JUOTC DIABLO CANYON SOUTH LOT EVALUATIONS

DATE: April 8, 2014

HANDOUTS:

1. 44 cooling tower cell preliminary GA
2. 34 cooling tower cell preliminary GA

SCOPE:

1. Determine the number of ClearSky cooling tower cells required to operate the DCPP units at:
   a. A turbine back pressure of ≤ 5”hg. The tower approach is set at 37F. Plume point set at 5%.
   b. A turbine back pressure of ≤ 5”hg. The tower approach is set at 37F. Plume point set at 55%.
2. Site the towers on south lot in a location that maximizes their effectiveness, minimizes the required excavation, and minimizes the impact on existing plant support facilities
3. Conceptually relocate undergrounds currently in the southern parking lot areas.
4. The additional effort associated with completing the preliminary design, the estimate, the additional design and construction schedules, and the report include the following:

KEY ASSUMPTIONS:

1. Towers for each unit will be on the same elevation
2. Little or no mountain excavation required – based on developed preliminary General Arrangement (GA)
3. The tower maximum elevation (115 ft) is based on the design pressure limits of the CCW ducts in/under the turbine building.
4. Circulating water pumps will be located on the outlet of the main steam condensers to minimize pressure in the turbine building conduits.
5. CCW flow will be maintained at the current flow rate of 860,000 gpm; driven by limits of the main steam condensers and the existing secondary system design.
6. The estimated impact of recirculation on cooling tower performance will be agreed upon between the supplier and Bechtel after the towers are located.
7. Access to the ISFSI dry fuel storage area, specifically cask transporter access, must be made available within 30 days at all times throughout the construction period – (transporter access cannot be unavailable for > 29 days)
8. Plant access must be maintained at all times for shift operators and technical personnel, emergency response and support staff
9. The increased plant trip probability created by the fact that the main turbine is being operated at a higher back pressure will be acceptable to the DCISC and the NRC (plant design change can remain licensed).

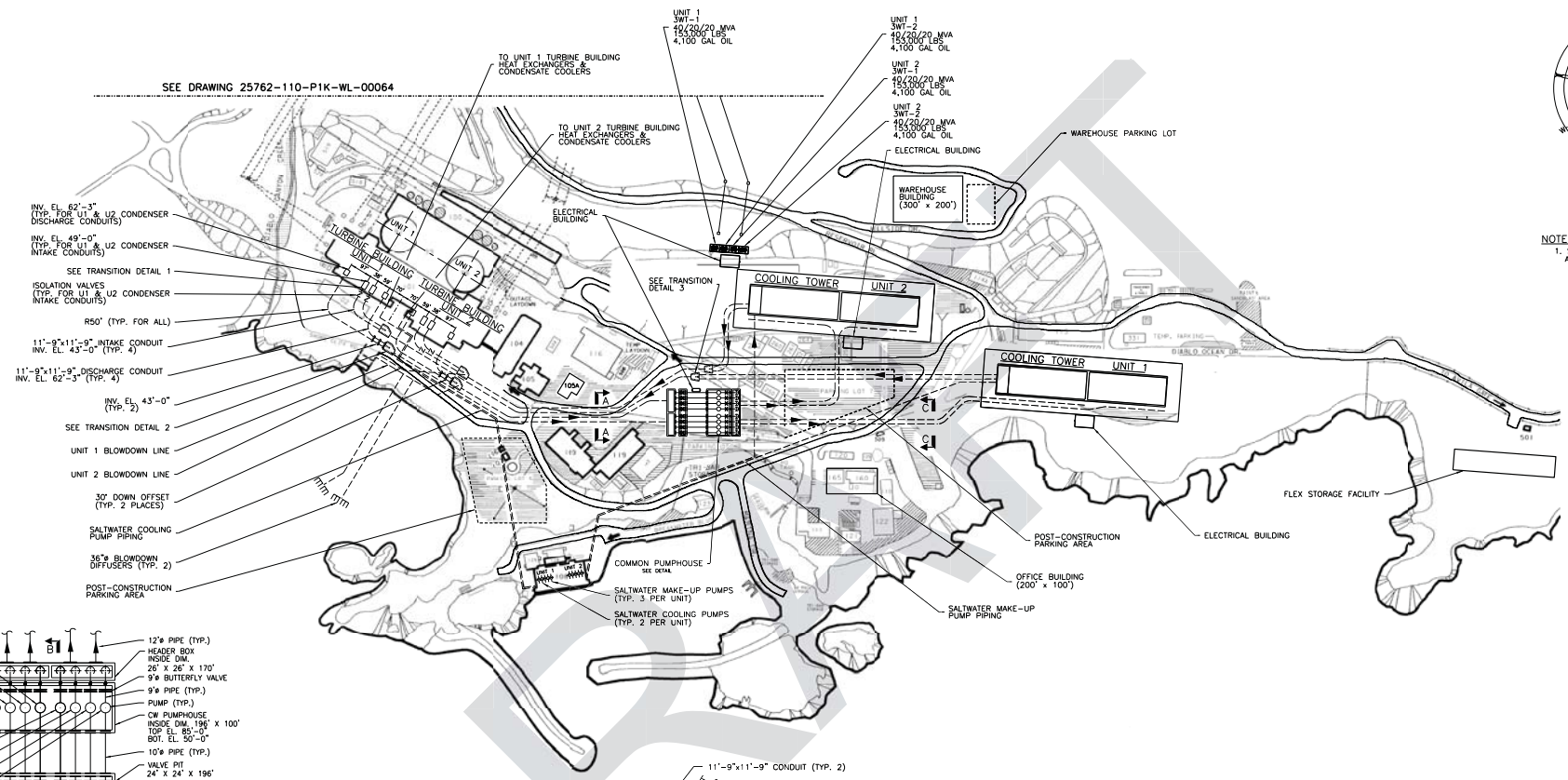
10. PM-10 emission credits can be obtained for cooling tower operations on 100% salt water make-up.
11. Bechtel will work with PG&E to identify buildings in the south lot area that can be combined, demolished and not replaced or demolished and must be replaced.
12. Sufficient parking must be provided on site at all times for key operations, security, and emergency response personnel local to the power block - as well as for plant operations support vehicles. PG&E estimates that a minimum 350 lower plant-site parking places will be required at all times.
13. ClearSky plume free design point will be set at 5% (the same as considered for the hybrid technology in the Phase 1 and 2 reports) or 55% as proposed by the FOE.
14. ClearSky towers will be FRP construction
15. Bechtel will develop a cost estimate for facilities/infrastructure requiring demolition and/or relocation on a dollar per ft^2 bases.
16. The ASW cooling system must remain operable at all times; both units. The ASW will remain once-through cooled.
17. The SCW system will remain once-through cooled; driven by limits of existing plant design.
18. Low pressure turbine modifications (removal/modification of outer blades) will be considered as contingency to address potential degraded operability. Turbine blade vibration monitoring will be required.
19. The cost estimate will be a Level 4 estimate.

