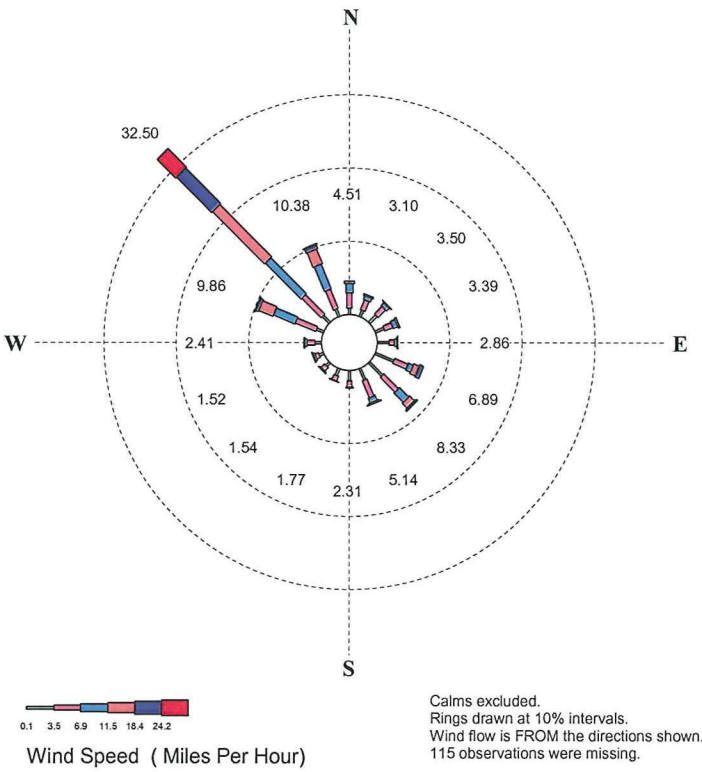
TOTAL OBS = 8619 MISSING OBS = 141

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	1.22	0.81	0.12	0.07	0.05	0.00
SSW	0.72	0.57	0.08	0.03	0.00	0.00
SW	0.73	0.45	0.05	0.00	0.00	0.00
WSW	0.71	0.44	0.10	0.03	0.01	0.00
W	1.26	1.08	0.35	0.15	0.06	0.00
WNW	1.23	4.22	4.46	4.98	2.89	1.03
NW	1.33	4.46	6.80	9.42	5.08	2.25
NNW	0.95	2.42	2.44	1.49	0.29	0.17

CALM OBS = 0

Figure 13 – DCPP 10-Meter Level Wind Rose for 1985



PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
N	0.86	2.08	1.28	0.28	0.01	0.00
NNE	0.93	1.43	0.54	0.20	0.00	0.00
NE	1.38	1.45	0.53	0.10	0.05	0.00
ENE	1.31	1.18	0.67	0.23	0.00	0.00
E	1.65	0.72	0.29	0.16	0.03	0.00
ESE	2.76	1.99	0.72	0.83	0.58	0.01
SE	2.52	2.82	1.80	0.89	0.15	0.14
SSE	1.68	2.50	0.67	0.17	0.07	0.05

TOTAL OBS = 8645 MISSING OBS = 115

PERCENT OCCURRENCE: Wind Speed (Miles Per Hour)
LOWER BOUND OF CATEGORY

DIR	0.1	3.5	6.9	11.5	18.4	24.2
S	1.37	0.89	0.06	0.00	0.00	0.00
SSW	0.99	0.69	0.05	0.02	0.01	0.00
SW	0.68	0.65	0.16	0.05	0.00	0.00
WSW	0.64	0.50	0.27	0.12	0.00	0.00
W	0.89	1.10	0.29	0.12	0.01	0.00
WNW	1.06	3.03	3.17	2.09	0.38	0.12
NW	1.31	3.81	6.93	10.09	6.80	3.57
NNW	1.13	2.81	3.64	2.11	0.61	0.07

CALM OBS = 0

Figure 14 – DCPP 10-Meter Level Wind Rose for 1986

Multi Year Wind Roses – Before and After Simulator Building Construction

The data for calendar years 1981 and 1982 were combined into one file; the data for calendar years 1985 and 1986 were also combined into one file. Two new wind roses, multi-year wind roses using 36 sectors rather than 16 sectors, were created to provide additional detail on the wind rose before and after simulator building construction. These two wind roses are presented in Figures 15 and 16.

