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Florida Municipal Power Agency
Treasure Coast Energy Center

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BUREAU OF AIR REGULATION

B&V Project 138859
B&V File 35.5500
July 28, 2005

Mr. Hamilton S. Oven, Administrator
Siting Coordination Office
Department of Environmental Protection
2600 Blair Stone Road
Suite 649, MS-48
Tallahassee, FL 32399-2400

Re: Florida Municipal Power Agency
Treasure Coast Energy Center
Site Certification Application No. PA 05-48
DOAH Case No. 05-1492EPP

Dear Mr. Oven:

On behalf of the Florida Municipal Power Agency (FMPA), and in response to the Notice of Insufficiency issued to Mr. Roger Fontes by the Florida Department of Environmental Protection on June 20, 2005, I am pleased to submit seventeen (17) copies of FMPA's detailed Sufficiency Response for your use and distribution. These 17 copies correspond to the Controlled Document copies (Copies 1-10, 28-31, and 51-53) of the Site Certification Application assigned to you. Please be assured that a copy of this Sufficiency Response will also be provided to those on the following Certificate of Service List which are Controlled Document holders of the SCA.

We appreciate the Department's cooperation and efforts as this application progresses through the review and certification process. If you have any questions concerning the project or this Sufficiency Response, please do not hesitate to call Jim Hay of FMPA at (407) 355-7767 or me at (913) 458-7563.

Very truly yours,

Mike Soltys

J. Michael Soltys
Site Certification Coordinator

Enclosures

cc: Jim Hay, FMPA
Certificate of Service List

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing Sufficiency Response has been forwarded by Federal Express or U.S. mail delivery to the following listed persons this 28TH day of July, 2005:

Tim Gray
Dept. of Environmental Protection

Al Linero
Dept. of Environmental Protection

Jim Golden
South Florida Water Management District

Paul Darst
Dept. of Community Affairs

James Antista
Fish & Wildlife Conservation Commission

Scott Sanders
Fish & Wildlife Conservation Commission

Steve Lau
Fish & Wildlife Conservation Commission

Forrest Watson
Dept. of Agriculture and Consumer Services

Roger Orr
City of Port St. Lucie

Faye Outlaw
St. Lucie County

Judy Harlow
Public Service Commission

Leslie Bryson
Public Service Commission

Sheauching Yu
Dept. of Transportation

Sandra Whitmire
Dept. of Transportation

Forrest Watson
Dept. of Agriculture

Barton Bibler
Dept. of Environmental Protection

Janet Snyder-Matthews
Dept. of State

Peter Merritt
Treasure Coast Regional
Planning Council

Dan McIntyre
St. Lucie County

Florida Electrical Power Plant Siting Act
Site Certification Application

Sufficiency Responses

Treasure Coast Energy Center

Submitted by:
Florida Municipal Power Agency
July 2005

Florida Municipal Power Agency
Community Power. Statewide Strength.

Treasure Coast
ENERGY CENTER

Treasure Coast Energy Center

Site Certification Application Sufficiency Responses

Engineering Certification Statement

I, the undersigned, hereby certify that:

The engineering features of Treasure Coast Energy Center Project – Unit 1 described in these sufficiency responses have been prepared, designed, or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles; and,

To the best of my knowledge, the information submitted in support of the sufficiency responses is true, accurate, and complete based on reasonable techniques, estimates, materials, and information gathered and evaluated by qualified personnel; and,

To the best of my knowledge, there is reasonable assurance that the Unit 1 project described in these responses, when properly operated and maintained, will comply with all applicable pollution control standards found in the Florida Statutes, and rules of the Department of Environmental Protection, and the South Florida Water Management District, which have been adopted by St. Lucie County for stormwater management.

Name: Stanley A. Armbruster **Date: July 29, 2005**
Florida License No. 30562
Black & Veatch
11401 Lamar
Overland Park, Kansas

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Dep Letter

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

June 17, 2005

Mr. Roger Fontes, General Manager
Florida Municipal Power Agency
8553 Commodity circle
Orlando, Florida 32819-9002

Re: Treasure Coast Energy Center, PA 05-48,
DOAH Case No 05-1492EPP; OGC Case No. 05-0744

Dear Mr. Fontes:

Pursuant to § 403.5067, Florida Statutes, the Department of Environmental Protection after consulting with the affected agencies has determined that the application for site certification lacks sufficient information to support a recommendation of certification.

Figure 2.3.5 FLUCCS Land Use is missing. Section 6.1.10 does not contain the information necessary to determine compliance with local noise regulations nor compliance with Chapter 62-814, F.A.C. concerning electric and magnetic fields.

The Bureau of Air Regulation has conducted an initial sufficiency review for the proposed FMPA Treasure Coast Energy Center project. Following are their sufficiency items:

1. General Electric (GE) advised in publication GER-4213 that they will provide a guarantee of 5 ppm for CO emissions on a case-by-case basis to avoid installation of oxidation catalyst. Such a guarantee was reportedly provided to FP&L for the recent Turkey Point Unit 5 project. Our own data from numerous new installations confirm low emissions on the order or 0.5 to 2.0 ppm. Please justify the higher values requested in light of GE's claims and the actual performance of the new GE 7FA units throughout the state.

2. In the BACT analysis included in the application, the use of selective catalytic reduction was considered cost effective for the control of NO_x at $3,546 per to of NO_x removed. Please explain why oxidation catalyst to reduce CO emissions was not considered cost effective at $3,405 per ton of CO removed.

3. Please provide estimates of ammonia injection rates and projected ammonia use for the project.

4. in the application, section 4.2.5 states that receptors were placed along the "fence line." The receptor plot on 4-7 shows the "property line." Upon construction, will there be an actual fence separating the facility from the "ambient air" along the property line shown in 4-7?

5. In section 2.4 of the application, it is indicated that the Maximum Potential to Emit is based on 40 - 100 % load at 73 degrees. With an average annual site temperature of 73 degrees, the temperature is below 73 degrees about 50% of the time. Therefore, determining the Maximum Potential to Emit may be more representative of the area at 59 degrees.

6. Please explain why determining the "maximum potential to emit" at 73 degrees would be more representative of the proposed project rather than at 59 degrees or re-evaluate the maximum potential to emit emission rates.

7. Rule 62-212.400(3)(h)(5) states that an application must include information relating to the air quality impacts of, and the nature and extent of, all general commercial, residential, industrial and other growth which has occurred since August 7, 1977, in the area the facility or modification would affect. Although growth is addressed in section 5.1 of the application, please satisfy this rule by evaluating growth as it relates to the August 7, 1977 date.

8. In the application, Vegetation and Soils are addressed in Section 5.2. PSD pollutants, SO2, PM/PM10 and NOx are briefly mentioned. How will the other applicable PSD pollutants, SAM and CO, affect the vegetation and soils? How will all applicable PSD pollutants affect wildlife?

The Southeast district Office had the following comments:

1. What environmental assessments have been conducted or will be conducted in order to determine whether soil, sediments, groundwater, or surface waters have been adversely affected (contaminated) by the agricultural operations? Some agricultural operations have had a historical usage of, among other things, arsenical-based pesticides and herbicides. Part of the environmental assessment must include, among other things, the details of historical and current pesticide usage, identification, including detailed, scaled maps, of current and historical fertilizer and pesticide / herbicide mixing areas, locations of canals and surface water bodies, locations of any above-ground, underground or temporary storage tanks, farming equipment maintenance and storage, petroleum product storage, on-site landfill / solid waste disposal areas, locations and types of any water production wells (potable, pesticide make-up, irrigation, etc.), locations and types of surface water pumps and associated fuel tanks, etc. What soil, sediment, surface water and groundwater cleanup concentrations would be proposed? Are there monitoring wells available for sampling of groundwater? If so, does the facility sample and monitor groundwater from these wells? Please provide a list of the monitored parameters and the results from the sampling and enclose a map depicting these groundwater monitoring wells.

2. Page 2-9 states that the existing site is pasture land. Historical cattle ranching operations may have had cattle dip vats to control diseases. An environmental investigation should be initiated in order to determine the current or historical presence of cattle dip vats at the site associated with ranching operations. Such vats, when identified, would require assessment and probable cleanup.

3. What reasonable assurances can be provided to show that on site water production wells and dewatering will not affect any off-property soil / groundwater contaminated areas? Page 4-8 lists some potential impact from "low scoring" petroleum facilities. Detailed information needs to be provided, including a map(s), showing these contaminated areas and any potential affects new withdrawals, storm water discharges, dewatering, etc. could affect. The St. Lucie County Glades Road Landfill is currently undergoing contamination assessment and that facility has a permitted zone of discharge in their Solid Waste Permit, issued pursuant to, among others, Chapters 62-701, 62-520 and 62-522, Florida Administrative Code (F.A.C.). Page 4-9 does not mention this facility.

4. Section 3-.7, pgs 3-28, 3-29, and 3-30.
Please be advised that hazardous waste determinations are required for most wastewaters generated (including "washdowns") in accordance with Title 40 Code of Federal Regulations (C.F.R.) Part 261, as referenced in Chapter 62-730, F.A.C. In addition to any industrial waste treatment and monitoring requirements, all waste streams must be characterized for proper hazardous waste management in accordance with 40 C.F.R. Part 261, including wastes collected in sumps, laboratory wastes and material from solids settling basins . Page 4-4 has a chart and description of waste streams. The chart and a description needs to be included that indicates which waste stream would be hazardous, whether it is based on process knowledge or will be based on analytical testing, and if hazardous, additional information regarding how the facility would manage the storage and treatment of such wastes in accordance with Chapter 62-730, F.A.C., which references portions of Title 40 C.F.R. Parts 260-271, would be required.

5. Any land clearing or construction debris must be characterized for proper disposal. Potentially hazardous materials must be properly managed in accordance with Chapter 62-730, F.A.C. In addition, any solid wastes or other non-hazardous debris must be managed in accordance with Chapter 62-701, F.A.C.

6. Petroleum and hazardous materials storage tanks and emergency generators for planned facilities must be constructed to comply with the current requirements of Chapter 62-761 and / or 62-762, F.A.C. An acknowledgment that these facilities would comply with the applicable requirements of these rules should be included. As an example, secondary containment should be planned for all areas where petroleum or hazardous materials discharges could affect soils, sediments, surface or ground waters.

7. The applicant states that they will be using water from the Floridan Aquifer. The applicant has applied for 6 wells at a depth of @ 500 feet. The operation of these wells will cause a draw down of the water table several thousand feet away. Within 1800 feet of this proposed site is the existing St. Lucie County Glades Road Landfill. The landfill is under a Consent Order performing CAP/CAR/RAP for offsite contamination at the east and northeast portion of the landfill property boundary in the shallow aquifer (@ 20 to 40 feet in depth) from the old unlined class I landfill located at the intersection of I-95 and the Fla. Turnpike. The groundwater flows northeast in this area. The applicant also proposes to do dewatering via a GP to the SFWMD. The applicant needs to demonstrate that the proposed dewatering

and proposed production wells will not affect the landfill plume or draw the landfill plume to the applicant's or other adjacent properties. The applicant should also demonstrate that the shallow production zone and Floridan aquifer are not connected.

The Bureau of Water Facilities has the following comments:

1. Sections 373.250 and 403.064, F.S., establish the encouragement and promotion of water reuse as state objectives and note that reuse is in the public interest. Further, Chapter 62-40, F.A.C., requires use of reclaimed water within designated Water Resource Caution Areas. This proposed plant is located within a Water Resource Caution Area. The Department applauds the use of reclaimed water for cooling water at this facility. Part VII of Chapter 62-610, F.A.C., specifically addresses and allows for the use of reclaimed water in cooling water applications. This use of reclaimed water is consistent with statutory and rule directives and objectives. Has wastewater from the City of Port St. Lucie been considered as a source until the Fort Pierce supply is available?

2. Has reclaimed water been considered for use in the fire protection system or for toilet flushing purposes? Please note that Part III of Chapter 62-610, F.A.C., allows the use of reclaimed water for toilet flushing, fire protection, and other uses. Both of these are excellent uses of reclaimed water and should be incorporated into the project, if feasible.

3. In accordance with Rules 62-610.660 and 62-555.360, F.A.C., the SCA should evaluate the need for backflow prevention devices on reclaimed water and potable water lines to prevent either source from being contaminated.

4. The first generating unit at the power plant (Unit 1) is scheduled to begin commercial operation in June 2008, pending certification and construction. According to the SCA, the POTW is expected to be operational by "late 2009." The SCA text and the water mass balances indicate that the injection wells are the only means of disposal for wastewater from the power plant, so the wells have to be permitted, constructed, and in operation for the power plant to operate. There did not appear to be a schedule for the injection wells at the POTW. The applicant needs to clarify this point and provide demonstrate that the power plant will have a means for disposal of cooling tower blowdown, other process wastewaters, and domestic wastewater.

5. How will power plant operations be impacted if the POTW cannot provide sufficient reclaimed water long-term due to slower than expected population growth or other factors?

6. How will power plant operations be impacted when injection wells at the POTW are out of operation for mechanical integrity testing or other maintenance activities? Will they have multiple wells?

7. Section 3.6.2 implies that a force main to the unbuilt FPUA plant already exists. Is this correct?

8. Figure 3.5-6 shows 942,000 gpd as the annual average of wastewater going to the injection well, not the 889,000 gpd reported in the text. Please clarify.

The South Florida Water Management District had the following comments:

South Florida Water Management District (SFWMD) staff has reviewed the Site Certification Application (SCA) submitted by the Florida Municipal Power Agency (FMPA) for the above subject project, as required by Sections 403.501-518, F.S., and Rule 62-17, F.A.C. As a result of that review, we have identified the following outstanding issues/sufficiency questions which must be addressed in order for the SFWMD to complete its review of this project. Please include the following questions/comments in your sufficiency letter on this project.

(1) Please specify the water supply quantity/source for dust control.

(2) Please submit the details of the proposed wells as required in Table A (Form 0645-G-60).

(3) The calculations provided in response to Section F.1 of the Water Use Permit Application Form indicate that the values are based on using groundwater for cooling for Unit 1. Section G.1 of the Supporting Information states that, excluding the cooling system, 597,000 gallons per day of water are required for Unit 1. Please provide a breakdown of all of the water use demand using the appropriate tables, including Table D (Form 0645-G65), Table G (Form 0645-G69), and Table I (Form 0645-G-71).

(4) The groundwater modeling must follow the criteria set forth in Section 1.7.5.2 of the Basis of Review (BOR) for Water Use Permit Applications. Please note that the extrapolation of site-specific characteristics from a calibrated model is not in accordance with SFWMD criteria. Please submit revised modeling that meets the requirements set-forth in Section 1.7.5.2 of the BOR.

(5) Please submit a letter from the Fort Pierce Utilities Authority (FPUA) documenting the availability of reclaimed water for the proposed project, as required by Section G.1.4 of the Water Use Permit Application Form.

(6) Please supply a letter from the FPUA documenting the availability of potable water for the proposed project, pursuant to the discussion on page 6 of the Additional Information in Support of TCEC Industrial Water Use Request.

(7) The SCA indicates that the details of the proposed dewatering activities will be submitted during the post-certification review process. Please be advised of the following:

(a) Section D.4 of the Dewatering Permit Application and Section 4.4.1 of the Site Certification Application state that wetlands will remain on-site. In addition, wetland areas are present within the surrounding project area. As per

Section D.5 of the Dewatering Permit Application, modeling or specific engineering controls that include recharge trenches may be necessary to provide reasonable assurances that no harm occurs to wetland areas due to the proposed withdrawals or discharges.

(b) A known contaminated facility is located approximately 400 feet east of the project site (Florida Department of Environmental Protection Facility ID No. 8631089). As per Section E.1 of the Dewatering Permit Application, modeling may be necessary to provide reasonable assurances that there are no adverse impacts due to the proposed withdrawals or discharges.

(c) The licensee must submit calculations showing that the detention basin has sufficient capacity to accept dewatering effluent.

If you have any questions concerning these matters, please contact me at (850) 245-8002.

Sincerely,

Hamilton S. Oven

Hamilton S. Oven, P.E.
Administrator, Siting
Coordination Office

Attach:
cc: Scott Goorland, Esq.
Douglas S. Roberts, Esq.
James V. Antista, Esq.
Kelly Martinson, Esq.
Sheauching Yu, Esq.
Martha Carter Brown, Esq.
Dan McIntyre, Esq.
Frank H. Fee, III, Esq.
Roger Orr, Esq.
Roger Saberson, Esq.
Peter Cocotos, Esq.

Sufficiency Responses

Response to Statement of Insufficiency
Treasure Coast Energy Center
July 29, 2005

Comment FDEP/Siting-1
Figure 2.3.5 FLUCCS Land Use is missing.

Response FDEP/Siting-1
Due to a copying error, Figure 2.3-5 was not included in some copies of the SCA. One copy of Figure 2.3-5 is provided with this response in Appendix A. Please insert this figure into your copy of Volume 1 of the SCA following page 2-57 (Figure 2.3-4). Additional copies of this figure are available upon request to FMPA.

Comment FDEP/Siting-2
Section 6.1.10 does not contain the information necessary to determine compliance with local noise regulations nor compliance with Chapter 62-814, F.A.C. concerning electric and magnetic fields.

Response FDEP/Siting-2
There are no regulatory requirements specific to transmission line noise emissions included in Chapter 1-13.8, Noise Control, of the St. Lucie County Code of Ordinances. Transmission line noise emissions typically include crackling and/or humming noises associated with electrical transmission and can vary depending on factors such as electrical capacity and load of the line, temperature, and moisture levels in the air. Although it is possible for transmission line noise to be audible at certain times and under certain conditions, this type of noise typically can only be heard very near the transmission line (i.e., within the transmission line right-of-way). The proposed corridors for the transmission lines were selected to minimize environmental impacts and make the most direct interconnections. These linear facilities are proposed within or adjacent to existing road, railroad, or utility rights-of-way, crossing commercial, industrial, utility, and transportation land uses, avoiding residential and sensitive properties by design. Therefore, considering the cumulative noise sources and impacts currently in the site area, such as heavy truck traffic, industrial activities, and landfill operations, no adverse or nuisance impacts due to project transmission line acoustic noise are expected. It is also anticipated that any audible transmission line noise would be below the St. Lucie County noise limits for residential, commercial, and industrial areas.

