California Energy Commssion
DOCKETED
07-AFC-5C
TN # 65910
JUN 14 2012

June 14, 2012

Mr. Joseph Douglas
California Energy Commission
Systems Assessment and Facilities Siting Division
1516 9th Street, MS 15
Sacramento, CA 95814-5504

Subject: Data Response #1 through #9, Air Quality Amendment 1
Ivanpah Solar Electric Generation System 07-AFC-5C

Dear Mr. Douglas:

On behalf of Solar Partners I, LLC, Solar Partners II, LLC, Solar Partners VIII, LLC, please find attached one original and 12 hard copies of Data Responses #1 through #9 to the Air Quality Amendment 1, which addresses Staff's data request dated May 15, 2012.

Included in this submittal is the revised air dispersion modeling files for staff to review in response to Data Request #1.

Please call me if you have any questions.

Sincerely,

Doug Davis
Senior Compliance Manager
BrightSource Energy, Inc.

cc: Marc Syndor
Project File

Air Amendment 1, Ivanpah Solar Electric Generating System

Air Amendment 1, Revision 1

Responses to Data Request #1 through 9 Received from

Christopher Dennis, CEC, Sacramento, CA

The responses below set forth data requests based upon California Energy Commission (CEC) Staff review of the Air Amendment 1, Revision 0 and the Applicant's Responses.

Background: Air Quality Modeling Files

The Project Owner (PO) performed revised air dispersion modeling for the proposed revisions of Ivanpah SEGS project's Petition to Amend (PTA). Staff did not receive corresponding modeling files for the revised analysis. Staff needs to check the revised modeling files to make sure the proposed revisions were modeled appropriately.

Data Request

1. Please provide the revised air dispersion modeling files (including the NO_2 modeling mentioned below) for staff to review.

Response:

The requested files are contained on the enclosed CD.

Background: Federal 1-Hour NO_2 Modeling

On May 11, 2012, the PO submitted a letter to Mojave Desert Air Quality Management District (MDAQMD) addressing compliance with the one-hour NO_2 National Ambient Air Quality Standard (NAAQS), but did not include emissions from testing of the emergency or fire pump engines in the one-hour NO_2 NAAQS modeling, following recommendations in the US EPA guidance (US EPA 2011) for emergency generators, which stated that testing of intermittent equipment (such as emergency generators) could be excluded because of their infrequent use. Emergency generators are readiness-tested once a month (12 times per year), which might not be frequent enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations. On the other hand, fire pump engines are readiness-tested once a week (52 times per year), which contribute more frequently to the annual distribution of daily maximum 1-hour concentrations and which may therefore, have a significant impact. We are especially concerned about the emergency fire pump planned for the common area, since it is close to the project boundary.

Data Request

2. Please redo the modeling with AERMOD to include fire pump engines to demonstrate compliance with the one-hour NO_2 NAAQS.

Response:

The requested analysis is not consistent with EPA guidance.[1] That guidance is reproduced below [emphasis added].

> EPA's guidance in Table 8-2 of Appendix W involves a degree of conservatism in the modeling assumptions for demonstrating compliance with the NAAQS by recommending the use of maximum allowable emissions, which represents emission levels that the facility could, and might reasonably be expected to, achieve if a PSD permit is granted. However, the intermittent nature of the actual emissions associated with emergency generators and startup/shutdown in many cases, when coupled with the probabilistic form of the standard, could result in modeled impacts being significantly higher than actual impacts would realistically be expected to be for these emission scenarios. The potential overestimation in these cases results from the implicit assumption that worst-case emissions will coincide with worst-case meteorological conditions based on the specific hours on specific days of each of the years associated with the modeled design value based on the form of the hourly standard. In fact, the probabilistic form of the standard is explicitly intended to provide a more stable metric for characterizing ambient air quality levels by mitigating the impact that outliers in the distribution might have on the design value. The February 9, 2010, preamble to the rule promulgating the new 1-hour NO_2 standard stated that "it is desirable from a public health perspective to have a form that is reasonably stable and insulated from the impacts of extreme meteorological events." 75 FR 6492. Also, the Clean Air Science Advisory Committee (CASAC) "recommended a 98th-percentile form averaged over 3 years for such a standard, given the potential for instability in the higher percentile concentrations around major roadways." 75 FR 6493.
>
> To illustrate the importance of this point, consider the following example. Under a deterministic 1-hour standard, where the modeled design value would be based on the highest of the second-highest hourly impacts (allowing one exceedance per year), a single emission episode lasting 2 hours for an emergency generator or other intermittent emission scenario could determine the modeled design value if that episode coincided with worst-case meteorological conditions. While the probability of a particular 2-hour emission episode actually coinciding with the worst-case meteorological conditions is relatively low, there is nonetheless a clear linkage between a specific emission episode and the modeled design value. By contrast, under the form of the 1-hour NO_2 NAAQS only one hour from that emission episode could contribute to the modeled design

[1] Memorandum from Tyler Fox (EPA), *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard.*

> value, i.e., the daily maximum 1-hour value. **However, by assuming continuous operation of intermittent emissions the modeled design value for the 1-hour NO_2 NAAQS effectively assumes that the intermittent emission scenario occurs on the specific hours of the specific days for each of the specific years of meteorological data included in the analysis** which factor into the multiyear average of the 98th-percentile of the annual distribution of daily maximum 1-hour values. The probability of the controlling emission episode occurring on this particular temporal schedule to determine the design value under the probabilistic standard is significantly smaller than the probability of occurrence under the deterministic standard; thereby increasing the likelihood that impact estimates based on assuming continuous emissions would significantly overestimate actual impacts for these sources.
>
> Given the implications of the probabilistic form of the 1-hour NO_2 NAAQS discussed above, **we are concerned that assuming continuous operations for intermittent emissions would effectively impose an additional level of stringency beyond that intended by the level of the standard itself**. As a result, we feel that **it would be inappropriate to implement the 1-hour NO_2 standard in such a manner** and recommend that **compliance demonstrations for the 1-hour NO_2 NAAQS be based on emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations**. EPA believes that existing modeling guidelines provide sufficient discretion for reviewing authorities to exclude certain types of intermittent emissions from compliance demonstrations for the 1-hour NO_2 standard under these circumstances.

The fire pump engines will be tested once per week. A week contains 168 hours. Including the fire pump engines in the 1-hour NO_2 NAAQS demonstration modeling is equivalent to assuming that the engine operated continuously throughout the week.

EPA has indicated that including intermittent emissions of low frequency in the compliance demonstration would result in an unintended increase in the stringency of the standard. EPA explicitly used the weekly testing <u>and use</u> of emergency engines as its example of a source type that should be excluded from the modeling because its operation is too infrequent (in the present case, 1 hour out of 168) to contribute significantly to the annual distribution of daily maximum 1-hour concentrations. In contrast, EPA indicated that it would be appropriate to include an intermittent source that was operated on a daily basis.[2]

[2] "On the other hand, an 'intermittent' source that is permitted to operate only 365 hours per year, but is operated as part of a process that typically occurs every day, would be less suitable for application of this guidance since the single hour of emissions from each day could contribute significantly to the modeled design value based on the annual distribution of daily maximum 1-hour concentrations." *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard,* p. 10.

California Air Pollution Control Officers Association (CAPCOA) has also provided guidance on modeling to demonstrate compliance with the 1-hour NAAQS.[3] CAPCOA also uses weekly testing of a fire water pump as an example of a source with a very low likelihood of actually affecting compliance. CAPCOA refers to the EPA guidance, and provides two alternative approaches to modeling intermittent sources if the decision to model them is made. The first approach utilizes the annual average emission rate to calculate hourly impacts. Because the annual average emission rate for an emergency engine is more than 100 times lower than the actual emission rate during an operating hour, this approach is not very likely to result in a high impact.

The second approach suggested by CAPCOA is to model the intermittent source as if it operated continuously, but use only the highest modeled impact during any given week. This approach has two major flaws. First, it does very little to address the extremely conservative nature of assuming continuous operation; at most, it eliminates the second day of a multi-day event. Second, the method is applicable only to a screening compliance demonstration—it cannot be used to demonstrate compliance where ambient concentrations are predicted by matching hourly modeling results to corresponding hourly ambient concentrations. It is therefore not applicable to the ISEGs demonstration.

EPA guidance clearly provides that modeling that includes the fire pump engines cannot be used to demonstrate compliance with the 1-hour NAAQS, because inclusion of these intermittent sources results in unintended stringency. Conversations with the MDAQMD confirm that their interpretation of the EPA guidance as it applies to fire pump engines is consistent with this. Thus, consistent with EPA guidance and MDAQMD, no additional modeling has been performed.

Background: Operation of Boilers

The PO's PTA, requests to increase the daily usage of auxiliary boilers from 4 hours to 24 hours per day, with the increase in nominal size from 231.1 MMBtu/hr to 249 MMBtu/hr and requests to add three new nighttime preservation boilers (no larger than 10 MMBtu/hr, one boiler per power block). In addition, the PO proposes to retain the annual limits on auxiliary boiler fuel usage as currently approved by the Energy Commission, and to incorporate the fuel used by the new nighttime preservation boilers within these limits. The PO did not provide information about the number of hours of annual operations of auxiliary boilers and nighttime preservation boilers in order to retain the annual fuel usage limits. Without such information, staff is not able to determine how the annual fuel usage limits will be met, with increased daily usage of large auxiliary boilers and additional nighttime preservation boilers.

[3] CAPCOA, *Modeling Compliance of The Federal 1-Hour NO_2 NAAQS*, October 27, 2011.

Data Request

3. Please quantify the hours of annual operations of auxiliary boilers and nighttime preservation boilers in order to meet the approved annual fuel usage limits. Please show the calculations that demonstrate compliance with AQ-SC10.

Response:

There are two conditions that limit fuel use.

- As proposed, Condition AQ-12 limits fuel use in the boilers in each solar facility to 328 MMSCF.
- Condition AQ-SC10 limits fuel use in the boilers in each solar facility to 5% of the total solar thermal input.

The fuel use limit in Condition AQ-SC10 is more restrictive than the limit in Condition AQ-12, and corresponds to operation of the auxiliary boiler at capacity for approximately 712 hours per year (approximately 2 hours per day on average).[4] Because the fuel use limit in Condition AQ-SC10 is based on actual solar thermal input, it is variable from year to year. Compliance will be demonstrated by calculations at the end of each calendar year. See Table DR-3.1 for an example based on information in the AFC and the biological mitigation proposal.

Emission calculations for boiler use in the permit application are based on the higher permit limit, and are therefore conservative (that is, the modeled results will over-state potential impacts compared to actual operation's emission). Regulatory applicability determinations and compliance demonstrations based on more conservative assumptions are therefore more conservative.

Applicant will comply with both Condition AQ-SC10 by limiting fuel consumption based on actual solar thermal input and AQ-SC12 limiting fuel use in the boilers.

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[4] Gross solar heat input for 100MW of net power production = 247.7 MWth (AFC Figure 2.2-5). The approved nominal capacity of Ivanpah 1, the smallest of the three facilities, is 120 MW. The gross solar heat input is approximately 120/100 x 247.7 MWth = 297.2 MWth = 1,014 MMBtu/hr. Annual hours of electricity generation are about 3,500 (AFC page 2-8). Annual solar heat input = 3,500 x 1,014 = 3,550,000 MMBtu. Annual fuel use limit in AQ-SC10 = 0.05 x 3,550,000 = 177,500 MMBtu/yr. Hours of boiler use, firing at maximum capacity (249 MMBH) = 177.500 / 249 = 712

TABLE DR-3.1

Boiler Operation (annual usage per boiler) (based on Ivanpah 1)

Scenario	Auxiliary Boilers		Nighttime Preservation Boilers			Heat input		Permit Limit	
	Annual Hours	Annual Fuel (MMBtu)	Annual Hours	Annual Fuel (MMBtu)	Total fuel (MMSCF)	Total Fuel (MMBtu)	Total solar input (MMBtu)[a]	AQ-12 Total fuel (MMSCF)	AQ-SC10 (MMBtu)
	--	--	--	--			--		5% of solar input (max)
Aux Boiler at capacity NPB @ capacity, 16 hrs/day	478	118,900	5,840	58,400	172	177,300	3,550,000	328 (max)	177,500

NOTES:

[a]Solar heat input calculated based on 10 hours per day, 350 days per year.

Background: Emissions from Nighttime Preservation Boilers

In Table 4 of the Application for Permit Amendment to the MDAQMD, the PO indicates the annual emissions (except for CO) from the nighttime preservation boilers are 0 because the fuel usage of the nighttime preservation boilers will be incorporated in the total annual fuel usage limits. On page 5 of the Application for Permit Amendment, the PO indicates emissions from the nighttime boilers are based on annual average usage of up to 16 hours per day. While the net change from considering both the auxiliary boilers and nighttime boilers might be 0, the emissions of the nighttime boilers should not be 0 if annual usage is up to 16 hours per day. If hourly emissions of CO from each nighttime boiler are 0.36 lb/hr (as in Table 3 and Table 4 of the Application for Permit Amendment), the annual emission of CO would be 1.05 tons/year instead of 0.526 tons/year (as in Table 4 of the Application for Permit Amendment).

Data Request

4. Please quantify the emissions of nighttime preservation boilers (NPB) and the auxiliary boilers in accordance with the numbers of hours of annual operations determined in Data Request 3.

Response:

Table 4 of the Application for Permit Amendment indicates that the *incremental* emissions (the emission *increases*) from the NPBs are zero. The actual hourly emissions from the NPBs are shown in Table 3 of the Application for Permit Amendment. Because the values in Table 4 of the Application for Permit Amendment are increased emissions, the CO value shown (0.526) is correct.

Table DR 4.1 shows the annual emissions from the NPBs based on 58,400 MMBtu (5,840 hours at full load) of operation.

TABLE DR 4.1
Emissions– Nighttime Boilers (per boiler)

	Maximum Emissions						
Timeframe	**NOx**	**CO**	**VOC**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**GHGs**
lb/hr	0.11	0.36	0.05	0.03	0.07	0.07	1169
lb/day[a]	2.6	8.6	1.3	0.7	1.7	1.7	28,048
ton/year[b]	0.321	1.051	0.146	0.088	0.204	0.204	3413

[a]Daily emission rate based on 24 hours per day.
[b]Annual emission rate based on 16 hours per day.

Background: Background Monitoring Stations

In the original October 2009 FSA (and Energy Commission Decision) for the Ivanpah SEGS project, staff recommended the background PM_{10} and $PM_{2.5}$ data to be obtained from the Jean, NV monitoring station, which is only about 17 miles from the project site. In Table 15 of the Application for Permit Amendment to MDAQMD, the PO uses PM_{10}

from Trona and $PM_{2.5}$ from Big Bear, both of which are more than 100 miles away from the project site.

Data Request

5. Please redo the PM_{10} and $PM_{2.5}$ analysis using the most recently available background PM_{10} and $PM_{2.5}$ data from the Jean, NV monitoring station, to be consistent with the original October 2009 FSA.

Response:

Table DR 5.1 provides the requested analysis, using background data contained in Air Quality Table 10 of the October 2009 FSA.

The background concentrations from the Jean station are lower than those contained in the petition for amendment and permit application. The revised table does not change the conclusions contained in the petition for amendment. The project as amended will not cause or contribute to a violation of any applicable air quality standard.