MAJOR IMPACTS:

- Reduced unit/plant output of approximately 122 MW for the 44 cell option and 96 MW for the 34 cell option.
- Increased risk of inadvertent turbine trips
- Parking for most support staff will have to be located off-site and bussing to the site implemented.
- Some periods of potentially detrimental fogging at the plant-site &/or along the access road corridor.
- Increased maintenance related to the salt water tower drift.
- Significantly reduced warehouse space available on site
- Emission offsets will have to be purchased.
- Tower emissions permitting for 100% saltwater make-up remains speculative, and is unlikely
- Reduces sea water intake flow by approximately 94%

PLANT NORTH

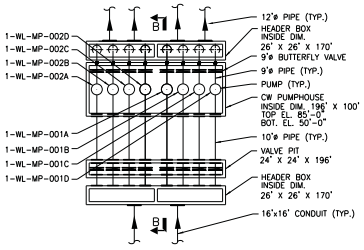
SEE DRAWING 25762-110-P1K-WL-00064



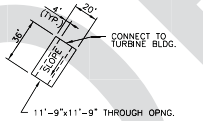
WIND DIRECTION TABLE

5-10 | 10-15 | 15-20 | 20-25 | 25-30 | >=30(mph)

NOTES:
1. SITE GRADE AT THE COOLING TOWER AREAS WILL BE 115'.



DETAIL PLAN
COMMON PUMPHOUSE
(NTS)



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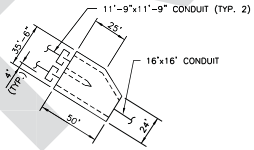

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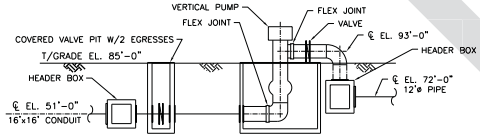
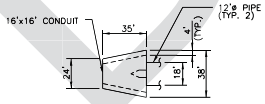


SECTION B-B
(NTS)



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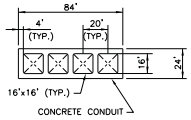

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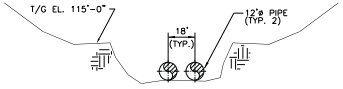