In Figure 15, the period prior to simulator building construction is examined. Wind directions centered on 70, 80, 90, 100, and 110 degrees occurred 1.54, 1.46, 1.35, 1.57, and 2.66 percent of the time.

In Figure 16, the 2-year period after the simulator building is completed, wind directions centered on 70, 80, 90, 100, and 110 degrees occurred 1.26, 1.22, 1.06, 1.68, and 2.61 percent of the time.

It appears that there are no significant differences between the wind roses for these two periods.

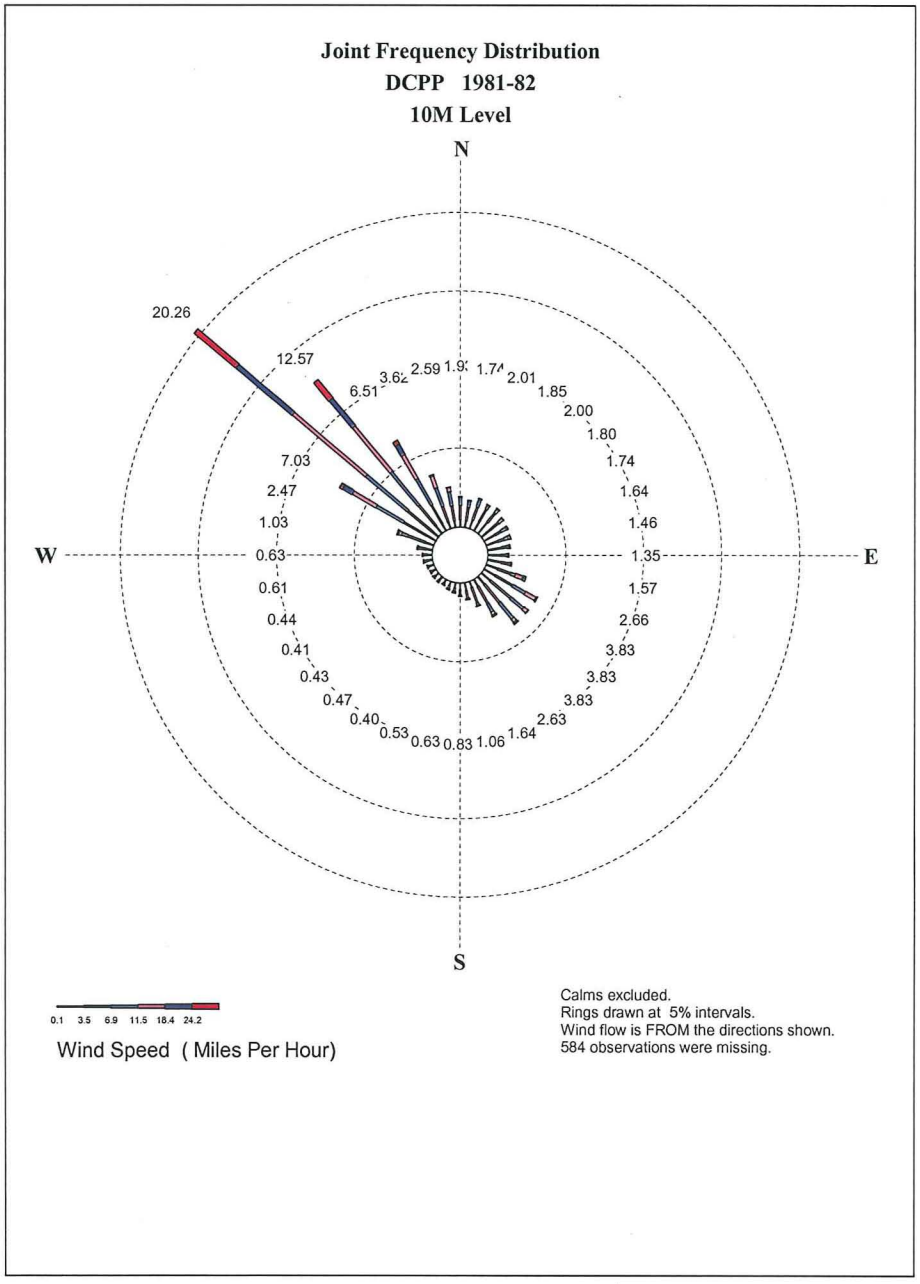


Figure 15 - DCPP 10-Meter Level Wind Rose for 1981–82 (Before Simulator Building)