Florida Department of Environmental Protection (Department) EMF compliance reports for TL1 and TL2 were prepared using the required EzEMF program and are included in Appendix B. The calculations are conservatively based on 2,000 amps per phase. The transmission lines will be in compliance with the FDEP electric and magnetic field strength limits.

When an electric transmission line is energized, an electric field is generated in the air around the conductors. This electric field may cause corona. Corona is the breakdown of the air in the vicinity of

the transmission line phase conductors. This corona discharge produces energy, which can result in audible noise and/or radio and television interference. However, corona related interference with radio and television reception is typically associated with transmission line voltages of 345 kV or greater. If corona related interference does occur, it can easily be identified and corrected with proper maintenance.

The Florida Public Service Commission has adopted the 2002 edition of the National Electrical Safety Code (NESC). Specifically, the code requires minimum electrical clearance to the ground and the structure, and limits induced currents in objects below the line to 5 mA. In addition, the code specifies minimum mechanical loading to be used for the structural design of the support structures. The transmission facilities will be designed to comply with all safety requirements contained in the NESC.

Comment FDEP/BAR-1

General Electric (GE) advised in publication GER-4213 that they will provide a guarantee of 5 ppm for CO emissions on a case-by-case basis to avoid installation of oxidation catalyst. Such a guarantee was reportedly provided to FP&L for the recent Turkey Point Unit 5 project. Our own data from numerous new installations confirm low emissions on the order or 0.5 to 2.0 ppm. Please justify the higher values requested in light of GE's claims and the actual performance of the new GE 7FA units throughout the state.

Response to FDEP/BAR-1

GE is able to provide FMPA with a lower guarantee level for CO under defined ambient air and load conditions, as shown in Table FDEP-1 (included in Appendix C) listing the GE guarantees for the TCEC Project. However, the lower guarantee levels do not apply to ambient air and load conditions that encompass all expected operating conditions for TCEC Unit 1. As such, to enable the permitted CO emission standards to encompass the full range of expected operating conditions of TCEC Unit 1, FMPA requests that the CO standards for TCEC Unit 1 be set at 8.0 ppmvd for natural gas firing and 12.0 ppmvd for fuel oil firing, based on a 24 hour block average (midnight to midnight). These requested emission limits are identical to the Department's BACT-determined CO standards for the Progress Energy Florida Hines Energy Complex Power Block 4, as included in that recently issued PSD permit (Permit No. PSD-FL-342). This emission limit will allow for BACT level control and will encompass all operating conditions expected for TCEC Unit 1. The Hines Energy Complex Power Block 4 Units are General Electric Model 7FA gas turbines, as is the TCEC Unit 1 combustion turbine. The Hines Energy Complex combustion turbines include heat recovery steam generators (HRSG) with no duct firing. However, TCEC Unit 1 includes a HRSG with duct firing. The use of duct firing results in a higher expected CO concentration in the CT/HRSG stack. Therefore, the Hines Energy Complex Power Block 4 units would be expected to have lower CO emissions than TCEC Unit 1. As such, these emission standards applied to TCEC Unit 1 represent a more stringent emission limit because TCEC Unit 1 includes operation with duct firing. It is also noted that the application for TCEC Unit 1 includes a voluntary limit on fuel oil firing of 500 hours per year, as compared to a fuel oil firing limit of 1,000 hours per year per turbine for both of the two combustion turbines included in the Hines Energy Complex Power Block 4 permit. This

allows Hines Energy Complex Power Block 4 more operating time at the higher fuel oil firing CO limit than what is requested for TCEC Unit 1.

As noted in the final determination for Hines Energy Complex Power Block 4, the FPL Turkey Point plant is located approximately 20 km from a Class I area (Everglades National Park), providing the Department with a different set of "lenses," or criteria, by which to establish emission limits. Like the Hines Energy Complex, the TCEC facility is not located in close proximity to a Class I area, as Turkey Point is, which provides justification for the requested CO emission limits given above. Also of note is that the TCEC facility is located outside the Miami-Dade, Broward, and Palm Beach airshed that includes Turkey Point. As mentioned by the Department in the Hines Energy Complex Power Block 4 Final Determination document, the CO limit given to Hines Energy Complex Power Block 4 and hereby requested for TCEC Unit 1 is identical to that of Turkey Point, without the requirement for an annual test.

Comment FDEP/BAR-2

In the BACT analysis included in the application, the use of selective catalytic reduction was considered cost effective for the control of NO_x at $3,546 per ton of NO_x removed. Please explain why oxidation catalyst to reduce CO emissions was not considered cost effective at $3,405 per ton of CO removed.

Response to FDEP/BAR-2

Individual BACT determinations are performed on a case-by-case basis for each pollutant subject to PSD review. As a basis for review, permitting authorities have historically and routinely established cost-effective guidelines, either internally or overtly, that are pollutant-specific, considering the control technology, environmental sensitivity, and determinations from similar BACT trends for that pollutant in the affected region and across the country. FMPA is not aware of an "inter-pollutant" comparison criterion in the BACT process, and believes the recommended "top-down" BACT approach is pollutant-specific and independent of other pollutant determinations in the analysis, except of course in those instances where multi-pollutant control technologies are examined ($SCONO_x$, for example).

FMPA is aware of other recent Department BACT determinations where similar trends in the relationship between the CO and NO_x control cost effectiveness are evident. In the Department's FPL Martin Combined Cycle Unit 8's final BACT determination, for example, the Department states that FPL's proposed cost effectiveness of $4,165/ton for an oxidation catalyst was not found to be cost effective for CO control, while an SCR, with a cost effectiveness of $4,900/ton, was found to be cost effective for NO_x control. It would appear that an inter-pollutant cost effectiveness comparison was not considered in the BACT determination for either pollutant, as the oxidation catalyst (by the applicant's account) was more than $700/ton more cost effective than the SCR for NO_x control.

FMPA believes that an oxidation catalyst is not BACT for this project. This determination is independent of the NO_x control determination. FMPA would not have found an oxidation catalyst to be cost effective, having gone through the same five-step BACT technology selection approach regardless of whether NO_x would have been subject to a BACT review or not. The CO BACT assessment is firmly based on the

energy, environmental, and economic impacts detailed in the application, as well as recent Department determinations for similar units at similar emission levels. In those determinations, the Department has found that add-on controls to further reduce CO emissions are unwarranted given the low emissions characteristics of this particular gas turbine firing natural gas as the primary fuel.

Comment FDEP/BAR-3

Please provide estimates of ammonia injection rates and projected ammonia use for the project.

Response to FDEP/BAR-3

The estimated ammonia injection rate based upon 100 percent ammonia is 44.58 lb/h. The projected ammonia use for the project based upon permitted dual fuel firing 8,760 hours at maximum load with duct burners operating is approximately 195 tons per year. The TCEC will store 19 percent aqueous ammonia for the SCR, which is vaporized to a gaseous (100 percent) form prior to injection into the exhaust gas stream.

Comment FDEP/BAR-4

In the application, Section 4.2.5 states that receptors were placed along the "fence line." The receptor plot on 4-7 shows the "property line." Upon construction, will there be an actual fence separating the facility from the "ambient air" along the property line shown in 4-7?

Response to FDEP/BAR-4

Yes, a fence separating the facility from the ambient air will be constructed. Figure 4-1 on page 4-7 in SCA Volume 3 of 3 should have been labeled "fence line," not "property line." The distinction between the actual property line and fence line is illustrated on Drawing 138859-CSTA-S1002, Ultimate Site Arrangement, included in Appendix D. The fence line, not the property line, was used in designating ambient air for the air quality impact analysis. This new site arrangement includes a slight change to the facility fence line.

In addition to the fence line clarification, other changes noted on the new Site Arrangement include the following:

- Removed the auxiliary boiler and associated building (35).
- Added surfacing boundaries. Grass north of the cooling towers.
- Added asphalt paved sidewalks through the unit and to the gas metering station.
- Moved Electrical Equipment Building (41) to the south side of the steam turbine.
- Added the Miscellaneous Services Building (42) to the north side of the steam turbine. Each building will service two units.
- Moved the Fire Pump Building (28) to allow for better access. This required rearrangement of the water treatment tanks.
- Changed the location of the Water Treatment Building (24) and the Administration/Control/Maintenance Building (18).
- Added parking spaces to meet county code.

- Added entrance sign (50) to the northeast entrance.
- Changed the southwest entrance to future.
- Added the Switchyard Control Building (52).
- Added condensate storage tank (49).
- Added electrical interface manhole (53) and piping interface manhole (54).
- Removed the Chemical Feed Building (38).

Some of the facility changes may affect the impacts from the air dispersion models, ISCST3 and CALPUFF. With respect to air quality modeling, the changes of concern are as follows:

- Removed the auxiliary boiler and associated building (35).
- Moved Electrical Equipment Building (41) to the south side of the steam turbine.
- Added the Miscellaneous Services Building (42) to the north side of the steam turbine.
- Moved the Fire Pump Building (28) to allow for better access. This required rearrangement of the water treatment tanks.
- Changed the location of the Water Treatment Building (24) and the Administration/Control/Maintenance Building (18).
- Changed the southwest entrance to future.
- Added the Switchyard Control Building (52).
- Added condensate storage tank (49).
- Removed the Chemical Feed Building (38).

The applicable modeling was rerun with the above referenced changes made to both Class I (CALPUFF) and Class II (ISCST3) modeling analyses. There were no other changes made to the modeling. The new impacts are shown in the tables included in Appendix E (Tables 4-2, 4-3, 5-5, 5-6, and 5-7, numbered as in Volume 3 of 3 in the original SCA). As can be seen from these tables, the changes made to the facility layout did not change the impacts from the combustion turbine alone, and the overall facility air quality impacts are lower than the results with the initial site arrangement that was included in the SCA.

As discussed above and demonstrated by the revised modeling, these changes did not adversely affect the air quality impact analysis for the project. Also, these changes had no significant effect on the storm water management system design, wetlands impacts, or other project-related impacts.

Comment FDEP/BAR-5

In Section 2.4 of the application, it is indicated that the Maximum Potential to Emit is based on 40 - 100% load at 73 degrees. With an average annual site temperature of 73 degrees, the temperature is below 73 degrees about 50% of the time. Therefore, determining the Maximum Potential to Emit may be more representative of the area at 59 degrees.

Response to FDEP/BAR-5

FMPA agrees that, about 50 percent of the time, the ambient temperature will be below 73° F. Conversely, about 50 percent of the time, the ambient temperature will be above 73° F. The combustion

turbine performance data shows that the emissions rate is relatively linear as a function of ambient temperature for each pollutant. Therefore, over the course of a year, increased emissions associated with operation at a temperature that is lower than the site average ambient temperature are directly countered by decreased emissions associated with operation above the site average ambient temperature.

Comment FDEP/BAR-6

Please explain why determining the "maximum potential to emit" at 73 degrees would be more representative of the proposed project rather than at 59 degrees or re-evaluate the maximum potential to emit emission rates.

Response to FDEP/BAR-6

FMPA believes that the best method to estimate the potential to emit for the TCEC project is to use the hourly emission rates at the site's average ambient temperature and project operation for 8,760 hours per year, as was included in the SCA. Further, the potential to emit calculation is quite conservative in that it assumes that TCEC Unit 1 will operate at full load for an entire year.

The primary use of the calculated potential to emit is to make comparisons to regulatory thresholds to determine rule applicability. The primary regulatory thresholds for the TCEC Unit 1 application are those used to determine PSD applicability. While FMPA believes that the use of emissions data at the site average ambient temperature provides the best method of determining the potential to emit for the project, the potential to emit calculations using a 59° F ambient temperature for comparison purposes, along with the potential to emit values included in the SCA (associated with an ambient temperature of 73° F), is shown in Table FDEP-2 in Appendix F. Table FDEP-2 shows that using an ambient temperature of 59° F to determine the potential to emit results in minimal, but increased emission changes when compared to the potential to emit included in the application. Also, this table shows that no PSD regulatory applicability determinations would be affected by the use of an ambient temperature of 59° F to determine the potential to emit. Note that to properly determine the project potential to emit, the emissions from TCEC Unit 1 are added to the potential to emit emission levels of other project emission units and the values in the table are the project potential to emit. The differences in the potential to emit for the two site ambient temperatures shown are equivalent to the difference in the potential to emit for TCEC Unit 1, because emissions from all other emission units are unaffected by the ambient temperature.

Comment FDEP/BAR-7

Rule 62-212.400(3)(h)(5) states that an application must include information relating to the air quality impacts of, and the nature and extent of, all general commercial, residential, industrial and other growth which has occurred since August 7, 1977, in the area the facility or modification would affect. Although growth is addressed in Section 5.1 of the application, please satisfy this rule by evaluating growth as it relates to the August 7, 1977 date.

Response to FDEP/BAR-7

FMPA assumes that the question refers to Rule 62-212.400(**5**)(h)(5), not 62-212.400(**3**)(h)(5), F.A.C. As such, the nature and extent of air quality impacts related to all general commercial, residential, industrial, and other growth which has occurred since August 7, 1977, can be characterized by the population trend of the area as a surrogate for general growth. An evaluation of the growth as it relates to the August 7, 1977 date, as well as a projection of growth indicators related to the TCEC with respect to workforce, housing, and commercial/industrial growth and their potential impact to air quality are presented below.

Growth Analysis

The TCEC is located within Phase III North of the Midway Industrial Park in St. Lucie County, Florida, which is southwest of the City of Ft. Pierce, and 5 miles northwest of Port St. Lucie. The proposed TCEC site occupies 68.1 acres in Section 31, Township 35 South, Range 40 East, and is currently a greenfield site used for cattle pasture that was approved for industrial use in January 1993 by the St. Lucie County Board of Commissioners for development as an industrial park. The site is zoned Utility.

St. Lucie County is currently the third fastest growing county in Florida, with much of the growth occurring in the cities of Ft. Pierce and Port St. Lucie. The county and its two major cities provide the amenities of larger metropolitan centers in areas such as health care, education, employment opportunities, and recreation; yet the current county population of only 214,100 (2005 projected) allows these areas to retain a spirit of community and a small town atmosphere.

The population trends of St. Lucie County may be used as a surrogate growth indicator of the extent of air quality impacts related to general commercial, residential, and industrial growth since August 7, 1977. The U.S. Census Bureau estimated that St. Lucie County had a population of 74,189 persons in 1977. The population of St. Lucie County was estimated to be 213,447 persons in 2003 by the U.S. Census Bureau, and this constituted 1.25 percent of the estimated state population of 17,019,068. The St. Lucie County population increased by 10.8 percent between 2000 and 2003, compared to a 6.5 percent growth for Florida. The respective 1990 to 2000 growth rate was 28.3 percent for St. Lucie County compared to 23.5 percent for Florida. The St. Lucie County population is expected to increase to 214,100 in 2005, constituting a population increase of 188.6 percent since 1977.

Since 1977, St. Lucie County has successfully balanced growth and economic development with the preservation of unique environmental and recreational areas. The County has anticipated and planned for this additional growth while continuing to demonstrate compliance with the air quality standards (St. Lucie County is in attainment for all criteria pollutants) and preserving the amenities offered to the county population and its visitors. Because the maximum predicted air pollutant concentrations for the TCEC project are well below the NSR/PSD significant impact and increment levels, air concentrations in the region are expected to fully comply with the ambient air quality standards when TCEC becomes operational. Therefore, from an air quality impact standpoint, the proposed TCEC facility is consistent with the balanced growth demonstrated by the county to date.

Workforce

Employment figures for the Ft. Pierce-Port St. Lucie Metropolitan Statistical Area (MSA) for November 2003 show 111,190 persons employed. The largest occupational category was the office and administrative support area (20,920 or 18.8 percent). This category was followed by sales and related occupations (14,050 or 12.6 percent), and food preparation and serving occupations (10,560 or 9.5 percent). Major employment sectors in the county included the education services sector (9.2 percent), the health care and social services sector (13.3 percent), and 28.1 percent were in the "other services" classification. Construction and real estate (9.2 percent) and professional and business services (8.5 percent) also made up a significant portion of the St. Lucie County employment by industry.

Compared to the rest of the state, St. Lucie County had a relatively higher concentration of employment in the agriculture, natural resources, and mining sector (6.0 percent versus 1.5 percent), the education sector (9.2 percent versus 7.2 percent), and the government sector (8.3 percent versus 6.1 percent). The county was well below the state percentage in the professional and business services sector (8.5 percent versus 17.0 percent, respectively).

County business data for St. Lucie County for 1977 show the mid-March total employment to be 14,911 persons. The largest occupational category was in the retail trade division (4,585, or 30.7 percent). This category was followed by the service division (3,345, or 22.4 percent) and the manufacturing division (1,958, or 13.1 percent). Other major employment divisions in the county included wholesale trade (8.9 percent), construction (7.8 percent), finance, insurance, real estate (5.9 percent), and transportation, communications, and utilities (5.4 percent). Non-classifiable establishments and the mining division make up the remainder of the occupational categories.

Workforce Growth Associated with the Project

The TCEC project will require a substantial construction workforce during the 22 month construction period, scheduled to span the August 2006 to May 2008 time frame. During this period, an average of 119 direct craft construction workers and a total workforce (that also includes indirect craft workers, construction management, and local utility staff) average of 169 personnel are expected. The peak construction workforce is projected to occur during the eleventh month of construction, when 233 direct craft workers, and a total of 286 workers, are expected onsite. However, the construction labor force increase and associated secondary air emissions increase will be temporary and will not result in permanent/significant commercial and residential growth occurring in the vicinity of the TCEC.

The net number of new, permanent jobs that will be created by TCEC Unit 1 is estimated at 16. The secondary residential, commercial, and industrial growth associated with this small operation staff, which will be divided into shifts to provide around-the-clock operation, is not expected to have a significant impact on air quality.

Housing

According to the U.S. Census Bureau, there were 96,123 housing units in St. Lucie County in 2002. This was 1.3 percent of the 7,624,378 units in the state. The number of housing units in 2002 compared to a

figure of 91,262 reported in the 2000 US Census, which also reported 17,170 housing units in Ft. Pierce, and 36,785 housing units in Port St. Lucie. Home ownership rate in the county was high at 78 percent versus a 70 percent ownership rate for Florida. In 1980, there were 40,915 housing units in St. Lucie County, constituting an increase in housing units of 135 percent between 1980 and 2002. The home ownership rate in St. Lucie County in 1980 was 54 percent.

