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Application for Certification
(15-AFC-01)

Puente Power Project (P3)
Oxnard, CA

Responses to CEC Data Requests Set 1 (1-47)

August 2015

Submitted to:
The California Energy Commission

Prepared by: AECOM

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LIST OF ACRONYMS AND ABBREVIATIONS USED IN RESPONSES

AERMOD	American Meteorological Society and Environmental Protection Agency preferred atmospheric dispersion model
AFC	Application for Certification
AFY	acre-feet per year
APE	Area of Potential Effect
bgs	below ground surface
BMP	best management practice
CAAQS	California ambient air quality standard
CAISO	California Independent System Operator
CEC	California Energy Commission
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CPT	cone penetration test
CTG	combustion turbine generator
District	Ventura County Air Pollution Control District
°F	Fahrenheit
FDOC	Final Determination of Compliance
g/gal	grams per gallon
g/hr	grams per hour
GE	General Electric
GHG	greenhouse gas
gpm	gallons per minute
HARP	Hotspots Analysis and Reporting Program
HHI	health hazard index
hrs/yr	hours per year
LARWQCB	Los Angeles Regional Water Quality Control Board
lbs	pounds
lb/hr	pounds per hour
lbs/mile	pounds per mile
LORS	laws, regulations, ordinances, and standards
m	meters
mgd	million gallons per day
$\mu g/m^3$	micrograms per cubic meter
$\mu g/m^3/g/s$	micrograms per cubic meter pet gram per second
MGS	Mandalay Generating Station
MLLW	mean lower low water
MMBtu/hr	million British thermal units per hour
m/s	meters per second
NAAQS	national ambient air quality standard
NAVD88	North American Vertical Datum of 1988
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OEHHA	Office of Environmental Health Hazard Assessment
OLM	ozone limiting method
OTC Policy	State Water Resources Control Board's Once Through Cooling Policy
P3	Puente Power Project
PDOC	Preliminary Determination of Compliance

PM	particulate matter
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
PMI	point of maximum impact
ppm	parts per million
psig	pounds per square inch, gage
REC	Recognized Environmental Condition
RO	reverse osmosis
RQ	reportable quantities
SCE	Southern California Edison
SO_2	sulfur dioxide
tpd	metric tons per day
tpm	metric tons per month
UTM	Universal Transverse Mercator
UTM E	Universal Transverse Mercator east
UTM N	Universal Transverse Mercator north
UTM W	Universal Transverse Mercator west
VCAPCD	Ventura County Air Pollution Control District VCAPCD
VOC	volatile organic compounds

Technical Area: Air Quality
Author: Jacquelyn Record

BACKGROUND: PROJECT PERMITS

The proposed project will require a Preliminary Determination of Compliance (PDOC) and a Final Determination of Compliance (FDOC) from the Ventura County Air Pollution Control District (VCAPCD or "District"). These documents will be integrated into the staff analysis. Therefore, staff will need copies of relevant correspondence between the applicant and the District in a timely manner in order to stay up to date on any permit issues that may arise during preparation of the Preliminary or Final Staff Assessments.

DATA REQUEST

1. Please provide copies of all substantive District correspondence regarding the Puente Power Project (P3) PDOC and FDOC preparation, including e-mails, within one week of submittal or receipt. This request is in effect until the final Energy Commission Decision has been adopted.

RESPONSE

As requested, all copies of substantive Ventura County Air Pollution Control District (VCAPCD or District) correspondence regarding the Puente Power Project (P3) Preliminary Determination of Compliance (PDOC) and Final Determination of Compliance (FDOC) preparation will be provided to staff within 1 week of submittal or receipt.

BACKGROUND: EMISSION ESTIMATES

Appendix C-2 (Operational and Commissioning Emission Calculations) and C-6 (Construction Emission Calculations), of the Application for Certification (AFC) are used to document emission calculations. Staff needs the original spreadsheet files of these estimates with live, embedded calculations to complete their review.

DATA REQUEST

2. Please provide the spreadsheet version of Appendix C-2 and Appendix C-6 work sheets with embedded calculations, live and intact.

RESPONSE

The requested "live" worksheets for the operational and commissioning emission calculations shown in Application for Certification (AFC) Appendix C-2 will be submitted separately under a request for confidentiality. These worksheets also include the detailed calculations shown in Appendices C-5 and C-8 of the AFC. The requested "live" worksheets for the construction and decommissioning emission calculations shown in Appendix C-6 were docketed with the California Energy Commission (CEC) as part of the April 2015 AFC filing.

BACKGROUND

VENTURA COUNTY ATTAINMENT STATUS

AFC Section 4.1.1.4.5 and Table 4.1-34 both state that Ventura County is unclassified for the federal particulate matter (PM_{10}) standard and in attainment for the state PM_{10} standard. However, according to the Air Resources Board web site (accessed July 6, 2015) [http://www.arb.ca.gov/regact/2013/area13/area13fro.pdf], the entire South Central Coast Air Basin (including Ventura County) is in nonattainment for the state PM_{10} standard. These designations are current as of August 22, 2014. Note that the area is in attainment for lead (particulate) but not for PM_{10}.

DATA REQUEST

3. Please review the current PM_{10} attainment status for Ventura County and update the information in AFC Section 4.1.1.4.5 and Table 4.1-34.

RESPONSE

The reference to Ventura County as an attainment area for purposes of the State 24-hour and annual particulate matter less than or equal to 10 microns in diameter (PM_{10}) ambient air quality standards was a typographical error. This error is corrected in revised Table 4.1-34 (see Appendix A-1), showing Ventura County classified as a PM_{10} nonattainment area with regard to State PM_{10} ambient air quality standards. The substantive analysis contained in the Air Quality section of the AFC was based on Ventura County being classified nonattainment with state ambient air quality standards for particulate matter less than or equal to 10 microns in diameter (PM_{10}).

BACKGROUND

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) MITIGATION FOR NON-ATTAINMENT POLLUTANTS AND PRECURSORS

Because Ventura County is in nonattainment for both the state PM_{10} and state and federal ozone standards, staff's California Environmental Quality Act (CEQA) analysis will evaluate the significance of all nonattainment pollutant emissions and precursors (i.e., oxides of nitrogen [NO_X], volatile organic compounds [VOCs]/reactive organic compounds [ROCs], PM_{10}, and sulfur oxides [SO_X]). When giving credit for shutting down existing sources, Energy Commission staff recommends CEQA mitigation measures if there would be impacts based on a net increase in actual nonattainment pollutant emissions based upon recent historical emissions, not the Potential to Emit (PTE). AFC Table 4.1-22 (using corrected numbering) compares the annual PTE for the proposed project, assuming a 28 percent annual capacity factor, against actual annual emissions reductions expected from the shut-down of Mandalay Generating Station (MGS), not maximum potential emissions as expressed by the PTE. This table indicates that P3 could increase annual emissions of NO_X, SO_X, (VOC)/(ROC), CO and $PM_{10}/PM_{2.5}$.

The Applicant also states in AFC Section 4.1.5 that they "…will review options to mitigate the net emission increase for the other pollutants (notably ROC, PM_{10}, and $PM_{2.5}$), including funding the Carl Moyer Program or a similar emission reduction program specific to this project." However, the applicant did not quantify any of these mitigation measures or provide any information concerning the likelihood of obtaining sufficient emissions reductions to fully mitigate potential project impacts.

DATA REQUESTS

4. Please identify the expected actual emissions from P3 using the average capacity factor expected from operations, especially for future years when P3 becomes operational through year 2030, with increased use of variable and intermittent renewable facilities supplying electricity to the California grid. For each pollutant, please provide the basis for the lb/MMBtu and lb/hr emissions rates in Table 4.1- 18 (corrected) and the lbs/hr emissions rates in Table C-2.11. Also, please update net emissions Table 4.1-22, or create a new table.

RESPONSE

As suggested in the Data Request, actual emissions from the new P3 unit will almost certainly be far below the levels identified and analyzed in the AFC. This is because the hourly, daily, and annual emission levels shown in the AFC represent maximum potential to emit levels for the new equipment. These emission estimates include a number of conservative assumptions, such as the new equipment operating at maximum permitted hourly emission levels for every operating hour during the year. Basing the analysis on the maximum potential to emit ensures that air quality impacts will not be greater than what has been analyzed, and that the level of mitigation provided fully addresses potential impacts of the project. In fact, because it is highly unlikely that the project would operate at its full potential to emit on a sustained basis, basing mitigation on the potential to emit results is a net benefit to air quality. Providing projected future actual emissions for the new equipment would give the public a more realistic picture of the impacts of the project on air quality. However, future actual emissions will depend on many variables that may affect the operating profile of the project. Many of these variables, such as future weather conditions that could impact the electrical output of renewables and malfunctions of transmission lines and/or other power plants supplying power to the project area, are very

difficult to predict in advance. The one thing that can be said with certainty, however, is that the air quality impacts of the project will not be greater than, and will likely be considerably less than, those analyzed in the AFC.

DATA REQUEST

5. For all increases in emissions of nonattainment pollutants and their precursors, please identify and quantify a complete package of proposed mitigation measures.

RESPONSE

The Applicant believes that funding emission reduction programs such as the Carl Moyer Program or a program developed with VCAPCD represents a viable approach for mitigating the net emission increases of the nonattainment pollutants, reactive organic compounds (ROCs), PM_{10}, and particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$). By funding such programs, the local government agencies will be responsible for identifying and implementing emission reduction programs that will benefit the workers/residents in the project area. The funding of these types of programs as acceptable mitigation measures for nonattainment pollutants has been approved by the CEC for a number of other power plant projects, including the Carlsbad Energy Center Project (07-AFC-06), East Altamont Energy Center (01-AFC-04), and the Los Esteros Critical Energy Facility – Phase 1 (01-AFC-12).

BACKGROUND

FIRE WATER PUMP

The AFC states on Page 2-38 that repurposed electric fire pumps installed during the 1950s would be used to provide onsite fire protection and that they are served by two independent power feeds. It is unclear if the electric fire pumps would be able to provide fire protection during times of electric grid blackouts, especially considering their age. Staff is concerned that if this equipment is not able to provide adequate fire protection during electric grid black outs, alternative fire pump engines (e.g., natural gas or diesel fueled engines) would be needed and the potential emissions from these engines should be included in the AFC.

DATA REQUEST

6. Would the applicant consider using either natural gas or diesel fueled fire pump engines? If so, please quantify the emissions from these engines from readiness testing and maintenance and include emissions from this equipment in the air quality assessment.

RESPONSE

As discussed in the AFC, the proposed project does not include the installation of a new natural gas or diesel fueled fire pump engine because the project will use the existing Mandalay Generating Station (MGS) electric fire pumps as a part of the facility fire protection system. The adequacy/reliability of these electric fire pumps is discussed in the response to Data Request 47.

BACKGROUND

CUMULATIVE AIR QUALITY IMPACTS

The AFC (Section 4.1.4.1.2 and Appendix C-7) describes a cumulative impact analysis, but only includes a list of foreseeable projects within a 6-mile radius (i.e., the projects that have received construction permits, but are not yet operational, and those that are in the permitting process, or can be expected to be in permitting in the near future). None of these sources were evaluated because their emissions are all less than 5 TPY of any pollutant. However, the impact from the nearby sources may not be reflected in the background ambient air quality data used for establishing baseline conditions because they were obtained from the Oxnard station located 7 miles from the project site.

DATA REQUEST

7. Please provide a copy of the District's correspondence regarding existing and planned cumulative sources located within six miles of the P3 site.

RESPONSE

A letter provided by the VCAPCD identifying all new Authorities to Construct, modified Permits to Operate, and/or permit applications issued/submitted after June 1, 2013 for projects that resulted in a net emissions increase of criteria pollutants of 5 tons per year or more, and were located within a 6-mile radius from the project site, was included within Appendix C-7 of the Application for Certification (AFC). As shown in the information provided by the VCAPCD and as discussed in Section 4.1.4.1.2 of the AFC, the VCAPCD responded that there were only two proposed projects that met the above criteria: (1) the proposed installation of six new natural-gas-fired boilers (ranging in size from 5 to 7 million British thermal units per hour [MMBtu/hr]) and two new emergency diesel engines at the Community Memorial Hospital in Ventura; and (2) the proposed installation of three new natural-gas-fired boilers (approximately 20 MMBtu/hr) at the Ventura County Medical Center in Ventura. As shown by the preliminary emission estimates provided by the VCAPCD for these two projects (also included in Appendix C-7 of the AFC), carbon monoxide (CO) was the only pollutant with emission increases above the *de minimis* level of 5 tons per year. Therefore, only CO impacts for these two projects were examined further in the AFC.

With regards to cumulative CO impacts, as discussed in Section 4.1.4.1.2 of the AFC, because P3's ambient CO impacts are below Federal Significant Impact Levels, the impacts of P3 will be *de minimis*, and there is no need to perform further California Environmental Quality Act (CEQA) cumulative analysis for this pollutant.

The approach for determining the cumulative criteria pollutant impacts for P3 was performed according to the methods identified in the Air Quality Modeling Protocol provided as Appendix C-4 of the AFC. This modeling protocol was submitted to the CEC and VCAPCD and revised based on comments received from the CEC and VCAPCD prior to submission of the AFC. The modeling protocol identified the nearby ambient monitoring stations used to established background ambient levels for the modeling analyses. The modeling protocol also explained that, for the cumulative impact analysis, impacts from nearby existing sources are presumed to be included within the ambient baseline data collected at the nearby monitoring stations. With respect to the Oxnard ambient monitoring station located approximately 7 miles from the project site, this monitor is classified by the California Air Resources Board (CARB) as a monitor used to determine representative ambient background levels for purposes of general

population exposure.[1] Consequently, the data collected at this monitor are ideal for establishing baseline background levels for the Oxnard/Ventura area (baseline levels due to existing sources) for use in localized ambient impact modeling analyses, including cumulative impact modeling. Thus, the background levels used in the modeling analysis are representative of existing ambient conditions, including emissions from existing sources.

It is also important to note that this same approach for determining which nearby stationary sources to include/exclude from a CEQA cumulative air quality impact analysis is the long-standing approach followed by the CEC for review of power plant projects.

[1] CARB's Annual Monitoring Network Report for Twenty-Five Districts in California, Volume 1, Table 3, page 22, June 2015.

DATA REQUEST

8. Please provide the list of sources to be considered in the cumulative air quality impact analysis.

RESPONSE

Please see response to Data Request 7.

DATA REQUEST

9. Please provide the cumulative modeling and impact analysis, including P3 and other identified existing (include SCE McGrath Peaker and the Mandalay Unit 3) and planned projects within 6 miles of the P3 site.

RESPONSE

As discussed in Section 4.1.3.3 (page 4.1-28) of the AFC, the ambient impact modeling performed for P3 includes the impacts associated with the new equipment (P3 combustion turbine generating unit and the new emergency generator engine) and continued operation of Mandalay Unit 3 (see AFC Tables 4.1-27 and 4.1-29, corrected numbering). Please see the response to Data Request 7 with regard to the approach used for the cumulative modeling analysis performed for P3. The Applicant does not believe it is necessary to include the modeled impacts from the Southern California Edison (SCE) McGrath Peaker, because the data collected at the nearby ambient monitoring stations adequately account for background ambient levels for the project area, including emissions from existing sources.

BACKGROUND

CONFIRMATION OF HEAT INPUT AND OPERATING PROFILE

Greenhouse Gas Emission Calculations Table C-2.16 for the existing Unit 3 gas turbine (GT) has an "Annual Fuel Use (MMBtu/yr)" of 90,450. However in the column titled "Operating Hours per Year," there is no value.

DATA REQUESTS

10. Please give all assumptions that were used to calculate the Annual Fuel Use (MMBtu/yr).

RESPONSE

The annual heat input to existing Unit 3 of 90,450 MMBtu/year is based on the highest actual two-year average fuel use for Unit 3 over the past 5 years. This maximum 2-year average annual natural gas use of approximately 88.6 MMscf/year is shown in Table C-2.13f in Appendix C-2 of the AFC.