TABLE DR5.1
Project Plus Background ($\mu G/M^3$)[A]

Pollutant	Averaging Time	Normal Operations AERMOD Old[b]	Normal Operations AERMOD New[c]	Fumigation SCREEN3	Background[d]	Total Impact, New	State Ambient Air Quality Standard	National Ambient Air Quality Standard
PM_{10}	24-hour	0.1	0.4	0.2	**96**	**96**	**50**	150
$PM_{2.5}$	24-hour	0.1	0.4	0.2	12.9	13.3	-	35

Notes:

a. Table shows modeled impacts for pollutants that have an increase in project impact in an averaging time period for which a state or federal standard applies.
b. "Old" modeling results reflect the project as described in FDOC Rev C. (NOTE: dust impacts from maintenance activities not included.)
c. "New" modeling results reflect the project as described in the petition to amend Conditions of Certification.
d. Background concentrations are the maximum concentrations for the years 2004-2008, as measured at the ambient monitoring station in Jean, Nevada.

Background:

The PO is proposing to enhance the dry cooling system at each power block with a partial dry cooling system that incorporates a wet surface air cooling (WetSAC) system. The WetSAC will be used to cool auxiliary systems such as turbine and generator lube oil, boiler feed pump seal oil, chemical feed systems, and the boiler circulation pump seal oil. The PO has stated that this partial dry cooling system will result in approximately six acre-feet per year of additional water use. It is unclear if each WetSAC system will use six acre-feet of water per year or whether all three WetSAC systems combined, will use six acre-feet of water per year. Also, incorporation of the partial dry cooling system into the project water use processes is not clear.

There is also ambiguity about when the WetSAC system would use water. The PTA states that the WetSAC system would use water for cooling when ambient temperature is above 82°F or higher. However, the application to amend the MDAQMD permit, states that the WetSAC system would use water only when the ambient temperature is 86°F or higher.

Data Request

6. Please provide a detailed description of how the proposed WetSAC will be incorporated with the water conveyance, water treatment, and wastewater discharge facilities.

<u>Response:</u>

The Wet Surface Air Condenser (WSAC) is part of the Closed Cooling Water (CCW) system. The primary function of this system is to provide cooling water to the main boiler feed pump lube oil and seal oil coolers, the steam turbine generator lube oil coolers, generator air coolers, solar receiver steam generator (SRSG) blowdown coolers, auxiliary boiler forced draft (FD) fan bearing coolers, boiler circulation pump heat exchangers, and sample panel coolers. As the CCW picks up heat from the various sources listed above, the hot water is pumped to the heat exchanger where heat is transferred from the CCW using either the dry section or the wet section (depending on ambient conditions and CCW system temperatures). Lower temperature CCW is then returned to the end users listed above to repeat the cycle. Refer to the P&ID in Attachment 1 (Bechtel drawing 25542-001-M6-WB-00001, rev 003).

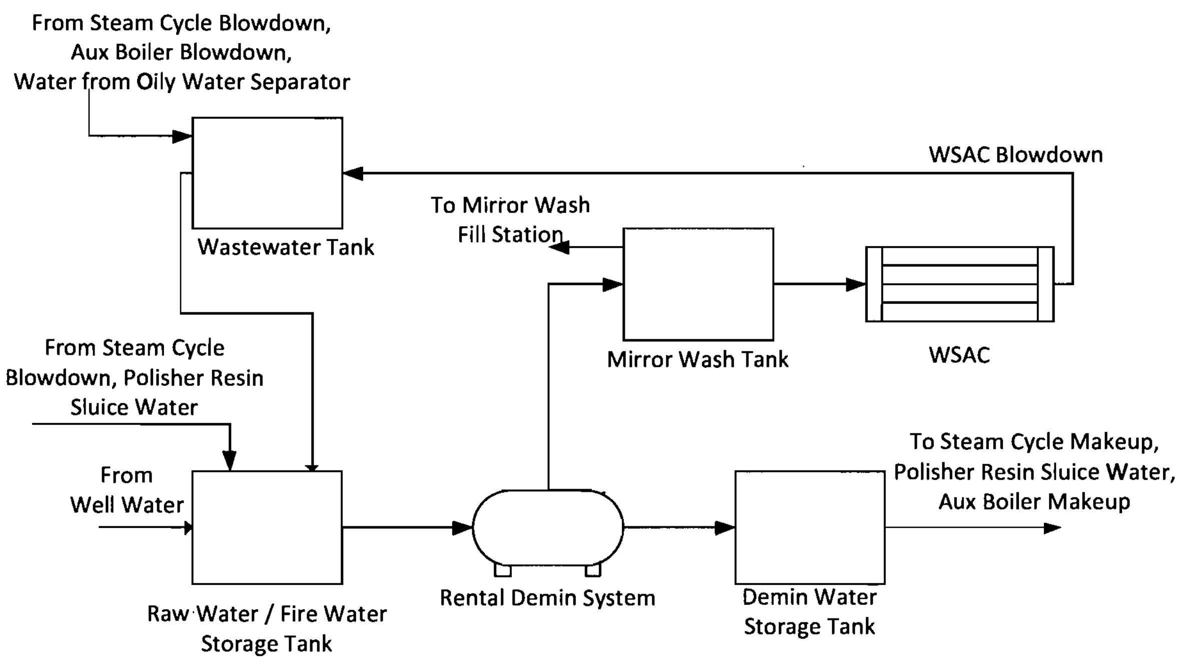
Above 86°F ambient temperature (dry bulb), dry sections of the WSAC cannot take the full load and the wet section is started. Up to 105°F ambient temperature, dry and wet units operate together to provide cooling. Above 105°F ambient temperature, the dry sections can no longer provide the necessary cooling, and the wet section will take the full cooling load.

The WSAC system contains two spray pumps (one backup) and six fans. When operating in wet mode, the CCW enters the wet portion of the heat exchanger. Heat transfer occurs using induced draft fans to draw air across the tubes. However, in this portion of the heat exchanger, spray water is pumped to the top of the WSAC, and is then sprayed downward directly onto the tubes carrying CCW. Heat is transferred by drawing this moist air across the tube surfaces.

While the closed cooling water is a closed system, the wet / spray water system in the WSAC is not. High Efficiency drift eliminators, which prevent water droplets from being carried out of the WSAC with the exhaust air, are installed on the spray water system (wet portion). The drift rate, or evaporative loss, is designed to be less than 0.0005% of the circulating water flow rate. This drift rate is considered best available control technology for wet cooling systems. Water from the demineralized water system is used as makeup for water loss in the open system due to drift in the WSAC system.

To gain an understanding of how the WSAC fits in the overall plant water system, refer to Attachment 2 for the water balance diagram (Bechtel drawing 25542-000-M5-YA-00001, rev 000). Figure 2 shows 72 total water balance cases at ambient dry bulb temperatures ranging from 53.6°F and lower through 111.2°F and higher, and varying operating conditions including: 25% load, 50% load, 75% load, 100% load (at guaranteed heat rate), power boosting mode, and 100% load (at guaranteed output). A conceptual sketch of the systems is included below.

Overall Plant Water System*

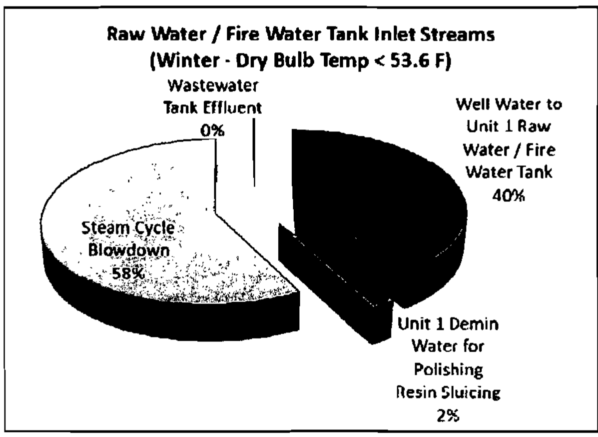


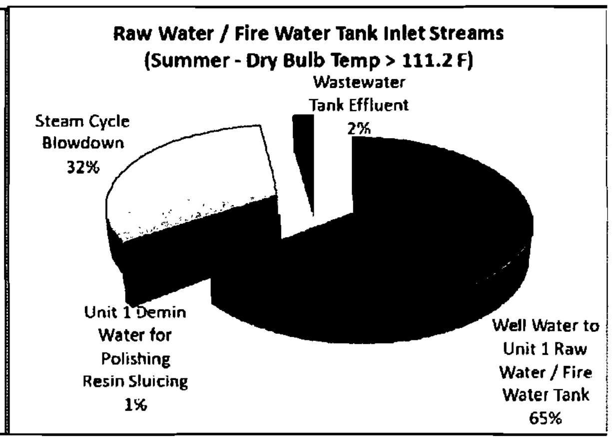
* Conceptual - diagram does not include all water streams.

Well water is supplied to the raw water / fire water tank of each unit. From there, the majority of the water is conveyed to the rental demineralizer trailers, which in turn feeds the steam cycle makeup, mirror wash tank, WSAC makeup (when required), polisher resin sluice water, and auxiliary boiler blowdown makeup. WSAC water makeup is required to account for losses to due to WSAC blowdown and drain water during winter, as well as evaporation and drift.

Each unit has its own wastewater storage tank which receives oil-free wastewater from the WSAC blowdown and drain water (as indicated above), the auxiliary boiler, power block, tank area sump pumps, and SRSG blowdown. The wastewater recycle pumps then transfer this collected water from the wastewater tank back to the fire/raw water storage tank. Periodic samples will be taken to verify proper water quality in the wastewater storage tank. If upset conditions occur with the water chemistry and the water in the tank does not meet the required quality, it is possible to send wastewater to off-site disposal through a hose connection at the discharge of the recycle pumps. Upset conditions and off-site disposal are not expected to be part of the unit's normal operation.

From the wastewater tank, water is then conveyed to the raw water / fire water storage tank. In addition to the stream from the wastewater tank, the raw water / fire water tank receives streams from the steam cycle blowdown, condensate polisher resin sluice water, and well water makeup. The following is a summary of the flows for unit 1 at the two extreme ambient temperature ranges:





During winter months, the wastewater tank effluent contributes very little additional flow to the overall raw water usage (0.25%), while during the summer peak months where temperatures are above 111 F, the wastewater tank effluent contributes approximately 2% to the overall raw water usage.

From the raw water / fire water storage tank, water is forwarded to fire water users (typically zero unless a fire event occurs), service water users, and the demineralized water system. The rental demineralizer trailers at each unit are comprised of 100% capacity cation/anion trailer-mounted ion exchange systems. The incremental increase in flow through the demin trailers due to the addition of the wet portion of the WSAC is approximately 17% for the 86 °F to 89 °F ambient temperature range (hybrid cooling), and 79% during time periods of ambient temperature greater than 111 °F (wet cooling only).

The WSAC also includes the following chemical injection systems:

1. Sodium hypochlorite for control of biofouling caused by growth of microorganisms,

2. Corrosion inhibitor for corrosion control, and
3. Dispersant to control scale formation and suspended solid deposition.

These chemical injection systems are designed for continuous operation, although it is expected that chemical injection will occur intermittently because the WSAC only requires spray water at or above 86 °F. The chemical injection systems are based on the maximum WSAC spray water recirculation flow rate, and for minimum to maximum spray water makeup or blowdown flow rates to the basin. The chemical injection systems are also designed based on normal operation using demineralized water as the makeup to the basin. Operations personnel will obtain daily grab samples of the WSAC blowdown to verify the water is free of oil and chemical contaminants.

Data Request

7. Please provide information indicating whether each WetSAC system will use up to six acre-feet of groundwater or all three WetSAC systems together will use up to six acre-feet of groundwater.

Response:

The water balance diagram in Attachment 2, page 8, table B "Demineralized Water Consumption" shows the maximum makeup water to the WSAC is six (6) acre-feet per year for each unit, or a total of eighteen (18) acre-feet per year.

Data Request

8. Please quantify the hours of annual operation of when the WetSAC system will use water, the water use rates, and the threshold for wet cooling (i.e., water use at 82°F, 86°F, or some other trigger or process threshold).

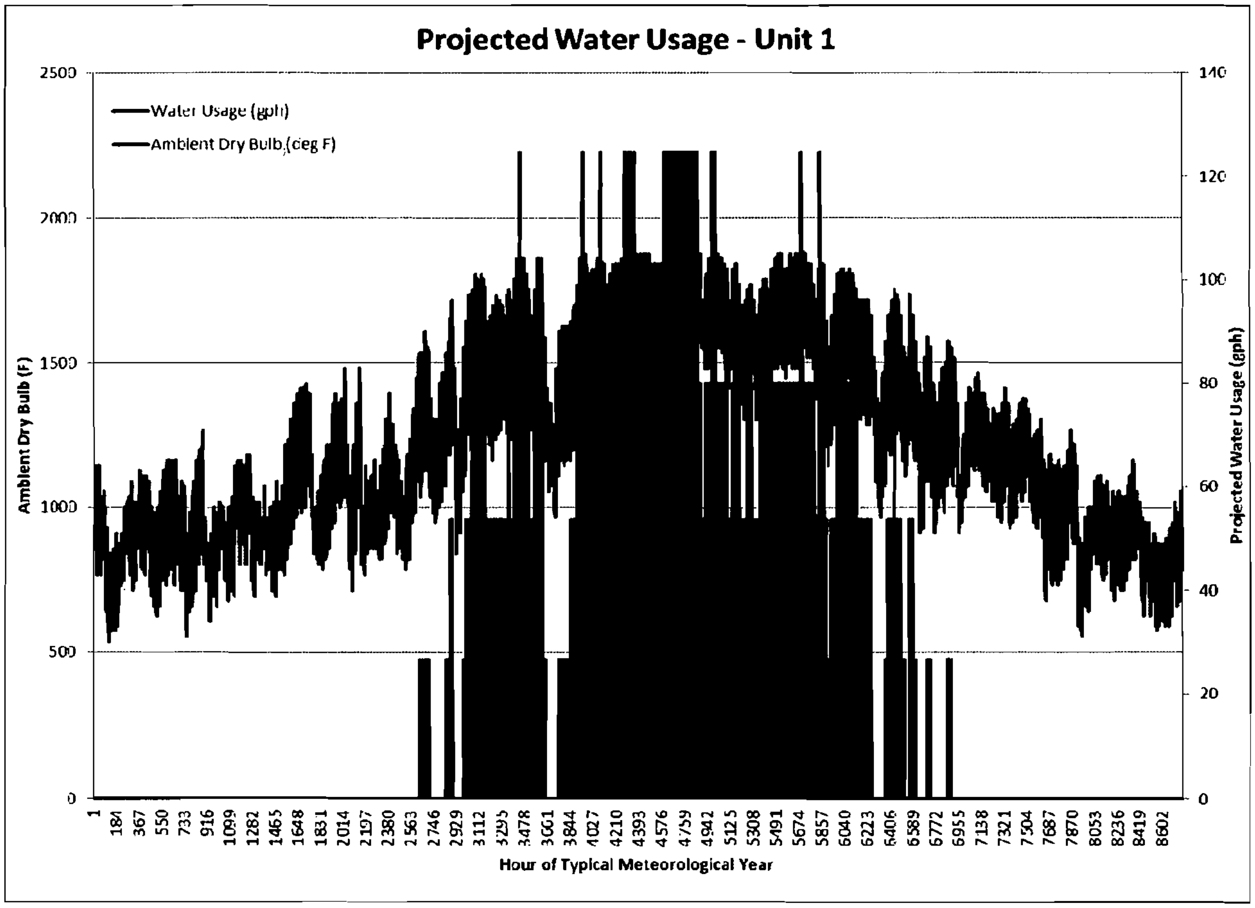
Response:

In order to independently verify the 6 AF/year WSAC makeup flow rate, publicly available information was used to predict hours of annual operation. The NREL Solar Power Prospector includes historical data gathered from weather stations by NREL for the typical meteorological year (TMY). Data is taken from the last ten years and sorted by the most typical months.