The housing stock in St. Lucie County is relatively young, reflecting the recent population growth. Approximately 64 percent of the housing stock in 2000 was built in 1980 or later, and only 7.6 percent of the housing stock was built before 1960. Approximately 50 percent of the 2000 population moved into their housing unit in 1995 or later, and approximately 70 percent in 1990 or later.

Building activity for St. Lucie County has continued at a rapid pace during the recent past, as reflected in the number of housing unit building permits issued. In 2003, a total of 7,684 permits were issued for the county, and this was equal to nearly 8 percent of the 2002 existing housing stock. During the past 5 years, the type of housing unit for which a building permit was issued has been primarily for single family structures, though multi-family structures also comprised a significant percentage in 2002 (38 percent) and in other years.

Housing Growth Associated with the Project

The potential for housing shortages and thus the possibility of housing related growth and secondary air quality impacts have been an issue historically for the construction of large coal plants in sparsely populated areas. However, experience has also shown that smaller projects (non-coal plants) like the TCEC located in or near urban areas typically have no noticeable impacts on the housing market. The reason is that impacts are primarily a function of the size of the construction workforce and the need for the workforce to relocate during construction.

The need to relocate is a function of the available workforce within a reasonable commuting distance of the work site. Research by the Electric Power Research Institute (EPRI) has indicated that the construction workforce for a power plant project can reasonably be expected to commute without relocating during construction from a distance of more than 70 miles, with instances of a commuting distance of more than 100 miles found in each of the construction projects studied. When a 70 mile radius around the TCEC site is considered, large metropolitan areas including West Palm Beach and Melbourne are within commuting distance to the site, and a 100 mile radius includes all or part of the large cities of Fort Lauderdale to the south, and Orlando to the north.

Given the expected population of the commuting workforce, the fact that during the 22 month construction period most workers will be onsite for less than the total construction period, an abundance of hotel and other short-term lodging options, and a reported rental vacancy rate of nearly 12 percent in the area, it is unlikely that a substantial number of the TCEC construction workforce would choose to relocate during the 22 month construction period. Therefore, the anticipated housing growth will be minimal or nonexistent, and is not expected to have a significant impact on the air quality.

Commercial/Industrial

Compared to the state of Florida in general, the Treasure Coast region is expected to realize higher annual growth rates in the government sector (1.21 percent versus 0.83 percent), the wholesale trade sector (2.37 percent versus 1.88 percent), and in the health services sector (3.27 percent versus 2.73 percent). The state is projected to realize a higher annual average growth rate than the Treasure Coast area in a number of categories, including the agriculture, forestry, and fishing sector (1.22 percent versus 0.98 percent), and in the finance, insurance, and real estate sector (1.69 percent versus 1.12 percent).

Ft. Pierce is also realizing noticeable economic and employment growth. The 2003 Comprehensive Annual Financial Report for FPUA listed a number of new investments that will add jobs and demand for power to the area. This included 1,200 new jobs associated with a new Wal-Mart Distribution Center that is now operational (and located across Glades Cutoff Road from the TCEC site), the Harbour Isle project that was projected to add in excess of 800 electric, water, and wastewater accounts during the subsequent 3 years, and several new or revitalized commercial buildings.

According to the Department, there are 11 facilities in St. Lucie County that are required to have a Title V air operating permit as major air emission sources. Such operating permits are required to be in compliance with the rules set forth in Rule 62-4, F.A.C. A list of the 11 facilities in St. Lucie County that are required to have a Title V air operating permit is presented in the following table.

Owner/Company Name	Site Name	City
Ft. Pierce Utilities Authority	FPUA/H.D. King Power Plant	Ft. Pierce
Tropicana Products, Inc.	Tropicana Products	Ft. Pierce
Cargill Juice North America	Ft. Pierce	Ft. Pierce
Atlantic Coast Recycling, Inc.	Atlantic Coast Recycling	Ft. Pierce
Florida Gas Transmission Company	FGTC Compressor Station 20	Ft. Pierce
Arch Mirror South Inc.	Arch Mirror South	Ft. Pierce
S2 Yachts, Inc.	S2 Yachts	Ft. Pierce
St. Lucie County	St. Lucie Co/Glades Road Landfill	Ft. Pierce
Maverick Boat Company, Inc.	Maverick Boat Company	Ft. Pierce
Twin Vee Powercats	Twin Vee Powercats	Port St. Lucie
Twin Vee Powercats, Inc.	Twin Vee Powercats, Inc., Ft. Pierce	Ft. Pierce

Commercial/Industrial Growth Associated with the Project

The TCEC is proposed to meet the existing and current projected electrical demands of the surrounding area. It is anticipated that little commercial growth will be associated with its specific operation. Additionally, the electrical generating capacity created by the TCEC will not have a significant effect upon the industrial growth in the immediate area, considering that the electrical generating capacity will be sold to the grid as opposed to a nearby industrial host. For these reasons, the TCEC is not expected to have a significant impact on the air quality as the result of commercial or industrial growth.

Comment FDEP/BAR-8

In the application, Vegetation and Soils are addressed in Section 5.2. PSD pollutants, SO_2, PM/PM_{10} and NO_x are briefly mentioned. How will the other applicable PSD pollutants, SAM and CO, affect the vegetation and soils? How will all applicable PSD pollutants affect wildlife?

Response to FDEP/BAR-8

The applicable PSD pollutants for the TCEC project include SO_2, PM/PM_{10}, NO_x, CO, and sulfuric acid mist (SAM). As the Department acknowledges in their comment, FMPA has already assessed the potential air quality impacts to vegetation and soils for the PSD pollutants SO_2, PM/PM_{10}, and NO_x. The assessment was based on predicted air pollutant concentrations derived from a comprehensive air dispersion modeling analysis of the stack emissions from the proposed TCEC project. The model-predicted pollutant concentrations were compared to ambient air quality standards, which are designed to protect the public health, welfare, and the natural environment. These ambient air quality standards have been established by the USEPA for the six criteria air pollutants and include primary ambient air quality standards, which are designed to protect public health with an adequate margin of safety, and secondary ambient air quality standards, which are designed to protect public welfare-related values, including property, materials, and *plant and animal life*. In Florida, ambient air quality standards at least as stringent as the national secondary standards have been adopted by the Department.

As described in Sections 4.3 and 5.2 of the application, the model-predicted ambient concentrations of SO_2, PM/PM_{10}, NO_x, and CO are not only one or more orders of magnitude less than the applicable ambient air quality standards, but are even less than the more stringent NSR/PSD significant impact levels and the USEPA recommended screening levels for air pollution impacts on plants, soils, and animals. Because the TCEC proposed air quality impacts are so much lower than the air quality standards designed to protect plant and animal life, it is reasonable to conclude that the proposed emissions of SO_2, PM/PM_{10}, NO_x, and CO will not significantly affect vegetation, soils, or wildlife.

The air quality impact to soils, vegetation, and wildlife from SAM is also expected to be insignificant. There is no national or state air quality standard for SAM to compare model-predicted impacts with, as a general measure of SAM's air quality impact potential, as there are for other PSD pollutants. However, based on the fact that the TCEC proposes to use two of the least sulfur bearing fuels available (i.e., natural gas and ultra-low sulfur fuel oil) and that predicted SO_2 concentrations are orders of magnitude less than

USEPA recommended screening concentrations, it is reasonable to assume that SAM emissions from TCEC will not significantly impact the air quality in a manner that is detrimental to soils or vegetation.

The literature about air quality impacts on wildlife generally focuses on acute exposure by wildlife to unusual or high concentrations of pollutants. Wildlife can be affected through three pathways: ingestion, dermal exposure, and inhalation of ambient air, with ingestion, which can result in bioaccumulation, being the most common means of exposure to high concentrations of pollutants. However, the project air emissions and impacts are predicted to be very low, and are highly unlikely to have any effects on wildlife in the vicinity of the project.

Comment FDEP/SE-1

What environmental assessments have been conducted or will be conducted in order to determine whether soil, sediments, groundwater, or surface waters have been adversely affected (contaminated) by the agricultural operations? Some agricultural operations have had a historical usage of, among other things, arsenical-based pesticides and herbicides. Part of the environmental assessment must include, among other things, the details of historical and current pesticide usage, identification, including detailed, scaled maps, of current and historical fertilizer and pesticide/herbicide mixing areas, locations of canals and surface water bodies, locations of any aboveground, underground or temporary storage tanks, farming equipment maintenance and storage, petroleum product storage, onsite landfill/solid waste disposal areas, locations and types of any water production wells (potable, pesticide makeup, irrigation, etc.), locations and types of surface water pumps and associated fuel tanks, etc. What soil, sediment, surface water, and groundwater cleanup concentrations would be proposed? Are there monitoring wells available for sampling of groundwater? If so, does the facility sample and monitor groundwater from these wells? Please provide a list of the monitored parameters and the results from the sampling and enclose a map depicting these groundwater monitoring wells.

Response to FDEP/SE-1

Kimley-Horn and Associates, on behalf of the Ft. Pierce Utilities Authority (FPUA), conducted Phase I and Phase II Environmental Site Assessments in accordance with ASTM Standard E 1527-00 on the TCEC site in 2004 prior to sale of the site to FMPA. No activities have occurred onsite since that sale other than cattle grazing. Summaries of these reports are provided below; copies can be provided upon request.

The results of the Phase I investigation identified two onsite and two offsite Recognized Environmental Conditions (REC). First, the site has been in agricultural use (row crops, nursery, pasture), a REC due to potential fertilizer and/or pesticide use, since the 1950s. Two groundwater monitoring wells were located in the north-central portion of the site, believed to have been installed in 1997 in response to a small fuel spill (55 gallon drum) noted north of the site. It was also believed that the spill was cleaned up and monitoring conducted, although evidence of the cleanup or monitoring results was not located; therefore, this is a REC. The St. Lucie County Landfill, approximately 0.3 mile west of the site, had unresolved compliance issues at the time of the Phase I report and, therefore, was considered a REC. The industrial

facilities on Glades Cutoff Road near the site had underground storage tanks at one time, but these tanks have since been removed. Kimley-Horn recommended an onsite Phase II investigation consisting of soil and groundwater sampling to investigate the known RECs.

Kimley-Horn conducted the Phase II sampling using standard methods, procedures, and approved laboratories to examine the noted RECs. Groundwater samples from the surficial aquifer were collected from seven existing and temporary wells. Eight background and sample soil samples were also collected. Figure FDEP-1 included in Appendix G indicates the groundwater and soil sampling locations. No additional samples have been collected since the 2004 Phase II study to FMPA's or FPUA's knowledge.

The Phase II groundwater sampling results are provided in Table FDEP-3 (Appendix G). In summary, no herbicides, organophosphorous pesticides, PCBs, TRPH, PAH, VOC, chlorinated pesticides, nitrogen, ammonia, chlorides, TDS, or metals other than iron, which was determined to be natural background, were detected in the groundwater samples at concentrations either above the laboratory analytical detection limits or greater than the Groundwater Cleanup Target Levels in Chapter 62-777, F.A.C.

The Phase II soil sample results are provided in Table FDEP-4 (Appendix G). In summary, no herbicides, organophosphorous pesticides, PCBs, chlorinated pesticides, nitrogen, ammonia, chlorides, TDS, or metals were detected in the soil samples at concentrations either above the laboratory analytical detection limits or greater than the Soil Cleanup Target Levels in Chapter 62-777, F.A.C.

The Phase I and Phase II studies, sample results, and other available information suggest that the site was not historically used as a heavy commercial or intensive agricultural property. With no direct evidence of soil or groundwater contamination, aboveground or belowground storage tanks, farming equipment/chemical/pesticide storage or mixing, onsite solid waste disposal, or irrigation facilities, FMPA believes that the site and adjacent resources/properties have not been adversely affected (contaminated) by past or current agricultural operations.

Comment FDEP/SE-2

Page 2-9 states that the existing site is pasture land. Historical cattle ranching operations may have had cattle dip vats to control diseases. An environmental investigation should be initiated in order to determine the current or historical presence of cattle dip vats at the site associated with ranching operations. Such vats, when identified, would require assessment and probable cleanup.

Response to FDEP/SE-2

There is no current or past evidence, or recent onsite observations, indicating that cattle dipping vats exist or existed on the TCEC site. The Phase I and Phase II Environmental Site Assessment reports mentioned in the above response provide no evidence that such vats ever existed. Prior to the relatively recent use as pasture, the site was used for row crop production (tomatoes). The TCEC site is not on the list of known cattle dipping vats in St. Lucie County, reviewed at www.dep.state.fl.us/waste/quick_topics/publications/wc/cattlevats.pdf.

Comment FDEP/SE-3

What reasonable assurances can be provided to show that onsite water production wells and dewatering will not affect any off-property soil/groundwater contaminated areas? Page 4-8 lists some potential impact from "low scoring" petroleum facilities. Detailed information needs to be provided, including a map(s), showing these contaminated areas and any potential affects new withdrawals, storm water discharges, dewatering, etc. could affect. The St. Lucie County Glades Road Landfill is currently undergoing contamination assessment and that facility has a permitted zone of discharge in their Solid Waste Permit, issued pursuant to, among others, Chapters 62-701, 62-520 and 62-522, Florida Administrative Code (F.A.C.). Page 4-9 does not mention this facility.

Response to FDEP/SE-3

TCEC operations will have no adverse impact on the surficial aquifer. Operations will not withdraw from or discharge to the surficial aquifer (0 to 100 feet bgs), as stated in Subsection 5.3.2.1 of the SCA, other than seepage from the storm water detention basin, which receives only uncontaminated storm waters. The storm water basin will discharge onsite. This discharge will sheet flow in a southerly direction approximately 350 feet through onsite Wetland F1 and Wetland E, and across the FPL easement, before reaching NSLRWCD Canal 102. This sheet flow will slowly release treated storm water to the wetlands and recharge the surficial aquifer as it flows toward the canal. Groundwater production wells will withdraw from the confined Upper Floridan Aquifer, which is separated from the surficial aquifer by the 300 foot thick Hawthorn Group. The top of the Upper Floridan Aquifer is estimated at 500 feet bgs. Therefore, operational storm water discharges and withdrawals from the confined aquifer should have no adverse impact on the surficial aquifer or cause contaminant migration within the surficial aquifer from the known contaminated sites. Figure FDEP-2 and Table FDEP-5 indicate the known contamination sites in the project area; the figure, table, and Facility Inspection Sheets for the facilities are provided in Appendix H.

As discussed in Section 4.3 of the SCA, the site will be dewatered during project construction. Although the final dewatering plans will be provided by the dewatering contractor, project excavations are estimated to be relatively shallow: to approximately 4 feet in the power block area; 10 to 20 feet for specific structures. Dewatering volumes are estimated at 0.8 million gallons per day (mgd) for the initial 30 day dewatering period. After the initial 30 days, surficial groundwater levels should stabilize and dewatering volumes should decrease to 0.4 mgd. The maximum radius of influence of the construction dewatering is estimated to be less than 350 feet from the well points. Therefore, groundwater in the vicinity of the existing St. Lucie County Glades Road Landfill, which is approximately 1,800 feet from the site, is not anticipated to be impacted by the site construction dewatering.

Pursuant to SFWMD requirements, impacts of dewatering on surficial aquifer conditions, including potential migration of contaminants, will be fully analyzed and addressed prior to construction as a requirement of post-certification condition compliance.

Comment FDEP/SE-4

Section 3-7, pgs 3-28, 3-29, and 3-30. Please be advised that hazardous waste determinations are required for most wastewaters generated (including "washdowns") in accordance with Title 40 Code of Federal Regulations (C.F.R.) Part 261, as referenced in Chapter 62-730, F.A.C. In addition to any industrial waste treatment and monitoring requirements, all waste streams must be characterized for proper hazardous waste management in accordance with 40 C.F.R. Part 261, including wastes collected in sumps, laboratory wastes and material from solids settling basins. Page 4-4 has a chart and description of waste streams. The chart and a description needs to be included that indicates which waste stream would be hazardous, whether it is based on process knowledge or will be based on analytical testing, and if hazardous, additional information regarding how the facility would manage the storage and treatment of such wastes in accordance with Chapter 62-730, F.A.C., which references portions of Title 40 C.F.R. Parts 260-271, would be required.

Response to FDEP/SE-4

The wastewater generated during normal operation as shown on the revised water mass balances (i.e., cooling tower blowdown, HRSG blowdown, RO reject, evaporative cooler blowdown, oil/water separator treated effluent, and sanitary wastewater) will not meet the definition of a hazardous waste under the cited Department and USEPA rules, based on process knowledge and experience with similar power plants.

Other potential wastes generated during operations/maintenance, as originally mentioned in Section 5.4 of the SCA, include the following. The expected characteristics are based on process knowledge:

- Waste oil from oil/water separator - Expected to be hazardous and will be hauled offsite by a licensed contractor.
- Wastewater from combustion turbine drain tank - May be hazardous and will be hauled offsite by a licensed contractor (assumed hazardous).
- Wastewater in laboratory drains collection tank - May be hazardous and will be hauled offsite by a licensed contractor (assumed hazardous).
- Wastewater from offline chemical cleaning of RO system membranes - Based on typical chemicals used for cleaning, expected to be nonhazardous. If verified to be nonhazardous based on regulation, MSDS, or manufacturer's recommendation, it will be disposed to the FPUA wastewater system injection wells. If potentially hazardous based on regulation, MSDS, or manufacturer's recommendation, it will be hauled offsite by a licensed contractor.
- Chemical sumps - Spillage will be assessed based on regulation, MSDS, or manufacturer's recommendation for the chemical. If potentially hazardous, it will be recovered back to the tank or hauled offsite by a licensed contractor. Normal washdown and rainwater collected in curbed areas will be nonhazardous and will be disposed to the plant wastewater system to the FPUA injection wells.
- HRSG chemical cleaning - Expected to be nonhazardous. This will be verified by TCLP test. If nonhazardous, it will be disposed to the FPUA wastewater system injection wells. If hazardous, it will be hauled offsite by a licensed contractor.

- Cooling tower drain and clean - Expected to be nonhazardous. It will be disposed to the FPUA wastewater system injection wells.
- Oily solid waste/rags - Considered hazardous and will be hauled offsite by a licensed contractor.
- Waste solvents and paints - Considered hazardous and will be hauled offsite by a licensed contractor.
- Miscellaneous solid wastes, such as wood, metals, plastics, and office waste - Will be collected and contained onsite and disposed by a licensed recycling or disposal facility.
- Spent SCR catalyst - Considered hazardous and will be removed and promptly disposed of offsite by the catalyst supplier.