DATA REQUEST

11. Please verify the megawatts (MW) in gross output for the existing Unit 3 GT.

RESPONSE

Unit 3 requires approximately 0.25 megawatt (MW) for auxiliary purposes (fans, pumps, etc.), and this power is supplied externally from the grid. Because the auxiliary load is provided externally and not backfed to the unit prior to the generator terminals, the net and gross output of Unit 3 is the same at 130 MW in terms of output to the grid. If the net rating of the unit accounts for the auxiliary load provided externally, the net output of Unit 3 would be approximately 129.75 MW.

BACKGROUND

THERMAL PLUME VELOCITY INPUT

Staff intends to perform an area-wide, cumulative vertical plume velocity modeling analysis for the new P3 gas turbine stack, the existing Unit 3 stack, the McGrath Peaker stack, and all associated sources of thermal plumes. Staff already has the information needed for P3's new GE 7HA.01 turbine stack, but requires corresponding information for the McGrath Peaker stack, the existing Unit 3 stack(s) and all associated, significant heat rejecting cooling systems to complete this analysis.

DATA REQUEST

12. For each vertical plume source identified in the background information above, please summarize the operating conditions including quantity of heat rejection, exhaust temperature, and exhaust velocity in separate plume source tables presented below. The additional data are necessary for staff to determine how the heat rejection load varies with local ambient conditions in order for staff to model each thermal plume. The ambient conditions included in these tables should correspond to those in AFC Table C-5.2 (using corrected numbering) for the new GE 7HA.01 turbine stack. This table format can be used for stacks and other heat rejection equipment.

Parameter	Each Vertical Plume Source					
Number of Cells/Stacks						
Cell/Stack Height						
Cell/Stack Diameter						
Ambient Temperature	38.9°F		77.8°F		85°F	
Ambient Relative Humidity	%		%		%	
Evaporative Cooling?	Yes	No	Yes	No	Yes	No
Number of Cells in Operation						
Heat Rejection (MW/hr)						
Exhaust Temperature (°F)						
Exhaust Velocity (ft/s)						
Exhaust Flow Rate (lb/hr)						

RESPONSE

See Appendix A-2 for tables summarizing the thermal plume characteristics for the P3 dry cooler, Mandalay Unit 3, and the McGrath Peaker gas turbine stack. Because of a lack of available data specific to the McGrath Peaker gas turbine, the exhaust characteristics for this unit are based on a similar General Electric LM6000 gas turbine located at the Almond 2 Power Plant Project.[2]

[2] Almond 2 Power Plant Project, AFC, Tables 5.1A-3 and 5.1B-2b, May 2009.

DATA REQUEST

13. Please provide Universal Transverse Mercator (UTM) coordinates for each source, including P3, or provide relative distance from P3's stack for each vertical plume source.

RESPONSE

Table DR-13 summarizes the Universal Transverse Mercator (UTM) coordinates (in NAD 83, UTM zone 11) for the McGrath Peaker gas turbine exhaust stack, existing Unit 3 exhaust stacks, new P3 combustion turbine exhaust stack, and P3 dry cooler. The table also shows the relative distance from this equipment to the P3 combustion turbine exhaust stack.

Table DR-13
UTM Coordinates for Vertical Plume Sources

Equipment		UTM Coordinates		Distance to New P3 Stack (m)
		UTM E (m)	UTM N (m)	
Existing Unit 3 Exhaust Stacks	A	292639	3787252	267
	B	292636	3787250	267
	C	292621	3787244	268
	D	292618	3787243	268
McGrath Peaker Exhaust Stack		292883	3787228	439
New P3 Dry Cooler		292585	3787482	50
New P3 Exhaust Stack		292538	3787499	N/A

Notes:
m = meter
P3 = Puente Power Project
UTM E = Universal Transverse Mercator east
UTM N = Universal Transverse Mercator north

Technical Area: Hazardous Materials
Author: Brett Fooks

BACKGROUND

Section 4.5.2.3.1 of the AFC states that the existing Mandalay Generating Station (MGS) ammonia storage tank will be reused for the proposed Puente Power Plant (P3). The AFC does not state the age or current condition of the existing aqueous ammonia tank. Staff needs to know the existing status of the tank to ascertain whether the existing tank meets current code.

DATA REQUEST

14. Please provide the current age of the existing tank along with a narrative demonstrating that the tank is compliant with API 620.

RESPONSE

The horizontal ammonia storage tank was manufactured in 1980 and installed at Mandalay Generating Station (MGS) in 1990. Modifications to the tank were made in 1995 as part of the selective catalytic reduction commissioning for MGS. The original design of the horizontal ammonia tank was for pressurized anhydrous ammonia, and its original nameplate pressure design was 265 pounds per square inch, gage (psig), with a down-rating to 100 psig at 115 degrees Fahrenheit in January 1996. Photographs of the tank nameplates are provided in Appendix B-1, Hazardous Materials Management.

According to API-620, Section 1.2.5, this code does not cover horizontal tanks:

> *"Although the rules in this standard do not cover horizontal tanks, they are not intended to preclude the application of appropriate portions to the design and construction of horizontal tanks designed in accordance with good engineering practice. The details for horizontal tanks not covered by these rules shall be equally as safe as the design and construction details provided for the tank shapes that are expressly covered in this standard."*

As shown on the as-built drawing for the ammonia tank (see Appendix B-2), the "reworked" tank for the storage of 29.4 percent aqueous ammonia was built to the ASME Section VIII code, which is a more stringent code than API-620.

Recently, on February 13 and 14, 2013, the tank was drained and inspected by ACUREN Materials Engineering and Testing. The tank passed an ultrasonic examination report for head and shell thickness.

In summary, although compliance with API-620 is not applicable, the tank was built to meet a more stringent code (ASME Section VIII), and has been recently inspected and tested. A copy of the inspection test report is provided in Appendix B-3.

DATA REQUEST

15. Please provide a narrative analysis that the existing tank's anchorage is compliant with the current seismic code.

RESPONSE

Applicant is currently evaluating the existing ammonia tank with respect to applicable code requirements. Applicant will submit the results of this evaluation once it has been completed.

BACKGROUND

Section 2.7.2.1.1 of the AFC states that the CTG generator will be hydrogen cooled while Table 4.5-3 states that the location of the 100-gallon hydrogen aboveground storage tank is to be determined.

DATA REQUEST

16. Please provide a narrative description of the location and the protection measures for the hydrogen aboveground storage tank.

RESPONSE

Storage of compressed hydrogen is currently provided in a bank of cylinders approximately 230 feet south of MGS Units 1 and 2, and about 100 feet south of the service water tank. The hydrogen storage bank serves as the current supply for generator cooling on MGS Units 1, 2, and 3. This system currently consists of a storage bank comprising 24 cylinders, approximately 40 feet in length, with a total maximum storage capacity of 12,800 cubic feet at 2,000 pounds per square inch maximum. This same hydrogen storage bank will be used for the future hydrogen needs of the existing MGS Unit 3 plus the proposed P3. Because the hydrogen demand of P3 is projected to be slightly less than that of the combined demand of MGS Units 1 and 2, no expansion to the existing 24 cylinders will be necessary.

The hydrogen bank is contained within a fenced barrier which is designated as a hot work permit area requiring specific station safety procedures for work deemed as “hot work” in this area.

DATA REQUEST

17. Please provide a narrative description for how the hydrogen gas will either be created on site or delivered. If regular deliveries will be needed to refill the tank, what is the expected frequency?

RESPONSE

Hydrogen gas will not be created on site. Hydrogen gas will be delivered via tank truck, similar to current operations. Typically, each truck delivers up to about 60,000 cubic feet. Currently, MGS Units 1, 2, and 3 consume between 600 and 1,400 cubic feet per day. Deliveries are currently made approximately five to eight times per year. Based on data from General Electric (GE), P3 consumption is expected to be about 400 to 700 cubic feet per day. The proposed P3 and continued MGS Unit 3 consumption is estimated to be 500 to 1,000 cubic feet per day. The expected frequency of delivery is approximately four to six times per year.

DATA REQUEST

18. Please confirm that the aboveground storage tank would store hydrogen cryogenically.

RESPONSE

The storage of hydrogen cryogenically refers to storage of ultra-low temperature liquid hydrogen. P3 will not employ cryogenic storage. GE uses compressed gas cylinders, and this is their recommended design. Liquid storage would require re-vaporization, and is energy-inefficient.

Technical Area: Public Health
Author: Huei-An Chu (Ann), Ph.D.

BACKGROUND

SENSITIVE RECEPTORS

The AFC and appendices provide some information on how the applicant conducted their health risk assessment. The potential impacts associated with toxic air emissions from the proposed power plant were addressed in a health risk assessment (Section 4.9 Public Health). This health risk assessment was prepared using guidelines developed by Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (ARB), as implemented in the latest version of the HARP2 (Hotspots Analysis and Reporting Program, Version 2) model.

In the AFC's Appendix J, Offsite Sensitive Receptor Report Summary, there is a table listing the number of sensitive receptor sites within 6 miles of the proposed power plant, including day care centers, nursing homes, schools, hospitals, colleges and an arena. Figure 4.9-1 and Figure 4.9-2 are two maps presenting those sensitive receptors. However, staff was unable to align these sensitive receptors with discrete grid receptor numbers. Staff needs the input files which contain the information on grid identification numbers (or receptor numbers) and locations of both sensitive receptors and residential receptors to review and verify the applicant's health risk assessment.

DATA REQUEST

19. Please specify the HARP receptor number and Universal Transverse Mercator (UTM) coordinates for all receptors listed in Table 4.9-4 and Table 4.9-8.

RESPONSE

Table DR-19-1 identifies the Hotspots Analysis and Reporting Program (HARP) receptor number and UTM coordinates (in NAD 83, UTM zone 11) for the receptors identified in Table 4.9-4. Table DR-19-2 identifies the HARP receptor number and UTM coordinates (in NAD 83, UTM zone 11) for the receptors identified in Table 4.9-8.

Table DR-19-1
Summary of Potential Health Risks with Receptor Information from Table 4.9-4

Receptor	Health Risk	Receptor Number	UTM E Coordinates (m)	UTM N Coordinates (m)	Modeling Year
New Equipment Normal Operation (CTG/emergency engine)					
Maximally Exposed Individual (MEI) at PMI, **Carcinogenic**	1.2×10^{-6}	7350	292722	3787484	2012
Maximally Exposed Individual Resident (MEIR), **Carcinogenic**	2.3×10^{-7}	16154	295435	3786150	2013
Maximally Exposed Individual Worker (MEIW), **Carcinogenic**	1.0×10^{-7}	7350	292722	3787484	2012
Maximally Exposed Individual (MEI) at PMI, **Acute Health Hazard Index**	1.6×10^{-2}	14590	292804	3787186	2009
Maximally Exposed Individual Resident (MEIR), **Acute Health Hazard Index**	6.1×10^{-3}	16154	295435	3786150	2009
Maximally Exposed Individual Worker (MEIW), **Acute Health Hazard Index**	1.6×10^{-2}	14590	292804	3787186	2009
Maximally Exposed Individual (MEI) at PMI, **Chronic Health Hazard Index**	2.1×10^{-4}	7350	292722	3787484	2012
Maximally Exposed Individual Resident (MEIR), **Chronic Health Hazard Index**	8.9×10^{-5}	16156	296690	3787887	2013
Maximally Exposed Individual (MEI) at PMI, **8-Hour Chronic Health Hazard Index**	8.5×10^{-5}	6767	293750	3787400	2013
Maximally Exposed Individual Resident (MEIR), **8-Hour Chronic Health Hazard Index**	6.3×10^{-5}	16156	296690	3787887	2013
Maximally Exposed Individual Worker (MEIW), **8-Hour Chronic Health Hazard Index**	8.5×10^{-5}	6767	293750	3787400	2013
New CTG Startups/Shutdowns					
Maximally Exposed Individual (MEI) at PMI, **Acute Health Hazard Index**	2.1×10^{-2}	10541	294150	3788450	2009
New CTG Commissioning Period (includes impacts for existing MGS Units 1-3)					
Maximally Exposed Individual (MEI) at PMI, **Acute Health Hazard Index**	1.6×10^{-2}	7109	292824	3787183	2009

Notes:

CTG = combustion turbine generator
m = meter
MGS = Mandalay Generating Station
PMI = point of maximum impact
UTM E = Universal Transverse Mercator east
UTM N = Universal Transverse Mercator north

Table DR-19-2
Summary of Potential Health Risks with Receptor Information from Table 4.9-8

Receptor	Maximum Impact	Receptor Number[1]	UTM E Coordinates (m)	UTM N Coordinates (m)	Modeling Year
Construction/ Decommissioning Impacts – carcinogenic risk[2]	2.8×10^{-6}	637	292250	3787320	2012
Operating Impacts – carcinogenic risk[3]	1.2×10^{-6}	7350	292722	3787484	2012
Operating Impacts – acute health hazard index[4]	2.1×10^{-2}	10541	294150	3788450	2009
Operating Impacts – chronic health hazard index[3]	2.1×10^{-4}	7350	292722	3787484	2012
Operating Impacts – 8-Hour chronic health hazard index[3]	8.5×10^{-5}	6767	293750	3787400	2013

Notes:

1. Different receptor grids were used for modeling of operation impacts and construction/decommissioning impacts.
   a. The receptor number for construction modeling is based on the construction modeling receptor grids, in the "\\Construction" directory of the modeling CD, described in the response to Data Request 23.
   b. The receptor number for operating impact is based on the normal operation modeling receptor grids, in the "\\NormalOperation" directory of the modeling CD, described in the response to Data Request 23.
2. The PMI for the residential cancer risk was based on the receptors excluding the ones in the transformer yard, which are not residential receptors.
3. Risks are based on the operating mode of New Equipment Normal Operation (CTG/emergency engine).
4. Risks are based on the operating mode of New CTG Startups/Shutdowns.

CTG = combustion turbine generator
m = meter
UTM E = Universal Transverse Mercator east
UTM N = Universal Transverse Mercator north

DATA REQUEST

20. Please specify the HARP receptor number and UTM coordinates for the 30 sensitive receptors listed on Figure 4.9-2.

RESPONSE

Table DR-20 identifies the HARP receptor number and UTM coordinates (in NAD 83, UTM zone 11) for the sensitive receptors identified on Figure 4.9-2.

Table DR-20
HARP Receptor Number and UTM Coordinates for Sensitive Receptors Identified in Figure 4.9-2 of the AFC

Receptor ID	Name	Receptor Number in HARP	UTM E (m)	UTM N (m)
1	La Siesta Guest Home	5707	290500	3795000
2	Community Memorial Hospital of San Buenaventura	5714	292250	3795000
3	El Camino High School	5806	295000	3795250
4	The Venturan Convalescent Center	5724	294750	3795000
5	Mound Guest Home Incorporated	5727	295500	3795000
6	College Heights Christian School	5327	296750	3793750
7	Cypress Place Assisted living of Ventura	5243	296000	3793500
8	Ventura College of Law	5074	294250	3793000
9	Ventura County Medical Center	4913	294500	3792500
10	Pacific Care Services	4837	295750	3792250
11	National University	4526	299000	3791250
12	Devry University	3962	299750	3789500
13	University of LaVerne	4044	300000	3789750
14	California Lutheran University	3728	302000	3788750
15	Charter College	3729	302250	3788750
16	JN Care Home	2813	295500	3786000
17	Robinson Leticia – Epiphany Care Homes Incorporated	3307	298000	3787500
18	Oxnard Adult School	3067	298250	3786750
19	Our Lady of Guadalupe	3236	300250	3787250
20	Colonia Senior Center	3157	300500	3787000
21	Epiphany Care	3000	301750	3786500
22	New Harvest Christian School	2745	298750	3785750
23	California State – Channel Island	1757	294750	3782750
24	Grace Adult Residential Facility	2013	298000	3783500
25	Saint Paul's Baptist Church	2347	300500	3784500
26	Carino Richard-RMC Residential Care Home II	2269	301250	3784250
27	Mary Law Private School	2022	300250	3783500
28	Channel Islands High School	1942	300500	3783250
29	Greenhills Care Home Incorporate	1781	300750	3782750
30	Leite Family Daycare	2804	293250	3786000

Notes:

AFC = Application for Certification
HARP = Hotspots Analysis and Reporting Program
m = meter
UTM = Universal Transverse Mercator
UTM E = Universal Transverse Mercator east
UTM N = Universal Transverse Mercator north

BACKGROUND

HOTSPOTS ANALYSIS REPORTING PROGRAM VERSION 2 (HARP2):

The ARB updated its HARP model to HARP2 in March, 2015. The applicant's Health Risk Assessment (HRA) for both construction and operation was prepared using the updated HARP2. However, some detailed descriptions regarding the parameters used for the model were missing in Section 4.9 of the AFC.