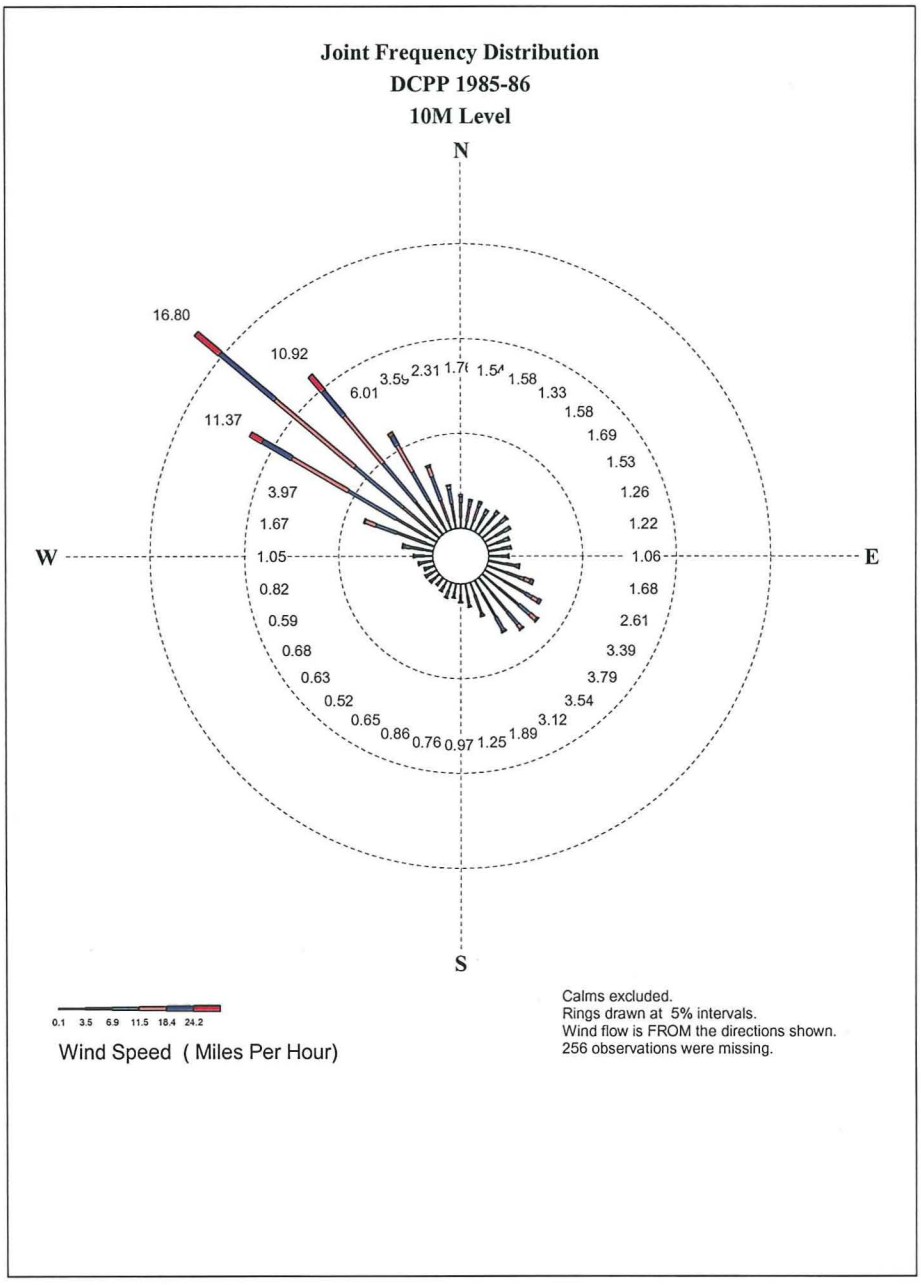


Figure 16 – DCPP 10-Meter Level Wind Rose for 1985–86 (After Simulator Building)

Annual Average Wind Speed – 10 Meter Level

The annual average wind speed for the 10-meter level from the DCPP primary meteorological tower for the years from 1974–2009 are presented in Figure 17. The graph illustrates that there is little change in the annual average wind speed recorded at the 10-meter level from 1974, prior to any construction activity at the site, through 2009 (operating power plant).