Hourly TMY ambient temperatures for Las Vegas (ID #114853575) were plotted against the projected makeup water to the WSAC for hours where the Global Horizontal Irradiance (GHI) is greater than zero (sun is shining). The following scenarios were considered:

Global Horizontal Irradiance (GHI)	**Ambient Temperature, T_a (°F)**	**Cooling Mode**
GHI > 0	T_a < 86 °°F	Dry Cooling Only
GHI > 0	86 °F < T_a < 105 °F	Hybrid Cooling
GHI > 0	T_a > 105 °F	Wet Cooling Only

For example, if the GHI is greater than zero, the unit will be operating, but if the ambient dry bulb temperature is less than 86°F, there is no makeup water to the WSAC, as it would be in either bypass or dry cooling mode. Alternatively, if the GHI is greater than zero, but the ambient dry bulb temperature is greater than 105 °F, only the wet cooling system would be running and the makeup water to the WSAC would be approximately 2,226 gph as shown in the Attachment 2, page 8, table B. If the GHI is zero, there is no makeup flow to the WSAC, as the unit will not be operational at that time (night).



Based on this information, it is anticipated the WSAC would operate for approximately 1,700 hours per year. The exact hours of operation will be highly dependent on the weather.

Data Request

9. Please provide water mass balance and heat balance diagrams for both average and maximum flow rates that include all process and/or ancillary water supplies and wastewater streams.

Response:

The water mass balance is shown for all three units in Attachment 2. There are 72 total water balance cases at ambient dry bulb temperatures ranging from 53.6°F and lower through 111.2°F and higher, and varying operating conditions including: 25% load, 50%

load, 75% load, 100% load (at guaranteed heat rate), power boosting mode, and 100% load (at guaranteed output).

Stream 32 in the attached P&ID shows the demineralized makeup water to the WSAC. Cases 1 through 30 do not reflect any demineralized water makeup to the WSAC. This is due to the fact that the ambient temperatures for these cases fall below the 86°F ambient threshold. Beginning with case 31 and continuing through case 54, both the wet and dry portions would be in use. From case 55 through 72, only the wet portion would be in use as the ambient temperature exceeds 105°F.

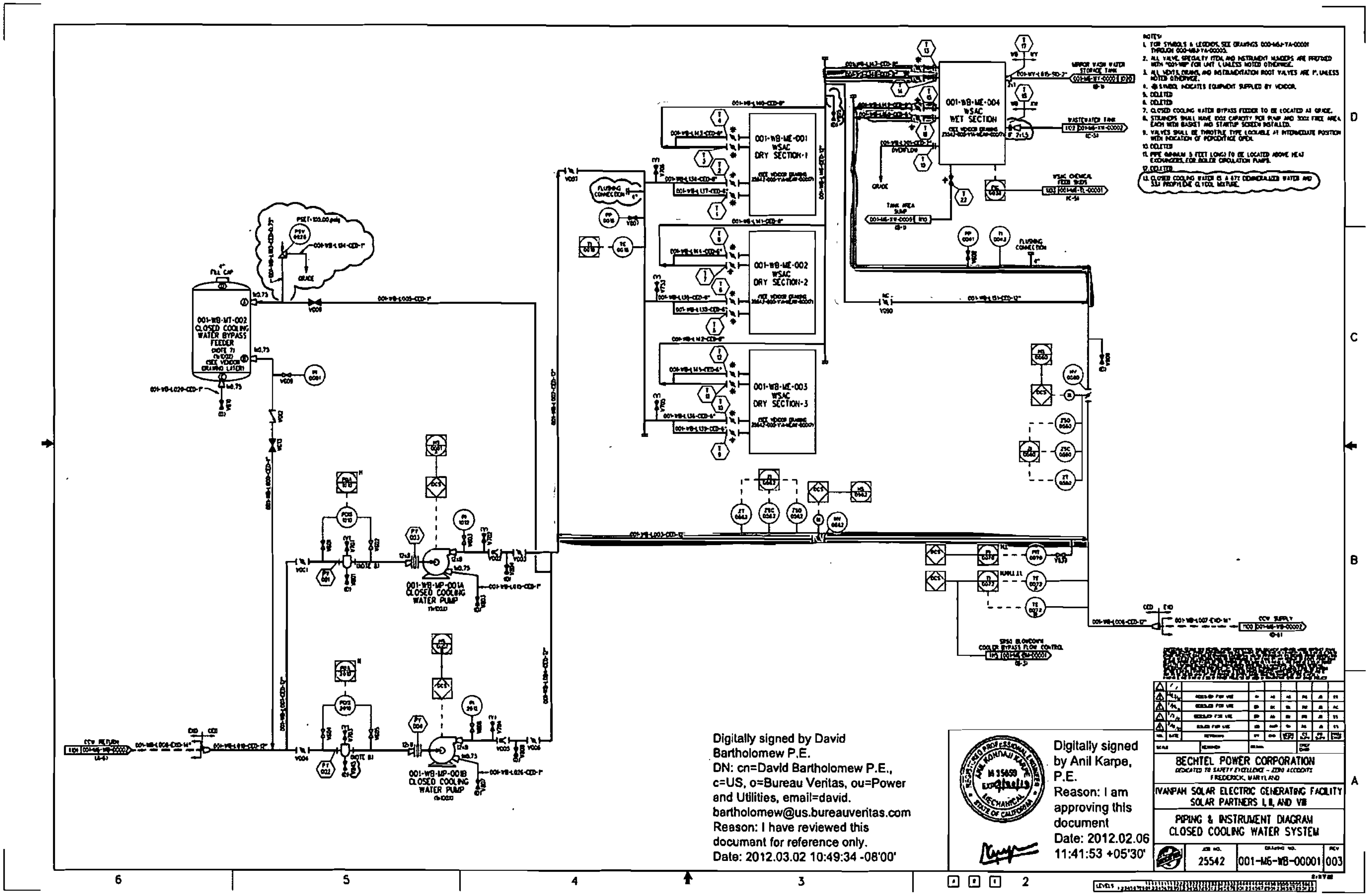
The makeup water to the WSAC does not vary with load, only with ambient temperature. For example, cases 49 through 54 are at ambient dry bulb temperatures of between 100°F and 104.9°F. Flow for several streams increases as load increases from 25% to full load (e.g., steam cycle makeup and blowdown).

Attachment 1

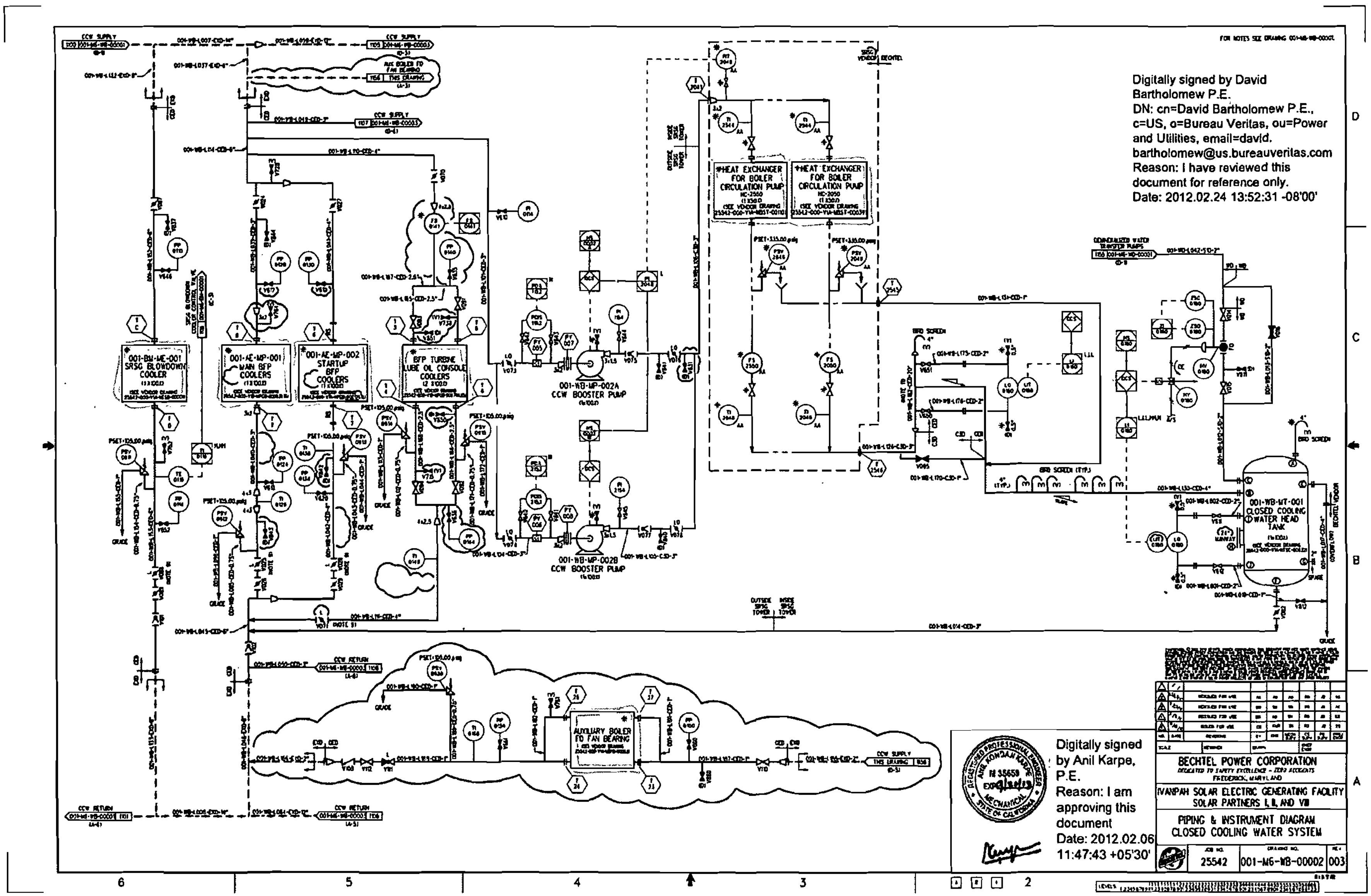
WSAC bypass (cooling of CCE not required)

Dry section only

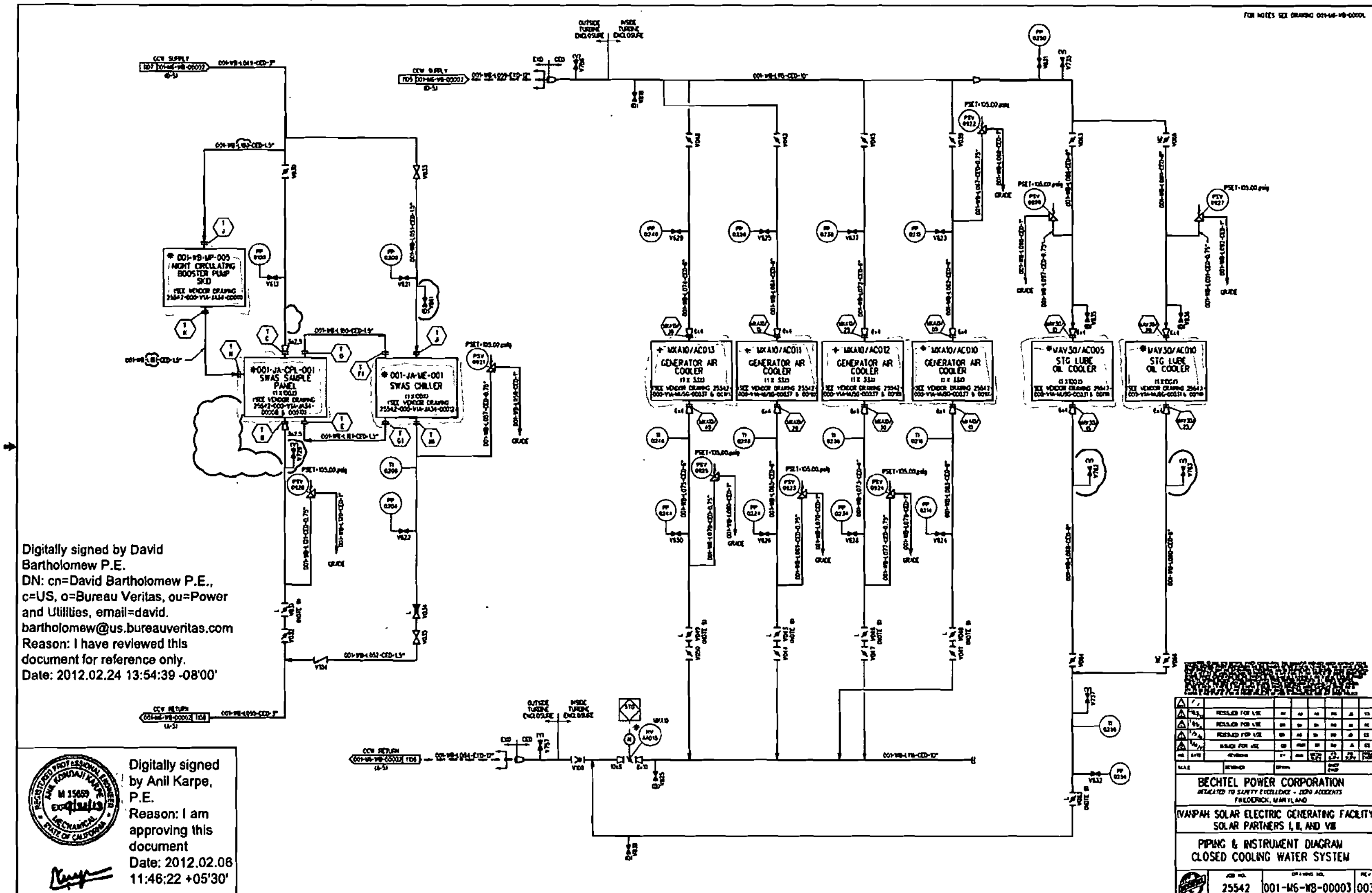
Wet + Dry sections



CCW end users



CCW end users



Digitally signed by David Bartholomew P.E.
DN: cn=David Bartholomew P.E., c=US, o=Bureau Veritas, ou=Power and Utilities, email=david.bartholomew@us.bureauveritas.com
Reason: I have reviewed this document for reference only.
Date: 2012.02.24 13:54:39 -08'00'