DATA REQUEST

21. Please provide all the parameters in all the pathways, including inhalation, soil, fish, home-grown produce, mother's milk, and dermal absorption.

RESPONSE

The parameters for each pathway are outlined below.

- **Inhalation**
  - Residence Risk Inhalation Parameters:
    - Default options were used with the exception of "Fraction of time away from home."
  - Worker and 8-hour Chronic Risk Inhalation Parameters:
    - 8-Hour Breathing Rates with moderate intensity;
    - Adjustment factor 1; and
    - Exposure frequency (days per year) of 250.

- **Soil:**
  - The default option was selected, which assumes that facility air pollutants are released and deposited into the soil for 25,550 days (70 years).

- **Fish:**
  - Water surface area (square meters):[3] 532,525;
  - Water volume (liters)[2]: 1,772,649,000;
  - Volume changes per year: 1;
  - Fraction of ingested fish from contaminated source: 1;
  - Seven receptors, numbered Receptor No. 1 through No. 7, were used as fish pathway receptors in the modeling setup; and
  - Receptor No. 2 had the highest modeling impacts among the seven receptors. To be conservative, Receptor No. 2 was used for importing the fish pathway concentration.

- **Home-grown produce:**
  - Households that garden; and
  - Fraction of human diet from contaminated source:
    - Leafy: 0.137
    - Exposed: 0.137
    - Protected: 0.137
    - Root fraction: 0.137.

[3] This water surface area accounts for the approximate total surface area of the Edison/Mandalay canal to the south of the project, the McGrath Lake to north of project, and the Santa Clara River Estuary to the north of the project.

- **Mother's milk:**
  – Default options were used.

- **Dermal absorption:**
  – The warm climate option was selected based on the meteorological data used for modeling of the project.

The multi-pathways that were used in the Health Risk Analysis are provided in Table DR-21.

Table DR-21
Multi-pathways Used in Health Risk Analysis

Health Risk	Multi-pathway in HARP Modeling					
	Inhalation	**Soil**	**Fish**	**Home-grown Produce**	**Mother's Milk**	**Dermal absorption**
Residential Cancer Risk	Yes	Yes	Yes	Yes	Yes	Yes
Worker Cancer Risk[1]	Yes	Yes	No	No	No	Yes
Chronic HHI Risk	Yes	Yes	Yes	Yes	Yes	Yes
8-Hour HHI Risk[1]	Yes	No	No	No	No	No
Acute HHI Risk[1]	Yes	No	No	No	No	No

Notes:

[1] Default option of HARP

HARP = Hotspots Analysis and Reporting Program
HHI = health hazard index

DATA REQUEST

22. Please provide all other parameters used in HARP2.

RESPONSE

Other parameters used in HARP2 are summarized as follows:

- Cancer risk exposure duration:
  - Residence: 70 years
  - Worker: 40 years[4]

- Deposition Rate of 0.02 meter per second was selected for a controlled source.

[4] According to San Joaquin guidance, http://www.valleyair.org/notices/Docs/2015/3-18-15_risk/final-draft-risk-policy-sr.pdf.

DATA REQUEST

23. Please provide all the output files (i.e., xxxOutput.txt).

RESPONSE

With the exception of seven xxxOutput.txt files, output files were provided and can be found on the air modeling compact disc (CD) docketed with the P3 AFC. The modeling CD is titled "Puente Power Project (P3), Air Quality Modeling Files," and is dated April 1, 2015. Additional copies of this CD are available upon request.

Table DR-23-1 provides a file location, name and a brief description for files found on the modeling file CD provided on April 1, 2015.

Table DR-23-1
Air Quality Modeling Files Location and Description

Commissioning *File location: \\Acute_commissioning\ACUCOMM\hra*	
File name	**Description**
09Output.txt	2009 Acute HHI Risk output file
10Output.txt	2010 Acute HHI Risk output file
11Output.txt	2011 Acute HHI Risk output file
12Output.txt	2012 Acute HHI Risk output file
13Output.txt	2013 Acute HHI Risk output file
Start-up *File location:\\AcuteStartup\STARTUP\hra*	
File name	**Description**
09Output.txt	2009 Acute HHI Risk output file
10Output.txt	2010 Acute HHI Risk output file
11Output.txt	2011 Acute HHI Risk output file
12Output.txt	2012 Acute HHI Risk output file
13Output.txt	2013 Acute HHI Risk output file
Normal Operations *File location: \\NormalOperation\NORMAL\hra*	
File name	**Description**
09HighendOutput.txt	2009 Residence Cancer Risk, High-End Estimates output file
09Output.txt	2009 Acute Health Risk output file
09ResidenceOutput.txt	2009 Residence Cancer Risk, Derived OEHHA Estimates output file
09workerOutput.txt	2009 Worker Cancer Risk output file
108hrOutput.txt	2010 8-Hour Chronic HHI output file
10Output.txt	2010 Acute HHI output file
10ResidenceHOutput.txt	2010 Residence Cancer Risk, High-End Estimates output file
10ResidenceOutput.txt	2010 Residence Cancer Risk, Derived OEHHA estimates output file
10workerOutput.txt	2010 Worker Cancer Risk output file
11acOutput.txt	2011 Acute HHI output file
11CHOutput.txt	2011 8-Hour Chronic HHI output file

Table DR-23-1
Air Quality Modeling Files Location and Description

11residenceOutput.txt	2011 Residence Cancer Risk, Derived OEHHA Estimates output file
11workerOutput.txt	2011 Worker Cancer Risk output file
128Output.txt	2012 8-Hour Chronic HHI output file
12ChOutput.txt	2012 Chronic HHI output file
12Output.txt	2012 Acute HHI output file
12residenceOutput.txt	2012 Residence Cancer Risk, Derived OEHHA Estimates output file
12workerOutput.txt	2012 Worker Cancer Risk output file
138Output.txt	2013 8-Hour Chronic HHI output file
13ACOutput.txt	2013 Acute HHI output file
13chOutput.txt	2013 Acute HHI output file
13ResidenceOutput.txt	2013 Residence Cancer Risk, Derived OEHHA Estimates output file
13workerOutput.txt	2013 Worker Cancer Risk output file

Notes:

HHI = health hazard index
OEHHA = Office of Environmental Health Hazard Assessment

Seven additional xxxOutput.txt files for normal operation modeling runs have been provided on the enclosed compact disc. Table DR-23-2 provides the file name and a brief description for each file.

Table DR-23-2
Normal Operation Modeling Runs xxxOutput.txt Files

File name	**Description**
09-ChrOutput.txt	2009 Chronic Health Risk output file
09-Residence_HiOutput.txt	2009 Residence Cancer Risk, High-End Estimates output file
10-CHROutput.txt	2010 Chronic Health Risk output file
11-8HrOutput.txt	2011 8-Hour Chronic HHI output file
11ResidenceHighOutput.txt	2011 Residence Cancer Risk, High-End Estimates output file
12ResidenceHighOutput.txt	2012 Residence Cancer Risk, High-End Estimates output file
13ResidenceHighOutput.txt	2013 Residence Cancer Risk, High-End Estimates output file

Notes:

HHI = health hazard index

DATA REQUEST

24. Please provide all other related files to enable staff to replicate the health risk assessment.

RESPONSE

Using the files provided on the modeling CDs described in the response to Data Request 23, and the multi pathway options and parameters discussed in the responses to Data Requests 21[5] and 22, the health risk assessment can be replicated.

[5] As described in the response to Data Request 21, Receptor No. 2 should be used as the receptor for importing the concentration for fish pathway concentrations.

Technical Area: Soil and Water Resources
Author: Marylou Taylor

BACKGROUND

Section 2.4 of the AFC states that groundwater was detected at approximately nine feet below ground surface (bgs) during a 2013 geotechnical investigation and historically has been reported as high as five feet bgs. Sections 2.8 and 4.15 of the AFC indicate that construction dewatering would be expected for a short duration to install the seven feet deep foundations associated with the power block of the proposed P3. Section 4.2.2.6.1 identifies McGrath State Beach, which is the adjacent parcel to the north of the project site, as containing potential jurisdictional wetlands. Staff is concerned that if the adjacent wetlands are groundwater dependent, dewatering activities at the site could result in drawdown that could impact biological resources.

DATA REQUESTS

25. Please identify nearby wetlands and critical habitats located within a 2,000-foot radius of the proposed P3 site. Discuss whether groundwater under the proposed site contributes to replenishment of ground or surface water at the wetland areas, and whether proposed dewatering activities would adversely affect wetland areas by reducing the amount or levels of groundwater

RESPONSE

Figure 25-1 shows wetlands and critical habitats located within a 2,000-foot radius of the proposed P3 site, as mapped in the U.S. Fish and Wildlife Service's National Wetlands Inventory. These include the forested/shrub wetlands at Mandalay State Beach, McGrath Lake and its associated emergent and forested/shrub wetlands, the habitat restoration area adjacent to the northern side of the MGS property, the Pacific Ocean and its beaches, and open water in the Mandalay Canal. Three onsite treatment ponds are also shown, mapped as "freshwater ponds." One area in the southern portion of the proposed P3 site is also mapped as a freshwater pond, although field investigations did not indicate any topographic or hydrologic evidence of ponding on the site.

Wetlands

Theoretically, there are two ways in which proposed dewatering activities could affect the water table in wetland areas: 1) by decreasing the amount of groundwater flowing into the areas; and/or 2) by increasing the amount of groundwater flowing away from the areas.

Southern California Edison (SCE), the former owner of MGS, has been implementing a groundwater monitoring program since 1996. Forty-seven wells are used at the MGS facility, including several wells in the vicinity of the proposed P3 site. Based on quarterly monitoring results from approximately 20 years (from August 1996 through March 2015), the groundwater gradient is generally to the south or south-southeast across the proposed P3 site; therefore, the wetlands at Mandalay State Beach, McGrath Lake, and the habitat restoration area adjacent to the northern side of the MGS property are all upgradient from the proposed P3 site. Therefore, because the groundwater beneath the proposed project site is not a source of water for the wetland areas, it would be unlikely for the proposed dewatering activities to have an effect on the availability of groundwater to these wetlands or decrease the amount of groundwater flowing into the wetlands.

It would also be unlikely for the proposed dewatering activities to lower the water table at these wetlands by increasing the flow of groundwater away from the wetland areas. Based on a preliminary dewatering plan for P3 excavation and conservative assumptions, the radius of influence of the dewatering wells is estimated to be approximately 360 feet. The nearest mapped wetlands to the P3 site are situated approximately 200 feet north of the site on the neighboring property, where ecological restoration is in progress. This location would be within the conservatively estimated radius of influence from the proposed dewatering locations, which would be sited around facility pads and not at the site perimeter. Although these wetlands are mapped in the National Wetlands Inventory as emergent, they were observed in the field to be predominately forested/shrub wetlands, and did not exhibit the standing water or species composition characteristic of emergent wetlands. At its closest point, McGrath Lake is approximately 400 feet northwest of the P3 site, and is outside the conservatively estimated radius of influence. An existing groundwater monitoring well (identified as MW-2 on Figure 4.2-2 in the AFC) is located between the proposed dewatering locations and these wetland resources, and data from this well could be used to confirm that groundwater levels at the offsite wetlands are not being adversely affected.

Critical Habitat

Critical habitat within 2,000 feet of the P3 site includes areas designated for the western snowy plover and the Ventura marsh milk vetch, as illustrated on Figure 4.2-3 in the AFC.

As designated by the USFWS (see 77 FR 36728), primary constituent elements of snowy plover critical habitat include sandy beaches, dune systems immediately inland of an active beach face, salt flats, mud flats, seasonally exposed gravel bars, artificial salt ponds and adjoining levees, and dredge spoil sites, with:

(1) Areas that are below heavily vegetated areas or developed areas and above the daily high tides;

(2) Shoreline habitat areas for feeding, with no or very sparse vegetation, that are between the annual low tide or low-water flow and annual high tide or high-water flow, subject to inundation but not constantly under water, that support small invertebrates, such as crabs, worms, flies, beetles, spiders, sand hoppers, clams, and ostracods, that are essential food sources;

(3) Surf- or water-deposited organic debris, such as seaweed (including kelp and eelgrass) or driftwood located on open substrates that supports and attracts small invertebrates described in PCE 2 for food, and provides cover or shelter from predators and weather, and assists in avoidance of detection (crypsis) for nests, chicks, and incubating adults; and,

(4) Minimal disturbance from the presence of humans, pets, vehicles, or human-attracted predators, which provide relatively undisturbed areas for individual and population growth and for normal behavior.

Because none of these primary constituent elements are dependent on groundwater, proposed dewatering activities would not have an adverse effect on western snowy plover critical habitat.

Designated critical habitat for the Ventura marsh milk vetch includes the single site from which the plant is currently known, as well as two locations suitable for introductions. Primary constituent elements of critical habitat for the Ventura marsh milk vetch include the following: (see 69 FR 29081)

(1) Vegetation cover of at least 50 percent but not exceeding 75 percent, consisting primarily of known associated native species, including but not limited to, *Baccharis salicifolia*, *Baccharis pilularis*, *Salix lasiolepis*, *Lotus scoparius* (deerweed), and *Ericameria ericoides* (coast goldenbush);

(2) Low densities of nonnative annual plants and shrubs;

(3) The presence of a high water table, either fresh or brackish, as evidenced by the presence of channels, sloughs, or depressions that may support stands of *Salix lasiolepis*, *Typha spp.*, and *Scirpus spp.* (cattail);

(4) Soils that are fine-grained, composed primarily of sand with some clay and silt, yet are well-drained; and

(5) Soils that do not exhibit a white crystalline crust that would indicate saline or alkaline conditions.

The single known population of Ventura marsh milk vetch is within the designated Mandalay critical habitat unit, approximately 1,500 feet south of the P3 site. This unit is well beyond the proposed dewatering radius, and would not be affected by proposed dewatering activities.

One of the two unoccupied critical habitat units, the McGrath unit, is situated approximately 100 feet to the north of the P3 site. Because primary constituent habitat elements for Ventura marsh milk vetch include a high water table, and because a small portion of this unit is within the potential groundwater drawdown radius, it is possible that the proposed dewatering activities would result in a temporary decrease in habitat suitability for Ventura marsh milk vetch in areas within the drawdown radius. These effects would not be significant because the unit does not currently support Ventura marsh milk vetch, and because the dewatering effects would be temporary. The USFWS' intent in including the McGrath unit in the critical habitat designation was to protect an area where future introductions of Ventura marsh milk vetch might be possible (see 69 FR 29081). Following completion of the proposed dewatering activities, the water level would return to its current level such that suitability of the McGrath unit for future occupation by Ventura marsh milk vetch would not be permanently affected.

L:\Projects\NRG_Ventura\Projects\Fig4_2_4_Potential_wetlands_2000ft.mxd 8/4/2015 7:05:21 PM

Source: Imagery, U.S. Geological Survey, 2013; Wetlands, National Wetland Inventory (NWI) 2015

POTENTIAL WETLANDS IN SITE VICINITY: 2000-FOOT RADIUS

NRG
Puente Power Project
August 2015 Oxnard, California

FIGURE 25-1

DATA REQUESTS

26. Estimate the length of time dewatering activities are expected for excavation work, assuming a conservative groundwater depth of seven feet below ground surface.

RESPONSE

As requested by California Energy Commission (CEC) Staff, the Applicant has conservatively assumed a groundwater depth of 7 feet below ground surface (bgs) for the purposes of developing a preliminary dewatering plan. Based on long-term groundwater monitoring data, the depth to groundwater ranges from approximately 5 to 9 feet bgs. The preliminary dewatering plan assumes that the water table would need to be lowered approximately 2 feet below the estimated maximum depth of excavation for the turbine block foundation (which is approximately 7 feet bgs).