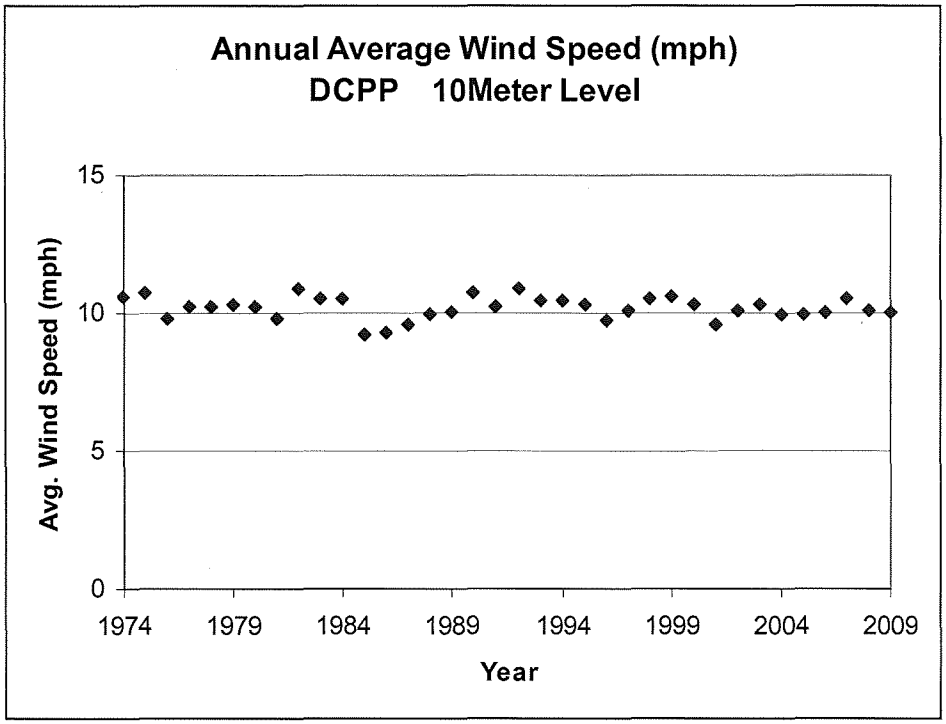


Figure 17 – Annual Average Wind Speed (mph) for the 10-Meter Level at DCPP from 1974–2009.

Distribution of Atmospheric Stability

Vertical and Horizontal Stability

Atmospheric stability is classified using vertical temperature difference, termed Delta-T, and/or wind direction standard deviation, termed sigma theta. At DCPP, vertical temperature difference is calculated between the 10-meter level and the 76-meter level and the 10-meter and 46-meter level of the primary meteorological tower. Sigma theta, the standard deviation of the wind direction, is calculated from the wind direction measurements collected by the wind direction sensor at the 10-meter level. The delta-T defines the vertical stability and the sigma theta defines the horizontal stability.

DCPP Simulator Building and Parking Lot

As previously stated, the DCPP primary meteorological tower was installed on site in the late 1960s and meteorological data exists in the archive since May 1973. The DCPP simulator building was constructed in the early 1980s and it is assumed that the parking lot was most likely constructed at the same time.

Analysis

The DCPP primary meteorological tower data for vertical temperature (76-meter/10-meter) and the standard deviation of the wind direction (sigma) is analyzed for each year from 1974–1980 (pre-simulator and parking lot) and 1986–1996 (post-simulator building and parking lot) to see if there are any significant changes in the distribution of stability classes at the primary meteorological tower. The results are presented in Table 1.

For the 8-year period from 1974–1980, the bulk of the vertical temperature stability classifications fell into the neutral and slightly stable classes, 39.9 and 38.8 percent, respectively. The unstable classifications accounted for around 6 percent of the hours and the moderately and extremely stable classifications account for around 15 percent of the hours.

For the 11-year period from 1986–1996, after the construction of the simulator building, the installation of the parking lot, and the substantial completion of the power plant itself, the bulk of the vertical temperature stability classifications still fall into the neutral and slight stable classes, 48.5 and 28.8 percent, respectively. The unstable classifications accounted for around 11 percent of the hours and the moderately and extremely stable classifications account for around 12 percent of the hours. The percentage difference between the two periods is presented in Table 1.

For the vertical temperature difference measurements, there is a sight shift from the stable stability classifications to the neutral and unstable stability classifications. This may be associated both with the changes in the surface under the primary meteorological tower (i.e., paved surface) and the presence and proximity of structures associated with the power plant, which did not exist in the 1974–1980 timeframe.