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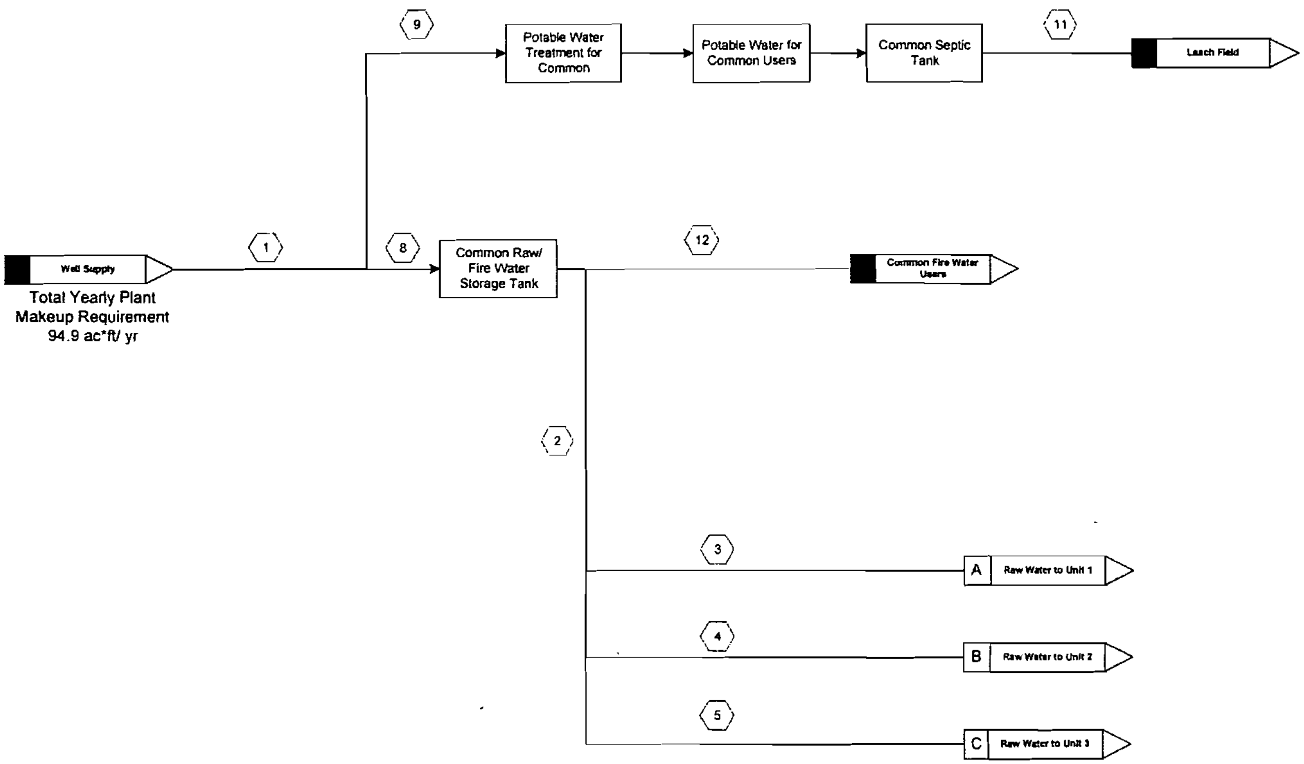
Reason: I am approving this document
Date: 2012.02.06 11:46:22 +05'30'

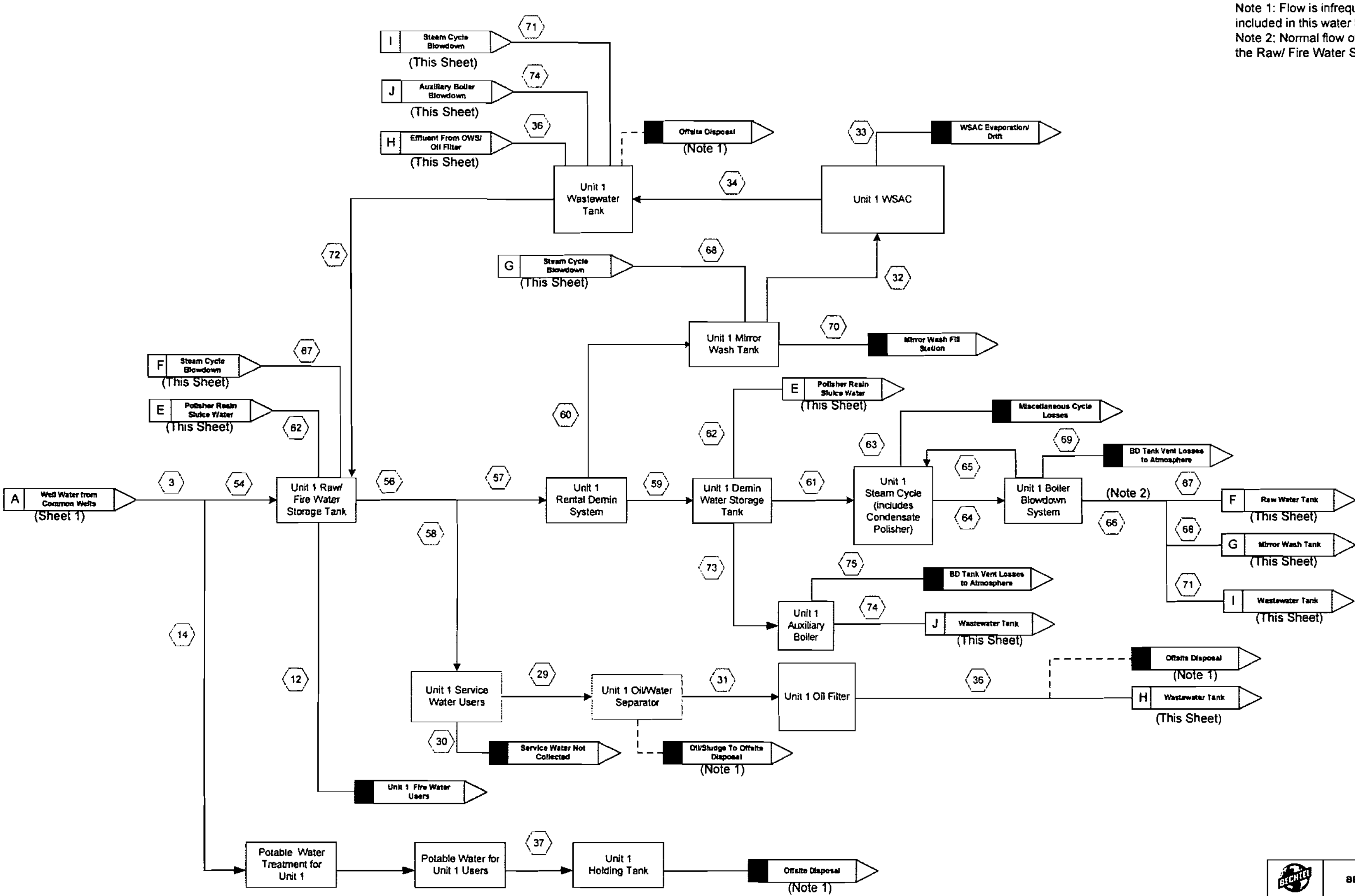
Attachment 2



Rev	Date	Reason for Revision	RE	CHK	EGS	PE
000	10/28/10	Issue for Use				

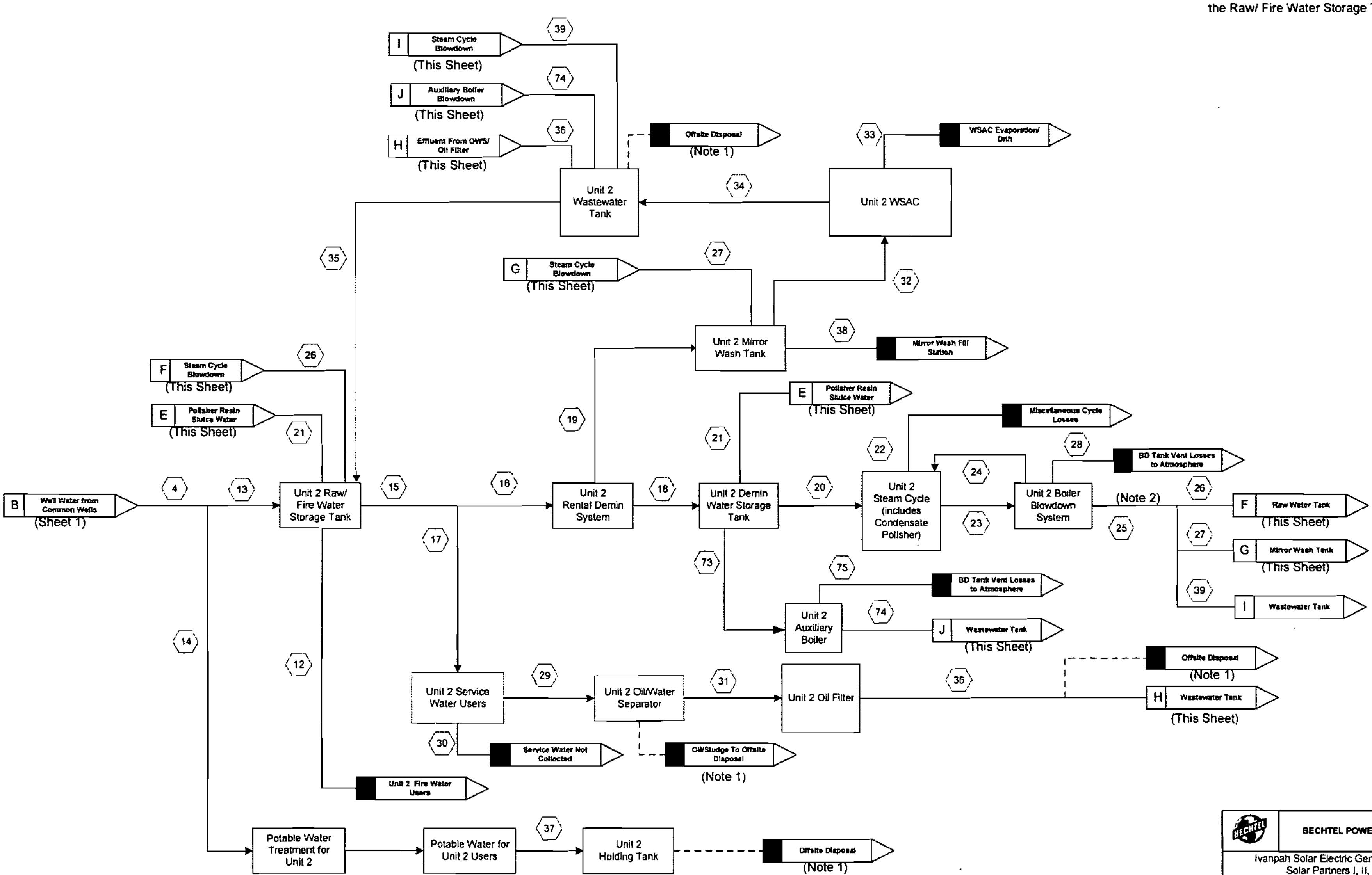
BECHTEL POWER CORPORATION			
Ivanpah Solar Electric Generating Facility Solar Partners I, II, and VIII			
Water Balance Diagram (Common)			
JOB NO. 25542	DWG. NO. 000-M5-YA-00001	REV. 000	Sheet: 1 of 8

Note 1: Flow is infrequent, as such it is not included in this water balance diagram.
Note 2: Normal flow of blowdown is to the Raw/ Fire Water Storage Tank.



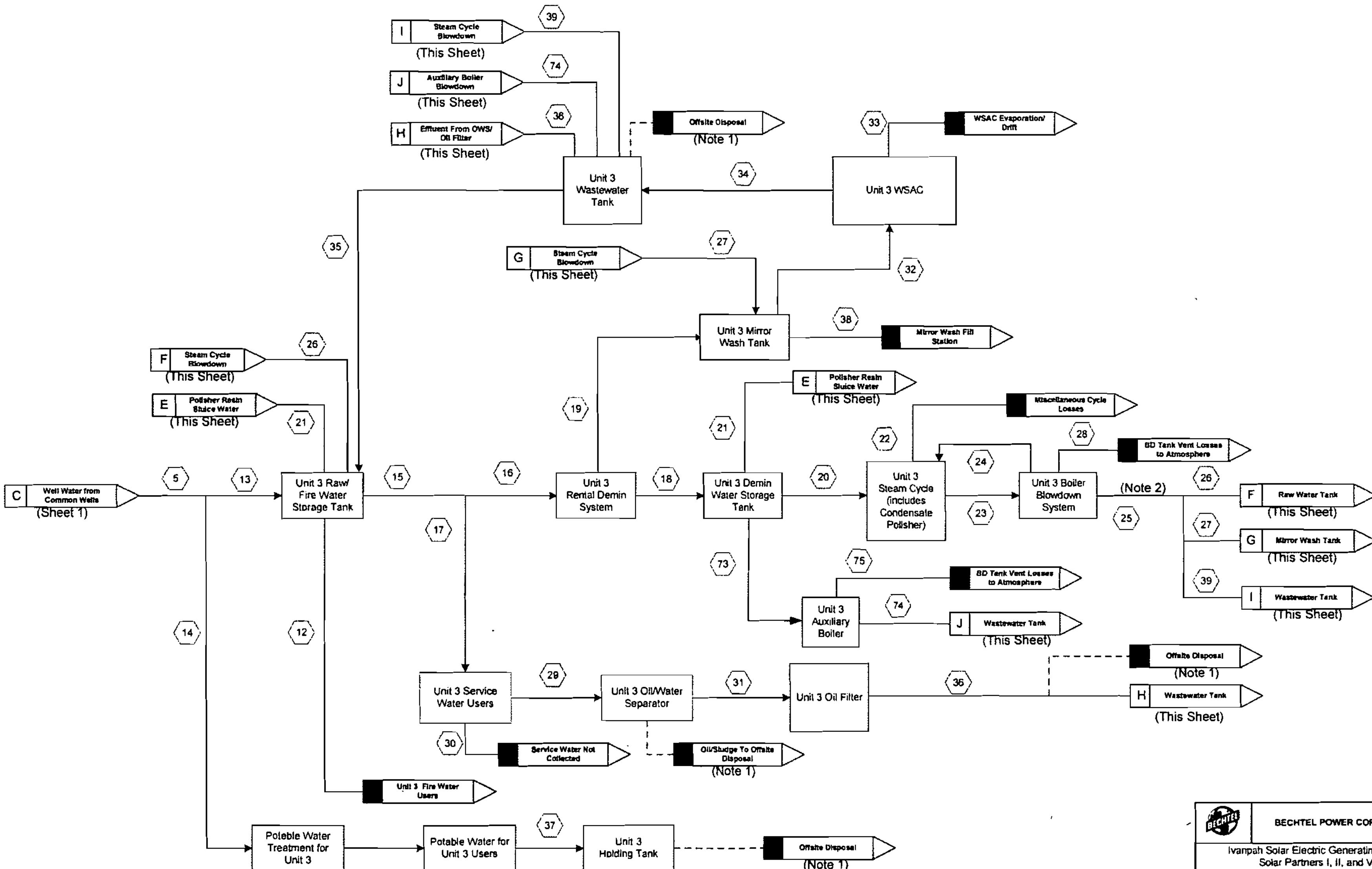
BECHTEL POWER CORPORATION			
Ivanpah Solar Electric Generating Facility Solar Partners I, II, and VIII			
Water Balance Diagram (Unit 1)			
JOB NO. 25542	DWG. NO. 000-M5-YA-00001	REV. 000	Sheet: 2 of 8

Note 1: Flow is infrequent, as such it is not included in this water balance diagram.
Note 2: Normal flow of blowdown is to the Raw/ Fire Water Storage Tank.



BECHTEL POWER CORPORATION			
Ivanpah Solar Electric Generating Facility Solar Partners I, II, and VIII			
Water Balance Diagram (Unit 2)			
JOB NO. 25542	DWG. NO. 000-M5-YA-00001	REV. 000	Sheet: 3 of 8

Note 1: Flow is infrequent, as such it is not included in this water balance diagram.
Note 2: Normal flow of blowdown is to the Raw/ Fire Water Storage Tank.