Regarding Page 4-4, a revised Table 4.1-1 indicating which waste streams are or may be expected to be considered hazardous is provided in Appendix I.

Comment FDEP/SE-5

Any land clearing or construction debris must be characterized for proper disposal. Potentially hazardous materials must be properly managed in accordance with Chapter 62-730, F.A.C. In addition, any solid wastes or other non-hazardous debris must be managed in accordance with Chapter 62-701, F.A.C.

Response to FDEP/SE-5

FMPA will develop procedures to properly manage land clearing debris, construction debris, and hazardous materials/wastes during construction of TCEC Unit 1. These procedures will address worker training, inspections and recordkeeping, spill prevention and response, materials storage, and hazardous waste determinations. If any waste is questionable, FMPA will require the use of the EPA's Toxic Characteristic Leaching Procedure (TCLP) to determine whether a waste is hazardous. Although FMPA will not be an owner or operator of a solid waste disposal facility at the TCEC site, FMPA will require all contractors to comply with the applicable regulations in Chapter 62-701, FAC. FMPA will also develop a Hazardous Waste Management Plan and Chemical Management Procedures Plan to order, store, track, and determine hazardous qualities in accordance with Chapter 62-730, FAC. FMPA anticipates classification as either a Conditionally Exempt Small Quantity Generator or Small Quantity Generator during both construction and operation of TCEC Unit 1. Contractors onsite during both construction and operation will be required to manage their hazardous materials and wastes in accordance with the established FMPA procedures and plans.

Comment FDEP/SE-6

Petroleum and hazardous materials storage tanks and emergency generators for planned facilities must be constructed to comply with the current requirements of Chapter 62-761 and/or 62-762, F.A.C. An acknowledgment that these facilities would comply with the applicable requirements of these rules should be included. As an example, secondary containment should be planned for all areas where petroleum or hazardous materials discharges could affect soils, sediments, surface or ground waters.

Response to FDEP/SE-6

FMPA will design and construct all underground and aboveground storage tanks, and secondary containments, in accordance with the current requirements of Chapters 62-761 and/or 62-762, F.A.C.

FMPA will also prepare and implement a Spill Prevention, Control and Countermeasure (SPCC) Plan for the operating facility.

Comment FDEP/SE-7

The applicant states that they will be using water from the Floridan Aquifer. The applicant has applied for 6 wells at a depth of @ 500 feet. The operation of these wells will cause a drawdown of the water table several thousand feet away. Within 1,800 feet of this proposed site is the existing St. Lucie County Glades Road Landfill. The landfill is under a Consent Order performing CAP/CAR/RAP for offsite contamination at the east and northeast portion of the landfill property boundary in the shallow aquifer (@ 20 to 40 feet in depth) from the old unlined Class I landfill located at the intersection of I-95 and the Fla. Turnpike. The groundwater flows northeast in this area. The applicant also proposes to do dewatering via a GP to the SFWMD. The applicant needs to demonstrate that the proposed dewatering and proposed production wells will not affect the landfill plume or draw the landfill plume to the applicant's or other adjacent properties. The applicant should also demonstrate that the shallow production zone and Floridan aquifer are not connected.

Response to FDEP/SE-7

FMPA has requested approval of only three (3) wells at this time. TCEC well withdrawals during operation will have no impact on the surficial aquifer. Groundwater production wells will withdraw from the confined Upper Floridan Aquifer, which is separated from the surficial aquifer by the 300 foot thick Hawthorn Group. Operations will not withdraw from or discharge to the surficial aquifer (0 to 100 feet bgs), as stated in Subsection 5.3.2.1 of the SCA, other than seepage from the storm water detention basin, which receives only uncontaminated storm waters. The top of the Upper Floridan Aquifer is estimated at 500 feet bgs. Therefore, operational well water withdrawals from the confined Upper Floridan Aquifer should have no impact on the surficial aquifer groundwater flow or cause contaminant migration within the surficial aquifer from the known contaminated sites.

As discussed in Section 4.3 of the SCA, the site will be dewatered during project construction. Although the final dewatering plans will be provided by the dewatering contractor, project excavations are estimated to be relatively shallow: to approximately 4 feet in the power block area; 10 to 20 feet for specific structures. As discussed in the response to Comment FDEP/SE-3, the maximum dewatering is estimated at 0.8 mgd for the initial 30 day dewatering period. After the initial 30 days, surficial groundwater levels should stabilize and the total dewatering volume is estimated to decrease to 0.4 mgd. The maximum radius of influence of the site dewatering pumping is estimated to be less than 350 feet. Therefore, the proposed construction dewatering is not anticipated to affect groundwater or the contaminant plume under the St. Lucie County Glades Road Landfill, which is located 1,800 feet west of the site.

Pursuant to SFWMD requirements, impacts of dewatering on surficial aquifer conditions, including potential migration of contaminants, will be fully analyzed and addressed prior to construction as a requirement of post-certification condition compliance.

Comment FDEP/BWF-1

Sections 373.250 and 403.064, F.S., establish the encouragement and promotion of water reuse as state objectives and note that reuse is in the public interest. Further, Chapter 62-40, F.A.C., requires use of reclaimed water within designated Water Resource Caution Areas. This proposed plant is located within a Water Resource Caution Area. The Department applauds the use of reclaimed water for cooling water at this facility. Part VII of Chapter 62-610, F.A.C., specifically addresses and allows for the use of reclaimed water in cooling water applications. This use of reclaimed water is consistent with statutory and rule directives and objectives. Has wastewater from the City of Port St. Lucie been considered as a source until the Fort Pierce supply is available?

Response to FDEP/BWF-1

FMPA worked closely with its members to select the most appropriate site for the new generation project, acknowledging that the use of reclaimed water, specifically for equipment cooling, would be a beneficial use of that water while conserving groundwater resources. As a result, the Ft. Pierce Utilities Authority's need for a new wastewater treatment plant and disposal site, and FMPA's need for new generation and a long-term source of cooling water were realized at the Treasure Coast Energy Center site. These facilities were compatible and mutually beneficial to FPUA and the FMPA members, and in compliance with regulatory directives and objectives.

On behalf of FMPA, Mr. Ken Weiss of Black & Veatch spoke with Mr. Wes Upham of the City of Port St. Lucie Regulatory Compliance Section on June 22, 2005, regarding the availability of reclaimed water from City facilities for use at the TCEC. Mr. Upham indicated that the Glades Wastewater Treatment Plant is currently under construction and is scheduled to go on line in late 2006. The wastewater treatment plant is located 1 mile west of Glades Cutoff in Section 17, Township 36S, Range 39E, approximately 5.5 miles southwest of the TCEC site. The plant will be rated at 4.0 mgd when fully operational and is intended to replace the existing Port St. Lucie Northport Plant. The new plant will produce highly disinfected reclaimed water through the "Bardenpho" process. This process includes biological nitrogen and phosphorus reduction.

FMPA acknowledges the construction of this facility and potential availability of reclaimed water. However, section 373.250(2)(b), Florida Statutes, provides that the City of Port St. Lucie's reclaimed water is not presumed available because the City will not provide the reclaimed water distribution facilities to the TCEC site at the City's expense. In addition, section 373.250(2)(c), Florida Statutes, requires the use of reclaimed water only when economically feasible. It is not economically feasible for FMPA to construct distribution facilities from the City of Port St. Lucie's Glades Wastewater Treatment Plant. For FMPA to install a pipeline to deliver reclaimed water from the Glades WWTP, FMPA would

significantly add to the capital and operating cost of the TCEC project to realize a limited short-term environmental benefit until the FPUA wastewater treatment plant comes online by June 2009. The estimated capital cost to install and operate a pipeline and pumping system (including pumps, pumps structure, electrical, controls, pipeline, and rights-of-way) is approximately $4 million. Note Rule 62-40.416(1), F.A.C., provides that the economic feasibility of reusing reclaimed water shall consider the costs and benefits of such use.

Comment FDEP/BWF-2

Has reclaimed water been considered for use in the fire protection system or for toilet flushing purposes? Please note that Part III of Chapter 62-610, F.A.C., allows the use of reclaimed water for toilet flushing, fire protection, and other uses. Both of these are excellent uses of reclaimed water and should be incorporated into the project, if feasible.

Response to FDEP/BWF-2

Reclaimed water is not expected to be available for the project until June 2009. Therefore, the fire protection water will be well water and toilet flushing water supply will be potable water. After reclaimed water is available, the feasibility of converting these systems will be evaluated as part of the anticipated water conservation plan for SFWMD.

Comment FDEP/BWF-3

In accordance with Rules 62-610.660 and 62-555.360, F.A.C., the SCA should evaluate the need for backflow prevention devices on reclaimed water and potable water lines to prevent either source from being contaminated.

Response to FDEP/BWF-3

The potable and reclaimed water systems will be furnished with backflow prevention in accordance with state and local regulations. Potable water is not used for any process purpose except as supply to the evaporative coolers and backup supply to the service/fire water tanks. The supply connections to the evaporative coolers and the backup supply to the service/fire water tanks will be furnished with air gap backflow prevention systems.

Comment FDEP/BWF-4

The first generating unit at the power plant (Unit 1) is scheduled to begin commercial operation in June 2008, pending certification and construction. According to the SCA, the POTW is expected to be operational by "late 2009." The SCA text and the water mass balances indicate that the injection wells are the only means of disposal for wastewater from the power plant, so the wells have to be permitted, constructed, and in operation for the power plant to operate. There did not appear to be a schedule for the injection wells at the POTW. The applicant needs to clarify this point and provide demonstrate that the power plant will have a means for disposal of cooling tower blowdown, other process wastewaters, and domestic wastewater.

Response to FDEP/BWF-4

FPUA's schedule for operation of the injection wells (process wastewater disposal) is December 1, 2007, and June 5, 2009, for operation of the Mainland Water Reclamation Facility (reclaimed water supply). An alternative disposal option is available if for some reason the injection wells are not available. During TCEC construction and startup, FMPA will have the option to dispose of wastewaters to the existing 6 inch FPUA force main in the southern portion of the TCEC site which transports wastewaters to the Hutchinson Island Wastewater Treatment Plant. However, this main will not have sufficient capacity for the entire wastewater flow during normal operation.

Comment FDEP/BWF-5

How will power plant operations be impacted if the POTW cannot provide sufficient reclaimed water long-term due to slower than expected population growth or other factors?

Response to FDEP/BWF-5

FPUA has confirmed to FMPA that they can provide the long-term reclaimed water requirement, as stated in the FPUA letter of commitment included in Appendix K. For potential future generating units at TCEC, the water supply will be verified as part of the Supplemental Site Certification process. During periods when treated wastewater is not available from FPUA, water will be withdrawn from the Upper Floridan Aquifer, as proposed in the SCA.

Comment FDEP/BWF-6

How will power plant operations be impacted when injection wells at the POTW are out of operation for mechanical integrity testing or other maintenance activities? Will they have multiple wells?

Response to FDEP/BWF-6

FPUA has indicated to FMPA that they will have permitted facilities in case of well outage. Note that FPUA will also need these provisions for disposal of treated sanitary wastewater from the new FPUA wastewater plant. FPUA's letter of commitment, included in Appendix K, indicates these provisions.

Comment FDEP/BWF-7

Section 3.6.2 implies that a force main to the unbuilt FPUA plant already exists. Is this correct?

Response to FDEP/BWF-7

There is an existing 6 inch FPUA force main in the southern portion of the TCEC site, approximately 175 feet north of the north edge of the Devine Road right-of-way. This line currently transports sanitary wastewater to the Hutchinson Island Wastewater Treatment Plant. It is expected that the TCEC sanitary wastewater destination will be revised when the new FPUA WWTP goes into service.

Comment FDEP/BWF-8

Figure 3.5-6 shows 942,000 gpd as the annual average of wastewater going to the injection well, not the 889,000 gpd reported in the text. Please clarify.

Response to FDEP/BWF-8

Figure 3.5-6 (Water Mass Balance-9) indicates the annual average when well water is used as cooling tower makeup. Because of differences in water quality, more blowdown is required when using well water makeup rather than reclaimed water in order to maintain water quality in the circulating cooling water system and the cooling tower.

Also for water quality reasons, FMPA will use potable water from FPUA in the evaporative cooler rather than well water. Revised water mass balances indicating this change are included Appendix L.

Comment SFWMD-1

Please specify the water supply quantity/source for dust control.

Response to SFWMD-1

The construction project will use water from the FPUA municipal system for dust control. During the first 2 months of site grading and filling, use of 6,000 gpd, 5 days per week, is estimated for dust control. For the following 16 months, use is estimated at 3,000 gpd into plant startup, then 1,000 gpd for the final 4 months to commercial operation.

Comment SFWMD-2

Please submit the details of the proposed wells as required in Table A (Form 0645-G-60).

Response to SFWMD-2

Details of the well design are not available at this time. FMPA will accept a Condition of Certification requiring the submittal and approval of detailed well design information prior to well construction.

Comment SFWMD-3

The calculations provided in response to Section F.1 of the Water Use Permit Application Form indicate that the values are based on using groundwater for cooling for Unit 1. Section G.1 of the Supporting Information states that, excluding the cooling system, 597,000 gallons per day of water are required for Unit 1. Please provide a breakdown of all of the water use demand using the appropriate tables, including Table D (Form 0645-G-65), Table G (Form 0645-G-69), and Table I (Form 0645-G-71).

Response to SFWMD-3

The breakdown of water used is covered in Section 3.5 of the SCA. For additional clarification using the forms, please refer to the attached copies of Table E, Table G, and Table I. Table D is not applicable to this industrial facility (no irrigation proposed). Table G is not directly applicable to an industrial facility, but has been included to provide information on the expected well water consumption by year. These tables are provided in Appendix M.

The groundwater allocation request has been revised due to changing the evaporative cooler makeup water source from groundwater to potable water, as previously mentioned in Response FDEP/BWF-8. Daily, monthly, and 90-day requests are now slightly less than originally requested. In addition to the tables, a revised water use estimate is also included in Appendix M.

Comment SFWMD-4

The groundwater modeling must follow the criteria set forth in Section 1.7.5.2 of the Basis of Review (BOR) for Water Use Permit Applications. Please note that the extrapolation of site-specific characteristics from a calibrated model is not in accordance with SFWMD criteria. Please submit revised modeling that meets the requirements set forth in Section 1.7.5.2 of the BOR..

Response to SFWMD-4

FMPA representatives discussed this sufficiency question with SFWMD (Steve Memberg) on July 7, 2005 during which the only issue raised was the need to obtain aquifer characteristics from aquifer performance tests (APTs). In response, FMPA compiled existing aquifer performance test (APT) data from the SFWMD DBHYDRO database and discussed the Upper Floridan Aquifer parameters for the Treasure Coast site with SFWMD. During the discussion, FMPA and SFWMD agreed to the aquifer parameters and the impact evaluation procedure. The following items were completed after the discussion:

- The impact assessment was completed using the Theis equation. A transmissivity value of 41,349 ft^2/day and storativity value of 0.00061 were used for the Upper Floridan Aquifer.
- 90 day maximum pumping drawdown was evaluated The assessment was based on pumping rates of 3.555 mgd for 500 hours of plant operation on oil and 3.324 mgd on gas for 1,660 hours for one unit operation.

The assessment results are included in Appendix J. The maximum calculated drawdowns are 5.7, 4.4, and 3.67 feet at one, two, and three mile distances from the site, respectively. A one foot drawdown due to the site's maximum pumping is estimated at a distance of 14.4 miles from the site. The estimated additional drawdown due to the maximum plant pumping at the Port St. Lucie water supply wells is 5.2 feet.

FMPA and their Consultants have discussed the cumulative impact issue with District staff. FMPA is preparing a supplemental response to the cumulative impact issue and will submit that response to the District under separate cover.

Comment SFWMD-5

Please submit a letter from the Fort Pierce Utilities Authority (FPUA) documenting the availability of reclaimed water for the proposed project, as required by Section G.1.4 of the Water Use Permit Application Form.

Response to SFWMD-5

A copy of FPUA's letter of commitment to provide reclaimed water is provided in Appendix K. In addition, a table of projected wastewater flows from the Ft. Pierce Utilities Authority is also provided in Appendix K.

FMPA investigated the potential use of reclaimed water from the City of Port St. Lucie. However, as explained in Response FDEP/BWF-1, the use of reclaimed water from this source is not considered feasible.

Comment SFWMD-6

Please supply a letter from the FPUA documenting the availability of potable water for the proposed project, pursuant to the discussion on page 6 of the Additional Information in Support of TCEC Industrial Water Use Request.

Response to SFWMD-6

A copy of FPUA's letter of commitment to provide potable water is provided in Appendix K.

Comment SFWMD-7

The SCA indicates that the details of the proposed dewatering activities will be submitted during the post-certification review process. Please be advised of the following:

Comment SFWMD-7a

Section D.4 of the Dewatering Permit Application and Section 4.4.1 of the Site Certification Application state that wetlands will remain onsite. In addition, wetland areas are present within the surrounding project area. As per Section D.5 of the Dewatering Permit Application, modeling or specific engineering controls that include recharge trenches may be necessary to provide reasonable assurances that no harm occurs to wetland areas due to the proposed withdrawals or discharges.

Response to SFWMD-7a

Detailed dewatering plans are not available at this time. FMPA will accept a Condition of Certification requiring the submittal and approval of detailed dewatering plans prior to initiating dewatering activities.

Comment SFWMD-7b

A known contaminated facility is located approximately 400 feet east of the project site (Florida Department of Environmental Protection Facility ID No. 8631089). As per Section E.1 of the Dewatering Permit Application, modeling may be necessary to provide reasonable assurances that there are no adverse impacts due to the proposed withdrawals or discharges.

Response to SFWMD-7b

Black & Veatch, on behalf of FMPA, contacted Mr. David Koerner of the St. Lucie County Health Department to request the information sheet on the Southern Eagle Distributors site (Facility No.

8631089). The Facility Inspection sheet is included in Appendix H. Mr. Koerner indicated that Southern Eagle is under the state Early Detection Incentive cleanup program. Southern Eagle was first listed on 12/8/88, and the cleanup status is now inactive. The six (6) underground storage tanks have been closed and removed; the two (2) aboveground storage tanks are still active (U means open/active and B means closed on the inspection sheet under Status). The cleanup priority is a 6, which is very low.