For the 8-year period from 1974–1980, the bulk of the horizontal stability (wind direction standard deviation or sigma theta) classifications fell into the slightly unstable to slightly stable classes, 58.9 percent. The unstable classifications accounted for around 38 percent of the hours and the moderately and extremely stable classifications account for around 3 percent of the hours.

For the 11-year period from 1986–1996, after the construction of the simulator building, the installation of the parking lot, and the substantial completion of the power plant itself, the bulk of the horizontal stability classifications still fall into the slightly unstable to slightly stable classes, 65.6 percent. The unstable classifications now account for around 34 percent of the hours and the moderately and extremely stable classifications account for around 1 percent of the hours. The percentage difference between the two periods is presented in Table 1.

For horizontal stability measurements, there is a decrease in the extreme stability classifications and an increase in the neutral stability classification. This is most likely associated with the increases in surface roughness around the primary meteorological tower due to the parking lot and the presence structures associated with the power plant, which did not exist in the 1974–1980 timeframe.

Table 1 – Percentage Occurrence of Vertical and Horizontal Stability Class for 1974–1980 (Pre-Simulator Building) and 1986–1996 (Post-Simulator Building) Observed at the Primary Meteorological Tower.

Delta-T				
Class		1974-1980	1986-1996	Difference
A	Extremely Unstable	1.89%	3.87%	1.99%
B	Moderately Unstable	1.86%	2.86%	1.01%
C	Slightly Unstable	2.09%	3.88%	1.79%
D	Neutral	39.93%	48.51%	8.58%
E	Slightly Stable	38.77%	28.78%	-9.98%
F	Moderately Stable	9.77%	8.11%	-1.66%
G	Extremely Stable	5.69%	3.98%	-1.71%
Wind Direction Sigma Theta				
Class		1974-1980	1986-1996	Difference
A	Extremely Unstable	31.48%	28.48%	-3.00%
B	Moderately Unstable	6.57%	5.52%	-1.05%
C	Slightly Unstable	10.77%	9.80%	-0.97%
D	Neutral	21.70%	32.09%	10.39%
E	Slightly Stable	26.42%	23.74%	-2.68%
F	Moderately Stable	1.56%	0.30%	-1.26%
G	Extremely Stable	1.51%	0.70%	-0.81%

Summary and Conclusions

The simulator building was constructed in 1983–1984 at a location directly east of the primary meteorological tower. The distance between this building and the meteorological tower is slightly less than 10 building heights.

Wind roses, for 10-meter wind speed and direction were created to provide a graphical display of the frequency of occurrence of winds blowing from different directions. This was performed for each calendar year from 1974 until 1986 and then for 2-year periods prior to and after simulator building construction.

A visual inspection of the results, focusing principally on the easterly wind directions, indicates that there are no significant changes in the distribution of wind directions due to the simulator building construction.

For atmospheric stability, a review of the vertical delta-temperature data (vertical stability) and the wind direction sigma theta (horizontal stability) for the 8-year period from 1974-1980, and the 11-year period from 1986-1996, does indicate a slight shift from the more stable classes to the neutral and unstable classifications. For the vertical temperature, this may be associated with the presence of a paved parking area under and surrounding the tower. The shift is small with the increase in Stability Classes A, B, and C on the order of 3 percent, which corresponds to a decrease in the more stable classes (F and G) of around 3 percent.

A shift in the horizontal stability is also noted with decreases in the extreme stability classifications and an increase in the neutral stability classification. The change in wind direction sigma is most likely not due to the simulator building as there frequency of occurrence of winds from that direction is quite low; however, the shifts to a more neutral classification may be associated with increasing surface roughness surrounding the tower (i.e., parking lot) and the presence of the power plant structures.

Based on this analysis, there appears to be no change in the wind speed data collected at the 10-meter level as the occurrence of winds from the direction of the simulator building are infrequent. There is a slight shift in the vertical stability classifications and the horizontal stability classifications, which appears to be associated with the presence of the power plant and associated structures. However, the measurements from the 10-meter level on the primary meteorological tower are still considered representative of the current physical conditions at the site and are valid for the Severe Accident Mitigation Alternatives (SAMA) Analysis.