BECHTEL POWER CORPORATION			
Ivanpah Solar Electric Generating Facility Solar Partners I, II, and VIII			
Water Balance Diagram (Unit 3)			
JOB NO. 25542	DWG. NO. 000-M5-YA-00001	REV. 000	Sheet: 4 of 8

	WATER BALANCE CASE DESCRIPTION		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11	Case 12	Case 13	Case 14	Case 15	Case 16	Case 17	Case 18	Case 19	Case 20	Case 21	Case 22	Case 23	Case 24
	DRY BULB TEMP, °C		<12	<12	<12	<12	<12	<12	12 - 18	12 - 18	12 - 18	12 - 18	12 - 18	12 - 18	18 - 20	18 - 20	18 - 20	18 - 20	18 - 20	18 - 20	20 - 24	20 - 24	20 - 24	20 - 24	20 - 24	20 - 24
	DRY BULB TEMP, °F		<53.6	<53.6	<53.6	<53.6	<53.6	<53.6	53.6 - 64.4	53.6 - 64.4	53.6 - 64.4	53.6 - 64.4	53.6 - 64.4	53.6 - 64.4	64.4 - 68	64.4 - 68	64.4 - 68	64.4 - 68	64.4 - 68	64.4 - 68	68 - 75.2	68 - 75.2	68 - 75.2	68 - 75.2	68 - 75.2	68 - 75.2
	PLANT LOAD %		25	50	75	Guaranteed HR (100%)	Boosting	Guaranteed Output (MCR)	25	50	75	Guaranteed HR (100%)	Boosting	Guaranteed Output (MCR)	25	50	75	Guaranteed HR (100%)	Boosting	Guaranteed Output (MCR)	25	50	75	Guaranteed HR (100%)	Boosting	Guaranteed Output (MCR)
	PLANT GROSS OUTPUT, MW (Unit1/Units 2&3)		29/31	59/64	87/94	113/122.7	122/133	128/133	29/31	59/64	87/94	113/122.7	122/133	128/133	29/31	59/64	87/94	113/122.7	122/133	128/133	29/31	59/64	87/94	113/122.7	122/133	128/133
STREAM NO	STREAM DESCRIPTION	NOTES	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)
1	Plant Well Water Supply		2,978.24	3,168.48	3,409.93	3,884.15	3,765.21	3,778.94	2,978.24	3,168.48	3,409.93	3,884.15	3,765.21	3,778.94	2,978.24	3,168.48	3,409.93	3,884.15	3,765.21	3,778.94	2,978.24	3,168.48	3,409.93	3,884.15	3,765.21	3,778.94
2	Well Water to Individual units		2,957.40	3,147.92	3,389.10	3,863.32	3,744.37	3,758.11	2,957.40	3,147.92	3,389.10	3,863.32	3,744.37	3,758.11	2,957.40	3,147.92	3,389.10	3,863.32	3,744.37	3,758.11	2,957.40	3,147.92	3,389.10	3,863.32	3,744.37	3,758.11
3	Raw Water to Unit 1		917.25	978.24	1,049.91	1,137.19	1,158.02	1,163.28	917.25	978.24	1,049.91	1,137.19	1,158.02	1,163.28	917.25	978.24	1,049.91	1,137.19	1,158.02	1,163.28	917.25	978.24	1,049.91	1,137.19	1,158.02	1,163.28
4	Raw Water to Unit 2		1,020.07	1,085.69	1,167.59	1,263.07	1,293.18	1,298.42	1,020.07	1,085.69	1,167.59	1,263.07	1,293.18	1,298.42	1,020.07	1,085.69	1,167.59	1,263.07	1,293.18	1,298.42	1,020.07	1,085.69	1,167.59	1,263.07	1,293.18	1,298.42
5	Raw Water to Unit 3		1,020.07	1,085.69	1,167.59	1,263.07	1,293.18	1,298.42	1,020.07	1,085.69	1,167.59	1,263.07	1,293.18	1,298.42	1,020.07	1,085.69	1,167.59	1,263.07	1,293.18	1,298.42	1,020.07	1,085.69	1,167.59	1,263.07	1,293.18	1,298.42
8	Raw Water Supply to Common Raw Water Tank		2,957.40	3,147.92	3,389.10	3,863.32	3,744.37	3,758.11	2,957.40	3,147.92	3,389.10	3,863.32	3,744.37	3,758.11	2,957.40	3,147.92	3,389.10	3,863.32	3,744.37	3,758.11	2,957.40	3,147.92	3,389.10	3,863.32	3,744.37	3,758.11
9	Well Water to Common Potable Water Treatment		20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83
11	Common Wastewater to Leach Field		20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83
12	Common Unit Fire Water Users		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Well Water to Unit 2/3 Raw Water Tank		892.99	1,058.91	1,140.81	1,235.90	1,288.09	1,258.34	892.99	1,058.91	1,140.81	1,235.90	1,288.09	1,258.34	892.99	1,058.91	1,140.81	1,235.90	1,288.09	1,258.34	892.99	1,058.91	1,140.81	1,235.90	1,288.09	1,258.34
14	Well Water to Unit 1/2/3 Potable Water Treatment		27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08
15	Unit 2/3 Raw Water Users		1,532.30	2,032.29	2,532.64	3,054.74	3,023.90	3,081.75	1,532.30	2,032.29	2,532.64	3,054.74	3,023.90	3,081.75	1,532.30	2,032.29	2,532.64	3,054.74	3,023.90	3,081.75	1,532.30	2,032.29	2,532.64	3,054.74	3,023.90	3,081.75
16	Unit 2/3 Raw Water Makeup to Demin Treatment		1,519.80	2,019.79	2,520.14	3,042.24	3,011.40	3,069.25	1,519.80	2,019.79	2,520.14	3,042.24	3,011.40	3,069.25	1,519.80	2,019.79	2,520.14	3,042.24	3,011.40	3,069.25	1,519.80	2,019.79	2,520.14	3,042.24	3,011.40	3,069.25
17	Unit 2/3 Raw Water to Service Water Users		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
18	Unit 2/3 Demin Water to Demin Storage Tank		694.28	1,194.25	1,694.60	2,216.70	2,185.86	2,243.71	694.28	1,194.25	1,694.60	2,216.70	2,185.86	2,243.71	694.28	1,194.25	1,694.60	2,216.70	2,185.86	2,243.71	694.28	1,194.25	1,694.60	2,216.70	2,185.86	2,243.71
19	Unit 2/3 Intermediate Water Feed to Mirror Wash Tank		825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54
20	Unit 2/3 Steam Cycle Makeup		524.38	1,024.38	1,524.73	2,046.83	2,015.99	2,073.84	524.38	1,024.38	1,524.73	2,046.83	2,015.99	2,073.84	524.38	1,024.38	1,524.73	2,046.83	2,015.99	2,073.84	524.38	1,024.38	1,524.73	2,046.83	2,015.99	2,073.84
21	Unit 2/3 Demin Water for Polisher Resin Sluicing		53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57
22	Unit 2/3 Miscellaneous Steam Cycle Losses		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
23	Unit 2/3 Steam Cycle Blowdown to Flash Tank		688.23	1,584.95	2,653.71	4,063.89	3,858.11	4,123.98	688.23	1,584.95	2,653.71	4,063.89	3,858.11	4,123.98	688.23	1,584.95	2,653.71	4,063.89	3,858.11	4,123.98	688.23	1,584.95	2,653.71	4,063.89	3,858.11	4,123.98
24	Unit 2/3 Flash Tank Vent Return to DA		187.34	553.07	1,121.49	2,048.53	1,852.82	2,082.65	187.34	553.07	1,121.49	2,048.53	1,852.82	2,082.65	187.34	553.07	1,121.49	2,048.53	1,852.82	2,082.65	187.34	553.07	1,121.49	2,048.53	1,852.82	2,082.65
25	Unit 2/3 Steam Cycle Blowdown Tank Drain		479.48	913.88	1,332.31	1,758.93	1,697.88	1,762.59	479.48	913.88	1,332.31	1,758.93	1,697.88	1,762.59	479.48	913.88	1,332.31	1,758.93	1,697.88	1,762.59	479.48	913.88	1,332.31	1,758.93	1,697.88	1,762.59
26	Unit 2/3 Steam Cycle Blowdown to Raw Water Tank		479.48	913.88	1,332.31	1,758.93	1,697.88	1,762.59	479.48	913.88	1,332.31	1,758.93	1,697.88	1,762.59	479.48	913.88	1,332.31	1,758.93	1,697.88	1,762.59	479.48	913.88	1,332.31	1,758.93	1,697.88	1,762.59
27	Unit 2/3 Steam Cycle Blowdown to Mirror Wash Tank		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Unit 2/3 Blowdown Tank Vent Losses to Atmosphere		32.40	98.02	179.92	275.40	305.50	298.70	32.40	98.02	179.92	275.40	305.50	298.70	32.40	98.02	179.92	275.40	305.50	298.70	32.40	98.02	179.92	275.40	305.50	298.70
29	Unit 1/2/3 Collected Service Water to Oil Water Separator		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
30	Unit 1/2/3 Service Water Not Collected		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
31	Unit 1/2/3 OWS Effluent to Oil Filter		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
32	Unit 1/2/3 Demin Water Makeup to WSAC		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	Unit 1/2/3 WSAC Evaporation and Drift		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	Unit 1/2/3 WSAC Blowdown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	Unit 2/3 Wastewater Tank Effluent		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
36	Unit 1/2/3 Oily Water Filter Effluent		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
37	Unit 1/2/3 Domestic Wastewater to Holding Tank		27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08
38	Unit 2/3 Mirror Wash Water		825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54
39	Unit 2/3 Steam Cycle Blowdown to Wastewater Tank		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	Well Water to Unit 1 Raw Water Tank		880.17	949.18	1,022.83	1,110.13	1,130.94	1,136.18	880.17	949.18	1,022.83	1,110.13	1,130.94	1,136.18	880.17	949.18	1,022.83	1,110.13	1,130.94	1,136.18	880.17	949.18	1,022.83	1,110.13	1,130.94	1,136.18
56	Unit 1 Raw Water Users		1,392.83	1,862.08	2,313.09	2,793.63	2,728.20	2,823.87	1,392.83	1,862.08	2,313.09	2,793.63	2,728.20	2,823.87	1,392.83	1,862.08	2,313.09	2,793.63	2,728.20	2,823.87	1,392.83	1,862.08	2,313.09	2,793.63	2,728.20	2,823.87
57	Unit 1 Raw Water Makeup to Demin Treatment		1,380.33	1,849.58	2,300.59	2,781.13	2,715.70	2,811.37	1,380.33	1,849.58	2,300.59	2,781.13	2,715.70	2,811.37	1,380.33	1,849.58	2,300.59	2,781.13	2,715.70	2,811.37	1,380.33	1,849.58	2,300.59	2,781.13	2,715.70	2,811.37
58	Unit 1 Raw Water to Service Water Users		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
59	Unit 1 Demin Water to Demin Storage Tank		653.86	1,114.01	1,574.11	2,054.66	1,987.23	2,094.60	653.86	1,114.01	1,574.11	2,054.66	1,987.23	2,094.60	653.86	1,114.01	1,574.11	2,054.66	1,987.23	2,094.60	653.86	1,114.01	1,574.11	2,054.66	1,987.23	2,094.60
60	Unit 1 Intermediate Water Feed to Mirror Wash Tank		728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47	728.47
61	Unit 1 Steam Cycle Makeup		483.98	944.14	1,404.24	1,884.79	1,817.39	1,915.03	483.98	944.14	1,404.24	1,884.79	1,817.39	1,915.03	483.98	944.14	1,404.24	1,884.79	1,817.39	1,915.03	483.98	944.14	1,404.24	1,884.79	1,817.39	1,915.03
62	Unit 1 Demin Water for Polisher Resin Sluicing		53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57
63	Unit 1 Miscellaneous Steam Cycle Losses		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
64	Unit 1 Steam Cycle Blowdown to Flash Tank		846.75	1,444.64	2,429.59	3,780.63	3,436.35	3,807.88	846.75	1,444.64	2,429.59	3,780.63	3,436.35	3,807.88	846.75	1,444.64	2,429.59	3,780.63	3,436.35	3,807.88	846.75	1,444.64	2,429.59	3,780.63	3,436.35	3,807.88
65	Unit 1 Flash Tank Vent Return to DA		174.27	513.00	1,076.81	1,878.54	1,631.49	1,905.13	174.27	513.00	1,076.81	1,878.54	1,631.49	1,905.13	174.27	513.00	1,076.81	1,878.54	1,631.49	1,905.13	174.27	513.00	1,076.81	1,878.54	1,631.49	1,905.13
66	Unit 1 Steam Cycle Blowdown Tank Drain		442.84	844.00	1,230.43	1,623.71	1,535.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,535.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,535.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,535.44	1,627.87
67	Unit 1 Steam Cycle Blowdown to Raw Water Tank		442.84	844.00	1,230.43	1,623.71	1,535.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,535.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,535.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,535.44	1,627.87
68	Unit 1 Steam Cycle Blowdown to Mirror Wash Tank		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69	Unit 1 Blowdown Tank Vent Losses to Atmosphere		28.65	87.64	181.30	248.57	269.42	274.98	28.65	87.64	181.30	248.57	269.42	274.98	28.65	87.64	181.30	248.57	269.42	274.98	28.65	87.64	181.30	248.57	269.42	274.98
70	Unit 1 Mirror Wash Water		728	728	728	728	728	728	728	728	728	728	728	728	728	728	728	728	728	728	728	728	728	728	728	728
71	Unit 1 Steam Cycle Blowdown to Wastewater Tank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	Unit 1 Wastewater Tank Effluent		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
73	Auxiliary Boiler Makeup		116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30
74	Auxiliary Boiler Blowdown Tank Condensate		80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60
75	Auxiliary Boiler Blowdown Tank Vent Losses		35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70

Note: Stream numbers 6,7,10, 40 - 53 and 55 were not used

All stream values are calculated in 25842-000-M0C-YA-00002, Water Use Calculation, Rev 00C.