FMPA believes that the Southern Eagle site no longer provides a contamination threat, and that TCEC site dewatering will not cause adverse impacts or contaminant migration within the local surficial aquifer.

Comment SFWMD-7c

The licensee must submit calculations showing that the detention basin has sufficient capacity to accept dewatering effluent.

Response to SFWMD-7c

The calculation demonstrates that at a dewatering flow rate of 0.8 mgd, the stormwater collection area will detain the water for 39 hours. This indicates that the stormwater collection area can manage the daily dewatering volume, and allow for settlement time prior to discharge.

Due to Site Arrangement revisions, the storm water calculations were rechecked to consider the additional impervious area. The calculation provided in Appendix N demonstrates that the updated Site Arrangement does not affect the overall storm water design. The composite curve number used on the initial design was 86.7, and with the new layout, the curve number is 79.0. Since the curve number has been reduced, the capacity development area established in the initial calculation is sufficient to meet all design requirements.

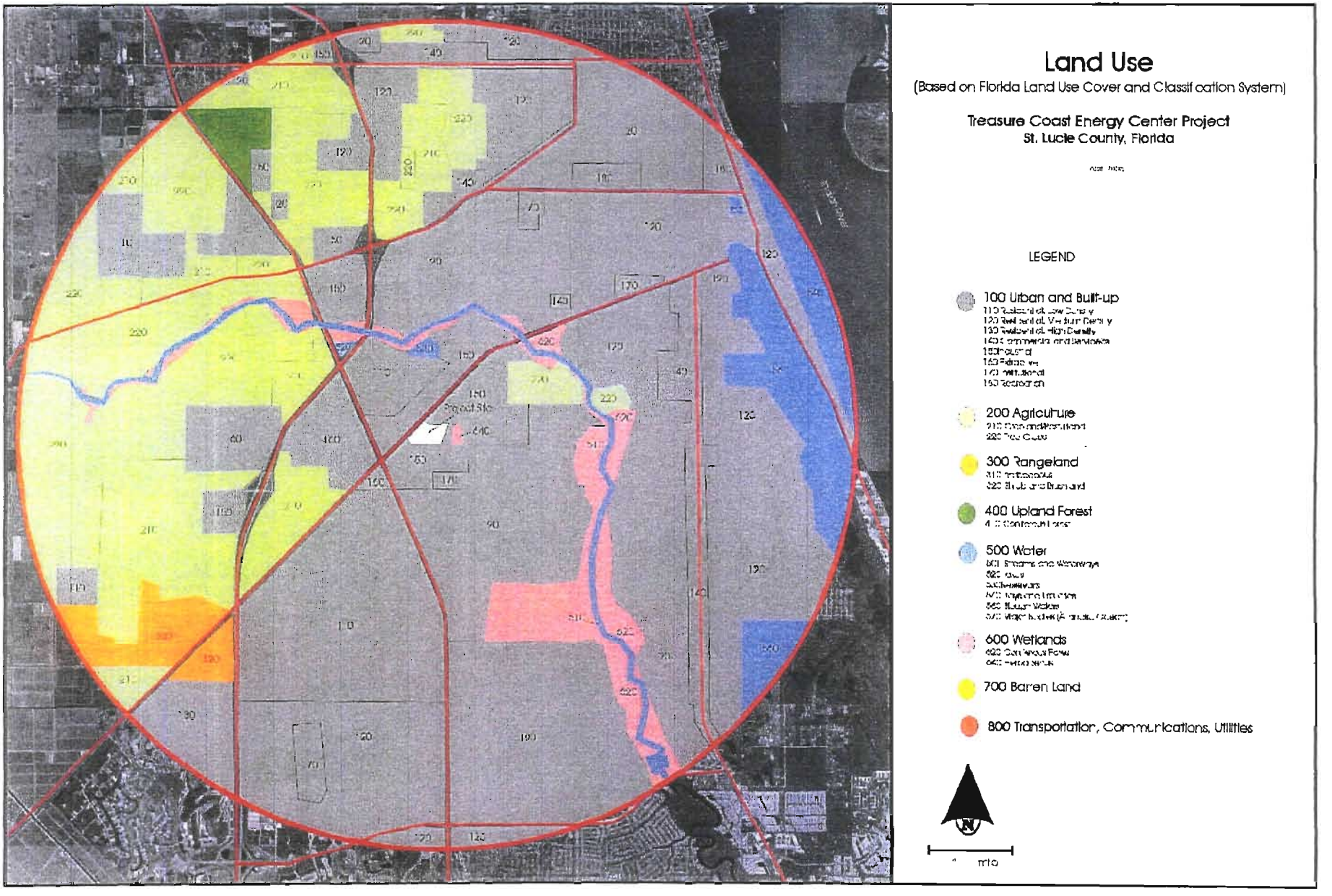
Appendices

Appendix A	SCA Figure 2.3-5. FLUCCS Land Use
Appendix B	Report on Compliance with Electric and Magnetic Field (EMF) Standards
Appendix C	Table FDEP-1. GE Emissions Guarantees
Appendix D	Revised Site Arrangement
Appendix E	Air Quality Impact Tables
Appendix F	Table FDEP-2. PSD Applicability Comparison
Appendix G	Figure FDEP-1. Groundwater and Soil Sample Locations
	Table FDEP-3. Groundwater Sampling Results
	Table FDEP-4. Soil Sampling Results
Appendix H	Figure FDEP-2. Contaminated Sites Location Map
	Table FDEP-5. Contaminated Sites in Vicinity of TCEC
	Facility Inspection Sheets
Appendix I	Table 4.1-1. Waste Streams and Wastewater Streams Associated with Construction
Appendix J	Groundwater Impact Assessment Results
Appendix K	FPUA Letter of Commitment
Appendix L	Revised Water Mass Balances
Appendix M	Water Use Tables
	Revised Water Use Request
Appendix N	Dewatering and Storm Water Basin Calculations

Appendices

Appendix A

SCA Figure 2.3-5. FLUCCS Land Use



BLACK & VEATCH
CORPORATION

TREASURE COAST ENERGY CENTER

FLUCCS LAND USE
FIGURE 2.3-5

Appendix B

Report on Compliance with Electric and Magnetic Field (EMF) Standards

Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Report on Compliance with Electric and Magnetic Field (EMF) Standards

Agent/Facility Information

Treasure Coast Energy Center Unit 1
Name of Transmission Line/InterestPoint

FMPA
Double Circuit Loop Line (TL1)
Name and Address of Facility (Utility) Owner

Black & Veatch
201 South Orange Avenue
Suite 500
Orlando, FL. 32801
Name and Address of Authorized Agent

September 18, 2006
Date of Proposed Construction

James M Andersen
201 South Orange Avenue
Suite 500
Orlando, FL. 32801
Name and Address of Professional Engineer

Signature of Authorized Agent

Date

Signature and Seal of Professional Engineer

Date

Field Strength Information

Transmission Lines

Cross Section	Right-of-Way (ROW) Width (ft)	Maximum Calculated Fields and Distance From ROW Left					
		Electric				Magnetic	
		Within ROW		At Edge of ROW		At Edge of ROW	
		(kV/m)	(ft)	(kV/m)	(ft)	(mG)	(ft)
Double Circuit	50	**2.3**	11	**1.8**	0	**114.7**	0

Substations

None

Details for CrossSection: **Double Circuit- TR1**

CKT1 (Circuit Name) | 230 kV (Rated Voltage) | **NEW CIRCUIT** (New/Existing)

Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors # of	SubConductors Diameter (in)	SubConductors Spacing (in)	Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
1A1	35.00	10.00	54.00	2	1.20	12.00	241.0	0	2000
1B1	35.00	10.00	42.00	2	1.20	12.00	241.0	120	2000
1C1	35.00	10.00	30.00	2	1.20	12.00	241.0	240	2000
1G1	32.00	7.00	64.00	1	0.75	0.00	0.0	0	0

CKT2 (Circuit Name) | 230 kV (Rated Voltage) | **NEW CIRCUIT** (New/Existing)

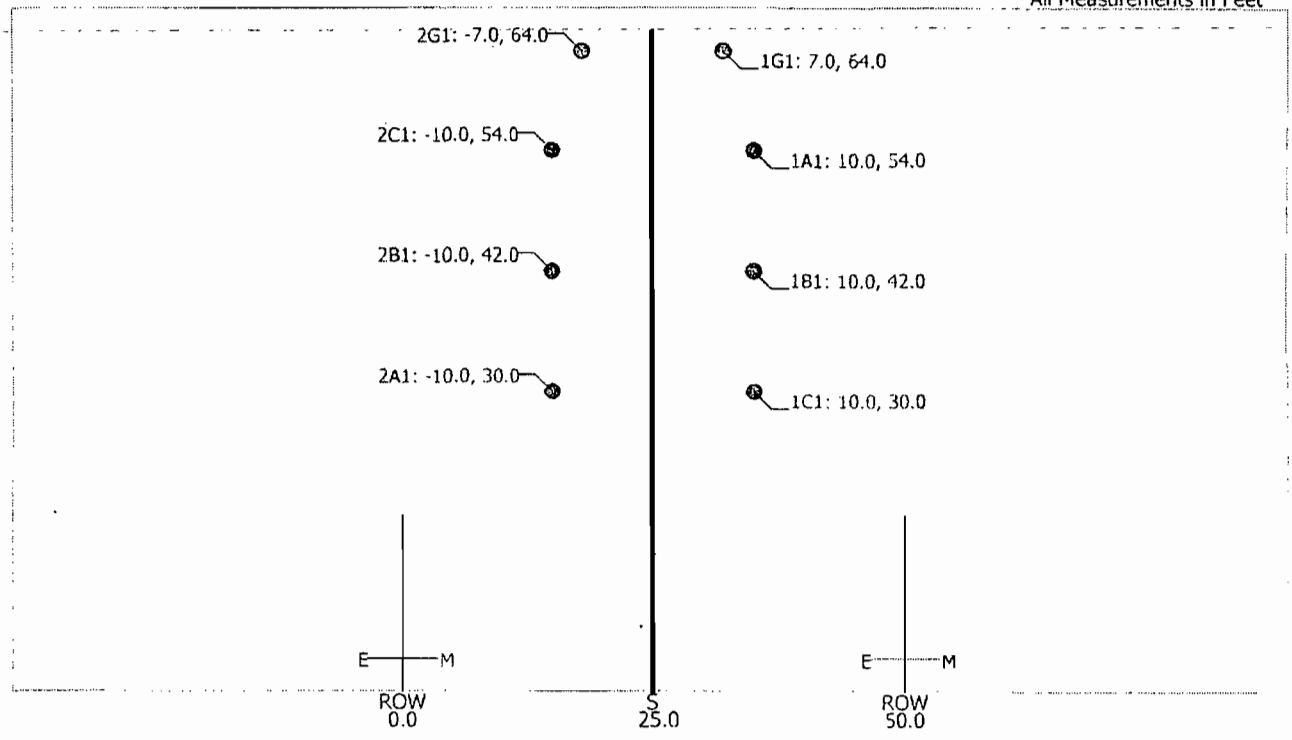
Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors # of	SubConductors Diameter (in)	SubConductors Spacing (in)	Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
2A1	15.00	-10.00	30.00	2	1.20	12.00	241.0	0	2000
2B1	15.00	-10.00	42.00	2	1.20	12.00	241.0	120	2000
2C1	15.00	-10.00	54.00	2	1.20	12.00	241.0	240	2000
2G1	18.00	-7.00	64.00	1	0.75	0.00	0.0	0	0

Points of Interest

None

Phase Configuration

All Measurements in Feet



Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Report on Compliance with Electric and Magnetic Field (EMF) Standards

Agent/Facility Information

Treasure Coast Energy Center Unit 1
Name of Transmission Line/InterestPoint

September 18, 2006
Date of Proposed Construction

FMPA
Radial Line (TL2)

Name and Address of Facility (Utility) Owner

James M Andersen
201 South Orange Avenue
Suite 500
Orlando, FL. 32801
Name and Address of Professional Engineer

Black & Veatch
201 South Orange Avenue
Suite 500
Orlando, FL. 32801
Name and Address of Authorized Agent

Signature of Authorized Agent

Date

Signature and Seal of Professional Engineer

Date

Field Strength Information

Transmission Lines

Cross Section	Right-of-Way (ROW) Width (ft)	Maximum Calculated Fields and Distance From ROW Left					
		Electric				Magnetic	
		Within ROW		At Edge of ROW		At Edge of ROW	
		(kV/m)	(ft)	(kV/m)	(ft)	(mG)	(ft)
Single Circuit	50	**3.3**	25	**1.2**	0	**132.8**	50

Substations

None

Details for CrossSection: **Single Circuit- TR2**

CKT1 (Circuit Name) | 230 kV (Rated Voltage) | **NEW CIRCUIT** (New/Existing)

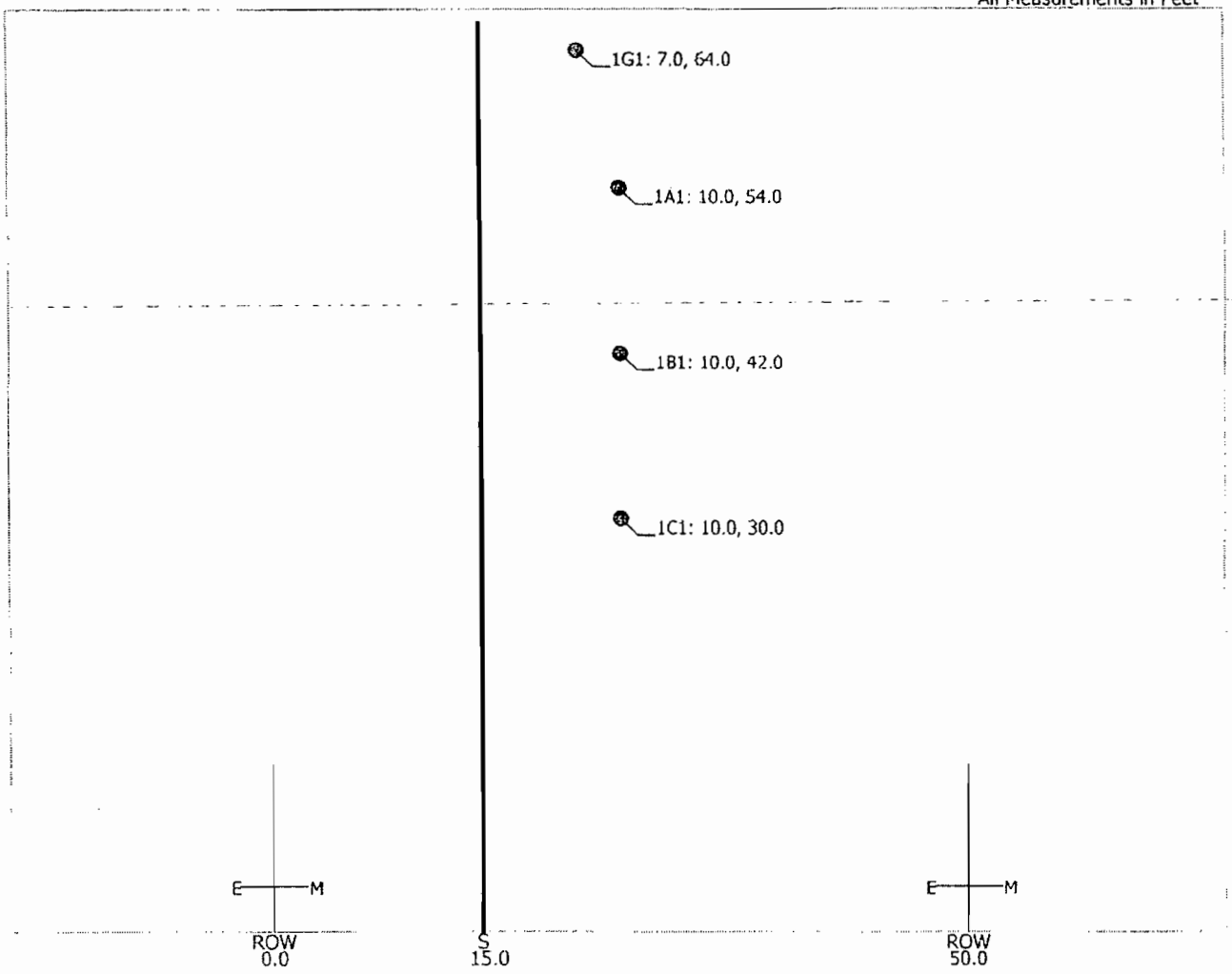
Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors # of	SubConductors Diameter (in)	SubConductors Spacing (in)	Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
1A1	25.00	10.00	54.00	2	1.20	12.00	241.0	0	2000
1B1	25.00	10.00	42.00	2	1.20	12.00	241.0	120	2000
1C1	25.00	10.00	30.00	2	1.20	12.00	241.0	240	2000
1G1	22.00	7.00	64.00	1	0.75	0.00	0.0	0	0

Points of Interest

None

Phase Configuration

All Measurements in Feet



Appendix C

Table FDEP-1. GE Emissions Guarantees

Table FDEP-1. GE Emissions Guarantees

Natural Gas Fuel:

Measurement	Guaranteed Value	Load Range %	Ambient Range °F
NO_x @ 15% O_2 (ppmvd)	9.0	60 - 100	26 - 100
CO (ppmvd)	5.0 " 9.0 "	50 - 100 60 - 100 50 - < 60 50 - 100	35 - 85 >85 - 100 >85 - 100 26 - <35
UHC (ppmvw)	7.0	60 - 100	26 - 100
VOC (ppmvw)	1.4	60 - 100	26 - 100
PM/PM_{10}, front half plus back half with sulfur (lb/h)	18	N/A	N/A