Dewatering activities for excavation work are estimated to take approximately 90 days, which assumes 7 days to set up the steady state seepage regime, 75 days to excavate and install the turbine and equipment foundations, and 8 days for concrete curing and backfill operations.

DATA REQUESTS

27. Estimate the configuration of wells, rate of pumping, and the total volume of water pumped. Also calculate the radius of influence of pumping and estimated drawdown within the affected wetland.

RESPONSE

The proposed dewatering approach for the turbine foundation and other adjacent equipment foundations is to install shoring around the construction area and install dewatering sumps within the shored area. This dewatering approach reduces the radius of influence; reduces the initial volume of groundwater that needs to be pumped to achieve the desired ground surface; and reduces the overall volume water needing to be pumped during the dewatering process. The actual shoring installation arrangement and the size and number of sumps will be developed during the detailed design phase. This dewatering approach has successfully been used at other construction sites in sandy soil, with shallow groundwater, immediately next to large recharge sources (Pacific Ocean), and up-gradient injection wells.

Assuming that no shoring is used, and that only well point dewatering is used to lower the groundwater table approximately 2 feet across the entire area needed for construction, a conservative estimate (worst case scenario) for the water withdrawal rate is approximately 2.22 million gallons per day. This is based on a groundwater depth of 7 feet bgs (see the Applicant's response to Data Request 26), hydraulic conductivity of 7×10^{-2} centimeters per second (Hamilton, 2014), and the use of 10 to 20 well points. Dewatering for 90 days would yield a total estimated volume of water would be approximately 200 million gallons. The radius of influence of a well point dewatering system is conservatively estimated to be on the order of 360 feet. As shown on Figure 25-1, included in the Applicant's response to Data Request 25, McGrath Lake is approximately 400 feet northwest of the proposed P3 excavation site. Conservatively, a well point dewatering would not impact the McGrath Lake, the nearest standing water body. The groundwater table at the nearby features north of P3 is mapped in the National Wetlands Inventory as emergent, but lacking the characteristics of emergent wetlands, it may be impacted by well point dewatering.

For the proposed shored dewatering sump design, the estimated water withdrawal rate would be approximately 0.3 million gallons per day. The radius of influence would be constrained by the shored area; therefore, it would not extend beyond the property line or the nearest wetland resources.

Shored dewatering would generate far less discharge and have a much smaller radius of influence than a traditional well point dewatering system. Piezometer monitoring wells would be installed around the shored area to monitor the influence of the dewatering process.

DATA REQUESTS

28. Please provide a discussion of the aquifer parameters and data used to estimate pumping effects (radius of influence and drawdown) in item 27 above and why it is adequate for site characterization.

RESPONSE

As stated in the Applicant's response to Data Request 25, SCE has been conducting an extensive groundwater characterization of the MGS property since 1996, including the proposed P3 site. In addition, a subsurface investigation at the proposed P3 site was conducted in 2013 (see Appendix A-9 in the AFC). These site-specific investigations provide information on the subsurface characteristics at the site, which are summarized below.

- During the 2013 subsurface evaluation, cone penetration tests (CPTs) were advanced to a depth of approximately 50 feet. Detailed profiles of the soils encountered beneath the site are presented on the CPT logs included in the report (see Appendix A-9 in the AFC). Results indicated that the proposed P3 site is predominantly underlain by sand and silty sand sediments (Ninyo and Moore, 2013).

- Based on soil type (Lune, et al, 1997) as identified in the CPT logs, hydraulic conductivity would be as follows:

  – Sand to silty sand: $k = 10^{-5}$ meters per second (m/s) to 10^{-4} m/s
  – Sand: $k = 10^{-4}$ m/s to 10^{-3} m/s

- In 2011, four core samples were collected using a geoprobe within the footprint of the proposed P3 site. Samples were collected to a depth of approximately 10 feet. The purpose of that sampling and analysis was to support the use of the northern portion of the MGS property for temporary placement of canal dredged spoils. Results indicated that the percentage of material retained on a 200 sieve was approximately 77.5 percent, which would be consistent with a sand classification.

- To conservatively estimate withdrawal rate and radius of influence, it was assumed that the entire subsurface where dewatering would occur is characterized as a sand which is consistent with information from monitoring wells installed near the proposed P3 site, rather than silty sand as identified by the CPT logs. Based on SCE's groundwater investigations, the hydraulic conductivity for a sand is estimated to range from 5 to $9 \times 10\text{-}^{2}$ centimeters per second and the porosity is estimated to be approximately 0.45 (Hamilton, 2014).

- Based on approximately 20 years of groundwater monitoring data, the depth to groundwater in the vicinity of the proposed P3 site ranges from approximately 5 to 10 feet mean sea level. Figure 2.4-2 in the AFC shows the locations of five of the 48 monitoring wells located near the proposed P3 site. Long-term groundwater elevations for these five monitoring wells are provided in Appendix C-1, attached to these responses. Groundwater was recorded at a depth of about 9 feet bgs at the time of the 2013 CPT soundings in November 2013.

- Radius of influence and water withdrawal from a well point system for an unconfined aquifer were estimated using equations from Deep Excavations, Theory and Practice by Ou, C-Y (2006).

- Water withdrawal from a dewatering approach using sheet pile walls and sumps was estimated using equations from Canadian Geotechnical Society (2006), Canadian Foundation Engineering Manual, Fourth Edition.

References

Canadian Geotechnical Society, 2006. Canadian Foundation Engineering Manual, Fourth Edition.

Lune, T., P.K. Robertson, and J.J.M. Powell, 1997. Cone Penetration Testing in Geotechnical Practice. Blackie Academic & Professional.

Ninyo & Moore, 2013. Preliminary Geotechnical Evaluation, Mandalay Generating Station Repowering Project. November 27.

Ou, C-Y, 2006. Deep Excavations, Theory and Practice.

DATA REQUESTS

29. Discuss whether a site specific pump test should be conducted to verify any assumptions in the aquifer parameters used to estimate potential drawdown in the affected wetland.

RESPONSE

A site-specific pump test is not needed to verify assumptions in the aquifer parameters used to estimate potential drawdown resulting from potential dewatering activities associated with the proposed P3, for the following reasons:

- A substantial amount of information has been collected as part of SCE's extensive groundwater investigation and monitoring at the MGS property, including the proposed P3 site.
- A site-specific CPT investigation was completed at the proposed P3 site; it provided detailed logs of the subsurface materials, which consist predominantly of sands.
- Dewatering activities associated with construction of P3 will be temporary and will occur over a short period of time (approximately 3 months).
- Monitoring the suggested temporary piezometers and existing groundwater wells will indicate whether groundwater in the surrounding area is influenced by dewatering.

DATA REQUESTS

30. Explain measures proposed to mitigate adverse environmental impacts, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.

RESPONSE

As discussed in the Applicant's responses to Data Requests 25 through 27, dewatering activities associated with the proposed P3 excavations are not anticipated to result in adverse environmental impacts to wetlands.

Although not considered mitigation, the shored dewatering plan significantly reduces dewatering impacts by reducing the radius of influence and pumping rate.

There are several existing groundwater monitoring wells on the MGS property and near the proposed P3 excavation and dewatering areas. These monitoring wells were installed by SCE as part of its groundwater investigation and monitoring program. In addition to the temporary piezometer wells, selected well(s) could be used to monitor groundwater drawdown during the temporary dewatering activities to ensure that wetlands or critical habitats are not adversely impacted.

In addition, the dewatering plan would be flexible to allow for field adjustment with respect to the number of well points, spacing, and locations. Barriers, such as sheet piles, could also be temporarily installed, if warranted.

BACKGROUND

Section 4.15.2.2.1 of the AFC states that, due to previous operations by the former owner of MGS, groundwater beneath the southern portion of the MGS property may have elevated concentrations of arsenic, chromium, nickel, and vanadium. The P3 site is in the northern portion of the property, which is upgradient from the impacted groundwater. However, pipeline trenching is proposed in the southern portion of the MGS property, where potentially impacted groundwater could be present.

The applicant does not expect trenching activities to encounter impacted groundwater because the trenching depth (4 feet bgs) is expected to be above the groundwater level. However unlikely, staff is concerned the presence of contamination in discharge from dewatering could require regulated treatment and/or disposal.

DATA REQUEST

31. Please discuss what steps would be taken to ensure contaminated groundwater is not present in discharges from dewatering where contaminated groundwater occurs. Also discuss how these actions comply with any applicable regulatory programs, including the Los Angeles Regional Water Quality Control Board.

RESPONSE

A Soil and Groundwater Management Plan will be developed and implemented for the construction activities of P3. The objective of the Soil Management Plan would be to provide guidance for the proper identification, handling, onsite management, and disposal of impacted soil and/or groundwater that may be encountered during construction activities (ground disturbance). The Applicant prepared a draft Soil and Groundwater Management Plan, which is included as Appendix M-2 of the AFC. This Soil Management Plan will be updated prior to construction activities.

In the event that groundwater is encountered during construction, and dewatering is required, the groundwater withdrawn by the dewatering systems would be directed to a Baker-style de-sanding tank to allow suspended solid materials in the water to settle before the water is tested and discharged through the storm drains into the Pacific Ocean. The solid materials collected in the proposed de-sanding tank would be chemically analyzed and then either used for landscaping or hauled away to an approved disposal site.

Discharges to the ocean would be made in accordance with the provisions of the General National Pollutant Discharge Elimination System (NPDES) Permit Number R4 2013-0095 (LARWQCB, 2013). Discharges covered under this General Permit include groundwater generated from permanent or temporary dewatering operations or other appropriate wastewater discharges not specifically covered in other general or individual NPDES permits.

Reference

LARWQCB (Los Angeles Regional Water Quality Control Board), 2013. Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watershed of Los Angeles and Ventura Counties. Order No. R4 2013-0095. CAG994004. June 6.

BACKGROUND

Section 1.7 of the AFC states that decommissioning of MGS Units 1 and 2 would include the following elements: de-energize electrical equipment, remove gasses and oil from equipment, physically isolate equipment by disconnecting from piping systems or other means, and verify that all facilities are left in a safe condition. Section 4.5.1 states that hazardous materials typical of a natural-gas–fired power plant are currently used at the MGS facility and stored in aboveground storage tanks (ASTs), equipment, drums, and small containers. Decommissioning typically includes removing all liquids and chemicals from equipment, asbestos and lead abatement, remediation of potential impacts from polychlorinated biphenyls in spills and in building materials, and mercury containing device removal. Decommissioning typically includes removing all liquids and chemicals from equipment, asbestos and lead abatement, remediation of potential impacts from polychlorinated biphenyls in spills and in building materials, and mercury containing device removal. Staff presumes water would be used during decommissioning of MGS Units 1 and 2 to facilitate shut down for a clean and safe site.

Staff is concerned the presence of contamination in water discharges could require regulated treatment and/or disposal. In addition, staff must analyze impacts of potential maximum water use.

DATA REQUESTS

32. Please discuss the decommissioning activities that would use water, the proposed water source, and the maximum amount anticipated per day, per month, and total.

RESPONSE

There will be minimal water use during decommissioning. The activities that will use water during decommissioning include dust suppression, and domestic water use. There will be a minimal amount of equipment wash-down required. Table 32-1 provides the estimated water requirements per month over the 3-month decommissioning period. The source of water will be potable water provided by the City of Oxnard, delivered via an existing water line and connection on the MGS property.

As stated in Section 2.9.7 of the AFC, Chapter 2, Project Description, a small staff of electricians, millwrights, and laborers will perform the decommissioning activities. The P3 operations staff would oversee this phase of work, which would be performed by up to nine workers (two electricians, two millwrights, three laborers, and two construction supervisors) on an intermittent basis. Conservatively assuming that all nine workers would be at the site during the 3-month decommissioning period, and assuming 10 gallons per day per person, domestic water use for these nine workers would be approximately 90 gallons per day, 3,000 gallons per month, and total of 9,000 gallons for the 3-month period.

Water use for dust suppression is estimated to be approximately 1,000 gallons/day or 30,000 gallons/month. The total dismantling and dust suppression water use over the 3-month period is estimated to be approximately 90,000 gallons.

The total water use for decommissioning over the 3-month period is approximately 99,000 gallons, or approximately 0.3 acre-foot.

Table 32-1
Estimated Decommissioning Water Requirements

Month	Domestic Water Use (gallons)	Dust Suppression (gallons)	Total Water Use during Decommissioning (gallons)
July 2020	3,000	30,000	33,000
August 2020	3,000	30,000	33,000
September 2020	3,000	30,000	33,000
Total (gallons)	9,000	90,000	99,000
Total (acre-feet)			0.3
Average Monthly (gallons)			33,000
Average Daily (gallons)			1,100

Notes:
1 Domestic water use during decommissioning is based on an average of 9 craft personnel and 10 gallons per day for drinking and washing.
2 Dust suppression based on 1,000 gallons per day.

DATA REQUESTS

33. Compare domestic use of potable water at MGS during normal operation and during decommissioning.

RESPONSE

Domestic use of potable water at MGS is approximately 3 acre-feet per year (see page 1-2 in Section 1.3 of the AFC). P3 would use existing MGS staff; therefore, domestic water use would remain the same once P3 begins normal operations.

As described in Applicant's response to Data Request 32, approximately 0.3 acre-foot of water would be used during the 3-month decommissioning period, of which 9,000 total gallons would be used for domestic use. The decommissioning will overlap the first 3 months of P3 operations. Therefore total potable water use will be slightly higher for this initial time period.

During operations, P3 will be a dry-cooled facility and will use very little water (less than 20 acre-feet per year [AFY], of which 16 AFY will be for process water needs and 3 AFY will be for domestic water needs) (see AFC Table 2.7-5 in AFC Chapter 2, Project Description).

The potable water use during the initial 3 months of P3 operations, when decommissioning activities are also occurring, would still comprise less than 0.1 percent of City of Oxnard water supplies, as discussed in AFC Chapter 4.15, Water Resources.

DATA REQUESTS

34. Describe how wastewater would be collected, stored, evaluated, and safely disposed.

RESPONSE

As described in AFC Chapter 2, Project Description, decommissioning will consist of the following activities:

- De-energize electrical equipment;
- Purge gases from equipment (e.g., natural gas, hydrogen);
- Remove oil from all pumps, motors, pipes, oil reservoirs, transformers, and other equipment;
- Electrically isolate equipment;
- Physically isolate equipment by disconnecting from piping systems or other means;
- Remove from service the backup diesel generator; and
- Verify that all facilities are left in a safe condition.

Wastewater generated during decommissioning will include sanitary waste, stormwater runoff, and liquid wastes. These wastewaters will be classified as hazardous or nonhazardous. If hazardous, they will be collected by a licensed hazardous waste hauler for disposal at a licensed hazardous waste facility.

Domestic wastewater generated during the 3-month decommissioning period would be handled either by portable toilet facilities and/or bathroom facilities in the administration building. Wastewater from the administration building would be discharged to the existing MGS septic system that would continue to be used during P3 operations.

Standard best management practices (BMPs) would be implemented during decommissioning activities to minimize potential adverse environmental impacts. These BMPs would be similar to those discussed in the Draft Stormwater Pollution Prevention Plan for Construction submitted in the AFC for the proposed project (see AFC Appendix A-8). BMPs relevant to decommissioning activities and handling of wastewater would include water conservation practices (NS-1), vehicle and equipment cleaning (NS-8), vehicle and equipment fueling (NS 9), vehicle and equipment maintenance (NS 10), concrete curing (NS-12), material delivery and storage (WM-1), material use (WM-2), stockpile management (WM-3), spill prevention and control (WM-4), solid waste management (WM-5), hazardous waste management (WM-6), concrete waste management (WM-8) and septic/sanitary waste management (WM-9).

DATA REQUESTS

35. Discuss potential impacts to soil and water resources due to soil disturbance and water runoff during decommissioning activities. Explain measures proposed to mitigate adverse environmental impacts.