SECTION C-C
(NTS)

LATEST REVISION
03/31/14

0 50 100 200 300 400 500FT

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BECHTEL
FREDERICK, MARYLAND

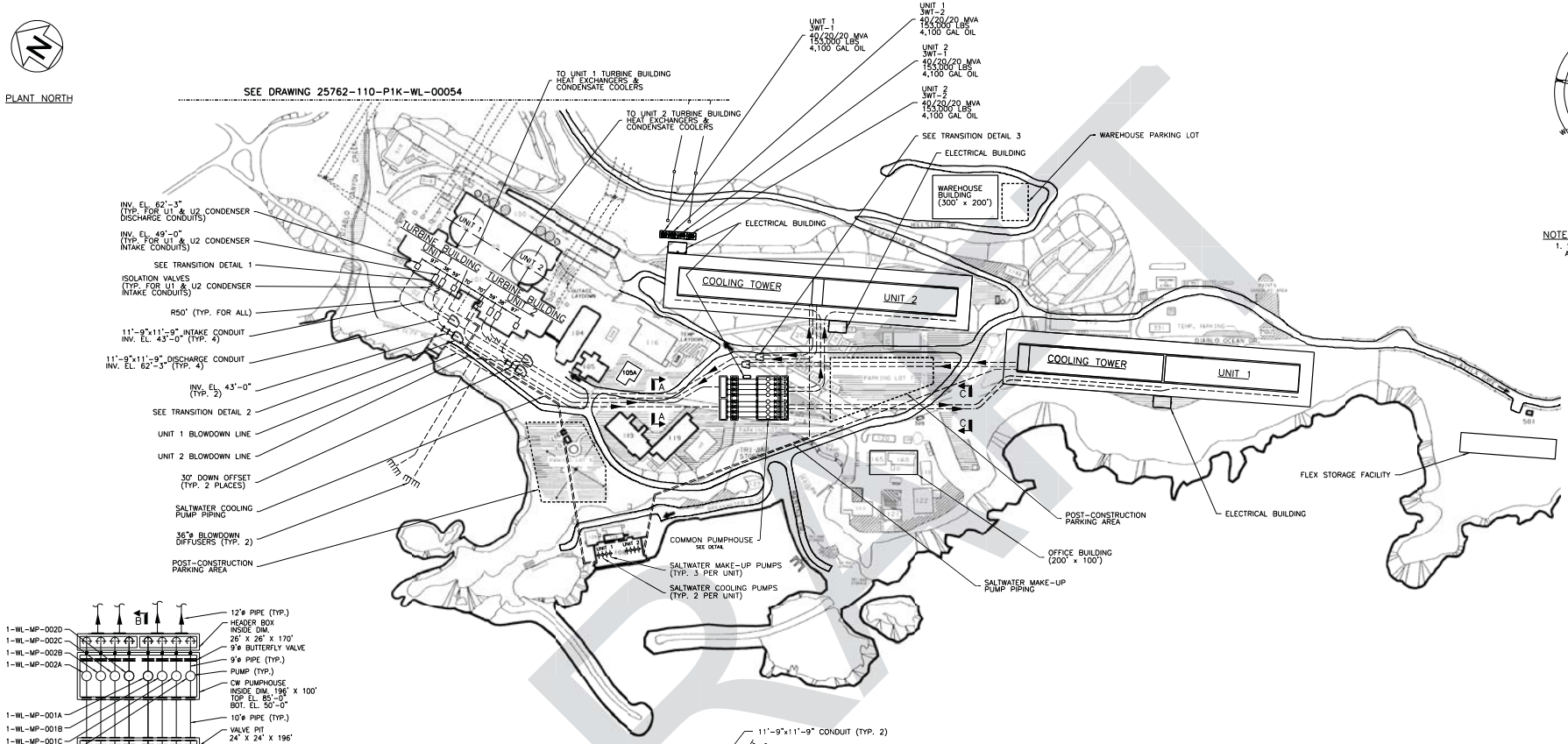
PACIFIC GAS AND ELECTRIC
DIABLO CANYON POWER PLANT

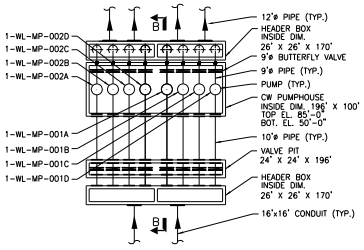
CIRCULATING WATER SYSTEM
COOLING TOWER TURBINE BUILDING
34 CELL TOWER ARRANGEMENT