STREAM NO.	STREAM DESCRIPTION	NOTES	Case 25	Case 26	Case 27	Case 28	Case 29	Case 30	Case 31	Case 32
	WATER BALANCE CASE DESCRIPTION		Case 25	Case 26	Case 27	Case 28	Case 29	Case 30	Case 31	Case 32
	DRY BULB TEMP, °C		24 - 28	24 - 28	24 - 28	24 - 28	24 - 28	24 - 28	28 - 32	28 - 32
	DRY BULB TEMP, °F		75.2 - 82.4	75.2 - 82.4	75.2 - 82.4	75.2 - 82.4	75.2 - 82.4	75.2 - 82.4	82.4 - 89.6	82.4 - 89.6
	PLANT LOAD %		25	50	75	Guaranteed HR (100%)	Boosting	Guaranteed Output (MCR)	25	50
	PLANT GROSS OUTPUT, MW (Unit1/Unit 2&3)		29/31	58/64	87/94	113/122.7	122/133	120/133	29/31	58/64
			FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)
1	Plant Well Water Supply		2,979.24	3,198.46	3,405.93	3,684.15	3,765.21	3,754.84	4,943.66	4,534.10
2	Well Water to Individual units		2,967.43	3,147.62	3,385.10	3,663.32	3,744.37	3,736.11	4,920.05	4,513.28
3	Raw Water to Unit 1		917.26	978.24	1,048.91	1,137.19	1,158.02	1,163.79	1,372.47	1,431.46
4	Raw Water to Unit 2		1,022.07	1,095.98	1,187.58	1,263.07	1,293.18	1,289.42	1,475.29	1,540.90
5	Raw Water to Unit 3		1,022.07	1,095.98	1,187.58	1,263.07	1,293.18	1,289.42	1,475.29	1,540.90
8	Raw Water Supply to Common Raw Water Tank		2,957.40	3,147.50	3,385.10	3,663.32	3,744.37	3,736.11	4,523.05	4,513.28
9	Well Water to Common Potable Water Treatment		20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83
11	Common Wastewater to Leach Field		20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83
12	Common/ Unit Fire Water Users		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Well Water to Unit 2/3 Raw Water Tank		992.99	1,259.61	1,145.61	1,235.99	1,286.08	1,259.34	1,449.20	1,313.82
14	Well Water to Unit 1/2/3 Potable Water Treatment		27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08
15	Unit 2/3 Raw Water Users		1,532.30	2,032.29	2,532.64	3,054.74	3,023.80	3,081.75	2,008.30	2,508.29
16	Unit 2/3 Raw Water Makeup to Demin Treatment		1,519.80	2,019.79	2,520.14	3,042.24	3,011.40	3,069.25	1,995.80	2,495.79
17	Unit 2/3 Raw Water to Service Water Users		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
18	Unit 2/3 Demin Water to Demin Storage Tank		694.28	1,194.25	1,694.60	2,216.70	2,185.86	2,243.71	694.28	1,194.25
19	Unit 2/3 Intermediate Water Feed to Mirror Wash Tank		825.54	825.54	825.54	825.54	825.54	825.54	1,299.54	1,299.54
20	Unit 2/3 Steam Cycle Makeup		524.39	1,024.38	1,524.73	2,046.83	2,015.89	2,073.84	524.39	1,024.38
21	Unit 2/3 Demin Water for Polisher Resin Sluicing		53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57
22	Unit 2/3 Miscellaneous Steam Cycle Losses		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
23	Unit 2/3 Steam Cycle Blowdown to Flash Tank		609.23	1,564.95	2,633.71	4,083.86	3,656.11	4,123.06	609.23	1,564.95
24	Unit 2/3 Flash Tank Vent Return to DA		187.34	563.07	1,121.48	2,049.53	1,852.62	2,082.65	187.34	563.07
25	Unit 2/3 Steam Cycle Blowdown Tank Drain		479.49	913.86	1,332.31	1,758.93	1,697.98	1,762.59	479.49	913.86
26	Unit 2/3 Steam Cycle Blowdown to Raw Water Tank		479.49	913.86	1,332.31	1,758.93	1,697.98	1,762.59	479.49	913.86
27	Unit 2/3 Steam Cycle Blowdown to Mirror Wash Tank		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Unit 2/3 Blowdown Tank Vent Losses to Atmosphere		32.40	88.02	179.82	275.40	305.90	290.75	32.40	88.02
29	Unit1/2/3 Collected Service Water to Oil Water Separator		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
30	Unit 1/2/3 Service Water Not Collected		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
31	Unit 1/2/3 OWS Effluent to Oil Filter		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
32	Unit 1/2/3 Demin Water Makeup to WSAC		0.00	0.00	0.00	0.00	0.00	0.00	474.00	474.00
33	Unit 1/2/3 WSAC Evaporation and Drift		0.00	0.00	0.00	0.00	0.00	0.00	455.21	455.21
34	Unit 1/2/3 WSAC Blowdown		0.00	0.00	0.00	0.00	0.00	0.00	18.79	18.79
35	Unit 2/3 Wastewater Tank Effluent		6.25	6.25	6.25	6.25	6.25	6.25	25.04	25.04
36	Unit 1/2/3 Oily Water Filter Effluent		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
37	Unit 1/2/3 Domestic Wastewater to Holding Tank		27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08
38	Unit 2/3 Mirror Wash Water		825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54
39	Unit 2/3 Steam Cycle Blowdown to Wastewater Tank		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	Well Water to Unit 1 Raw Water Tank		890.17	949.19	1,022.63	1,110.10	1,130.94	1,138.19	1,345.39	1,404.39
56	Unit 1 Raw Water Users		1,392.83	1,852.98	2,313.08	2,793.63	2,726.20	2,823.87	1,860.83	2,328.98
57	Unit 1 Raw Water Makeup to Demin Treatment		1,380.33	1,840.48	2,300.58	2,781.13	2,713.70	2,811.37	1,854.33	2,314.48
58	Unit 1 Raw Water to Service Water Users		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
59	Unit 1 Demin Water to Demin Storage Tank		653.96	1,114.01	1,574.11	2,094.66	1,987.23	2,084.90	653.96	1,114.01
60	Unit 1 Intermediate Water Feed to Mirror Wash Tank		728.47	728.47	728.47	728.47	728.47	728.47	1,200.47	1,200.47
61	Unit 1 Steam Cycle Makeup		483.96	944.14	1,404.24	1,884.79	1,817.36	1,915.03	483.96	944.14
62	Unit 1 Demin Water for Polisher Resin Sluicing		53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57
63	Unit 1 Miscellaneous Steam Cycle Losses		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
64	Unit 1 Steam Cycle Blowdown to Flash Tank		845.75	1,444.64	2,428.56	3,750.83	3,436.35	3,807.98	845.75	1,444.64
65	Unit 1 Flash Tank Vent Return to DA		174.27	613.00	1038.81	1878.64	1831.49	1906.13	174.27	613.00
66	Unit 1 Steam Cycle Blowdown Tank Drain		442.84	844.00	1230.43	1923.71	1535.44	1927.87	442.84	844.00
67	Unit 1 Steam Cycle Blowdown to Raw Water Tank		442.84	844.00	1230.43	1923.71	1535.44	1927.87	442.84	844.00
68	Unit 1 Steam Cycle Blowdown to Mirror Wash Tank		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69	Unit 1 Blowdown Tank Vent Losses to Atmosphere		29.65	87.64	161.30	248.57	269.42	274.86	29.65	87.64
70	Unit 1 Mirror Wash Water		728	728	728	728	728	728	728	728
71	Unit 1 Steam Cycle Blowdown to Wastewater Tank		0	0	0	0	0	0	0	0
72	Unit 1 Wastewater Tank Effluent		6.25	6.25	6.25	6.25	6.25	6.25	25.04	25.04
73	Auxiliary Boiler Makeup		116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30
74	Auxiliary Boiler Blowdown Tank Condensate		80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60
75	Auxiliary Boiler Blowdown Tank Vent Losses		35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70

STREAM NO.	STREAM DESCRIPTION	Case 33	Case 34	Case 35	Case 36	Case 37	Case 38	Case 39	Case 40
	DRY BULB TEMP, °C	28 - 32	28 - 32	28 - 32	28 - 32	32 - 34.9	32 - 34.9	32 - 34.9	32 - 34.9
	DRY BULB TEMP, °F	82.4 - 89.6	82.4 - 89.6	82.4 - 89.6	82.4 - 89.6	89.6 - 94.9	89.6 - 94.9	89.6 - 94.9	89.6 - 94.9
	PLANT LOAD %	75	Guaranteed HR (100%)	Boosting	Guaranteed Output (MCR)	25	50	75	Guaranteed HR (100%)
	PLANT GROSS OUTPUT, MW (Unit1/Unit 2&3)	87/94	113/122.7	122/133	120/133	29/31	58/64	87/94	113/122.7
		FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)
1	Plant Well Water Supply	4,771.57	5,049.79	5,130.86	5,122.64	6,711.68	5,902.10	6,130.57	6,417.79
2	Well Water to Individual units	4,760.74	5,029.95	5,110.02	5,101.75	6,691.05	5,881.28	6,118.74	6,396.97
3	Raw Water to Unit 1	1,505.12	1,582.40	1,613.24	1,618.48	1,728.47	1,827.49	1,961.12	2,046.40
4	Raw Water to Unit 2	1,622.81	1,716.28	1,748.38	1,741.84	1,831.29	1,899.80	2,078.81	2,174.28
5	Raw Water to Unit 3	1,622.81	1,716.28	1,748.38	1,741.84	1,831.29	1,899.80	2,078.81	2,174.28
8	Raw Water Supply to Common Raw Water Tank	4,750.74	5,029.95	5,110.02	5,101.75	6,691.05	5,881.28	6,118.74	6,396.96
9	Well Water to Common Potable Water Treatment	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83
11	Common Wastewater to Leach Field	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83
12	Common/ Unit Fire Water Users	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Well Water to Unit 2/3 Raw Water Tank	1,585.77	1,681.20	1,721.31	1,714.65	1,604.30	1,999.82	2,051.72	2,147.20
14	Well Water to Unit 1/2/3 Potable Water Treatment	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08
15	Unit 2/3 Raw Water Users	3,008.64	3,528.74	3,497.80	3,555.75	2,488.30	2,988.29	3,488.64	4,008.74
16	Unit 2/3 Raw Water Makeup to Demin Treatment	2,996.14	3,516.24	3,486.40	3,543.25	2,475.80	2,975.79	3,474.14	3,996.24
17	Unit 2/3 Raw Water to Service Water Users	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
18	Unit 2/3 Demin Water to Demin Storage Tank	1,694.60	2,216.70	2,185.86	2,243.71	694.28	1,194.25	1,694.60	2,216.70
19	Unit 2/3 Intermediate Water Feed to Mirror Wash Tank	1,299.54	1,299.54	1,299.54	1,299.54	1,779.54	1,779.54	1,779.54	1,779.54
20	Unit 2/3 Steam Cycle Makeup	1,524.73	2,046.83	2,015.89	2,073.84	524.39	1,024.38	1,524.73	2,046.83
21	Unit 2/3 Demin Water for Polisher Resin Sluicing	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57
22	Unit 2/3 Miscellaneous Steam Cycle Losses	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
23	Unit 2/3 Steam Cycle Blowdown to Flash Tank	2,633.71	4,083.86	3,656.11	4,123.06	609.23	1,564.95	2,633.71	4,083.86
24	Unit 2/3 Flash Tank Vent Return to DA	1,121.48	2,049.53	1,852.62	2,082.65	187.34	563.07	1,121.48	2,049.53
25	Unit 2/3 Steam Cycle Blowdown Tank Drain	1,332.31	1,758.93	1,697.98	1,762.59	479.49	913.86	1,332.31	1,758.93
26	Unit 2/3 Steam Cycle Blowdown to Raw Water Tank	1,332.31	1,758.93	1,697.98	1,762.59	479.49	913.86	1,332.31	1,758.93
27	Unit 2/3 Steam Cycle Blowdown to Mirror Wash Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Unit 2/3 Blowdown Tank Vent Losses to Atmosphere	179.82	275.40	305.90	290.75	32.40	88.02	179.82	275.40
29	Unit1/2/3 Collected Service Water to Oil Water Separator	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
30	Unit 1/2/3 Service Water Not Collected	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
31	Unit 1/2/3 OWS Effluent to Oil Filter	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
32	Unit 1/2/3 Demin Water Makeup to WSAC	474.00	474.00	474.00	474.00	954.00	954.00	954.00	954.00
33	Unit 1/2/3 WSAC Evaporation and Drift	455.21	455.21	455.21	455.21	911.21	911.21	911.21	911.21
34	Unit 1/2/3 WSAC Blowdown	18.79	18.79	18.79	18.79	42.79	42.79	42.79	42.79
35	Unit 2/3 Wastewater Tank Effluent	25.04	25.04	25.04	25.04	49.04	49.04	49.04	49.04
36	Unit 1/2/3 Oily Water Filter Effluent	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
37	Unit 1/2/3 Domestic Wastewater to Holding Tank	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08
38	Unit 2/3 Mirror Wash Water	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54
39	Unit 2/3 Steam Cycle Blowdown to Wastewater Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	Well Water to Unit 1 Raw Water Tank	1,478.04	1,568.31	1,586.16	1,591.38	1,801.19	1,880.38	1,934.04	2,021.31
56	Unit 1 Raw Water Users	2,787.09	3,257.63	3,190.20	3,297.87	2,340.83	2,809.98	3,267.06	3,747.63
57	Unit 1 Raw Water Makeup to Demin Treatment	2,774.58	3,255.13	3,167.70	3,285.37	2,334.13	2,794.48	3,254.58	3,735.13
58	Unit 1 Raw Water to Service Water Users	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
59	Unit 1 Demin Water to Demin Storage Tank	1,574.11	2,094.89	1,987.23	2,084.90	653.96	1,114.01	1,574.11	2,094.99
60	Unit 1 Intermediate Water Feed to Mirror Wash Tank	1,200.47	1,200.47	1,200.47	1,200.47	1,680.47	1,680.47	1,680.47	1,680.47
61	Unit 1 Steam Cycle Makeup	1,404.24	1,884.79	1,817.36	1,915.03	483.96	944.14	1,404.24	1,884.79
62	Unit 1 Demin Water for Polisher Resin Sluicing	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57
63	Unit 1 Miscellaneous Steam Cycle Losses	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
64	Unit 1 Steam Cycle Blowdown to Flash Tank	2,428.65	3,780.83	3,436.35	3,807.98	845.75	1,444.84	2,428.65	3,780.83
65	Unit 1 Flash Tank Vent Return to DA	1038.21	1878.54	1831.49	1906.13	174.27	613.00	1038.21	1878.54
66	Unit 1 Steam Cycle Blowdown Tank Drain	1230.43	1923.71	1535.44	1927.87	442.84	844.00	1230.43	1923.71
67	Unit 1 Steam Cycle Blowdown to Raw Water Tank	1230.43	1923.71	1535.44	1927.87	442.84	844.00	1230.43	1923.71
68	Unit 1 Steam Cycle Blowdown to Mirror Wash Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69	Unit 1 Blowdown Tank Vent Losses to Atmosphere	161.30	248.57	269.42	274.86	29.46	87.64	161.30	248.57
70	Unit 1 Mirror Wash Water	728	728	728	728	728	728	728	728
71	Unit 1 Steam Cycle Blowdown to Wastewater Tank	0	0	0	0	0	0	0	0
72	Unit 1 Wastewater Tank Effluent	25.04	25.04	25.04	25.04	49.04	49.04	49.04	49.04
73	Auxiliary Boiler Makeup	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30
74	Auxiliary Boiler Blowdown Tank Condensate	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60
75	Auxiliary Boiler Blowdown Tank Vent Losses	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70