RESPONSE

Decommissioning would not involve removal of structures, excavation of underground infrastructure, or substantial soil disturbance activities. The laydown and staging areas used during P3 construction would continue to be used during decommissioning as needed. Standard BMPs similar to those presented in the Draft SWPPP for construction (see AFC Appendix A-8) would be implemented in the laydown and staging areas if used during decommissioning activities to minimize potential adverse environmental impacts. BMPs, as needed and as appropriate, could include: sediment control (SE-1, SE-5, SE-6, SE-7, and SE-8); and tracking control (TC-1 and TC-3).

DATA REQUESTS

36. Discuss proposed measures to prevent underground conduits (existing and proposed) from becoming potential pathways for subsurface discharge that could impact water resources.

RESPONSE

Existing MGS buried conduits and piping will be abandoned in place and blocked and sealed with a cement grout at entrance, exit, and manhole access locations to preclude water entry and potential pathways to subsurface discharge. The Applicant does not intend to excavate and remove any buried conduits or pipes.

The new pipelines will be installed using standard pipeline installation techniques, and in accordance with the manufacturer's requirements. Backfill would be compacted as necessary. Once backfilled, the surface will be either paved or covered with compacted soil and/or gravel. The maximum depth of excavation for the pipeline installations is approximately 4 feet bgs. In comparison, the depth to groundwater ranges from approximately 5 to 9 feet bgs.

BACKGROUND

Section 2.5 and Table 2.5-1 of the AFC identifies major MGS equipment and features to be repurposed for P3, which includes the administration building, warehouse building, and firewater pumps. The administration building would be upgraded to integrate several standards of Leadership in Energy and Environmental Design (LEED). A portion of the warehouse would be reconfigured to add a control room, also incorporating LEED concepts, to service the proposed P3 facility. The two existing MGS firewater pumps would be retained, and each would have its own new power supply for purposes of emergency backup.

Existing Site Topography (Figure 2.4-2) suggests that the MGS administration and warehouse buildings are located at elevations slightly lower than the proposed P3 facility. In order to evaluate potential impacts due to flooding, staff needs elevation information of major features that could affect onsite safety if damaged by flood.

DATA REQUESTS

37. Please provide general information for the existing MGS administration and warehouse buildings such as:

- ***Number of floors and type of foundation (e.g., elevated on piles, slab on grade slab on stem wall with fill);***
- ***If building is elevated, provide general information about the area below the elevated floor (e.g., enclosed space has load-bearing walls, crawlspace with floor below grade); and,***
- ***Descriptions of existing and/or proposed flood-proof features, if any (e.g., flood vents, breakaway walls).***

RESPONSE

The requested information for the existing MGS administration and warehouse buildings is as follows:

- The existing administration and warehouse buildings are one-story structures, constructed on a slab foundation.
- Footings are continuous reinforced concrete on compacted fill.
- Exterior walls are concrete block masonry with #4 reinforcement bar. Interior partitions are also constructed with concrete block masonry, in addition to steel studs with plaster.
- These building do not have flood vents, breakaway walls, or basements.

DATA REQUESTS

38. Provide elevation of the lowest floor, including basement if applicable, of the existing MGS administration and warehouse buildings. For elevations, use Vertical Datum NAVD88 at the top of the flooring of the building's lowest story (the "lowest floor" as defined by FEMA's National Flood Insurance Program, 44 CFR Section 59.1).

RESPONSE

The elevation of the lowest floor (i.e., top of concrete slab foundation) of the existing administration and warehouse buildings is at elevation 14 feet North American Vertical Datum of 1988 (NAVD88).

DATA REQUESTS

39. Provide elevation of the new power supplies for both existing firewater pumps. For elevations, use Vertical Datum NAVD88 at the top of the slab/foundation supporting each new power supply.

RESPONSE

The power supply for the pumps will be fed from breakers at the ground level of Unit 3, which is approximately 16 feet NAVD88.

BACKGROUND

Table 4.15-3 of the AFC summarizes MGS Units 1 to 3 historical water use from and wastewater discharge to the Edison Canal, from 2010 through 2014. Given that Unit 3 will continue to operate after Units 1 and 2 are decommissioned, staff has identified a need to analyze potential impacts of the decreased flows expected in the Edison Canal. Although MGS Unit 3 is a gas combustion turbine unit that does not require condensing of steam, staff understands that Unit 3 uses water from Edison Canal in an auxiliary cooling water heat exchanger.

DATA REQUESTS

40. Please revise Table 4.15-3, or create a new table, with the following information:

- ***Distinguish historical water use and wastewater discharge between the steam turbines (Units 1 and 2) and the gas turbine (Unit 3); and***
- ***Include corresponding capacity factors.***

RESPONSE

AFC Table 4.15-3 provides the historical water use and wastewater discharge for the existing steam turbines (i.e., MGS Units 1 and 2). MGS Unit 3 will continue to operate when the proposed project becomes operational. Therefore, the water use and wastewater discharge for MGS Unit 3 will be the same as it has been historically after MGS Units 1 and 2 are retired and the proposed project goes into operation. Because the continued operation of MGS Unit 3 is part of the baseline conditions and not part of the project under review by the CEC, information for MGS Unit 3 is not relevant to an analysis of the pre-project and post-project conditions.

The combined capacity factors for the existing MGS Units 1 and 2 for the past 5 years that were presented in AFC Table 4.15-3 are summarized below:

Table 40-1
MGS Units 1 and 2 Historical Capacity Factors

Year	Capacity Factor[1] (%)
2010	2.05
2011	2.36
2012	5.59
2013	5.74
2014	3.87

Notes:

1 Capacity factor based on net megawatt-hours out of total maximum megawatt-hours possible.

DATA REQUESTS

41. Estimate flow of the Edison Canal when MGS is producing power. Include maximum and typical flow rates and flow velocities. Provide flow meter location(s) and canal dimensions used for calculations.

- ***Compare to the flow rate and velocity when MGS is not producing power. If MGS maintains a minimum flow to circulate service water when not producing power, please describe.***

- ***Compare to the flow rate and velocity when only Unit 3 is in service (assume Units 1 and 2 are decommissioned). If Unit 3 is expected to maintain a minimum flow to circulate service water when not producing power, please describe.***

RESPONSE

There is no flow meter in the Edison Canal. In the vicinity of the MGS intake, the canal dimensions are approximately 10 feet deep and 40 to 100 feet wide. The depth of water fluctuates with the tide and ranges from approximately -2.8 feet MLLW to +7.5 feet MLLW.

- There are four 44,000–gallon-per-minute (gpm) pumps serving MGS Units 1 and 2, two pumps for each unit. When the units are operating, the pumps are on; otherwise, the pumps are off. MGS Units 1 and 2 do not maintain a minimum flow to circulate service water when not producing power. Intermittently and as needed, a variable amount of flow may be drawn and discharged related to permitted low-volume waste streams.

  Assuming that all four pumps are running (176,000 gpm), the estimated velocity in the canal would range from approximately 0.4 to 2.6 foot per second, depending on the water level in the canal.

- MGS Unit 3 is served by a 3,200-gpm pump. If this pump is on and all four MGS Unit 1 and 2 pumps are off, the estimated velocity in the canal would range from approximately 0.01 to 0.05 foot per second, depending on the water level in the canal. MGS Unit 3 does not maintain a minimum flow to circulate service water when not producing power.

Estimated velocities only represent velocity induced by pumping and do not include tidal current velocity.

As discussed in the Section 1.6 of the AFC, MGS Units 1 and 2 are subject to the California State Water Resources Control Board's Once Through Cooling Policy (OTC Policy). The OTC Policy requires modification of the cooling system for MGS Units 1 and 2 to reduce entrainment and impingement mortality impacts irrespective of the proposed development of P3. Therefore, any impacts, including impacts to the Edison Canal, associated with modification or elimination of the existing cooling system are the direct result of the OTC Policy, and not a consequence of the development of P3.

Technical Area: Traffic and Transportation
Author: Andrea Koch

BACKGROUND

DELIVERIES

Table 2.9-2 on page 2-56 of the AFC includes a column called "Delivery Duration Months."

DATA REQUEST

42. Please confirm if this column actually represents the construction month of delivery rather than the delivery duration in months.

RESPONSE

The "Delivery Duration Months" shown in Table 2.9-2 represent the duration of deliveries in months.

BACKGROUND

PEAK CONSTRUCTION P.M. PEAK HOUR TRIPS

Page 4.12-7 of the AFC states that of the 90 peak-month construction workers, approximately 60 percent would leave during the 4 to 6 p.m. peak hours. Staff calculated that this would mean that approximately 54 peak month workers would depart during the p.m. peak hour. (Table 4.12-5 on page 4.12-22 of the AFC is consistent with this number.)

This conflicts with a statement further down the page that states: "Based on the assumptions and projected construction workforce, it is anticipated that during the peak construction month, the project would generate approximately…nine trips during the p.m. peak hour."

DATA REQUEST

43. Please provide the correct information.

RESPONSE

The peak project construction trips shown on AFC Table 4.12-5 are correct and are the values used in the traffic analysis. The following sentence from AFC page 4.12-7 is shown with corrections in strikeout/bold:

> "Based on the assumptions and projected construction workforce, it is anticipated that during the peak construction month, the project would generate approximately 210 daily trips (105 inbound and 105 outbound), with 15 trips occurring during the a.m. and ~~nine~~ **54** trips during p.m. peak hour."

BACKGROUND

CONSTRUCTION WORKER DEPARTURE SAFETY

Figure 4.12-7 of the AFC, which shows project construction trip distribution, indicates that upon exiting the site, the majority of vehicles would turn left to travel northbound on Harbor Boulevard. This means that vehicles would have to turn across the southbound lane at an uncontrolled intersection. Staff has concerns about possible vehicular accidents resulting from this turn.

DATA REQUEST

44. Please explain what steps would be taken to reduce collision hazards at this location.

RESPONSE

The Applicant will coordinate with the City of Oxnard Traffic Engineering and Operations Section to develop and implement a construction traffic plan to minimize the potential for collision hazards at Harbor Boulevard fronting the project site access. Potential measures may require the placement of advance warning signs ahead of the project crossing and merging areas. Flagmen (as needed) may also be used to facilitate vehicle crossings during the construction phase of the proposed project.

DATA REQUEST

45. Please provide level of service information for the intersection at W. Fifth Street and Victoria Avenue, and for the road segment of Victoria Avenue between W. Fifth Street and Gonzales Road, to help staff assess the feasibility of a change in route for exiting vehicles, where exiting vehicles would turn right to travel southbound on Harbor Boulevard.

RESPONSE

As described in the Applicant's Requests for Additional Time to Respond to CEC Staff Data Requests Set 1 (Nos. 1 through 47), docketed on August 6, 2015, the Applicant is requesting additional time to address this Data Request.

BACKGROUND

FAA NOTIFICATION

Pages 4.12-10 through 4.12-11 of the AFC state: "The Federal Aviation Administration (FAA) Regulations Part 77 establishes standards for determining obstructions in navigation space and sets forth requirements for notification of proposed construction. These regulations require notification of any construction over 200 feet in height above ground level…The P3 stack would be 188 feet above the ground; therefore, the project would not have any structures tall enough to trigger the filing of Form 7460 (Notice of Proposed Construction or Alternation) with the FAA."

While it is true that the project's stack height is below the 200-foot notification threshold,, the stack height is above another threshold which requires the applicant to file a Form 7460 with the FAA. According to Title 14, Code of Federal Regulations, Section 77.13(2)(i), the FAA shall be notified of "any construction or alteration of greater height than an imaginary surface extending outward and upward at [a slope of] of 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport…with at least one runway more than 3,200 feet in actual length…" Using the AFC's statement that the Oxnard Airport is 1.8 miles from the project site, staff calculated that any stack higher than 95 feet requires FAA notification. This means that the project's 188-foot-tall stack requires FAA notification.

Staff notes that the applicant stated in the AFC that they would be submitting Form 7460 to the FAA to determine the appropriate stack lighting for the project. By doing this, the applicant would also fulfill the FAA notification requirement.

DATA REQUEST

46. Please submit a copy of the submitted FAA Form 7460, as well as the FAA's Determination (when available).

RESPONSE

As described in the Applicant's Requests for Additional Time to Respond to CEC Staff Data Requests Set 1 (Nos. 1 through 47), docketed on August 6, 2015, the Applicant is requesting additional time to address this Data Request.

Technical Area: Worker Safety and Fire Protection
Author: Brett Fooks

BACKGROUND

Section 4.16.6 of the AFC states that the existing MGS electric fire pumps will be reused to serve the new facility and the existing Unit 3. Because the Mandalay pumps will be reconfigured and will now serve a larger fire protection water system that includes the Mandalay and Puente projects, staff needs to know the specifications and current condition of the existing Mandalay electric fire pumps to understand that adequate reliability should be expected of the proposed reconfigured and combined fire protection system.

DATA REQUEST

47. Please provide a written narrative with the current age and condition of the existing electric pumps with an emphasis on their expected reliability and adequacy.

RESPONSE

The north and south motor-driven fire pumps were installed in 1958, and have been operating reliably with only minor routine maintenance since installation.

To ensure reliability, the fire pumps are inspected and tested routinely per NFPA 25, which includes weekly visual and operational checks, along with annual flow testing.

The pumps were most recently flow tested in June 2015. The pumps were tested at 100 percent and 150 percent rated flow capacity. The results indicated that the pumps are operating within the expected performance curve.

APPENDIX A

AIR QUALITY

APPENDIX A-1
REVISED TABLE 4.1-34

Table 4.1-34 (Revised 8/10/15) Ambient Air Quality Standard Attainment Status in Ventura County, California			
Pollutant	**Averaging Time**	**California**	**National**
Ozone	1-hour	Nonattainment	No NAAQS
	8-hour	Nonattainment	Nonattainment
Carbon Monoxide	8-hour	Attainment	Unclassified/Attainment
	1-hour	Attainment	Unclassified/Attainment
Nitrogen Dioxide	Annual Average	Attainment	Unclassified/Attainment
	1-hour	Attainment	Unclassified/Attainment
Sulfur Dioxide	Annual Average	No CAAQS	Attainment
	24-hour	Attainment	Attainment
	3-hour	No CAAQS	Attainment
	1-hour	Attainment	Attainment
Respirable Particulate Matter (10 Micron)	Annual Arithmetic Mean	~~Attainment~~ **Nonattainment**	Unclassified/Attainment
	24-hour	~~Attainment~~ **Nonattainment**	Unclassified/Attainment
Fine Particulate Matter (2.5 Micron)	Annual Arithmetic Mean	Attainment	Unclassified/Attainment
	24-hour	No CAAQS	Unclassified/Attainment
Sulfates	24-hour	Attainment	No NAAQS
Lead	30 days	Attainment	No NAAQS
	Calendar Quarter	No CAAQS	Unclassified/Attainment
	Rolling 3-Month Average	No CAAQS	Unclassified/Attainment
Hydrogen Sulfide	1-hour	Unclassified/ Attainment	No NAAQS
Visibility Reducing Particles	8-hour	Unclassified/ Attainment	No NAAQS

Notes:

NAAQS = national ambient air quality standards
CAAQS = California Ambient Air Quality Standards

APPENDIX A-2
THERMAL PLUME DATA TABLES

Table A-2-1
Thermal Plume Data Mandalay Unit 3 Exhaust

Parameter	Each Vertical Plume Source
Number of Cells/Stacks	4
Cell/Stack Height (feet)	54
Cell/Stack Diameter (feet)	12.9
Ambient Temperature	59°F
Ambient Relative Humidity	60%
Evaporative Cooling?	n/a
Number of Cells in Operation	4
Heat Rejection (megawatts per hour)	102
Exhaust Temperature (degrees Fahrenheit)	712
Exhaust Velocity (feet per second)	164
Exhaust Flow Rate (1000 pounds per hour)	2,215

Table A-2-2
Thermal Plume Data McGrath Peaker GT Exhaust

Parameter	Each Vertical Plume Source
Number of Cells/Stacks	1
Cell/Stack Height (feet)	80
Cell/Stack Diameter (feet)	12
Ambient Temperature	59°F
Ambient Relative Humidity	60%
Evaporative Cooling?	No
Number of Cells in Operation	1
Heat Rejection (megawatts per hour)	63
Exhaust Temperature (degrees Fahrenheit)	850
Exhaust Velocity (feet per second)	99
Exhaust Flow Rate (1000 pounds per hour)	1,124

Table A-2-3 Thermal Plume Data P3 Dry Cooler			
Parameter	**Each Vertical Plume Source**	**Each Vertical Plume Source**	**Each Vertical Plume Source**
Number of Cells/Stacks	6	6	6
Cell/Stack Height (feet)	18	18	18
Cell/Stack Diameter (feet)	17	17	17
Ambient Temperature (degrees Fahrenheit)	38.9	77.8	82
Ambient Relative Humidity	26%	50%	31%
Evaporative Cooling?	NA	NA	NA
Number of Cells in Operation	6	6	6
Heat Rejection per Cell (megawatts per hour)	0.93	0.90	0.87
Exhaust Temperature per Cell (degrees Fahrenheit)	51	90	97
Exhaust Velocity per Cell (feet per second)	20	21	22
Exhaust Flow Rate per Cell (1000 pounds per hour)	1,118	1,118	1,118

APPENDIX B

HAZARDOUS MATERIALS MANAGEMENT

Appendix B-1

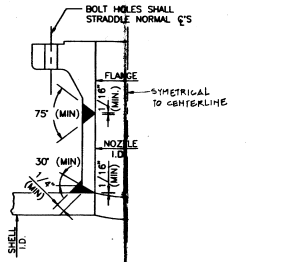
Nameplates for MGS Ammonia Storage Tank

Nameplate on existing MGS ammonia storage tank showing current pressure rating of 100 psig @ 115ºF on 1/1996. Pressure was downrated to 100 psig in 1996 from original 256 psig in 1980.