Enclosure 2

County of San Luis Obispo Allocation of Unitary Tax Revenue from PG&E Power Plant Property Tax Bills for Fiscal Years 2007/08–2009/10

COUNTY OF SAN LUIS OBISPO
ALLOCATION OF UNITARY TAX REVENUE
FROM PG&E POWER PLANT PROPERTY TAX BILLS
FOR FISCAL YEARS 2007/08 - 2009/10

FUND	AGENCY	2007/2008 UNITARY FACTOR	2007/2008 PG&E TAXES 990,000,126 $22,583,480.03	2008/2009 UNITARY FACTOR	2008/2009 PG&E TAXES 990,000,222 $23,989,667.50	2009/2010 UNITARY FACTOR	2009/2010 PG&E TAXES 990,000,313 $24,455,910.09
0001	General Fund	26.63604%	6,015,343.62	26.73769%	6,414,282.91	26.73769%	6,538,945.43
0002	Roads	1.20099%	271,224.50	1.16322%	279,052.61	1.16322%	284,476.04
0007	Air Pollution Control District	0.11802%	26,653.75	0.11575%	27,768.04	0.11575%	28,307.72
0026	County Library	1.94566%	439,397.55	1.93107%	463,257.27	1.93107%	472,260.74
0166	Garden Farms Water	0.00190%	429.64	0.00211%	506.18	0.00211%	516.02
0198	Santa Maria Valley Water Cons Dist	0.00240%	541.68	0.00268%	642.92	0.00268%	655.42
0213	Cambria Community Hospital	0.01600%	3,613.62	0.01974%	4,735.56	0.01974%	4,827.60
0223	Cayucos Sanitary District	0.02323%	5,246.90	0.02811%	6,743.50	0.02811%	6,874.56
0227	Arroyo Grande	0.20133%	45,467.79	0.24494%	58,760.29	0.24494%	59,902.31
0229	Atascadero (inc 0709 sanitation)	0.27797%	62,774.60	0.34292%	82,265.37	0.34292%	83,864.21
0231	Grover City	0.08359%	18,876.84	0.10963%	26,299.87	0.10963%	26,811.01
0232	Morro Bay	0.93631%	211,451.70	0.92982%	223,060.73	0.92982%	227,395.94
0233	Paso Robles	0.27662%	62,469.48	0.34315%	82,320.54	0.34315%	83,920.46
0234	Pismo Beach	0.12446%	28,107.39	0.15748%	37,778.93	0.15748%	38,513.17
0235	San Luis Obispo	0.53768%	121,426.14	0.63903%	153,301.17	0.63903%	156,280.60
0368	Cachuma Resource Conservation District	0.00185%	418.48	0.00183%	439.01	0.00183%	447.54
0473	Port San Luis Harbor	1.54708%	349,383.92	1.50650%	361,404.34	1.50650%	368,428.29
0474	California Valley Community Srvcs Dist	0.01059%	2,392.64	0.01106%	2,653.26	0.01106%	2,704.82
0475	Nipomo Community Services District	0.02128%	4,804.87	0.02590%	6,213.32	0.02590%	6,334.08
0476	Cambria Community Services District	0.08075%	18,235.39	0.09739%	23,363.54	0.09739%	23,817.61
0477	San Simeon Acres Community Srvcs Dist	0.00451%	1,019.30	0.00507%	1,216.28	0.00507%	1,239.91
0478	Templeton Community Services District	0.02728%	6,160.65	0.03544%	8,501.94	0.03544%	8,667.17
0480	Nipomo Sewer Maintenance	0.00061%	137.69	0.00074%	177.52	0.00074%	180.97
0481	Nipomo Drain Maintenance	0.00061%	137.69	0.00074%	177.52	0.00074%	180.97
0483	Linne Community Services District	0.00067%	151.82	0.00082%	196.72	0.00082%	200.54