STREAM NO.	STREAM DESCRIPTION	Case 41	Case 42	Case 43	Case 44	Case 45	Case 46	Case 47	Case 48
	DRY BULB TEMP, °C	32 - 34.9	32 - 34.9	35 - 37.8	35 - 37.8	35 - 37.8	35 - 37.8	35 - 37.8	35 - 37.8
	DRY BULB TEMP, °F	89.6 - 94.9	89.6 - 94.9	95 - 99.9	95 - 99.9	95 - 99.9	95 - 99.9	95 - 99.9	95 - 99.9
	PLANT LOAD %	Boosting	Guaranteed Output (MCR)	25	50	75	Guaranteed HR (100%)	Boosting	Guaranteed Output (MCR)
	PLANT GROSS OUTPUT, MW (Unit1/Unit 2&3)	122/133	120/133	29/31	58/64	87/94	113/122.7	122/133	120/133
		FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)	FLOW RATE (GPH)
1	Plant Well Water Supply	6,486.85	6,490.54	7,062.79	7,253.00	7,493.47	7,798.89	7,849.75	7,841.43
2	Well Water to Individual units	6,470.02	6,469.75	7,041.85	7,232.10	7,469.64	7,747.88	7,829.62	7,820.85
3	Raw Water to Unit 1	2,068.34	2,074.48	2,276.77	2,337.78	2,411.42	2,488.70	2,516.34	2,524.78
4	Raw Water to Unit 2	2,204.59	2,197.84	2,381.58	2,447.20	2,529.11	2,624.58	2,654.89	2,647.94
5	Raw Water to Unit 3	2,204.59	2,197.84	2,381.58	2,447.20	2,529.11	2,624.58	2,654.89	2,647.94
8	Raw Water Supply to Common Raw Water Tank	6,470.02	6,469.75	7,041.86	7,232.10	7,469.64	7,747.88	7,828.92	7,820.85
9	Well Water to Common Potable Water Treatment	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83
11	Common Wastewater to Leach Field	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83
12	Common/ Unit Fire Water Users	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Well Water to Unit 2/3 Raw Water Tank	2,177.81	2,170.66	2,354.60	2,420.12	2,502.22	2,597.50	2,627.81	2,620.85
14	Well Water to Unit 1/2/3 Potable Water Treatment	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08
15	Unit 2/3 Raw Water Users	3,977.80	4,035.76	2,960.30	3,460.29	3,960.64	4,482.74	4,451.80	4,509.75
16	Unit 2/3 Raw Water Makeup to Demin Treatment	3,965.40	4,023.25	2,947.60	3,447.79	3,948.14	4,470.24	4,439.40	4,497.25
17	Unit 2/3 Raw Water to Service Water Users	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
18	Unit 2/3 Demin Water to Demin Storage Tank	2,185.86	2,243.71	694.28	1,194.25	1,694.60	2,216.70	2,185.86	2,243.71
19	Unit 2/3 Intermediate Water Feed to Mirror Wash Tank	1,779.64	1,779.54	2,253.84	2,253.54	2,253.54	2,253.54	2,253.54	2,253.54
20	Unit 2/3 Steam Cycle Makeup	2,015.88	2,073.84	524.39	1,024.38	1,524.73	2,046.83	2,015.90	2,073.84
21	Unit 2/3 Demin Water for Polisher Resin Sluicing	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57
22	Unit 2/3 Miscellaneous Steam Cycle Losses	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
23	Unit 2/3 Steam Cycle Blowdown to Flash Tank	3,656.11	4,123.06	609.23	1,564.95	2,633.71	4,083.86	3,656.11	4,123.06
24	Unit 2/3 Flash Tank Vent Return to DA	1,852.62	2,082.65	187.34	563.07	1,121.48	2,049.53	1,852.52	2,082.65
25	Unit 2/3 Steam Cycle Blowdown Tank Drain	1,697.98	1,762.59	479.49	913.86	1,332.31	1,758.93	1,697.98	1,762.54
26	Unit 2/3 Steam Cycle Blowdown to Raw Water Tank	1,697.98	1,762.59	479.49	913.86	1,332.31	1,758.93	1,697.98	1,762.59
27	Unit 2/3 Steam Cycle Blowdown to Mirror Wash Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Unit 2/3 Blowdown Tank Vent Losses to Atmosphere	305.63	290.75	32.40	88.02	179.82	276.40	305.90	290.75
29	Unit1/2/3 Collected Service Water to Oil Water Separator	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
30	Unit 1/2/3 Service Water Not Collected	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
31	Unit 1/2/3 OWS Effluent to Oil Filter	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
32	Unit 1/2/3 Demin Water Makeup to WSAC	954.00	954.00	1,428.00	1,428.00	1,428.00	1,428.00	1,428.00	1,428.00
33	Unit 1/2/3 WSAC Evaporation and Drift	911.21	911.21	1,361.51	1,361.51	1,361.51	1,361.51	1,361.51	1,361.51
34	Unit 1/2/3 WSAC Blowdown	42.79	42.79	66.49	66.49	66.49	66.49	66.49	66.49
35	Unit 2/3 Wastewater Tank Effluent	49.04	49.04	72.74	72.74	72.74	72.74	72.74	72.74
36	Unit 1/2/3 Oily Water Filter Effluent	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
37	Unit 1/2/3 Domestic Wastewater to Holding Tank	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08
38	Unit 2/3 Mirror Wash Water	825.54	825.54	825.54	825.54	825.54	825.54	825.54	825.54
39	Unit 2/3 Steam Cycle Blowdown to Wastewater Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	Well Water to Unit 1 Raw Water Tank	2,042.16	2,047.39	2,251.89	2,318.88	2,384.34	2,471.61	2,492.45	2,497.69
56	Unit 1 Raw Water Users	3,680.20	3,777.87	2,823.83	3,280.98	3,741.08	4,221.63	4,154.20	4,251.87
57	Unit 1 Raw Water Makeup to Demin Treatment	3,667.70	3,765.37	2,808.33	3,268.43	3,728.58	4,209.13	4,141.70	4,239.37
58	Unit 1 Raw Water to Service Water Users	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
59	Unit 1 Demin Water to Demin Storage Tank	1,987.23	2,084.90	653.96	1,114.01	1,574.11	2,094.88	1,987.23	2,084.90
60	Unit 1 Intermediate Water Feed to Mirror Wash Tank	1,680.47	1,680.47	2,154.47	2,154.47	2,154.47	2,154.47	2,154.47	2,154.47
61	Unit 1 Steam Cycle Makeup	1,817.36	1,915.03	483.96	944.14	1,404.24	1,884.79	1,817.36	1,915.03
62	Unit 1 Demin Water for Polisher Resin Sluicing	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57
63	Unit 1 Miscellaneous Steam Cycle Losses	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
64	Unit 1 Steam Cycle Blowdown to Flash Tank	3,436.35	3,807.98	845.75	1,444.64	2,428.56	3,780.83	3,436.35	3,807.99
65	Unit 1 Flash Tank Vent Return to DA	1831.49	1906.13	174.27	613.00	1038.81	1878.54	1831.49	1906.13
66	Unit 1 Steam Cycle Blowdown Tank Drain	1535.44	1927.87	442.84	844.00	1230.43	1923.71	1535.44	1927.87
67	Unit 1 Steam Cycle Blowdown to Raw Water Tank	1535.44	1927.87	442.84	844.00	1230.43	1923.71	1535.44	1927.87
68	Unit 1 Steam Cycle Blowdown to Mirror Wash Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69	Unit 1 Blowdown Tank Vent Losses to Atmosphere	269.42	274.86	29.46	87.64	161.30	248.57	269.42	274.86
70	Unit 1 Mirror Wash Water	728	728	728	728	728	728	728	728
71	Unit 1 Steam Cycle Blowdown to Wastewater Tank	0	0	0	0	0	0	0	0
72	Unit 1 Wastewater Tank Effluent	49.04	49.04	72.74	72.74	72.74	72.74	72.74	72.74
73	Auxiliary Boiler Makeup	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30
74	Auxiliary Boiler Blowdown Tank Condensate	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60
75	Auxiliary Boiler Blowdown Tank Vent Losses	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70

Note: Stream numbers 6,7,10, 40 - 53 and 55 were not used.

All stream values are calculated in 25842-000-M0C-YA-00002, Water Use Calculation, Rev 000.

STREAM NO.	STREAM DESCRIPTION	NOTES	Case 49	Case 50	Case 51	Case 52	Case 53	Case 54	Case 55	Case 56	Case 57	Case 58	Case 59	Case 60	Case 61	Case 62	Case 63	Case 64	Case 65	Case 66	Case 67	Case 68	Case 69	Case 70	Case 71	Case 72
	WATER BALANCE CASE DESCRIPTION		Case 49	Case 50	Case 51	Case 52	Case 53	Case 54	Case 55	Case 56	Case 57	Case 58	Case 59	Case 60	Case 61	Case 62	Case 63	Case 64	Case 65	Case 66	Case 67	Case 68	Case 69	Case 70	Case 71	Case 72
	DRY BULB TEMP °C		37.8 - 40.5	37.8 - 40.5	37.8 - 40.5	37.8 - 40.5	37.8 - 40.5	37.8 - 40.5	40.6 - 42	40.6 - 42	40.6 - 42	40.6 - 42	40.6 - 42	40.6 - 42	42 - 44	42 - 44	42 - 44	42 - 44	42 - 44	42 - 44	>44	>44	>44	>44	>44	>44
	DRY BULB TEMP °F		100 - 104.9	100 - 104.9	100 - 104.9	100 - 104.9	100 - 104.9	100 - 104.9	105 - 107.6	105 - 107.6	105 - 107.6	105 - 107.6	105 - 107.6	105 - 107.6	107.6 - 111.2	107.6 - 111.2	107.6 - 111.2	107.6 - 111.2	107.6 - 111.2	107.6 - 111.2	>111.2	>111.2	>111.2	>111.2	>111.2	>111.2
	PLANT LOAD %		25	50	75	Guaranteed HR (100%)	Boosting	Guaranteed Output (MCR)	25	50	75	Guaranteed HR (100%)	Boosting	Guaranteed Output (MCR)	25	50	75	Guaranteed HR (100%)	Boosting	Guaranteed Output (MCR)	25	50	75	Guaranteed HR (100%)	Boosting	Guaranteed Output (MCR)
	PLANT GROSS OUTPUT, MW (Unit1/Unit 2&3)		28/31	59/64	87/94	113/122.7	122/133	129/133	28/31	59/64	87/94	113/122.7	122/133	129/133	28/31	59/64	87/94	113/122.7	122/133	129/133	28/31	59/64	87/94	113/122.7	122/133	129/133
STREAM NO.	STREAM DESCRIPTION	NOTES	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)	FLOW RATE (GPM)
1	Plant Well Water Supply		9,430.76	8,621.00	9,659.47	9,139.69	9,217.75	9,239.48	9,337.08	9,527.30	8,784.77	10,042.99	10,124.05	10,115.78	9,337.06	9,527.30	8,784.77	10,042.99	10,124.05	10,115.78	9,337.06	9,527.30	8,784.77	10,042.99	10,124.05	10,115.78
2	Well Water to Individual units		9,409.95	9,000.16	8,637.64	9,115.98	9,196.92	9,158.65	9,316.25	9,506.46	8,743.94	10,022.16	10,103.22	10,094.95	9,316.25	9,506.46	8,743.94	10,022.16	10,103.22	10,094.95	9,316.25	9,506.46	8,743.94	10,022.16	10,103.22	10,094.95
3	Raw Water to Unit 1		2,734.77	2,793.76	2,867.42	2,864.70	2,875.54	2,980.79	3,095.67	3,095.86	3,190.52	3,296.80	3,277.64	3,282.88	3,095.67	3,095.86	3,190.52	3,296.80	3,277.64	3,282.88	3,095.67	3,095.86	3,190.52	3,258.80	3,277.64	3,282.88
4	Raw Water to Unit 2		2,837.59	2,803.20	2,895.11	3,080.66	3,110.58	3,125.84	3,139.69	3,208.30	3,287.21	3,382.48	3,412.79	3,406.04	3,139.48	3,205.30	3,287.21	3,382.48	3,412.79	3,406.04	3,139.48	3,208.30	3,287.21	3,382.48	3,412.79	3,406.04
5	Raw Water to Unit 3		2,837.59	2,803.20	2,865.11	3,080.66	3,110.69	3,125.84	3,139.69	3,205.30	3,287.21	3,382.48	3,412.79	3,406.04	3,139.48	3,205.30	3,287.21	3,382.48	3,412.79	3,406.04	3,139.48	3,205.30	3,287.21	3,382.48	3,412.79	3,406.04
6	Raw Water Supply to Common Raw Water Tank		9,409.95	9,000.16	8,637.64	9,115.98	9,196.92	9,158.65	9,316.25	9,506.46	8,743.94	10,022.16	10,103.22	10,094.95	9,316.25	9,506.46	8,743.94	10,022.16	10,103.22	10,094.95	9,316.25	9,506.46	8,743.94	10,022.16	10,103.22	10,094.95
8	Well Water to Common Potable Water Treatment		20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83
11	Common Wastewater to Leach Field		20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83	20.83
12	Common Unit Fire Water Users		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Well Water to Unit 2/3 Raw Water Tank		2,810.50	2,878.12	2,958.02	3,053.60	3,062.91	3,076.86	3,112.60	3,179.22	3,260.12	3,355.60	3,385.71	3,378.95	3,112.60	3,179.22	3,260.12	3,355.60	3,385.71	3,378.95	3,112.60	3,179.22	3,260.12	3,355.60	3,385.71	3,378.95
14	Well Water to Unit 1/2/3 Potable Water Treatment		27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08
15	Unit 2/3 Raw Water Users		3,440.30	3,942.29	4,440.64	4,992.74	4,931.60	4,959.75	3,758.30	4,258.23	4,758.64	5,290.74	5,249.60	5,307.75	3,758.30	4,258.29	4,758.64	5,290.74	5,249.60	5,307.75	3,758.30	4,258.29	4,758.64	5,290.74	5,249.60	5,307.75
16	Unit 2/3 Raw Water Makeup to Demin Treatment		3,427.80	3,927.79	4,428.14	4,980.24	4,919.10	4,947.25	3,745.80	4,245.79	4,746.14	5,278.24	5,237.10	5,295.25	3,745.80	4,245.79	4,746.14	5,278.24	5,237.10	5,295.25	3,745.80	4,245.79	4,746.14	5,278.24	5,237.10	5,295.25
17	Unit 2/3 Raw Water to Service Water Users		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
18	Unit 2/3 Demin Water to Demin Storage Tank		994.26	1,194.25	1,694.60	2,216.70	2,185.89	2,243.71	994.26	1,194.25	1,694.60	2,216.70	2,185.89	2,243.71	994.26	1,194.25	1,694.60	2,216.70	2,185.89	2,243.71	994.26	1,194.25	1,694.60	2,214.70	2,185.89	2,243.71
19	Unit 2/3 Intermediate Water Feed to Mirror Wash Tank		2,732.54	2,732.54	2,732.54	2,732.54	2,732.54	2,732.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54	3,051.54
20	Unit 2/3 Steam Cycle Makeup		924.39	1,024.38	1,524.73	2,046.83	2,015.99	2,073.84	524.39	1,024.38	1,524.73	2,046.83	2,015.99	2,073.84	524.39	1,024.38	1,524.73	2,046.83	2,015.99	2,073.84	524.39	1,024.38	1,524.73	2,046.83	2,015.99	2,073.84
21	Unit 2/3 Demin Water for Polisher Resin Sluicing		53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57
22	Unit 2/3 Miscellaneous Steam Cycle Losses		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
23	Unit 2/3 Steam Cycle Blowdown to Flash Tank		609.23	1,594.95	2,633.71	4,083.86	3,856.11	4,123.88	609.23	1,594.95	2,633.71	4,083.86	3,856.11	4,123.88	609.23	1,594.95	2,633.71	4,083.86	3,856.11	4,123.88	609.23	1,594.95	2,633.71	4,083.86	3,856.11	4,123.88
24	Unit 2/3 Flash Tank Vent Return to DA		167.34	553.07	1,121.48	2,049.53	1,852.62	2,082.85	167.34	553.07	1,121.48	2,049.53	1,852.62	2,082.85	167.34	553.07	1,121.48	2,049.53	1,852.62	2,082.85	167.34	553.07	1,121.48	2,049.53	1,852.62	2,082.85
25	Unit 2/3 Steam Cycle Blowdown Tank Drain		479.40	913.86	1,332.31	1,758.93	1,697.98	1,782.58	479.40	913.86	1,332.31	1,758.93	1,697.98	1,782.58	479.40	913.86	1,332.31	1,758.93	1,697.98	1,782.58	479.40	913.86	1,332.31	1,758.03	1,697.98	1,782.58
26	Unit 2/3 Steam Cycle Blowdown to Raw Water Tank		479.49	913.86	1,332.31	1,758.93	1,697.98	1,782.58	479.49	913.86	1,332.31	1,758.93	1,697.98	1,782.58	479.49	913.86	1,332.31	1,758.93	1,697.98	1,782.58	479.40	913.86	1,332.31	1,758.93	1,697.98	1,782.53
27	Unit 2/3 Steam Cycle Blowdown to Mirror Wash Tank		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Unit 2/3 Blowdown Tank Vent Losses to Atmosphere		32.40	98.02	179.82	275.40	305.50	298.75	32.40	98.02	179.82	275.40	305.50	298.75	32.40	98.02	179.82	275.40	305.50	298.75	32.40	98.02	179.82	275.40	305.50	298.75
29	Unit 1/2/3 Collected Service Water to Oil Water Separator		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
30	Unit 1/2/3 Service Water Not Collected		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
31	Unit 1/2/3 OWS Effluent to Oil Filter		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
32	Unit 1/2/3 Demin Water Makeup to WSAC		1,808.00	1,808.00	1,808.00	1,808.00	1,808.00	1,808.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00	2,226.00
33	Unit 1/2/3 WSAC Evaporation and Drift		1,817.51	1,817.51	1,817.51	1,817.51	1,817.51	1,817.51	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61	2,119.61
34	Unit 1/2/3 WSAC Blowdown		90.49	90.49	90.49	90.49	90.49	90.49	106.39	106.39	106.39	106.39	106.39	106.39	106.39	106.39	106.39	106.39	106.39	106.39	106.39	106.39	106.39	126.39	106.39	106.39
35	Unit 2/3 Wastewater Tank Effluent		98.74	98.74	98.74	98.74	98.74	98.74	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84
36	Unit 1/2/3 Oily Water Filter Effluent		6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
37	Unit 1/2/3 Domestic Wastewater to Holding Tank		27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08	27.08
38	Unit 2/3 Mirror Wash Water		625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54	625.54
39	Unit 2/3 Steam Cycle Blowdown to Wastewater Tank		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	Well Water to Unit 1 Raw Water Tank		2,707.89	2,799.58	2,840.54	2,837.81	2,849.43	2,955.89	3,009.79	3,069.78	3,142.44	3,229.71	3,250.95	3,256.73	3,009.79	3,069.78	3,142.44	3,229.71	3,250.95	3,256.73	3,009.79	3,069.78	3,142.44	3,229.71	3,250.95	3,256.73
56	Unit 1 Raw Water Users		3,300.93	3,790.99	4,221.08	4,701.83	4,634.30	4,731.87	3,618.83	4,078.99	4,539.08	5,019.63	4,952.20	5,049.87	3,618.83	4,078.99	4,539.08	5,019.63	4,952.20	5,049.87	3,618.83	4,078.99	4,539.08	5,019.63	4,952.20	5,049.87
57	Unit 1 Raw Water Makeup to Demin Treatment		3,298.13	3,743.48	4,208.56	4,689.13	4,621.70	4,719.37	3,605.33	4,066.40	4,526.58	5,007.13	4,939.70	5,037.37	3,605.33	4,066.40	4,526.58	5,007.13	4,939.70	5,037.37	3,605.33	4,066.40	4,526.58	5,007.13	4,939.70	5,037.37
58	Unit 1 Raw Water to Service Water Users		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
59	Unit 1 Demin Water to Demin Storage Tank		653.98	1,114.01	1,574.11	2,054.66	1,987.23	2,084.90	653.98	1,114.01	1,574.11	2,054.66	1,987.23	2,084.90	653.98	1,114.01	1,574.11	2,054.66	1,987.23	2,084.90	653.98	1,114.01	1,574.11	2,054.98	1,987.23	2,084.90
60	Unit 1 Intermediate Water Feed to Mirror Wash Tank		2,834.47	2,834.47	2,834.47	2,834.47	2,834.47	2,834.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47	2,952.47
61	Unit 1 Steam Cycle Makeup		463.98	944.14	1,404.24	1,884.79	1,817.36	1,915.03	463.98	944.14	1,404.24	1,884.79	1,817.36	1,915.03	463.98	944.14	1,404.24	1,884.79	1,817.36	1,915.03	463.98	944.14	1,404.24	1,884.79	1,817.38	1,915.03
62	Unit 1 Demin Water for Polisher Resin Sluicing		53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57	53.57
63	Unit 1 Miscellaneous Steam Cycle Losses		12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
64	Unit 1 Steam Cycle Blowdown to Flash Tank		645.75	1,444.84	2,474.66	3,780.63	3,436.36	3,807.69	645.75	1,444.84	2,428.58	3,750.82	3,436.36	3,807.69	645.75	1,444.84	2,428.58	3,750.82	3,436.36	3,807.69	645.75	1,444.84	2,428.58	3,750.82	3,436.36	3,807.69
65	Unit 1 Flash Tank Vent Return to DA		174.27	513.00	1,026.81	1,878.54	1,831.49	1,905.13	174.27	513.00	1,026.81	1,878.54	1,831.49	1,905.13	174.27	513.00	1,026.81	1,878.54	1,831.49	1,905.13	174.27	513.00	1,026.81	1,876.54	1,831.49	1,905.13
66	Unit 1 Steam Cycle Blowdown Tank Drain		442.84	844.00	1,230.43	1,623.71	1,538.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,538.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,538.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,538.44	1,627.87
67	Unit 1 Steam Cycle Blowdown to Raw Water Tank		442.84	844.00	1,230.43	1,623.71	1,538.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,538.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,538.44	1,627.87	442.84	844.00	1,230.43	1,623.71	1,538.44	1,627.87
68	Unit 1 Steam Cycle Blowdown to Mirror Wash Tank		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69	Unit 1 Blowdown Tank Vent Losses to Atmosphere		28.66	87.84	161.30	248.57	299.42	274.86	28.66	87.84	161.30	248.57	299.42	274.86	28.66	87.84	161.30	248.57	299.42	274.86	28.65	87.84	161.30	245.57	299.42	274.86
70	Unit 1 Mirror Wash Water		729	729	729	729	729	729	729	729	729	729	729	729	729	729	729	729	729	729	729	729	729	729	729	729
71	Unit 1 Steam Cycle Blowdown to Wastewater Tank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	Unit 1 Wastewater Tank Effluent		98.74	98.74	98.74	98.74	98.74	98.74	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84	112.84
73	Auxiliary Boiler Makeup		116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30	116.30
74	Auxiliary Boiler Blowdown Tank Condensate		80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60	80.60
75	Auxiliary Boiler Blowdown Tank Vent Losses		35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70	35.70