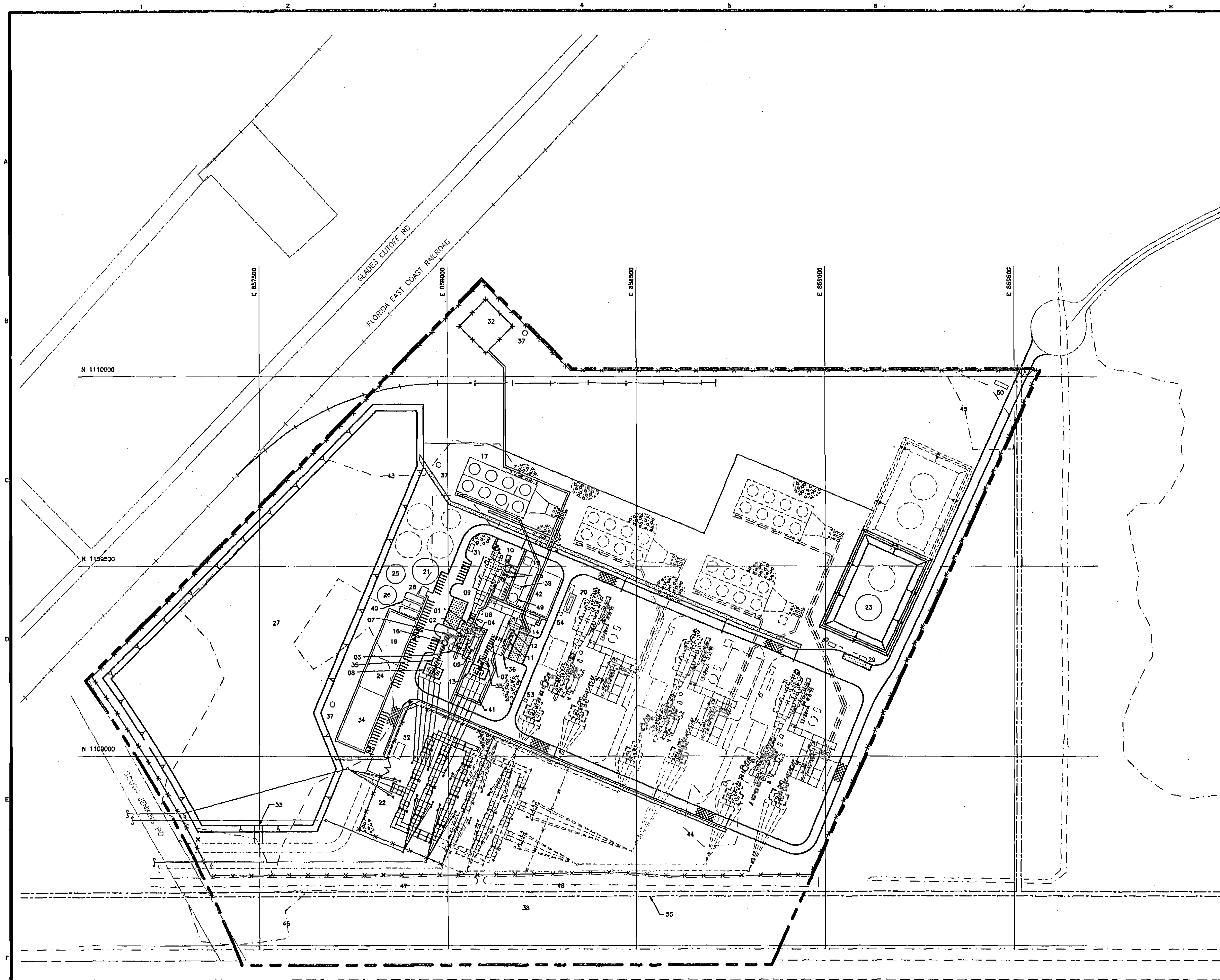
Distillate Oil:

Measurement	Guaranteed Value	Load Range %	Ambient Range °F
NO_x @ 15% O_2 (ppmvd)	42	60 - 100	26 - 100
CO (ppmvd)	8.0 20.0	75 - 100 50 - <75	26 - 100 26 - 100
UHC (ppmvw)	7.0	60 - 100	26 - 100
VOC (ppmvw)	2.0 3.5	75 - 100 50 - <75	26 - 100 26 - 100
PM/PM_{10}, front half plus back half with sulfur (lb/h)	34	N/A	N/A

Appendix D

Revised Site Arrangement

1110121-001 AC (1)



FACILITIES LEGEND

ID	FACILITY	FOUNDATION	TIEDOWN LOCATION NORTH	TIEDOWN LOCATION EAST	REMARKS
01	COMBUSTION TURBINE	–	–	–	
02	COMBUSTION TURBINE GENERATOR	–	–	–	
03	COMBUSTION TURBINE INLET AIR FILTER	–	–	–	
04	COMBUSTION TURBINE ACCESSORY MODULE	–	–	–	
05	COMBUSTION TURBINE ELECTRICAL PACKAGE	–	–	–	
06	COMBUSTION TURBINE WASH WATER SKID	–	–	–	
07	ISOLATED PHASE BUS DUCT	–	–	–	
08	CT GENERATOR STEPUP TRANSFORMER	–	–	–	
09	HEAT RECOVERY STEAM GENERATOR	–	–	–	
10	HEAT RECOVERY STEAM GEN. EX. STACK	–	–	–	
11	STEAM TURBINE	–	–	–	
12	STEAM TURBINE GENERATOR	–	–	–	
13	STEAM TURBINE GENERATOR STEPUP TRANS.	–	–	–	
14	CONDENSER	–	–	–	
15	BOILER FEED PUMPS	–	–	–	
16	GENERATOR BREAKER	–	–	–	
17	COOLING TOWER	–	–	–	
18	ADMINISTRATION / CONTROL / MAINTENANCE BUILDING	–	–	–	
19	WASTEWATER COLLECTION SUMP	–	–	–	
20	OIL/WATER SEPARATOR	–	–	–	
21	DEMINERALIZED WATER TANK	–	–	–	
22	SUBSTATION	–	–	–	
23	FUEL OIL TANK	–	–	–	
24	WATER TREATMENT BUILDING	–	–	–	
25	FIRE PROTECTION/SERVICE WATER TANK	–	–	–	
26	FIRE PROTECTION/SERVICE WATER TANK	–	–	–	
27	DETENTION POND	–	–	–	
28	FIRE PUMP BUILDING	–	–	–	
29	FUEL OIL UNLOADING PUMPS	–	–	–	
30	FUEL FORWARDING SKID	–	–	–	
31	AMMONIA STORAGE TANK	–	–	–	
32	GAS METERING & AIR PRESSURE REGULATION STATION	–	–	–	
33	DETENTION BASIN DISCHARGE	–	–	–	
34	WAREHOUSE	–	–	–	
35	UNIT AUXILIARY TRANSFORMER	–	–	–	
36	STEAM TURBINE GEN. ROTOR REMOVAL	–	–	–	
37	PRODUCTION WELL	–	–	–	
38	FPL EASEMENT	–	–	–	
39	SAFE SHUTDOWN DIESEL GENERATOR	–	–	–	
40	DEMINERALIZED WATER TRAILERS	–	–	–	
41	ELECTRICAL EQUIPMENT BUILDING	–	–	–	
42	MISCELLANEOUS SERVICES BUILDING	–	–	–	
43	WETLAND AREA A	–	–	–	
44	WETLAND AREA B	–	–	–	
45	WETLAND AREA C	–	–	–	
46	WETLAND AREA E	–	–	–	
47	WETLAND AREA F1	–	–	–	
48	WETLAND AREA F2	–	–	–	
49	CONDENSATE STORAGE TANK	–	–	–	
50	ENTRANCE SIGN	–	–	–	
51	SIDEWALKS	–	–	–	
52	SWITCHYARD CONTROL BUILDING	–	–	–	
53	ELECTRICAL INTERFACE MANHOLE	–	–	–	
54	PIPING INTERFACE MANHOLE	–	–	–	
55	FPUA UTILITY EASEMENT	–	–	–	

GENERAL LEGEND

PROPERTY BOUNDARY
FUTURE UNIT
WETLAND BOUNDARY
TRANSMISSION LINES
UTILITY EASEMENT
FENCING
CANAL
RAIL

ASPHALT SURFACING
CONCRETE SURFACING
AGGREGATE SURFACING

1. ALL SIDEWALKS SHALL HAVE AN ASPHALT SURFACE

FOR PERMITTING PURPOSE ONLY
APPROVED FOR CONSTRUCTION

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
2	07/27/05	GENERAL REVISIONS	MSW	MJT	MJS	MRR	
1	07/20/05	GENERAL REVISIONS	MSW	MJT	MJS	MRR	
0	04/08/05	ISSUED FOR CONSTRUCTION	MSW	MJT	MJS	MRR	

N

100' 50' 0 100' 200'
1"=100'

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF
SIGNED ____
DATE ____ REG NO. ____

BLACK & VEATCH CORPORATION
ENGINEER MJT | DRAWN MSW
CHECKED MJS | DATE 04/08/05

FMPA
TREASURE COAST ENERGY CENTER UNIT 1
ULTIMATE SITE ARRANGEMENT

PROJECT / DRAWING NUMBER: 138859-CSTA-S1001
REV: 2
CODE
AREA
FIGURE 2.1-9

Appendix E

Air Quality Impact Tables

Table 4-2
ISCST3 Model-Predicted Class II Impacts

Pollutant	Averaging Period	Model-Predicted Impact[a] ($\mu g/m^3$)							PSD Class II SIL[b] ($\mu g/m^3$)	Exceed SIL?	De Minimis Monitoring Level[c] ($\mu g/m^3$)	Pre-Construction Monitoring Required?
		Natural Gas				Fuel Oil						
		100%	75%	50%	40%	100%	75%	50%				
NO_x	Annual	0.33	0.34	0.35	0.36	0.33	0.34	0.37	1	NO	14	NO
SO_2	Annual	0.03	0.02	0.04	0.05	0.007	0.003	0.005	1	NO	--	NO
	24 Hour	1.11	1.08	1.27	1.30	0.18	0.16	0.20	5	NO	13	NO
	3 Hour	2.83	2.20	2.38	2.37	0.64	0.39	0.42	25	NO	--	NO
PM/PM_{10}[d]	Annual	0.18	0.20	0.24	0.27	0.17	0.18	0.21	1	NO	--	NO
	24 Hour	3.95	3.83	4.79	4.73	2.65	3.25	4.63	5	NO	10	NO
CO	8 Hour	9.10	5.55	6.21	17.16	5.06	6.69	7.77	500	NO	575	NO
	1 Hour	124.32	124.32	124.32	124.32	124.32	124.32	124.32	2,000	NO	--	NO

[a]Impacts represent the highest first high model-predicted concentration from all 5 years of meteorological data modeled at each corresponding load.
[b]Predicted impacts that are below the specified level indicate that the proposed project will not have predicted significant impacts for that pollutant and further modeling is not necessary for that pollutant.
[c]This criteria is used to determine if pre-construction ambient air monitoring is required to assess current and future compliance with Ambient Air Quality Standards.
[d]Note that the PM_{10} impacts are below the PSD Class II SILs and the NAAQS for $PM_{2.5}$ are significantly greater than the PM_{10} SILs. Therefore, if one were to conservatively assume that $PM_{2.5}$ impacts would be the same as the PM_{10} impacts, then the impacts would be significantly below the $PM_{2.5}$ NAAQS.

Table 4-3
ISCST3 Model-Predicted Combustion Turbine Impacts

Pollutant	Averaging Period	Model-Predicted Impact[a] ($\mu g/m^3$)							PSD Class II SIL[b] ($\mu g/m^3$)	Exceed SIL?
		Natural Gas				Fuel Oil				
		100%	75%	50%	40%	100%	75%	50%		
NO_x	Annual	0.040	0.030	0.051	0.066	0.090	0.071	0.093	1	NO
SO_2	Annual	0.031	0.023	0.040	0.052	0.007	0.003	0.005	1	NO
	24 Hour	1.106	1.080	1.264	1.297	0.180	0.164	0.197	5	NO
	3 Hour	2.818	2.184	2.372	2.359	0.640	0.379	0.410	25	NO
PM/PM_{10}	Annual	0.095	0.066	0.142	0.168	0.063	0.053	0.093	1	NO
	24 Hour	3.347	3.221	4.182	4.117	1.563	2.641	4.016	5	NO
CO	8 Hour	8.519	4.971	5.634	16.58	4.338	6.112	7.185	500	NO
	1 Hour	16.38	9.219	9.629	27.53	16.42	12.93	13.99	2,000	NO

[a]Impacts represent the highest first high model-predicted concentration from all five years of meteorological data modeled at each corresponding load.
[b]Predicted impacts that are below the specified level indicate that the proposed project will not have predicted significant impacts for that pollutant and further modeling is not necessary for that pollutant.
[c]This criteria is used to determine if pre-construction ambient air monitoring is required to assess current and future compliance with Ambient Air Quality Standards.

Table 5-5
Regional Haze Results

Class I Area	Change in Extinction[a] (%)		Recommended Threshold (%)
	Natural Gas	Fuel Oil	
Chassahowitzka WA	1.23	1.94	5
Everglades NP	1.80	2.76	5

[a]Change in extinction was compared against the natural conditions presented in the FLAG 2000 document.

Table 5-6
Deposition Results

Class I Area	Total Nitrogen Deposition[a] (kg/ha/yr)		Total Sulfur Deposition[b] (kg/ha/yr)		Deposition Analysis Threshold[c]
	NG	FO	NG	FO	
Chassahowitzka WA	2.3E-4	6.5E-4	3.7E-4	1.8E-4	0.01
Everglades NP	3.3E-4	9.7E-4	5.1E-4	2.6E-4	0.01

[a]Includes both wet and dry deposition with SO_4, NO_x, HNO_3, and NO_3 contributing to the nitrogen mass.
[b]Includes both wet and dry deposition with SO_2 and SO_4 contributing sulfur mass.
[c]For all areas east of the Mississippi River.

Table 5-7
Class I Significant Impact Levels (SIL) Modeling Results

Pollutant	Averaging Period	Model-Predicted Impact[a] ($\mu g/m^3$)		PSD Class I SIL[b] ($\mu g/m^3$)	Exceed SIL?
		Natural Gas	Fuel Oil		
Chassahowitzka Wilderness Area					
NO_x	Annual	6.90E-5	3.15E-4	0.10	NO
SO_2	Annual	2.64E-4	1.21E-4	0.08	NO
	24 Hour	5.95E-3	2.56E-3	0.20	NO
	3 Hour	1.61E-2	7.15E-3	1.0	NO
PM/PM_{10}	Annual	1.04E-3	1.39E-3	0.16	NO
	24 Hour	2.70E-2	3.50E-2	0.32	NO
Everglades National Park					
NO_x	Annual	2.53E-4	1.12E-3	0.10	NO
SO_2	Annual	5.37E-4	2.42E-4	0.08	NO
	24 Hour	1.01E-2	4.41E-3	0.20	NO
	3 Hour	3.35E-2	1.46E-2	1.0	NO
PM/PM_{10}	Annual	1.92E-3	2.55E-3	0.16	NO
	24 Hour	4.05E-2	5.27E-2	0.32	NO

[a]Model-predicted impacts are for the 5 year period that was in the analysis: 1987, 1988, 1989, 1990, and 1991.
[b]Class I Significant Impact Levels are calculated as 4 percent of the PSD Class I Increment values.

Appendix F

Table FDEP-2. PSD Applicability Comparison

Table FDEP-2. PSD Applicability Comparison (Project)[1]

Pollutant	Using an Ambient Temp. of 73° F			Using an Ambient Temp. of 59° F		
	Annual PTE (tpy)	PSD SEL (TPY)	PSD Major (Yes/No)	Annual PTE (tpy)	PSD SEL (TPY)	PSD Major (Yes/No)
NO_x	88.9	40	Yes	91.0	40	Yes
CO	228.7	100	Yes	234.7	100	Yes
PM	175.9	25	Yes	176.5	25	Yes
PM_{10}	171.3	15	Yes	171.8	15	Yes
SO_2	56.5	40	Yes	57.8	40	Yes
VOC	23.3	40	No	23.3	40	No
SAM	22.4	7	Yes	23.0	7	Yes

[1]Note that this table illustrates the affect of ambient temperature on PSD applicability. Because PSD applicability is based on the Project potential to emit (PTE), the project PTE values are shown in this table. Only the CT emissions are affected by ambient temperature, so the differences in PTE between the ambient temperature cases shown in this table are equivalent to the differences in the TCEC Unit 1 PTE. Also note that this Table reflects elimination of the auxiliary boiler from the Project, as discussed in the Response to FDEP/BAR-4. Therefore, the values shown above (for the 73° F case) will be slightly lower than the values given in Table 2-2 of the application.