The original 1980 nameplate for the horizontal ammonia storage tank indicating that tank was designed for pressurized anhydrous ammonia, and its original nameplate pressure design was 265 psig.

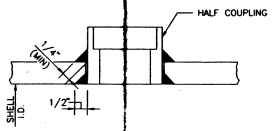
Appendix B-2

As-built Drawing for the Rework of MGS Aqueous Ammonia Storage Tank



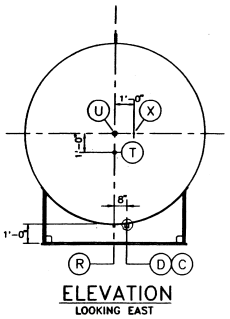
TYPICAL NOZZLE DETAIL (REWORK)

SCALE: 6"=1'-0" Refer: ASME VIII, FIG. UW-16.1 (a)



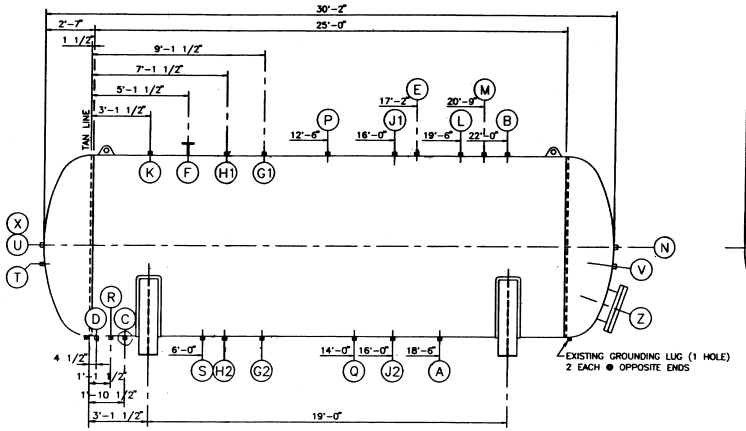
COUPLING DETAIL (REWORK)-OPTION

SCALE: 6"=1'-0" Refer: ASME VIII, FIG. UW-16.1, (Z-2)



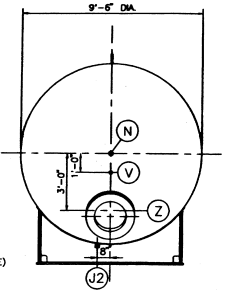
ELEVATION

LOOKING EAST



ELEVATION

LOOKING NORTH



ELEVATION

LOOKING WEST

NOZZLE SCHEDULE

NEW#	OLD#	QTY.	SIZE	RATING	CONNECTION	PROJ.	DESCRIPTION
A	N5	1	2"	3000#NPT	HALF COUPLING	—	V-6506/AMMONIA INLET
B	N6	1	2"	3000#NPT	HALF COUPLING	—	V-6519/VAPOR RETURN
C	REWORK N3	1	3"	3000#SW	HALF COUPLING		V-6509/AMMONIA TO PUMPS UNIT 2
D	REWORK N1	1	3"	3000#SW	HALF COUPLING	—	V-6510/AMMONIA TO PUMPS UNIT 1
E	N10	1	1"	3000#NPT	HALF COUPLING	—	PLUG EXISTING CONN.
F	REWORK N10	1	2"	SCH. 80	300#RFWNF	6"	PSV-6507
G1	REWORK N10	1	2"	3000#SW	HALF COUPLING	—	1 LT-6501
G2	NEW	1	2"	3000#SW	HALF COUPLING	—	1 LT-6501
H1	N10	1	2"	3000#SW	HALF COUPLING	—	2 LT-6501
H2	NEW	1	2"	3000#SW	HALF COUPLING	—	2 LT-6501
J1	NEW	1	2"	3000#SW	HALF COUPLING	—	V-6514/STANDPIPE FOR LG-6506
J2	N4	1	2"	3000#NPT	FULL COUPLING	—	V-6511/STANDPIPE FOR LG-6506
K	N6	1	2"	3000#NPT	HALF COUPLING	—	V-6515 (VENT)/PSV-6502/FLAME ARRESTOR
L	NEW	1	1"	3000#SW	FULL COUPLING	—	V-6517 & V-6518/1 PT-6503 & PI-6504
M	NEW	1	1"	3000#SW	FULL COUPLING	—	V-6516/2 PT-6503
N	N8	1	1"	3000#NPT	BUSHING	—	PLUG EXISTING CONN.
P	NEW	1	1"	3000#SW	FULL COUPLING	—	V-6525 N_2 INLET
Q	REWORK N11	1	1 1/2"	3000#SW	HALF COUPLING	—	TI-6505
R	N2	1	2"	3000#NPT	HALF COUPLING	—	V-6507/SPARE
S	REWORK N11	1	1 1/2	3000#SW	HALF COUPLING	—	V-6508/DRAIN
T	N9	1	3/4"	3000#NPT	FULL COUPLING	—	PLUG EXISTING CONN.
U	N7	1	1"	3000#NPT	BUSHING	—	PLUG EXISTING CONN.
V	N9	1	3/4"	3000#NPT	FULL COUPLING	—	PLUG EXISTING CONN.
X	N10	1	1/2"	3000#NPT	FULL COUPLING	—	PLUG EXISTING CONN.
Z	N12	1	20"	300#RF	STD	6"	MANHOLE W/FLANGE

DESIGN DATA

Operating Pressure, PSIG		5	
Operating Temperature		AMB	
Liquid		29.4% AQUEOUS AMMONIA	
Design Pressure, PSIG		100	
Design Temperature °F		650	
Leak Test		Yes (No)	
Hydrostatic Test PSIG		400	
Shell / Heads	Corr. Allow. in.	–	–
Nozzles / Internal	Corr. Allow in.	–	–
Code: ASME VIII, DIVI		Stamp (Yes) No	
Radiograph: 100%		Stress Relieve: YES (NOTE 4)	
Internal Coating		NONE	
Type Supports:	SADDLE		
Insulation:	NO		
Fireproofing:	N/A		
Sandblast: SSPC-SP6		PAINT: PRIMER AND FINISH COAT	
Manhole Hinged		Davited (Other) BOLTED	
Platform Clips: NO	Ladder Clips: NO	Insul. Rings: NO	
Pipe Supports:	YES		
Grounding Lugs	YES		
Wind Load: 100 MPH		Seismic: UBC ZONE 4	
Wt Empty 37,600 lbs		Wt Full 105,500 lbs	

MATERIAL DATA

	Item	Thickness	MATERIAL	REMARKS
EXISTING	Shell in	.875	SA 515-70	–
	Head in	.861 min.	SA 516-70	2:1 SE
	Saddle in	–	SA 36	–
	Couplings	–	SA 105	–
	Flanges	–	SA 181 GR 1 OR SA 105-II	–
	Pipe	–	SA 53 GR B	–
	Bolts/Studs	A-193GrB7		
	Nuts	A-194Gr2H		
	Gaskets	1/16" COMPRESSED ASBESTOS		
REWORKED AND NEW PENETRATIONS	Nozzle Necks	SA-106Gr.B		–
	Flanges	SA-105		–
	Coupling	SA-105		–
	Bolts/Studs	A-193GrB7		–
	Nuts	A-194Gr2H		–
	Gaskets	"FLEXITALLIC"		–

TECHNICAL NOTES:

1. EXISTING NH_3 STORAGE TANK WAS MANUFACTURED BY ACE BUEHLER INC. IN 1980. MODEL FMAH111431U145. REFERENCE DRAWING C-143749-1 REV B.
2. PRIOR TO REWORK, THE TANK SHALL BE TESTED AND INSPECTED AS FOLLOWS:
   A. PERFORM MAGNETIC PARTICLE TESTING (MT) ON ALL NOZZLE WELDS TO DETERMINE NOZZLE INTEGRITY. ACCEPTANCE STANDARDS SHALL BE IN ACCORDANCE WITH THE ASME SECTION VIII.
   B. PERFORM ULTRASONIC TESTING (UT) ON SELECTED AREAS OF THE SHELL AND BOTH HEADS. CONFIRM THE THICKNESS EXCEEDS THE MINIMUM THICKNESS SPECIFIED ON THE DRAWING.
3. REWORK TANK IN ACCORDANCE WITH THE RULES OF THE NATIONAL BOARD AS FOLLOWS:
   A. ADD/REWORK NOZZLES AS SHOWN IN THE NOZZLE SCHEDULE.
   B. REMOVE ALL INTERNAL STAND PIPES. TAKE CARE WHEN CUTTING ATTACHMENTS NEAR THE TANK SHELL OR HEAD. GRIND SMOOTH SHARP EDGES.
   C. PERFORM MT ON ALL REWORK NOZZLE WELDS. ACCEPTANCE STANDARDS SHALL BE IN ACCORDANCE WITH THE CODE.
4. STRESS RELIEF IS NOT REQUIRED FOR REWORK NOZZLE WELDS, IF AGREED TO BY AUTHORIZED INSPECTOR.
5. AFTER REWORK IS COMPLETE AND IS DEEMED SATISFACTORY BY THE INSPECTOR, PERFORM A HYDROSTATIC TEST IN ACCORDANCE WITH REQUIREMENTS OF AUTHORIZED INSPECTOR.
6. ALL REWORKED SURFACES SHALL BE FIELD PAINTED IN ACCORDANCE WITH THE TECHNICAL REQUIREMENTS OF SUBSECTION 3.9.

FILE: 5247175

No.	Revisions	M	Date	P.E.	QAE.	Disc. Supv.	Approved
3	AS-BUILT REVISION		5/24/96				ZB AL
2	AS-BUILT		4/10/96				TF AL
1	REVISED C, D, G1, G2, H1 & H2		11/09/95				ZB LD
0	ISSUED FOR CONSTRUCTION		08/21/95	ZK			AAF BW LD

Reference Drawings: 5218438-2 PIPING SECTION DETAIL (AIR PREHEATER/SCR); 5218436-2 PIPING PLAN DETAIL NO.1 (AIR PREHEATER/SCR)

MITSUBISHI HEAVY INDUSTRIES AMERICA, INC. LOS ANGELES OFFICE

ESA ENGINEERING CORPORATION Lakeside Hills, CA. Office — MHIA P59-2504E — SHIA H0701

Location: Mandalay Generating Station, California

REWORK OF AQUEOUS AMMONIA STORAGE TANK TK-101

Southern California Edison Company

DISCIPLINE M

Scale: 3/8"=1'-0" — SCE# 5247175 — Rev. 3

PLOT DATE: 11/20/95

Appendix B-3

2013 MGS Ammonia Storage Tank Inspection Report

May 21, 2013

To: Ammonia System Equipment History
Mandalay Generating Station

From: John Mason

Subject: **Integrity Testing of Mandalay Aqueous Ammonia Bulk Storage Tank**

Reference: Buehler Tank & Welding Works
Model FMAH11431U145
Serial Number 57621

Removed from service: February 9, 2013
Returned to service: February 18, 2013
Work Order 35066940

WORK PERFORMED:

Pump-Out	The pump-out of the aqueous ammonia was accomplished by Airgas Specialty Products.
Inspection	On February 13-14, 2013, Acuren performed an internal visual inspection of the tank and U.T. of shell thickness. All inspection results were satisfactory.
Pressure Relief Valve	A new pressure relief valve was installed: Farris, Model 26JA11-120, Size 2J3, S/N 607981-1-A10, Set @ 50 psig, Capacity 1567 scfm, (tested 12-21-2012, Thorco Job No. PR0001837)
Vacuum Relief Valve	A rebuilt vacuum relief valve was installed: Varec 2" SPC-365023651, S/N 00-39530, Set @ 4 oz. Vacuum (tested 1-14-2013, Thorco Job No. SO01610-01)
Flame Arrestor	A new Flame Arrestor was installed: Groth Model 7618-02-35-F0Z
Nitrogen Relief Valve	A new pressure relief valve was installed on the nitrogen line to the aqueous ammonia tank: Crosby relief valve, Model 961101MA, S/N 95294-1, 3/4" MNPT X 1" FNPT, Set @ 25 psig, Capacity 84 scfm, (tested 1-14-2013, Thorco Job No. SO01610-02)
Valves	All valves on the aqueous ammonia tank were exercised and lubricated. The handle on the 2" fill root valve was welded to stem.
Corrosion Control	The aqueous ammonia tank, carbon steel piping, and structural steel was painted by Brock Specialty Services, LTD.
Nitrogen Pipe Repair	TWI replaced 12" of 1" Sch 80 CS piping, two each socket welds

ACUREN

20445 Gramercy Pl. Suite 204
Torrance, CA. 90501
Ph:(310) 533-1122

Materials Engineering and Testing
A Rockwood Company

Date: 2/13/2013

ULTRASONIC EXAMINATION REPORT

Customer:	NRG - MANDALAY	W.O. #	
Location/Address:	393 N Harbor Blvd. Oxnard, CA	S.C. #:	337406
Unit/System:	Unit 1 and 2 - Ammonia Tank	P.O. #:	N/A
Item Description:	Internal Head and Shell UT thickness exam		

Material:	Size:	Quantity:	Thickness: Varies	Surface Condition:
C/S	25' L x 10' Dia	1	Nom - Shell .875" Heads .861"	As Is

Procedure:	Acceptance Standard:	Item Temperature:
ACUREN UT-2A Rev 1	ASME Sec VIII	65°F

Stage Of Manufacture:				Comment:	Surface Preparation:
	☐ INITIAL	☑ FINAL		2013 Shutdown	Water Washed
	☐ IN PROCESS	☐ REPAIR			
☑ LONGITUDINAL	☐ OTHER	Type Of Exam:			Couplant:
☐ SHEAR WAVE		Thickness			Sonotech - Ultragel II

Instrument MFG-Model-S/N	Transducer:			
	☐ SINGLE	Frequency: 5 Mhz	Size: 3/8"	
Panametrics 37 DL Plus		Wedge Angle: 0°	Meas. Angle: 0°	
SN# 101791203	☑ DUAL	MFG, S/N: Panametrics #600/80	Delay: 0	

Calibration Block:	Type:	Material:	MFG.:	Serial Number:
☑ FLAT ☐ CURVED	Step Wedge md. 2214	1018	Olympus Panametrics	A22519

Comments: Include: Accept/Reject

An Ultrasonic thickness examination was done internally on Unit 1 & 2 of the Aqueous Ammonia Tank. Please see attached UT data sheet for TML's and readings.