Note: Stream numbers 7, 9, 10, 40 - 53 and 55 were not used

All stream values are calculated in 25642-000-M0C-YA-00002 Water Use Calculation, Rev 000

A. Raw Water (Well Water) Consumption

Item	Raw Water Consumers	Stream Number	Minimum gph	Minimum m3/h	Minimum gpd	Minimum m3/day	Maximum gph	Maximum m3/h	Maximum gpd	Maximum m3/day	Average gph	Average m3/h	Average gpd	Average m3/day	Annual gpy	Annual m3/y	Annual ac-ft/yr
1	Mirror Wash Water																
	Common Area	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Unit 1	Stream 70	726	2.75	17,435	66	726	2.75	17,435	66	726	2.75	17,435	66	6,363,906	24,090	19.53
	Unit 2	Stream 38	826	3.13	19,813	75	826	3.13	19,813	75	826	3.13	19,813	75	7,231,711	27,375	22.19
	Unit 3	Stream 38	826	3.13	19,813	75	826	3.13	19,813	75	826	3.13	19,813	75	7,231,711	27,375	22.19
	Sub-Total		2,378	9.00	57,061	216.00	2,377.46	9.00	57,061	216	2,378	9.00	57,061	216	20,827,328	78,840	63.92
2	Potable Water																
	Common Area	Stream 11	20.8	0.0789	500	1.89	20.8	0.0789	500	1.89	20.8	0.0789	500	1.89	182,500	691	0.56
	Unit 1	Stream 37	27.1	0.1025	650	2.46	27.1	0.1025	650	2.46	27.1	0.1025	650	2.46	237,250	898	0.73
	Unit 2	Stream 37	27.1	0.1025	650	2.46	27.1	0.1025	650	2.46	27.1	0.1025	650	2.46	237,250	898	0.73
	Unit 3	Stream 37	27.1	0.1025	650	2.46	27.1	0.1025	650	2.46	27.1	0.1025	650	2.46	237,250	898	0.73
	Sub-Total		102.08	0.386	2,450	9.27	102.08	0.386	2,450	9.27	102.08	0.386	2,450	9.27	894,250	3,386	2.74
3	Service Water (Water Not Collected)																
	Common Area	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Unit 1	Stream 30	6.25	0.0237	150	0.57	6.25	0.0237	150	0.57	6.25	0.0237	150	0.57	54,750	207	0.17
	Unit 2	Stream 30	6.25	0.0237	150	0.57	6.25	0.0237	150	0.57	6.25	0.0237	150	0.57	54,750	207	0.17
	Unit 3	Stream 30	6.25	0.0237	150	0.57	6.25	0.0237	150	0.57	6.25	0.0237	150	0.57	54,750	207	0.17
	Sub-Total		18.75	0.0710	450	1.70	18.75	0.0710	450	1.70	18.75	0.0710	450	1.70	164,250	622	0.50
4	Steam Cycle/WSAC																
	Common Area	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Unit 1	Streams 63, 69, 33	41.1	0.156	-	-	2,407	9.11	-	-	781	2.96	-	-	2,837,242	9,083	8.08
	Unit 2	Streams 22, 29, 33	44.9	0.170	-	-	2,436	9.23	-	-	809	3.06	-	-	2,729,572	10,333	8.38
	Unit 3	Streams 22, 29, 33	44.9	0.170	-	-	2,436	9.23	-	-	809	3.06	-	-	2,729,572	10,333	8.38
	Sub-Total		131.0	0.50	-	-	7,282	27.57	-	-	2,399	9.08	-	-	8,296,386	30,843	24.46
5	Auxiliary Boiler																
	Common Area	N/A															
	Unit 1	Stream 75	35.7	0.14	857	3.2	35.7	0.14	857	3.2	35.7	0.14	857	3.2	312,732	1,184	0.96
	Unit 2	Stream 75	35.7	0.14	857	3.2	35.7	0.14	857	3.2	35.7	0.14	857	3.2	312,732	1,184	0.96
	Unit 3	Stream 75	35.7	0.14	857	3.2	35.7	0.14	857	3.2	35.7	0.14	857	3.2	312,732	1,184	0.96
	Sub-Total		107.1	0.4	2,570	9.7	107.1	0.4	2,570	9.7	107.1	0.4	2,570	9.7	938,196.0	3,551.5	2.9
	Total Raw Water Consumption		2,736	10.36	-	-	9,847	37.4	-	-	5,066	18.9	-	-	30,920,419	117,046	94.9

B. Demineralized Water Consumption

Item	Demineralized Water User	Stream Number	[illegible] gph	[illegible] m3/h	[illegible] gpd	[illegible] m3/day	Maximum gph	Maximum m3/h	Maximum gpd	Maximum m3/day	Average gph	Average m3/h	Average gpd	Average m3/day	Annual gpy	Annual m3/y	Annual ac-ft/yr
	Intermediate Quality Users																
1	Mirror Wash Water																
	Unit 1 Mirror Washing	Stream 70	726	2.75	17,435	66	726	2.75	17,435	66	726	2.75	17,435	66	6,363,906	24,090	19.5
	Unit 2 Mirror Washing	Stream 38	826	3.13	19,813	75	826	3.13	19,813	75	826	3.13	19,813	75	7,231,711	27,375	22.2
	Unit 3 Mirror Washing	Stream 38	826	3.13	19,813	75	826	3.13	19,813	75	826	3.13	19,813	75	7,231,711	27,375	22.2
	Sub-Total		2,378	9.00	57,061	216	2,378	9.00	57,061	216	2,378	9.00	57,061	216	20,827,328	78,840	63.9
2	WSAC Makeup																
	Unit 1 WSAC Makeup	Stream 32	0.00	0.00	-	-	2,226	8.43	-	-	589.6	2.23	-	-	1,839,233	7,341	6.0
	Unit 2 WSAC Makeup	Stream 32	0.00	0.00	-	-	2,226	8.43	-	-	589.6	2.23	-	-	1,839,233	7,341	6.0
	Unit 3 WSAC Makeup	Stream 32	0.00	0.00	-	-	2,226	8.43	-	-	589.6	2.23	-	-	1,839,233	7,341	6.0
	Sub-Total		0.00	0.00	-	-	6,678	25.28	-	-	1,769	6.70	-	-	5,517,700	22,022	17.9
3	IQ Demin Water to High Quality Demin Makeup																
	Unit 1 HQ Demin Makeup	Stream 59	654	2.48	-	-	2,085	7.89	-	-	1,760	6.66	-	-	6,736,918	25,891	20.8
	Unit 2 HQ Demin Makeup	Stream 18	694	2.63	-	-	2,244	8.49	-	-	1,894	7.17	-	-	7,228,606	27,363	22.2
	Unit 3 HQ Demin Makeup	Stream 18	694	2.63	-	-	2,244	8.49	-	-	1,894	7.17	-	-	7,228,606	27,363	22.2
	Sub-Total		2,042	7.73	-	-	6,572	24.88	-	-	5,549	21.01	-	-	21,284,130	80,416	65.2
	Total IQ Demin Water Use		4,420	16.73	-	-	15,425	59.16	-	-	9,696	36.70	-	-	47,689,159	181,280	147.0
	High Quality Users																
4	Condensate Polisher Resin Sluicing																
	Unit 1 Resin Sluice Water	Stream 21	53.57	0.20	1,286	4.87	53.57	0.20	1,286	4.87	53.57	0.20	1,286	4.87	469,280	1,776	1.44
	Unit 2 Resin Sluice Water	Stream 21	53.57	0.20	1,286	4.87	53.57	0.20	1,286	4.87	53.57	0.20	1,286	4.87	469,280	1,776	1.44
	Unit 3 Resin Sluice Water	Stream 21	53.57	0.20	1,286	4.87	53.57	0.20	1,286	4.87	53.57	0.20	1,286	4.87	469,280	1,776	1.44
	Sub-Total		160.7	0.61	3,857	14.60	160.7	0.61	3,857	14.60	160.7	0.61	3,857	14.60	1,407,857	5,329	4.32
5	Steam Cycle Makeup																
	Unit 1 Cycle Makeup	Stream 61	484.0	1.83	-	-	1,815.03	7.25	-	-	1,690	6.02	-	-	5,296,844	20,058	16.3
	Unit 2 Cycle Makeup	Stream 20	524.4	1.99	-	-	2,073.84	7.85	-	-	1,725	6.53	-	-	5,740,533	21,730	17.6
	Unit 3 Cycle Makeup	Stream 20	524.4	1.99	-	-	2,073.84	7.85	-	-	1,725	6.53	-	-	5,740,533	21,730	17.6
	Sub-Total		1,533	5.80	-	-	6,963	22.93	-	-	5,039	19.08	-	-	16,779,909	63,519	51.5
6	Auxiliary Boiler Makeup																
	Unit 1	Stream 73	116.3	0.44	2,791	10.6	116.3	0.44	2,791	10.6	116.3	0.44	2,791	10.6	1,018,788	3,857	3.13
	Unit 2	Stream 73	116.3	0.44	2,791	10.6	116.3	0.44	2,791	10.6	116.3	0.44	2,791	10.6	1,018,788	3,857	3.13
	Unit 3	Stream 73	116.3	0.44	2,791	10.6	116.3	0.44	2,791	10.6	116.3	0.44	2,791	10.6	1,018,788	3,857	3.13
	Sub-Total		348.9	1.32	8,374	31.7	348.9	1.3	8,374	31.7	348.9	1.3	8,374	31.7	3,056,364	11,570	9.38
	Total HQ Demin Water Use		2,042	7.73	-	-	6,572	24.9	-	-	5,549	21.0	-	-	21,244,130	80,416	65.2

Demineralized Water Consumption	gpy	Average (Note 1) gpm	Minimum gpm	Maximum gpm	Maximum (without WSAC) gpm
IQ Consumption for Unit 1					
Unit 1 Mirror Wash Water	6,363,906	12.1	12.1	12.1	12.1
WSAC Makeup	1,939,233	3.7	0.0	37.1	0.0
IQ Consumption for Unit 2/3					
Unit 2/3 Mirror Wash Water	7,231,711	13.8	13.8	13.8	13.8
WSAC Makeup	1,939,233	3.7	0.0	37.1	0.0
HQ Consumption for Unit 1					
Unit 1 Feed for High Quality Demin	6,786,918	12.9	10.9	34.7	34.7
HQ Consumption for Unit 2/3					
Unit 2/3 Feed for High Quality Demin	7,229,606	13.8	11.6	37.4	37.4
Total Demineralizer System Demand					
Total IQ Demand for Unit 1	15,090,057	28.7	23.0	84.0	46.9
Total IQ Demand for Unit 2/3	16,399,551	31.2	25.3	88.3	51.2
Total HQ Demand for Unit 1	6,786,918	12.9	10.9	34.7	34.7
Total HQ Demand for Unit 2/3	7,229,606	13.8	11.6	37.4	37.4

Note 1: For demineralizer system demand, the average was calculated based on 24 hour operation 365 days per year.