FUND	AGENCY	2007/2008 UNITARY FACTOR	2007/2008 PG&E TAXES 990,000,126 $22,583,480.03	2008/2009 UNITARY FACTOR	2008/2009 PG&E TAXES 990,000,222 $23,989,667.50	2009/2010 UNITARY FACTOR	2009/2010 PG&E TAXES 990,000,313 $24,455,910.09
0528	Grover City Street Light District #1	0.01641%	3,705.95	0.02059%	4,939.47	0.02059%	5,035.47
0643	San Luis Obispo County Flood Control Dist	0.27775%	62,725.84	0.27626%	66,273.86	0.27626%	67,561.90
0647	Nacimiento Water Services District	0.35012%	79,070.01	0.34652%	83,129.00	0.34652%	84,744.62
0651	Flood Control Zone 1	0.00805%	1,817.36	0.00827%	1,983.95	0.00827%	2,022.50
0652	Flood Control Zone 1A	0.00067%	150.65	0.00078%	187.12	0.00078%	190.76
0654	Flood Control Zone 3	0.01116%	2,521.24	0.01311%	3,145.05	0.01311%	3,206.17
0662	Flood Control Zone 9	0.02514%	5,676.63	0.02831%	6,791.47	0.02831%	6,923.47
0675	County Waterworks No. 8	0.00201%	453.11	0.00241%	578.15	0.00241%	589.39
0687	Nipomo Light	0.00146%	329.58	0.00174%	417.42	0.00174%	425.53
0693	San Miguel CSD (Light)	0.00382%	863.68	0.00457%	1,096.33	0.00457%	1,117.64
0694	County Serv Area # 23 (former San Marg Lt)	0.00165%	372.99	0.00178%	427.02	0.00178%	435.32
0723	County Service Area #1	0.00043%	96.65	0.00050%	119.95	0.00050%	122.28
0724	County Service Area #1 Zone A	0.00186%	419.95	0.00214%	513.38	0.00214%	523.36
0725	County Service Area #1 Zone B	0.00097%	218.73	0.00113%	271.08	0.00113%	276.35
0726	County Service Area #1 Zone C	0.00030%	67.91	0.00038%	91.16	0.00038%	92.93
0727	County Service Area #1 Zone D	0.00124%	279.42	0.00154%	369.44	0.00154%	376.62
0741	County Service Area #7	0.00151%	341.36	0.00199%	477.39	0.00199%	486.67
0742	County Service Area #7 Zone A	0.00620%	1,401.26	0.00805%	1,931.17	0.00805%	1,968.70
0743	County Service Area #7 Zone B	0.00154%	347.40	0.00196%	470.20	0.00196%	479.34
0747	Los Osos CSD Zone A	0.01429%	3,227.73	0.01571%	3,768.78	0.01571%	3,842.02
0748	Los Osos CSD Zone B	0.06874%	15,524.86	0.08296%	19,901.83	0.08296%	20,288.62
0750	Los Osos CSD Zone D	0.00064%	145.08	0.00081%	194.32	0.00081%	198.09
0752	Los Osos CSD Zone F	0.00044%	100.41	0.00050%	119.95	0.00050%	122.28
0755	County Service Area #10	0.00528%	1,192.47	0.00670%	1,607.31	0.00670%	1,638.55
0761	County Service Area #12	0.03279%	7,404.02	0.03160%	7,580.73	0.03160%	7,728.07
0773	County Service Area #16	0.00125%	282.32	0.00158%	379.04	0.00158%	386.40
0781	Heritage Community Service District	0.00976%	2,205.18	0.01233%	2,957.93	0.01233%	3,015.41
0803	San Miguel Sanitary District	0.00291%	656.85	0.00332%	796.46	0.00332%	811.94
0811	Oceano Community Services District	0.03304%	7,461.66	0.04035%	9,679.83	0.04035%	9,867.96
0825	Cayucos Fire District	0.00689%	1,555.00	0.00869%	2,084.70	0.00869%	2,125.22
0827	San Miguel CSD (Fire)	0.01356%	3,062.01	0.01569%	3,763.98	0.01569%	3,837.13
0831	Santa Margarita Fire District	0.00624%	1,409.25	0.00685%	1,643.29	0.00685%	1,675.23
0837	Arroyo Grande Cemetery District	0.00597%	1,348.82	0.00675%	1,619.30	0.00675%	1,650.77