Sensitivity	Calibration Times:	Initial:	acceptable
Level 80% FSH	Interm: acceptable	Final:	acceptable

Consumables: Couplant/Gal.	Tube:	☐ High Temp	Wire Wheel: N/A

Date:	Customer Contact:	Per Diem:	Report #:	Unit #:	No. on Job:
2/13/2013	Sam Thompson	☐ Yes ☐ No			1

Travel If Applicable:				Hours:						Total
Hours:	Miles Total:	Airlines	☐	Worked	to	AM and	to	PM		Hrs
		Vehicle	☐							

Jose Gomez / Rick Provencher

Signature of Customer's Representative

Name, Signature, and Level of Acuren Inspection Examiner Assistant

SEE BACK FOR DISCLAIMER

DISCLAIMER

Scope of Services

The agreement of Acuren Inspection to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested inspection of specific equipment and the preparation of reports or similar documents reflecting the inspection data obtained or the opinion formulated on the basis of such inspection. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinion or observations of the examiner and are not intended nor can they be construed as representations or warranties as to the actual circumstances. Acuren Inspection is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, repair and use decisions as a result of the inspection data or other information provided by Acuren Inspection. In no event shall Acuren Inspection's liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Inspection uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Inspection.

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ACUREN

Company Name: NRG - Mandalay
Location: Oxnard, CA
Inspection Date: 2/14/2013

UT Thickness Report On: Ammonia Anhydros

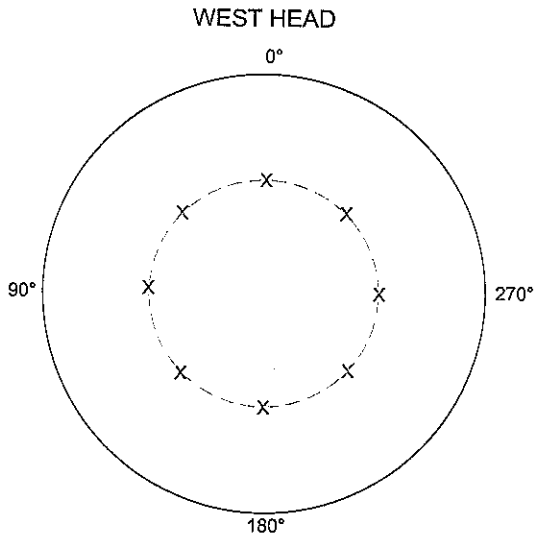
West Head	0°	45°	90°	135°	180°	225°	270°	315°	Comments
+18"	0.945	0.953	0.956	0.950	0.941	0.947	0.947	0.950	For UT locations on tank, please see drawing.
-2" from CW1	1.014	1.040	1.038	1.029	1.048	1.045	1.020	1.014	
+2" from CW1	0.902	0.910	0.912	0.922	0.893	0.898	0.915	0.912	
Mid	0.897	0.915	0.926	0.904	0.897	0.935	0.916	0.907	
-2" from CW2	0.894	0.917	0.918	0.910	0.898	0.921	0.916	0.903	
+2" from CW2	0.888	0.884	0.888	0.903	0.907	0.905	0.895	0.895	
Mid	0.889	0.892	0.896	0.910	0.883	0.898	0.909	0.906	
-2" from CW3	0.881	0.881	0.890	0.905	0.881	0.877	0.897	0.882	
+2" from CW3	0.899	0.892	0.911	0.919	0.895	0.919	0.923	0.909	
Mid	0.897	0.895	0.917	0.926	0.897	0.895	0.925	0.934	
-2" from CW4	0.892	0.890	0.906	0.896	0.894	0.892	0.908	0.905	
+2" from CW4	1.024	0.994	1.009	0.981	0.991	1.010	1.059	1.058	
East Head +18"	0.912	0.913	0.929	0.938	0.898	0.902	0.910	0.912	

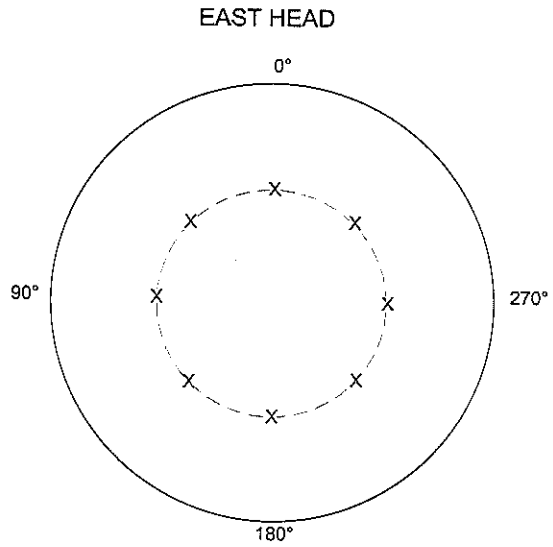
0.000	**Below Nominal Thickness / 2**
0.000	**Between (Nominal Thickness / 2) and (Nominal Thickness - Corrosion Allowance)**
0.000	**Above (Nominal Thickness - Corrosion Allowance)**

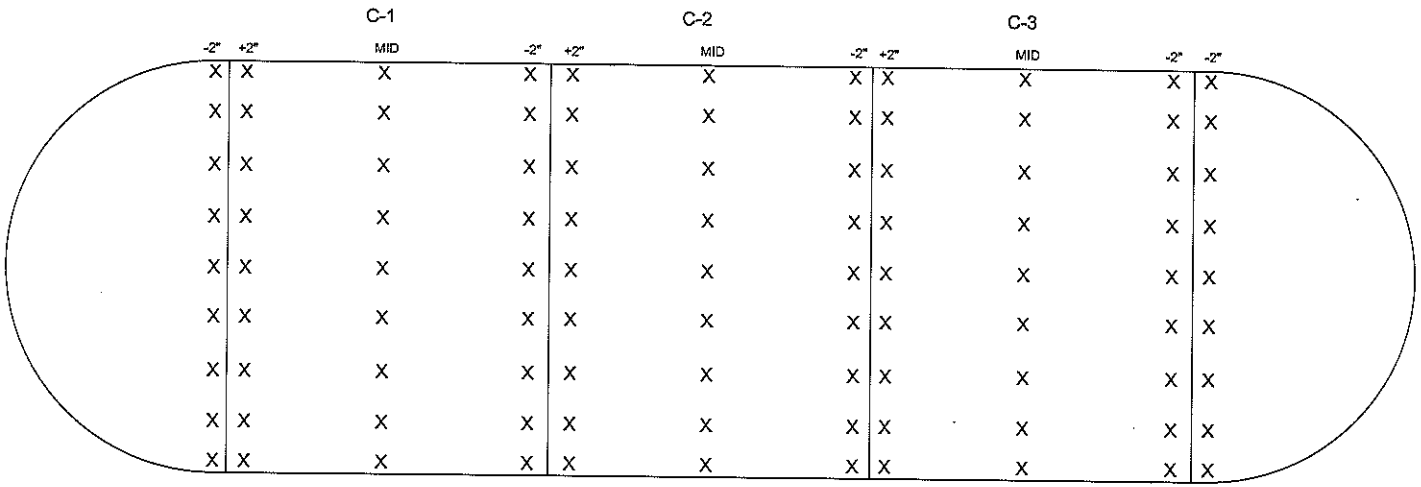
ACUREN

UT Thickness Report On: **Ammonia Anhydros**

	0°	90°	180°	270°	Corr. Allow.	Nom. Thick.	Comments
N1	0.931	0.920	0.917	0.922			
N2	0.928	0.918	0.923	0.925			
N3	0.929	0.935	0.938	0.932			
N4	0.935	0.940	0.939	0.935			
N5	0.916	0.912	1.051	0.918			
N6	0.863	0.890	0.851	0.863			
N7	0.916	0.909	0.904	0.903			
N8	0.884	0.898	0.878	0.894			
N9	0.903	0.872	0.860	0.852			
N10	0.920	0.922	0.909	0.917			
N11	0.922	0.938	0.919	0.921			
N12	0.883	0.897	0.893	0.880			
N13	0.876	0.875	0.882	0.902			
N14	0.909	0.907	0.905	0.930			
N15	0.885	0.884	0.881	0.888			
N16	0.905	0.882	0.878	0.860			
N17	0.880	0.869	0.878	0.891			
N18	0.883	0.878	0.879	0.875			
N19	0.917	0.917	0.901	0.903			
N20	0.915	0.919	0.912	0.893			
N21	0.901	0.900	0.907	0.906			
N22	0.904	0.899	0.902	0.904			
N23	0.905	0.904	0.907	0.906			
N24	0.934	0.893	0.892	0.895			
N25	0.932	0.908	0.943	0.906			
MW	0.912	0.957	0.982	0.943			







ACUREN	ORIGINAL DRAWING DATE	DRN	A. STEINBRECHER	02/14/13	CUSTOMER NRG Mandalay Generating Station	TECHNICIAN SEE INDIVIDUAL REPORTS	EQUIPMENT DESCRIPTION UNIT 01 & 02 AQUEOUS AMMONIA TANK	PAGE 4 OF 4	JOB DATE 02/11/13
	02/14/13	REV				LOCATION North West side of Plant		DRAWING NAME Ammonia Tank	
		APP							

New Relief Valve Test Report

Thorco

Owner GENON ENERGY INC
Plant MANDALAY STATION: OXNARD

Description					
Tag Number	PSV-6507	Unit / CC / Loc	N/A	Dwg /P&ID No.	N/A
Purch Order No.	4501436745	Work Order No.	N/A	Status	Active
Thorco Job No.	PR0001837	Thorco SCR No.	N/A	Most Recent	Yes
Model Number	26JA11-120	Serial Number	607981-1-A10	Manufacturer	FARRIS
Inlet Size	2	Inlet Rating / Facing	300# RF	Inlet Other	N/A
Outlet Size	3	Outlet Rating / Facing	150# RF	Outlet Other	N/A
Orifice Desig	J	Orifice Area	1.287 IN^2	Cap Type	Screwed
Trim Material	Stainless Steel	Bellows Material	N/A	Soft Seat Mat'l	N/A
Spring Number	G1180CR	Material	Chrome Alloy	From / To	45 to 52
Service	Compressible	Code Stamp	Sec VIII		
Set Pressure	50 PSIG	Back Pressure	PSIG	BP Is	N/A
Cold Diff Set	50 PSIG	Operating Press	PSIG	Operating Temp	70 F
Calc. Capacity	1567 SCFM	MAWP	PSIG		
Date Tested	2012/12/21	Test Method	Bench	Verified	MN
Tested By	Hernandez, Mario	Gauge Number	SFD-2000-01	Assembled	MN
Witnessed By	Burgos, Fernando	Leakage Rate	0 BPM	Final Inspection	MH
Final Test Press	51 PSIG	BP Test / @	Yes @ 40		

Comment

Tank / Conservation Vent Test Report

Thorco

Owner GENON ENERGY INC
Plant MANDALAY STATION: OXNARD

Tag Number	N/A	Unit / CC / Loc	N/A	Manufacturer	VAREC
Thorco Job No.	SO01610-01	Serial Number	00-39530	Model Number	SPC-365023651
Dwg /P&ID No.	N/A	Inlet	2 150# RF	Style	Tank Vent Tank Vent
Purch Order No.	N/A	Outlet	2 150# RF	Thorco SCR No.	N/A
Service	Compressible				
Body Material	N/A	Trim Material	N/A	Hood Material	N/A
Status	Active	Work Order No.	4600018842	Bonnet Material	N/A
Most Recent	Yes (Tank Vent)	Risk / Criticality	N/A		
Set Pressure	PSIG	MAWP	PSIG	MAWP Vacuum	PSIG
Set Vacuum	4 OZ/IN^2	Req'd Press Cap	SCFM	Req'd Vac Cap	SCFM
Operating Temp	F	Max Press Flow	SCFM	Max Vac Flow	SCFM

Description	Comment

Work Required, Pre-Test & Condition Received

Scheduled - For	Yes - Pretest & Repair	Seal	Intact
Date Received	2013/01/08	Seal ID	Thorco
Write Up By	Cooper, Robert	Last Maint Date	2007/11/29
% Plugged	N/A	Nameplate	Original
Date Scheduled	2013/01/16	Pretest Notes	Customer's Request

Pre-Test Yes

Press Side

Lift / Pop @	PSIG
Leaked	N/A SCFH

Vac Side

Lift / Pop @	4 OZ/IN^2
Leaked	1 SCFH

Final Test Data

Final Test Set Press	PSIG
Leakage Rate	N/A SCFH
Final Test Vac Press	4 OZ/IN^2
Leakage Rate	0 SCFH

Date Tested	2013/01/14	Repair Company	THORCO
Tested By	Amarillas, Eddie	Repaired	YES
Witnessed By	Martinez, Jorge	Gauge Number	Manometer
Routine	N/A	Test Media	Air
Test Method	Bench		

Quality COntrol / Check List Items

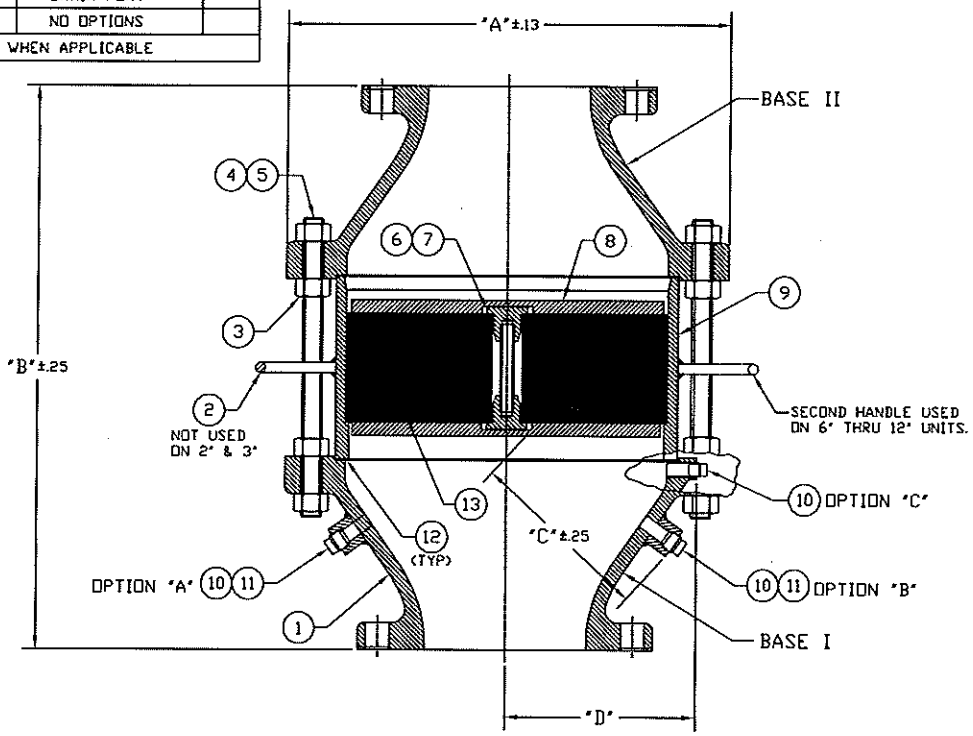
Verified	YES
Disassembled	YES
Cleaned	YES
Repaired	YES
H Stamp / Approved	YES
Assembled	YES
Tagged	YES
Paperwork Complete	YES
Final Inspection	YES

Inspected by Hernandez, Mario

Part Name	Part Number	Condition(s) Received	Work Performed	Recommendation
Weights		Good	Clean & Use	
Weights		Good	Clean & Use	
VACCUM		Good	Clean & Use	
Stem		Good	Clean & Use	
Soft Goods		Good	Clean & Use	
Soft Goods		Good	Clean & Use	
Seat Ring		Good	Clean & Use	
Seat Ring		Good	Clean & Use	
Pallet		Good	Clean & Use	
Pallet		Good	Clean & Use	
PRESSURE		Good	Clean & Use	
Outlet Flg Face		Good	Clean & Use	
Outlet Condition		Good	Clean & Use	
Inlet Flg Face		Good	Clean & Use	
Inlet Condition		Good	Clean & Use	
Guide Posts		Good	Clean & Use	
Guide Posts		Good	Clean & Use	
Gasket Set		Good	Clean & Use	
Gasket Set		Good	Clean & Use	