JOB NO.	DRAWING NO.	REV
25762-110	P1K-WL-00034	A

22 x 34 "D" SIZE

LEVELS 1111111111222222222333333333444444444555555555 56666 12345678901234567890123456789012345678901234567890123456789012345678901123





DETAIL PLAN
COMMON PUMPHOUSE
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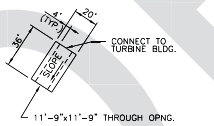

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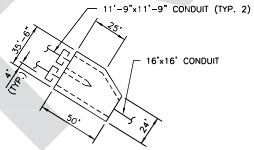

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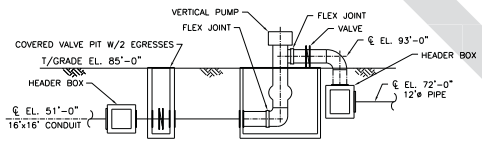

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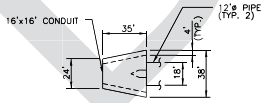

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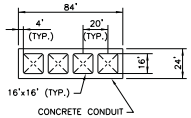

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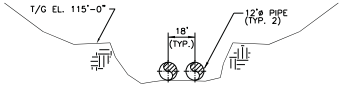

SECTION C-C
(NTS)

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03/31/14

0 50 100 200 300 400 500FT

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BECHTEL
FREDERICK, MARYLAND

PACIFIC GAS AND ELECTRIC
DIABLO CANYON POWER PLANT

CIRCULATING WATER SYSTEM
COOLING TOWER TURBINE BUILDING
44 CELL TOWER ARRANGEMENT

JOB NO.	DRAWING NO.	REV
25762-110	P1K-WL-00044	A

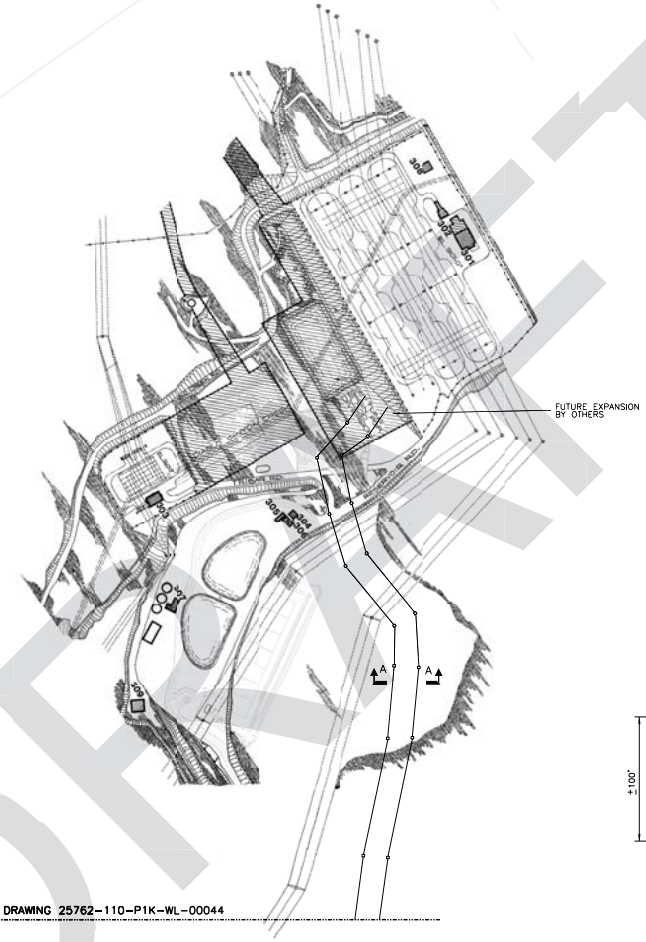
22 x 34 'D' SIZE

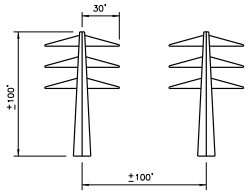
LEVELS 1111111111222222222333333333444444444555555555 56666
12345678901234567890123456789012345678901234567890123

D C B A

6 5 4 3 2

PLANT NORTH





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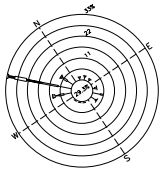