FUND	AGENCY	2007/2008 UNITARY FACTOR	2007/2008 PG&E TAXES 990,000,126 $22,583,480.03	2008/2009 UNITARY FACTOR	2008/2009 PG&E TAXES 990,000,222 $23,989,667.50	2009/2010 UNITARY FACTOR	2009/2010 PG&E TAXES 990,000,313 $24,455,910.09
0843	Atascadero Cemetery District	0.01637%	3,697.58	0.01868%	4,481.27	0.01868%	4,568.36
0844	Cambria Cemetery District	0.00388%	875.68	0.00461%	1,105.92	0.00461%	1,127.42
0845	Cayucos-Morro Bay Cemetery District	0.08766%	19,797.74	0.08691%	20,849.42	0.08691%	21,254.63
0847	Paso Robles Cemetery District	0.01898%	4,285.70	0.02200%	5,277.73	0.02200%	5,380.30
0851	San Miguel Cemetery District	0.00400%	904.14	0.00459%	1,101.13	0.00459%	1,122.53
0852	Santa Margarita Cemetery District	0.00593%	1,338.89	0.00599%	1,436.98	0.00599%	1,464.91
0853	Shandon Cemetery District	0.00419%	946.13	0.00416%	997.97	0.00416%	1,017.37
0854	Templeton Cemetery District	0.00413%	931.85	0.00486%	1,165.90	0.00486%	1,188.56
0895	Avila Beach County Water District	0.29045%	65,594.55	0.28035%	67,255.03	0.28035%	68,562.14
0896	Avila County Water Improvement Dist #1	0.00816%	1,842.76	0.00964%	2,312.60	0.00964%	2,357.55
1205	Coast Unif (Cayucos Elem)	0.11384%	25,708.49	0.12795%	30,694.78	0.12795%	31,291.34
1211	Cuyama Joint Unified	0.11949%	26,984.44	0.11614%	27,861.60	0.11614%	28,403.09
1217	Paso Unified (Pleasant Elem)	0.01203%	2,716.92	0.01522%	3,651.23	0.01522%	3,722.19
1221	Paso Unifed (San Miguel Elem)	0.09114%	20,582.36	0.10721%	25,719.32	0.10721%	26,219.18
1223	Coast Unified	0.34325%	77,517.40	0.41089%	98,571.14	0.41089%	100,486.89
1225	Paso Robles Unified	1.16993%	264,210.50	1.40324%	336,632.61	1.40324%	343,175.11
1227	Santa Maria Joint Union High	0.00010%	21.50	0.00010%	23.99	0.00010%	24.46
1228	Santa Maria Joint Union Elementary	0.00012%	26.33	0.00012%	28.79	0.00012%	29.35
1231	Templeton Unified	0.31862%	71,954.37	0.38201%	91,642.93	0.38201%	93,424.02
1234	San Luis Coastal Unified	37.48453%	8,465,310.88	36.42259%	8,737,658.24	36.42259%	8,907,475.86
1253	Lucia Mar Unified	1.78082%	402,171.87	2.14756%	515,192.50	2.14756%	525,205.34
1273	Atascadero Unified	1.41438%	319,416.53	1.53387%	367,970.31	1.53387%	375,121.87
1293	Shandon Unified	0.24070%	54,358.89	0.24159%	57,956.64	0.24159%	59,083.03
1303	San Luis Obispo Co Community College	7.59050%	1,714,198.30	7.55381%	1,812,133.90	7.55381%	1,847,352.98
1308	County School Service	4.50289%	1,016,909.92	4.48101%	1,074,979.40	4.48101%	1,095,871.78
1309	Allan Hancock Joint Community College	0.01532%	3,459.03	0.01489%	3,572.06	0.01489%	3,641.49
0115	ERAF	9.25951%	2,091,119.72	8.97130%	2,152,185.04	8.97130%	2,194,013.06
0236	PASO REDEVELOPMENT	0.04039%	9,122.44	0.07905%	18,963.83	0.07905%	19,332.40
0237	FIVE CITIES REDEV	0.01375%	3,106.30	0.02419%	5,803.10	0.02419%	5,915.88
0239	ARROYO GRANDE REDEV	0.00941%	2,125.68	0.02203%	5,284.92	0.02203%	5,387.64
0238	GROVER BEACH REDEV	0.01091%	2,464.61	0.02227%	5,342.50	0.02227%	5,446.33
0251	ATASCADERO REDEV	0.03128%	7,064.23	0.06817%	16,353.76	0.06817%	16,671.59

FUND	AGENCY	2007/2008 UNITARY FACTOR	2007/2008 PG&E TAXES 990,000,126 $22,583,480.03	2008/2009 UNITARY FACTOR	2008/2009 PG&E TAXES 990,000,222 $23,989,667.50	2009/2010 UNITARY FACTOR	2009/2010 PG&E TAXES 990,000,313 $24,455,910.09
0252	GBIE REDEVELOPMENT	0.00182%	411.27	0.00430%	1,031.56	0.00430%	1,051.60
	TOTAL	100.00000%	$22,583,480.03	100.00000%	$23,989,667.50	100.00000%	$24,455,910.09

ASSESSED VALUES BY FISCAL YEAR

	2007/2008	2008/2009	2009/2010
LAND	65,993,429	65,993,429	65,993,429
IMPROVEMENTS	2,015,612,857	2,099,436,292	2,262,610,081
PERSON PROPERTY	176,741,717	233,537,029	116,987,499
NET VALUE	2,258,348,003	2,398,966,750	2,445,591,009