PORT CONNECTIONS				
BASE		LOCATION	DESCRIPTION	THD
		A	THERMOCOUPLE	
		B	PRESSURE TAP	
		C	DRAIN PORT	
		D	NO OPTIONS	
CHECK WHEN APPLICABLE				

MODEL 7618 VERTICAL FLAME ARRESTER



NOTES:

1. SEE DWG C-92796 FOR ANSI 150 & ALTERNATE DRILLING PATTERNS.

INSTRUMENT & DRAIN PORT CONNECTION					
THRD SIZE	DRILL Ø		OPT "A"	OPT "B"	OPT "C"
	In.	mm			
1/4"-18 NPT	.438	11	2" - 12"	2" - 12"	2" - 12"
1/2"-14 NPT	.703	18	2" - 12"	2" - 12"	2" - 12"
3/4"-14 NPT	.906	23	2" - 12"	2" - 12"	6" - 12"
1"-11 NPT	1.141	29	2" - 12"	2" - 12"	8" - 12"

SIZE	A		B		C.		D	
	In.	mm	In.	mm	In.	mm	In.	mm
2"	8.75	222	14.00	356	5.06	129	3.06	78
3"	9.50	241	16.00	406	5.75	146	3.59	91
4"	11.50	292	18.25	464	6.25	159	4.59	117
6"	16.50	419	21.00	533	7.06	179	6.63	168
8"	21.00	533	25.00	635	8.03	204	8.50	216
10"	24.75	629	30.00	762	10.63	270	10.75	273
12"	28.63	727	32.50	826	11.81	300	12.69	322

TAGS AND SPECIFICATIONS

REV.	DATE	BY	ECN NO.
B	01-23-97	ESQ	97013
C	06-20-97	ESQ	97059
D	08-23-01	MP	10276

GROTH CORPORATION
a Continental Disc Company

APPROVED BY:	CHECKED BY:	DWG. NO. : C-84501
DATE:	DATE:	DWN BY: ES QUINTERO

Relief Valve Repair Report
Thorco

Owner GENON ENERGY INC
Plant MANDALAY STATION: OXNARD

Description					
Tag Number	N/A	Unit / CC / Loc	N/A	Dwg /P&ID No.	N/A
Purch Order No.	N/A	Work Order No.	4600018842	Status	Active
Thorco Job No.	SO01610-02	Thorco SCR No.	N/A	Most Recent	Yes
Model Number	961101MA	Serial Number	95294-1	Manufacturer	CROSBY
Inlet Size	3/4	Inlet Rating / Facing	MNPT	Inlet Other	N/A
Outlet Size	1	Outlet Rating / Facing	FNPT	Outlet Other	N/A
Orifice Desig	N/A	Orifice Area	IN^2	Cap Type	Screwed
Trim Material	Stainless Steel	Bellows Material	N/A	Soft Seat Mat'l	N/A
Spring Number	N/A	Spring Material	N/A	From / To	N/A to N/A
Service	Compressible	Code Stamp	Sec VIII	Capacity Units	SCFM
Set Pressure	25 PSIG	Back Pressure	PSIG	BP Is	None
Cold Diff Set	25 PSIG	Operating Press	PSIG	Operating Temp	F
Calc. Capacity	84 SCFM	MAWP	PSIG		
Date Received	2013/01/08				
Maint Requested	Pretest & Repair	Pretest	Yes	Pretest Notes	Customer's Request
Relieved @	27 PSIG	Leaked	No	Last Maint Date	2007/11/29
Nameplate	Original	Seal	Intact	Mfg / Assy Date	N/A
Valve Converted	No	Valve Replaced	No	Set Press Changed	No
Repair Company	THORCO	Repaired	YES		
Date Tested	2013/01/14	Test Method	Bench		
Tested By	Amarillas, Eddie	Gauge Number	SFD-3000-20		
Witnessed By	Burgos, Fernando	Leakage Rate	0 BPM		
Final Test Press	26 PSIG	Inspected By	Hernandez, Mario		
BP Test / @	Yes @ 30	Weight	N/A		

Comment

Quality Control Signoffs

Verified	JM
Disassembled	JM
Cleaned	HA
Repaired	HA
H Stamp / Approved	HA
Assembled	HA
Tagged	HA
VR Stamped	YES/HA
Paperwork Complete	MH
Final Inspection	MH

Part Name	Part Number	Condition(s) Received	Work Performed	Recommendation
Stem		Good	Clean & Use	
Spring Washers		Good	Clean & Use	
Spring		Good	Clean & Use	
Outlet Condition		Good	Clean & Use	
Nozzle		Good	Lapped	
Mfg Name Plate		Good	Clean & Use	
Inlet Condition		Good	Clean & Use	
Guide		Good	Polished	
Fasteners		Good	Clean & Use	
Disc Holder		Good	Polished	
Disc		Good	Lapped	
Comp Screw		Good	Clean & Use	
Cap		Good	Clean & Use	
Bonnet		Good	Clean & Use	
Body Nozl Thrds		Good	Clean & Use	
Body		Good	Clean & Use	

WELDING DATA

NRG Energy
Mandalay Station
393 North Harbor Drive
Oxnard CA 93035

CONTRACT NO.

EQUIPMENT DESCRIPTION:	Mandalay Unit 1 and 2 Nitrogen Supply to Ammonia Tank		
PREPARED BY:	LG/J. Mason	APPROVED BY:	Gary Camp
DATE:	2/14/2013	PAGE: 1 of 1	REV 0

MAWP
Jurisdiction No.
YEAR BUILT

Prossuro Test
Date:
Time:
PSI:
Result:

WELD NUMBER	DESCRIPTION OF WELDS	QUANTITY OF WELDS	DESIGN CONDITIONS		O.D	WALL THICKNESS	SPECIFICATION & GRADE		JOINT		REFERENCE DRAWINGS	CODE	CODE PWHT	CODE NDE	WELDING PROCEDURE	GAS BACK PURGE	REMARKS	WELDER
			PRESS PSIG	TEMP DEG F			MATERIAL TO MATERIAL	Valve Type	TYPE	DESIGN								
1	1" Nitrogen line to Ammonia tank	2	50	Ambient	1.315	0.179	Pipe A-106		Socket			ASME B31.1 NBEP	None	VT & PT or MT	1-1-12-70	None	1), 4), 7)	
							Fittings A105											

GENERAL NOTES: BW - BUTTWELD, SW - SOCKET WELD, GW - GROOVE WELD, FW - FILLET WELD, BRW - BRANCH WELD

1).Visual Inspection
2) Substitute NDE method acceptable to Authorized Inspector for pressure test.
3) Preheat Min 300F Max 750F
4) Code applications to ASME I (2010 ed / 2011 add), ASME Sec VIII Div 1 (2010 ed / 2011 add) or B31.1 (2009 edition)
5) Code RT to ASME I PW 51
6) Non Code MT or PT to B31.1 para 136.4.3 or 136.4.4
7) Code MT or PT to ASME Section I or ASME B31.1 para 136.4.3 or 136.4.4, as applicable
8) Non Code RT to ASME I or B31.1 para 136.4.5

ACUREN
20445 Gramercy Pl. Suite 204
Torrance, CA. 90501
Ph:(310) 533-1122
Materials Engineering and Testing
A Rockwood Company

Report #: 13-011
Date: 2/14/2013
Page: 1 of 1

LIQUID PENETRANT EXAMINATION REPORT

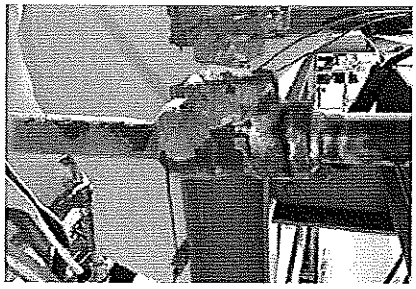
Customer:	NRG - MANDALAY GENERATING STATION				
Location/Address:	393 North Harbor Dr. Oxnard, CA 93035			SC #:	337406
Unit/System:	Nitrogen Supply to Ammonia Tank			PO #:	
Item Description:	1" Diameter Socket Weld (2)			WO #:	
Material: Carbon	Size: 1"	Type: Socket	Shape: Rounded	Surface Condition: As Welded	
Procedure: ACUREN PT-1 Rev. 17		Acceptance Standard: B31.1 NBEP		Item Temperature: 69°	
Stage Of Manufacture: ☐ INITIAL ☐ IN PROCESS ☑ FINAL ☐ REPAIR		Comment: N/A		Surface Preparation: Solvent Wipe	
Method: ☑ COLOR CONTRAST ☐ FLUORESCENT ☑ SOLVENT REMOVABLE ☐ WATER WASHABLE				Manufacturer: Magnaflux	

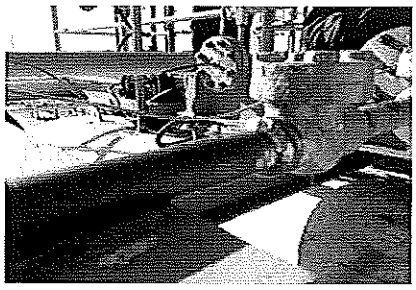
Surface Preparation:	Batch #:	Application:	Drying Time:	Lightmeter: MFG/SN/Intensity:
SKC-S	12L07K	Spray	5 Min	Gould Bass DLM 1000 sn#101301A / 100Fc
Penetrant:	Batch #:	Application:	Dwell Time:	Item/Penetrant Temperature:
SKL-WP1	08K18K	Wipe	15 Min	67°
Cleaning:	Batch #:	Application:	Drying Time/Method/Temperature:	
SKC-S	12L07K	Spray	10 min / Visible Solvent Removable / 60°F	
Developer:	Batch #:	Application:	Develop Time:	Post Cleaning:
SKD-S2	12K02K	Spray	10 Min	Solvent / Spray / Wipe

Comments: Include: Accept ☑ Reject ☐

Acuren Inspection performed a color contrast, solvent removable liquid penetrant examination on two 1" diameter socket welds located on the nitrogen supply line, attached to the ammonia tank. The nitrogen line is located on the south side of the ammonia tank coming off the top of the tank. At the time of the Inspection, no relevant indications were recorded.

SKETCH ☑ ADDITIONAL PAGES





Consumables: Can/Gal./Lbs. Wire Wheel: Other:

Date:	Customer Contact:	Per Diem:	Report #:	Unit #:	
2/14/2013	Sam Thompson	☐ Yes ☐ No	13-011	2	

Travel if Applicable: Hours:	Miles Total:	Airlines / Vehicle	Hours: Worked to AM and to PM	Total Hours:

Tony L Jensen Lv II

Signature of Customer's Representative

Name, Signature, and Level of Acuren Inspection Examiner Assistant

LII 104

SEE BACK FOR DISCLAIMER

APPENDIX C

SOIL AND WATER RESOURCES

Mandalay Generating Station Monitoring Wells[1] Groundwater Elevations (Feet, MSL)					
Date	MW-2	MW-3	MW-6	MW-44[2]	MW-45[2]
8/1/1996	6.78	6.25	6.25	-	-
9/7/1996	6.97	6.47	6.51	-	-
10/7/1996	6.67	6.35	6.33	-	-
12/11/1996	8.89	7.13	7.28	-	-
3/18/1997	7.04	6.69	6.79	-	-
6/18/1997	6.68	6.25	6.28	-	-
9/15/1997	6.57	6.34	6.40	-	-
2/27/1998	10.93	9.76	9.86	-	-
6/18/1998	7.20	6.82	6.94	-	-
10/6/1998	6.88	6.39	6.34	-	-
12/9/1998	7.12	7.11	6.92	-	-
3/8/1999	6.73	6.34	6.40	-	-
6/7/1999	6.52	6.06	6.14	-	-
9/6/1999	6.42	6.03	6.11	-	-
12/6/1999	6.49	6.07	6.21	-	-
3/6/2000	7.84	7.18	7.35	-	-
9/18/2000	6.51	5.99	6.06	-	-
12/11/2000	6.59	6.21	6.45	-	-
3/5/2001	7.89	7.38	7.56	-	-
6/13/2001	5.52	6.04	6.11	-	-
9/18/2001	6.75	6.15	6.25	-	-
12/11/2001	6.73	6.21	6.36	-	-
3/19/2002	6.98	6.91	7.08	-	-
6/4/2002	6.33	5.93	6.08	-	-
8/29/2002	6.31	5.87	5.97	-	-
12/18/2002	7.26	7.02	7.35	-	-
3/17/2003	7.82	7.37	7.52	-	-
6/9/2003	7.01	6.43	6.60	-	-
9/8/2003	6.75	6.17	6.24	-	-
1/5/2004	6.85	6.31	6.49	-	-
3/8/2004	7.99	7.63	7.85	-	-
6/7/2004	7.04	6.76	6.90	-	-
9/7/2004	6.85	6.17	6.29	-	-
12/6/2004	7.34	6.63	6.87	-	-
3/7/2005	9.50	8.65	8.92	-	-
6/6/2005	7.28	6.62	6.82	-	-
9/5/2005	6.92	6.30	6.42	-	-
12/4/2005	7.06	6.39	6.58	-	-
3/20/2006	7.17	6.57	6.77	-	-
6/19/2006	7.39	6.65	6.82	-	-
9/4/2006	7.15	6.42	6.55	-	-
11/27/2006	7.25	6.75	6.88	-	-

Mandalay Generating Station Monitoring Wells[1] Groundwater Elevations (Feet, MSL)					
Date	MW-2	MW-3	MW-6	MW-44[2]	MW-45[2]
3/12/2007	7.53	7.04	7.27	-	-
6/25/2007	7.33	6.95	7.22	-	-
9/10/2007	7.43	7.06	7.34	-	-
12/3/2007	7.33	7.09	7.39	-	-
3/11/2008	7.88	7.39	7.59	-	-
6/30/2008	7.37	7.01	7.25	-	-
9/21/2008	7.37	6.85	7.04	-	-
12/14/2008	7.30	6.64	6.86	6.62	6.65
3/23/2009	7.48	7.14	7.29	7.05	7.08
6/22/2009	6.89	6.83	6.99	6.60	6.56
9/14/2009	6.88	6.73	6.88	6.60	6.64
11/30/2009	7.11	6.94	7.24	6.67	6.71
3/22/2010	7.84	7.53	7.68	7.41	7.44
6/28/2010	7.13	7.05	7.34	6.71	6.72
9/7/2010	6.81	6.53	6.70	6.48	6.51
12/6/2010	6.82	6.59	6.77	6.46	6.49
3/27/2011	8.15	7.98	8.21	7.66	7.65
6/20/2011	7.27	7.33	7.56	6.90	6.91
9/11/2011	6.93	6.74	6.91	6.65	6.62
12/5/2011	6.98	6.74	6.94	6.59	6.61
2/29/2012	7.43	7.36	7.64	6.90	6.90
6/3/2012	7.52	7.53	7.71	7.00	7.01
9/2/2012	7.21	7.23	7.39	6.89	6.92
1/2/2013	7.49	7.65	7.98	7.05	7.05
2/24/2013	7.71	7.80	8.13	7.18	7.15
6/16/2013	7.44	7.56	7.87	7.00	6.99
9/8/2013	7.06	6.99	7.30	6.62	6.60
12/15/2013	6.70	6.52	6.69	6.39	6.41
3/2/2014	5.37	5.22	5.44	5.01	5.02
6/2/2014	5.76	5.89	6.08	5.45	5.46
9/8/2014	5.55	5.69	5.90	5.28	5.29
12/28/2014	5.77	5.63	5.84	5.43	5.45
3/16/2015	5.76	5.90	6.13	5.43	5.43
Minimum	5.37	5.22	5.44	5.01	5.02
Maximum	10.93	9.76	9.86	7.66	7.65
Average	7.10	6.75	6.91	6.54	6.55

Notes:

1. See AFC Figure 2.4-2 for location of monitoring wells.
2. Monitoring wells MW-44 and MW-45 were installed in 2008.