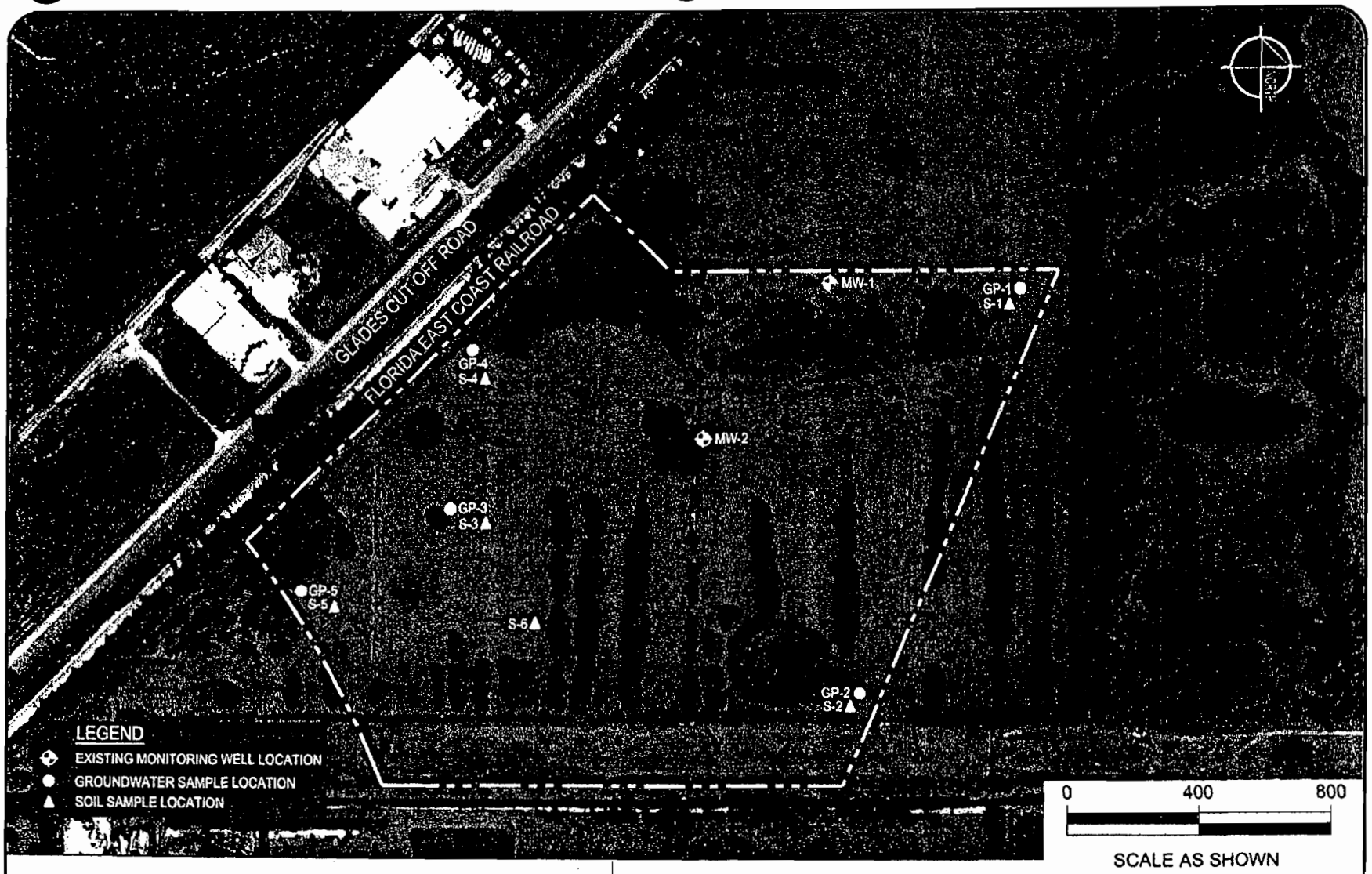
Appendix G

Figure FDEP-1. Groundwater and Soil Sample Locations

Table FDEP-3. Groundwater Sampling Results

Table FDEP-4. Soil Sampling Results

BEST AVAILABLE COPY



Kimley-Horn and Associates, Inc.
ENGINEERING, PLANNING AND ENVIRONMENTAL CONSULTANTS
8711 PERIMETER PARK BLVD. SUITE 4
JACKSONVILLE, FLORIDA 32216
(904) 998-2084

2003 AERIAL PHOTOGRAPH

FORT PIERCE UTILITIES AUTHORITY
ST. LUCIE COUNTY, FLORIDA
OMEGA SITE

JOB NO. 047510001.1201
SCALE: AS NOTED
FIGURE FDEP-1

SOURCE: LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT for Ft. PIERCE UTILITIES AUTHORITY, by KIMLEY-HORN & ASSOC., JUNE 1, 2004.

Table 1
Groundwater Analytical Summary

Fort Pierce Utilities Authority
Omega Site
St. Lucie County, Florida

June 2004

Detectable Analytes	GCTL	GP-1	GP-2	GP-3	GP-4	GP-5	MW-1	MW-2
Total Recoverable Petroleum Hydrocarbons								
TRPH (ug/L)	5000	NA	NA	NA	390 i	NA	350 i	300 i
Total Metals								
Barium (mg/L)	2	NA	NA	NA	NA	NA	0.018	0.013
Chromium (mg/L)	0.1	NA	NA	NA	NA	NA	0.0021 V	0.0044 V
Lead (mg/L)	0.015	NA	NA	NA	NA	NA	0.0016 i	0.0013 i
Dissolved Metals								
Arsenic (mg/L)	0.05*	0.0071 i	0.0082 i	BDL	BDL	BDL	NA	NA
Barium (mg/L)	2*	0.083	0.18	0.15	0.16	0.05	NA	NA
Beryllium (mg/L)	0.004*	NA	NA	NA	NA	0.0012	NA	NA
Chromium (mg/L)	0.1*	0.052	0.1	0.076	0.093	0.036	NA	NA
Copper (mg/L)	1**	0.0081 i	0.028 i	0.018 i	NA	BDL	NA	NA
Iron (mg/L)	0.3**	NA	NA	NA	NA	9.4	NA	NA
Lead (mg/L)	0.015*	0.019	0.059	0.031	0.038	0.011	NA	NA
Mercury (mg/L)	0.002*	0.000032 i	0.00023	0.00028	0.00022	BDL	NA	NA
Nickel (mg/L)	0.1*	NA	NA	NA	NA	0.0088 i	NA	NA
Sodium (mg/L)	160*	NA	NA	NA	NA	23	NA	NA
Zinc (mg/L)	5**	NA	NA	NA	NA	0.018 i	NA	NA
Semi-Volatile Organic Compounds								
1-Methylnapthalene (ug/L)	20	NA	NA	NA	0.18 i	BDL	BDL	BDL
2-Methylnapthalene (ug/L)	20	NA	NA	NA	0.20 i	BDL	BDL	BDL
Volatile Aromatic Hydrocarbons								
Acetone (ug/L)	700	NA	NA	NA	BDL	18	BDL	BDL
Chlorinated Pesticides								
4,4'-DDT (ug/L)	0.1	BDL	BDL	0.074	NA	NA	NA	NA
Herbicides								
No Analytes Detected	BDL	BDL	BDL	BDL	NA	NA	NA	NA
Organophosphorous Pesticides								
No Analytes Detected	BDL	BDL	BDL	BDL	NA	NA	NA	NA
PCBs								
No Analytes Detected	BDL	BDL	BDL	BDL	NA	NA	NA	NA
Miscellaneous Analytes								
Ammonia (mg/L)	2.8	0.25	0.69	1.6	NA	0.36	NA	NA
Nitrate+Nitrite (mg/L)	10*	0.029	0.039 i	0.18	NA	0.034	NA	NA
Total Chlorides (mg/L)	250**	NA	NA	NA	NA	37	NA	NA
Total Kjeldahl Nitrogen (mg/L)	Not Listed	2.5	BDL	5	NA	0.87	NA	NA
Total Nitrogen (mg/L)	Not Listed	2.6	BDL	5.2	NA	0.91	NA	NA
Total Dissolved Solids (mg/L)	500**	NA	NA	NA	NA	410	NA	NA

GCTL = Groundwater Cleanup Target Level, Chapter 62-777, FAC
TRPH = Total Recoverable Petroleum Hydrocarbons
mg/L = Milligrams per liter
ug/L = Micrograms per liter
i = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
BDL = Below laboratory analytical detection limits
NA = Not Analyzed
Values in **Bold** exceed the GCTL value
* Primary standard as provided in Chapter 62-550, FAC
** Secondary standard as provided in Chapter 62-550, FAC

SOURCE: LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT for Ft. PIERCE UTILITIES AUTHORITY, by KIMLEY-HORN & ASSOC., JUNE 1, 2004.

TABLE FDEP-3

Table 2
Soil Analytical Summary

Fort Pierce Utilities Authority
Omega Site
St. Lucie County, Florida

June 2004

Detectable Analytes	Residential SCTL	Commercial SCTL	Leachability SCTL	S-1	S-2	S-3	S-4	S-5	S-6	BK-1	BK-2
Chlorinated Pesticides											
No Analytes Detected				BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Herbicides											
No Analytes Detected				BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Organophosphorous Pesticides											
No Analytes Detected				BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Miscellaneous Analytes											
Ammonia (mg/kg)	550	3,700	570	4.4	3.5	1.6	4.3	3.2	4.5	NA	NA
Nitrate+Nitrite (mg/kg)	127,800	180,000	***	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Total Kjeldahl Nitrogen (mg/kg)	Not Listed	Not Listed	Not Listed	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Total Nitrogen (mg/kg)	Not Listed	Not Listed	Not Listed	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
PCBs											
No Analytes Detected				BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Total Metals											
Arsenic (mg/kg)	0.8	3.7	29	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Barium (mg/kg)	110	87,000	1,600	0.480	0.510	0.330	0.600	0.240	0.440	0.600	0.170
Cadmium (mg/kg)	75	1,300	8	0.020	0.011	0.0046 I	0.032	0.011	0.011	0.014	BDL
Chromium (mg/kg)	210	4,200	38	1.100	0.480	0.16 V	3.400	0.410	0.650	0.930	0.18 V
Copper (mg/kg)	110	76,000	***	2.500	0.88 I	0.44 I	5.400	1.500	1.600	NA	NA
Lead (mg/kg)	400	920	***	0.730	0.550	0.490	0.760	0.330	0.480	0.430	0.16 V
Mercury (mg/kg)	3.4	26	2.1	0.0026 I	BDL	0.0015 I	0.0010 I	BDL	0.030 I	0.006	0.0010 V
Selenium (mg/kg)	390	10,000	15	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silver (mg/kg)	390	9,100	17	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

TRPH = Total Recoverable Petroleum Hydrocarbons
ug/Kg = Micrograms per Kilogram
SCTL = Soil Cleanup Target Levels, Chapter 62-777, FAC
BDL = Below laboratory analytical detection limits
NA = Not Analyzed
I = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
*** Leachability values may be dreived using the SPLP Test to calculate site-specific STCLs or may be determined using TCLP in the event oily wastes are present
Values in Bold exceed one or more applicable SCTLs

SOURCE: LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT for Ft. PIERCE UTILITIES AUTHORITY, by KIMLEY-HORN & ASSOC., JUNE 1, 2004.

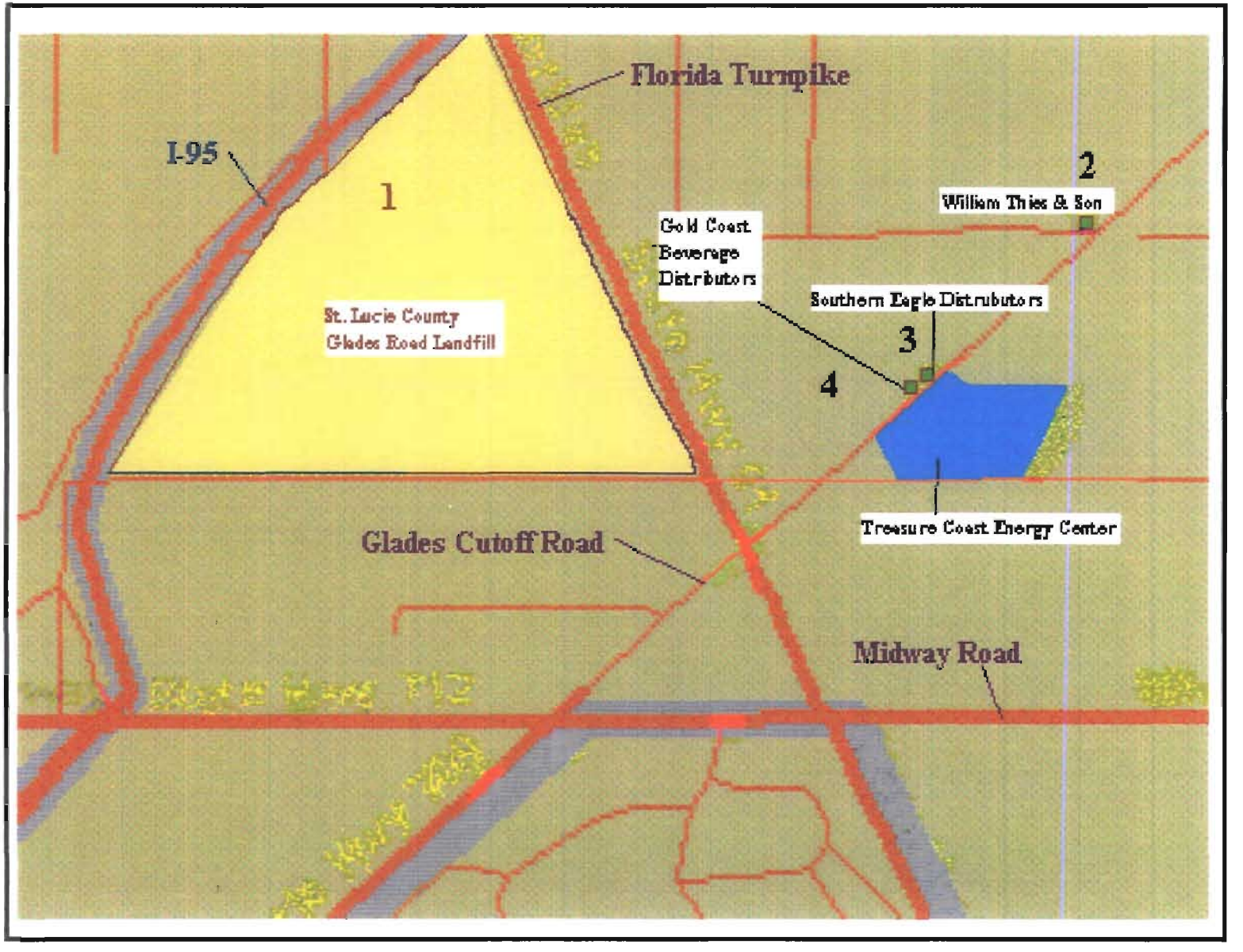
TABLE FDEP-4

Appendix H

Figure FDEP-2. Contaminated Sites Location Map

Table FDEP-5. Contaminated Sites in Vicinity of TCEC

Facility Inspection Sheets



Source: EPA's Enviromapper; St. Lucie County Property Assessor

↑
N
(Not to scale)

TREASURE COAST ENERGY CENTER
CONTAMINATED SITES LOCATION MAP
FIGURE FDEP-2

Table FDEP-5. Contaminated Sites in Vicinity of TCEC

Name of Site	Address of Site	Facility ID Number	Date Discharge Reported	Distance from Nearest Point of TCEC Site	Type of Contamination	Status of Remediation or Cleanup
Southern Eagle Distributors	5300 Glades Cutoff Road	8631089	12/8/1988	500 feet	Gasoline	Leaking underground tanks removed; cleanup status inactive
Gold Coast Beverage Distributors	5400 Glades Cutoff Road	8631093	7/1/1988	300 feet	Gasoline	Aboveground and underground tanks closed; cleanup status active
William Thies & Son	5020 Glades Cutoff Road	8840968	10/3/1991	750 feet	Gasoline	Underground tanks closed; cleanup status active
St. Lucie County Glades Road Landfill	6120 Glades Cutoff Road	8944317	Approx. late 1990s	1,800 feet	Excess sodium and iron seepage into ground-water; potential contamination migration offsite	Under Consent Order from FDEP to perform surficial groundwater cleanup in N and NE areas of old Class I portion of landfill at intersection of Florida's Turnpike and I-95

Florida Department of Environmental Protection
Bureau of Petroleum Storage Systems
Facility Inspection Cover Page
Facility Information

District: SED
County: St. Lucie
Facility ID#: 8631089
Name: Southern Eagle Distributor
5300 Glades Cut Off Rd
Fort Pierce, FL 34981-4613
Contact: Small. Cindy
Phone: 772-461-8644

Type: Fuel User/Non-Retail
Status: Open
Latitude: 27:23:12.4489
Longitude: 80:22:47.7906
LL Method: DPHO
LL Status: REVIEWED
Status Date: 03//03/2004

Account Owner Information
Name: Busch, Peter W
5300 Glades Cut Off Rd
Fort Pierce, FL 34981-4613
Phone: 305-461-8644

Effective Date: 05/20/1994
Placard#/Date: 228094 - 05/27/2005

Tank Owner Information
Name: Busch, Peter W
5300 Glades Cut Off Rd
Fort Pierce, FL 34981-4613
Phone: 305-461-8644

Effective Date: 05/20/1994

Tank #	Size	Content	Installed	Placement	Status	Const	Pipe	Monitor
7	1000	Unleaded Gas	01/01/1994	ABOVE	U	C	B	O
8	2000	Vehicular Diesel	01/01/1994	ABOVE	U	C	B	O
1	4000	Unleaded Gas		UNDER	B			
2	5000	Vehicular Diesel		UNDER	B			
3	5000	Vehicular Diesel		UNDER	B			
4	10000	Leaded Gas		UNDER	B			
5	500	Waste Oil	07/01/1986	UNDER	B			
6	1200	Other Non Regulated		UNDER	B			
9	500	Waste Oil		UNDER	B			

***Note: Construction, Piping, and Monitoring Info not shown for CLOSED tanks (Status of A or B).**

Most Recent Insurance Document

FR Type	Effective Date	Expiration Date	Company Name
Insurance	01/01/2005	01/01/2006	Commerce & Industry

Compliance Activity Information

Activity Code	Date Done	Results	Inspector	AST/UST Count	Project Description
TCI	04/13/2004	In-Compliance	Kneer	2/0	Compliance Assurance
TCI	05/25/2005	In-Compliance	Faconti	2/0	Compliance Assurance

No OPEN violations found!

Discharge Information

Discharge Date	Cleanup Status	Score	Eligibility Info	Site Manager	Phone
12/08/1988	Inactive	6	Early Detection Incentive-Eligible		

End of Data for Facility #: 8631089

Florida Department of Environmental Protection
Bureau of Petroleum Storage Systems
Facility Inspection Cover Page
Facility Information

District: SED
County: St. Lucie
Facility ID#: 8631093
Name: Gold Coast Beverage Distributors
5400 Glades Cut Off Rd
Fort Pierce, FL 33450
Contact: Michael Weinberger
Phone: 732-382-3400

Type: Fuel User/Non-Retail
Status: Closed
Latitude: 27:23:10.1854
Longitude: 80:22:50.6346
LL Method: DPHO
LL Status: REVIEWED
Status Date: 03//29/2005

Account Owner Information

Name: Segal Associates Of New Jersey L P
13 Production Way
Avenel, NJ 7001
Phone: 732-382-3400

Effective Date: 10/07/2003
Placard#/Date: -

Tank Owner Information

Name: Sugar Supply Inc
Po Box 1360
Belle Glade, FL 33430-6360
Phone: 561-996-6746

Effective Date: 05/22/2001

Tank #	Size	Content	Installed	Placement	Status	Const	Pipe	Monitor
1	4000	Leaded Gas	01/01/1980	UNDER	B			
2	2000	Unleaded Gas	01/01/1980	UNDER	B			
3	3000	Vehicular Diesel	10/01/1999	ABOVE	B			
4	3000	Vehicular Diesel	05/01/2001	ABOVE	B			

***Note: Construction, Piping, and Monitoring Info not shown for CLOSED tanks (Status of A or B).**

Most Recent Insurance Document

FR Type	Effective Date	Expiration Date	Company Name
Insurance	08/25/2004	08/25/2005	Zurich-American

No OPEN violations found!