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PACIFIC GAS AND ELECTRIC
DIABLO CANYON POWER PLANT

CIRCULATING WATER SYSTEM
SWITCHYARD AREA
TRANSMISSION LINE ARRANGEMENT

JOB NO.	DRAWING NO.	REV
25762-110	P1K-WL-00054	A

LATEST REVISION
03/31/14

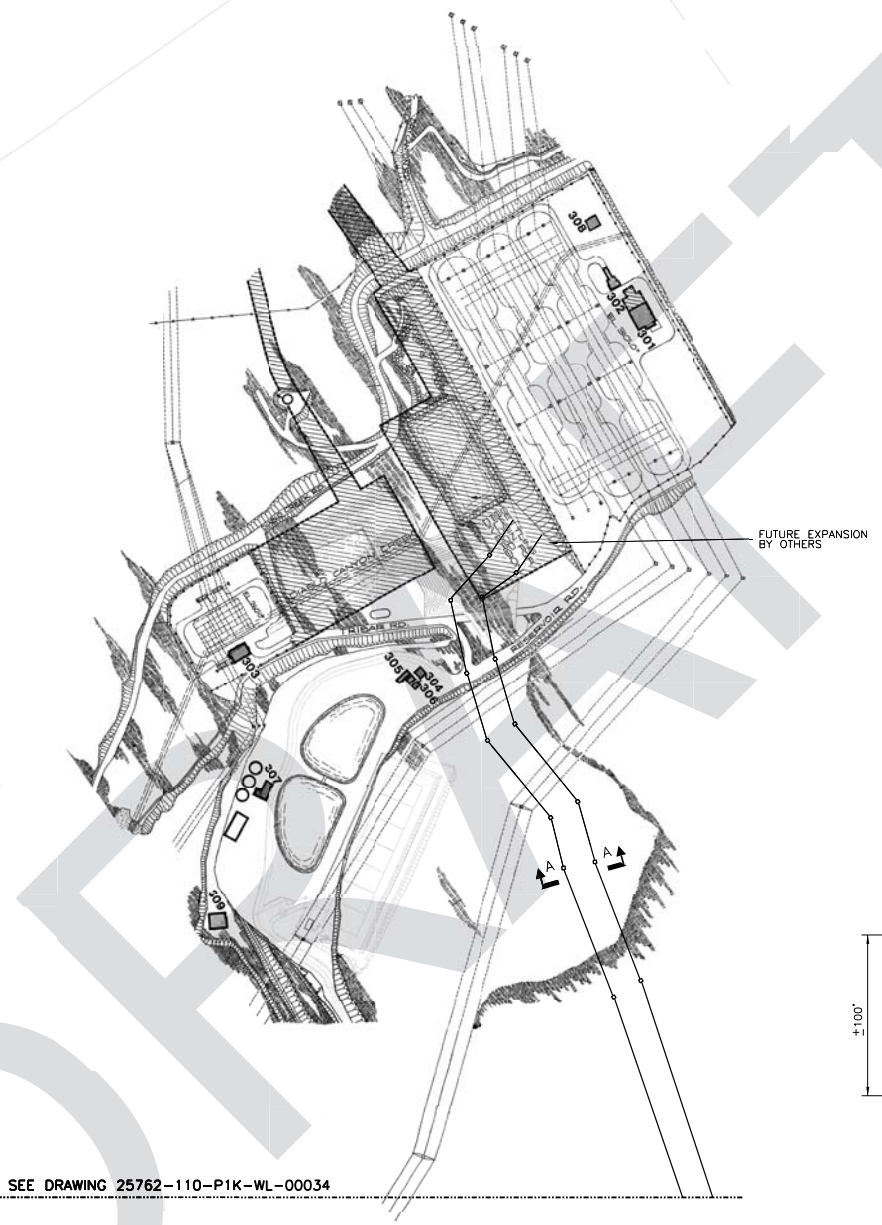
0 50 100 200 300 400 500FT

22 x 34 "D" SIZE

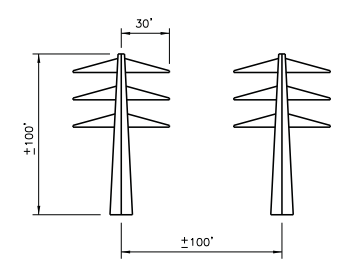
LEVELS 1111111111222222222333333333344444444455555555556666 1234567890123456789012345678901234567890123456789012345678901123

DRAFT

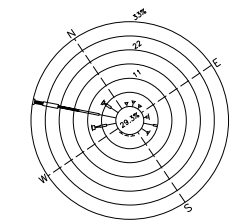
PLANT NORTH



SEE DRAWING 25762-110-P1K-WL-00034



SECTION A-A



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PACIFIC GAS AND ELECTRIC
DIABLO CANYON POWER PLANT

CIRCULATING WATER SYSTEM
SWITCHYARD AREA
TRANSMISSION LINE ARRANGEMENT

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