Discharge Information

Discharge Date	Cleanup Status	Score	Eligibility Info	Site Manager	Phone
07/01/1988	Active	5	Early Detection Incentive-Eligible	Swanson_E	

End of Data for Facility #: 8631093

Florida Department of Environmental Protection
Bureau of Petroleum Storage Systems
Facility Inspection Cover Page
Facility Information

District: SED
County: St. Lucie
Facility ID#: 8840968
Name: William Thies & Son
5020 Glades Cut Off Rd
Fort Pierce, FL 34981-4611
Contact: Metzger, Frank
Phone: 407-461-9159

Type: Fuel User/Non-Retail
Status: Closed
Latitude: 27:23:23.0948
Longitude: 80:22:34.5179
LL Method: DPHO
LL Status: REVIEWED
Status Date: 03//29/2005

No Account Owner information found!

No Tank Owner information found!

Tank #	Size	Content	Installed	Placement	Status	Const	Pipe	Monitor
1	2000	Unleaded Gas	02/01/1976	UNDER	B			
2	2000	Unleaded Gas	02/01/1976	UNDER	B			
3	10000	Vehicular Diesel	07/01/1980	UNDER	B			

***Note: Construction, Piping, and Monitoring Info not shown for CLOSED tanks (Status of A or B).

Most Recent Insurance Document

FR Type	Effective Date	Expiration Date	Company Name
Insurance	09/07/1991	09/07/1992	Fplipa

No OPEN violations found!

Discharge Information

Discharge Date	Cleanup Status	Score	Eligibility Info	Site Manager	Phone
10/03/1991	Active	5	Petroleum Liability And Restoration Insurance Program-Eligible	Kruchell_Cl	

End of Data for Facility #: 8840968

Florida Department of Environmental Protection
Bureau of Petroleum Storage Systems
Facility Inspection Cover Page
Facility Information

District: SED
County: St. Lucie
Facility ID#: 8944317
Name: St Lucie Cnty-Glades Rd Landfill
6120 Glades Cut Off Rd
Fort Pierce, FL 34981-4301
Contact: Jerry Dobes
Phone: 772-462-1768

Type: County Government
Status: Open
Latitude: 27:22:57.5799
Longitude: 80:23:26.2214
LL Method: DPHO
LL Status: REVIEWED
Status Date: 03//05/2004

Account Owner Information
Name: St Lucie Cnty Bd Of Commissioner
2300 Virginia Ave
Fort Pierce, FL 34982-5652
Phone: 561-468-1714

Effective Date: 05/20/1994
Placard#/Date: 218168 - 06/17/2004

Tank Owner Information
Name: St Lucie Cnty Bd Of Commissioner
2300 Virginia Ave
Fort Pierce, FL 34982-5652
Phone: 561-468-1714

Effective Date: 05/20/1994

Tank #	Size	Content	Installed	Placement	Status	Const	Pipe	Monitor
2	9000	Vehicular Diesel	09/01/1997	ABOVE	U	CLIMP	A	Q
3	3000	Unleaded Gas	09/01/1997	ABOVE	U	CILMP	A	Q
1	10660	Waste Oil	06/01/1989	ABOVE	B			

***Note: Construction, Piping, and Monitoring Info not shown for CLOSED tanks (Status of A or B).**

Most Recent Insurance Document

FR Type	Effective Date	Expiration Date	Company Name
Insurance	10/01/2003	10/01/2004	Commerce & Industry

Compliance Activity Information

Activity Code	Date Done	Results	Inspector	AST/UST Count	Project Description
TCI	07/24/2003	In-Compliance	Faconti	2/0	Compliance Assurance
TCI	07/13/2004	In-Compliance	Faconti	2/0	Compliance Assurance

No OPEN violations found!

No Discharge Information Found!

End of Data for Facility #: 8944317

Appendix I

Table 4.1-1. Waste Streams and Wastewater Streams Associated with Construction

Table 4.1-1. Waste Streams and Wastewater Streams Associated with Construction

Potential Waste Streams	Quantity	Quality	Discharge Point	Treatment Prior to Discharge	Hazardous
HRSG Hydro	120,000 gallons	Ammoniated demin water (pH 9-10 2 ppm ammonia	FPUA wastewater system	pH adjustment	No[1]
Condenser Hydro	200,000 gallons	Demin water (pH 6-8)	Storm water detention basin	Filter before discharge	No[2]
Misc. Hydro and Flush Water	400,000 gallons	Potable water with trace oil/grease	FPUA wastewater system	Filter before discharge	No[2]
Cooling Tower Drain and Clean	800,000 gallons	Service water	FPUA wastewater system	None	No[2]
Cooling System Water Flush	50,000 gallons	Demin water	Storm water detention basin	Filter before discharge	No[2]
Steam Blow Quench Water	300,000 gallons	Service water	Storm water detention basin	Filter before discharge	No[2]
HRSG and Preboiler Piping Chem Cleaning	150,000 gallons	Demin water; expected to be nonhazardous	Offsite	Perform TCLP test. If non-hazardous, to FPUA wastewater system. If hazardous, hauled off by a licensed contractor.	No[1]
Service/Fire Water Tank Hydro	400,000 gallons	Service water	Storm water detention basin	Filter before discharge	No[2]
Demin Storage Tank Hydro	1,000,000 gallons	Service water	Storm water detention basin	Filter before discharge	No[2]
Fuel/Oil Storage Tank	1,000,000 gallons	Service water	Storm water detention basin	Filter before discharge	No[2]
Preservatives in Tubes	150,000 gallons	Water soluble corrosion inhibitor	Offsite	Labeled, sealed container properly stored for disposal by licensed contractor	Yes[3]
Oily Solid Wastes	Conditionally Exempt SQG	Hazardous	Offsite	Labeled, sealed container properly stored for disposal by licensed contractor	Yes[3]
Oily Rags	Conditionally Exempt SQG	Hazardous	Offsite	Labeled, sealed container properly stored for disposal by licensed contractor	Yes[3]
Non-oily Rags	Conditionally Exempt SQG	Hazardous	Offsite	Labeled, sealed container properly stored for disposal by licensed contractor	Yes[3]
Punctured Aerosol Cans	Varies	Empty cans	Offsite by approved scrap metal contractor	Metal recycling container	No[3]
Captured Paint Residues from Punctured Aerosol Cans	Conditionally Exempt SQG	Hazardous	As hazardous waste in accordance with 40 CFR 261	Labeled, sealed container properly stored for disposal by licensed contractor	Yes[3]

Table 4.1-1. Waste Streams and Wastewater Streams Associated with Construction

Potential Waste Streams	Quantity	Quality	Discharge Point	Treatment Prior to Discharge	Hazardous
Fluorescent Bulbs and Batteries	Conditionally Exempt SQG	Not applicable	Offsite	Contained onsite; recycled as universal waste	No[2]
Wood	Varies	Not applicable	Offsite	Contained onsite: recycled or disposed in landfill	No[2]
Metals	Varies	Not applicable	Offsite	Contained onsite; approved scrap metal contractor	No[2]
Plastics	Varies	Not applicable	Offsite	Contained onsite; transported offsite by an FDEP approved recycled facility or disposal facility	No[2]

1. Assessment based on analytical test.
2. Assessment based on process knowledge.
3. Assessment based on regulation, MSDS, or manufacturer's recommendation.

Appendix J

Groundwater Impact Assessment Results

	T =	41,349	ft^/day		
	S =	0.00061			
	Theis				
	S = (Q/4πt)* W(U)				
	Where: U =(r^2 *S)/(4Tt)				
Distance Drawdown in the Floridan Aquifer					
caused by site pumping					
Theis Solution		S_1		S_2	
	Q in gpm =	**2,308**		**161**	
	Q in ft^3/day =	444,261		30,991	
					Superposed
Distance	U_1	Drawdown	U_2	Drawdown	Total Drawdown
Feet		Feet		Feet	Feet
2	1.63916E-10	18.77	7.08232E-10	1.31	20.08
50	1.02448E-07	13.27	4.42645E-07	0.93	14.19
100	4.09791E-07	12.08	1.77058E-06	0.84	12.92
200	1.63916E-06	10.90	7.08232E-06	0.76	11.66
300	3.68812E-06	10.20	1.59352E-05	0.71	10.91
400	6.55665E-06	9.71	2.83293E-05	0.68	10.39
500	1.02448E-05	9.33	4.42645E-05	0.65	9.98
600	1.47525E-05	9.02	6.37409E-05	0.63	9.65
700	2.00798E-05	8.75	8.67584E-05	0.61	9.36
800	2.62266E-05	8.53	0.000113317	0.59	9.12
900	3.31931E-05	8.32	0.000143417	0.58	8.90
1,000	4.09791E-05	8.14	0.000177058	0.57	8.71
1,100	4.95847E-05	7.98	0.00021424	0.56	8.54
1,200	5.90099E-05	7.83	0.000254964	0.55	8.38
1,300	6.92547E-05	7.70	0.000299228	0.54	8.23
1,400	8.0319E-05	7.57	0.000347034	0.53	8.10
1,500	9.2203E-05	7.45	0.000398381	0.52	7.97
1,600	0.000104906	7.34	0.000453268	0.51	7.85
1,700	0.00011843	7.24	0.000511698	0.50	7.74
1,800	0.000132772	7.14	0.000573668	0.50	7.64
1,900	0.000147935	7.05	0.000639179	0.49	7.54
2,000	0.000163916	6.96	0.000708232	0.49	7.44
2,100	0.000180718	6.88	0.000780826	0.48	7.36
2,200	0.000198339	6.80	0.000856961	0.47	7.27
2,300	0.000216779	6.72	0.000936637	0.47	7.19
2,400	0.00023604	6.65	0.001019854	0.46	7.11
2,500	0.000256119	6.58	0.001106613	0.46	7.04
2,600	0.000277019	6.51	0.001196912	0.45	6.96
2,700	0.000298738	6.45	0.001290753	0.45	6.90
2,800	0.000321276	6.38	0.001388135	0.45	6.83
2,900	0.000344634	6.32	0.001489058	0.44	6.76
3,000	0.000368812	6.27	0.001593522	0.44	6.70

	T =	41,349	ft^/day		
	S =	0.00061			
	Theis				
	S = (Q/4πt)* W(U)				
	Where: U =(r^2 *S)/(4Tt)				
Distance Drawdown in the Floridan Aquifer					
caused by site pumping					
Theis Solution		S_1		S_2	
	Q in gpm =	**2,308**		**161**	
	Q in ft^3/day =	444,261		30,991	
					Superposed
Distance	U_1	Drawdown	U_2	Drawdown	Total Drawdown
Feet		Feet		Feet	Feet
3,100	0.000393809	6.21	0.001701527	0.43	6.64
3,200	0.000419626	6.16	0.001813074	0.43	6.58
3,300	0.000446262	6.10	0.001928162	0.43	6.53
3,400	0.000473718	6.05	0.002046791	0.42	6.47
3,500	0.000501994	6.00	0.002168961	0.42	6.42
3,600	0.000531089	5.95	0.002294672	0.42	6.37
3,700	0.000561004	5.91	0.002423924	0.41	6.32
3,800	0.000591738	5.86	0.002556718	0.41	6.27
3,900	0.000623292	5.82	0.002693052	0.41	6.22
4,000	0.000655665	5.77	0.002832928	0.40	6.18
4,100	0.000688859	5.73	0.002976345	0.40	6.13
4,200	0.000722871	5.69	0.003123303	0.40	6.09
4,300	0.000757703	5.65	0.003273802	0.39	6.04
4,400	0.000793355	5.61	0.003427843	0.39	6.00
4,500	0.000829827	5.57	0.003585425	0.39	5.96
4,600	0.000867118	5.54	0.003746547	0.39	5.92
4,700	0.000905228	5.50	0.003911211	0.38	5.88
4,800	0.000944158	5.46	0.004079416	0.38	5.84
4,900	0.000983908	5.43	0.004251163	0.38	5.81
5,000	0.001024477	5.39	0.00442645	0.38	5.77
5,100	0.001065866	5.36	0.004605279	0.37	5.73
5,200	0.001108075	**5.33**	0.004787648	**0.37**	**5.70**
5,300	0.001151103	5.29	0.004973559	0.37	5.66
5,400	0.00119495	5.26	0.005163011	0.37	5.63
5,500	0.001239618	5.23	0.005356005	0.37	5.60
5,600	0.001285104	5.20	0.005552539	0.36	5.56
5,700	0.001331411	5.17	0.005752615	0.36	5.53
5,800	0.001378537	5.14	0.005956231	0.36	5.50
5,900	0.001426482	5.11	0.006163389	0.36	5.47
6,000	0.001475247	5.08	0.006374088	0.35	5.44
6,100	0.001524832	5.05	0.006588328	0.35	5.41
6,200	0.001575236	5.03	0.00680611	0.35	5.38

	T =	41,349	ft^/day		
	S =	0.00061			
	Theis				
	S = (Q/4πt)* W(U)				
	Where: U =(r^2 *S)/(4Tt)				
Distance Drawdown in the Floridan Aquifer					
caused by site pumping					
Theis Solution		S_1		S_2	
	Q in gpm =	**2,308**		**161**	
	Q in ft^3/day =	444,261		30,991	
					Superposed
Distance	U_1	Drawdown	U_2	Drawdown	Total Drawdown
Feet		Feet		Feet	Feet
6,300	0.00162646	5.00	0.007027432	0.35	5.35
6,400	0.001678504	4.97	0.007252296	0.35	5.32
6,500	0.001731367	4.94	0.007480701	0.35	5.29
6,600	0.001785049	4.92	0.007712647	0.34	5.26
6,700	0.001839551	4.89	0.007948134	0.34	5.23
6,800	0.001894873	4.87	0.008187162	0.34	5.21
6,900	0.001951015	4.84	0.008429732	0.34	5.18
7,000	0.002007975	4.82	0.008675842	0.34	5.15
7,100	0.002065756	4.79	0.008925494	0.33	5.13
7,200	0.002124356	4.77	0.009178687	0.33	5.10
7,300	0.002183776	4.75	0.009435421	0.33	5.08
7,400	0.002244015	4.72	0.009695696	0.33	5.05
7,500	0.002305074	4.70	0.009959513	0.33	5.03
7,600	0.002366952	4.68	0.01022687	0.33	5.00
7,700	0.00242965	4.66	0.010497769	0.33	4.98
7,800	0.002493168	4.63	0.010772209	0.32	4.96
7,900	0.002557505	4.61	0.01105019	0.32	4.93
8,000	0.002622662	4.59	0.011331712	0.32	4.91
8,100	0.002688638	4.57	0.011616776	0.32	4.89
8,200	0.002755434	4.55	0.01190538	0.32	4.87
8,300	0.00282305	4.53	0.012197526	0.32	4.84
8,400	0.002891485	4.51	0.012493213	0.31	4.82
8,500	0.002960739	4.49	0.012792441	0.31	4.80
8,600	0.003030814	4.47	0.01309521	0.31	4.78
8,700	0.003101707	4.45	0.01340152	0.31	4.76
8,800	0.003173421	4.43	0.013711372	0.31	4.74
8,900	0.003245954	4.41	0.014024764	0.31	4.72
9,000	0.003319306	4.39	0.014341698	0.31	4.70
9,100	0.003393479	4.37	0.014662173	0.31	4.68
9,200	0.00346847	4.35	0.014986189	0.30	4.66
9,300	0.003544282	4.33	0.015313747	0.30	4.64
9,400	0.003620913	4.32	0.015644845	0.30	4.62

	T =	41,349	ft^/day		
	S =	0.00061			
	Theis				
	S = (Q/4πt)* W(U)				
	Where: U =(r^2 *S)/(4Tt)				
Distance Drawdown in the Floridan Aquifer					
caused by site pumping					
Theis Solution		S_1		S_2	
	Q in gpm =	**2,308**		**161**	
	Q in ft^3/day =	444,261		30,991	
					Superposed
Distance	U_1	Drawdown	U_2	Drawdown	Total Drawdown
Feet		Feet		Feet	Feet
9,500	0.003698363	4.30	0.015979485	0.30	4.60
9,600	0.003776633	4.28	0.016317666	0.30	4.58
9,700	0.003855723	4.26	0.016659388	0.30	4.56
9,800	0.003935632	4.24	0.017004651	0.30	4.54
9,900	0.004016361	4.23	0.017353455	0.30	4.52
10,000	0.004097909	4.21	0.0177058	0.29	4.50
10,100	0.004180277	4.19	0.018061687	0.29	4.49
10,200	0.004263465	4.18	0.018421115	0.29	4.47
10,300	0.004347472	4.16	0.018784084	0.29	4.45
10,400	0.004432299	4.14	0.019150594	0.29	4.43
10,500	0.004517945	**4.13**	0.019520645	**0.29**	**4.42**
10,600	0.004604411	4.11	0.019894237	0.29	4.40
10,700	0.004691696	4.09	0.020271371	0.29	4.38
10,800	0.004779801	4.08	0.020652046	0.29	4.36
10,900	0.004868726	4.06	0.021036261	0.28	4.35
11,000	0.00495847	4.05	0.021424018	0.28	4.33
11,100	0.005049034	4.03	0.021815317	0.28	4.31
11,200	0.005140417	4.02	0.022210156	0.28	4.30
11,300	0.00523262	4.00	0.022608536	0.28	4.28
11,400	0.005325643	3.99	0.023010458	0.28	4.27
11,500	0.005419485	3.97	0.023415921	0.28	4.25
11,600	0.005514147	3.96	0.023824925	0.28	4.23
11,700	0.005609628	3.94	0.02423747	0.28	4.22
11,800	0.005705929	3.93	0.024653556	0.28	4.20
11,900	0.005803049	3.91	0.025073184	0.27	4.19
12,000	0.005900989	3.90	0.025496353	0.27	4.17
12,100	0.005999749	3.89	0.025923062	0.27	4.16
12,200	0.006099328	3.87	0.026353313	0.27	4.14
12,300	0.006199727	3.86	0.026787105	0.27	4.13
12,400	0.006300945	3.84	0.027224439	0.27	4.11
12,500	0.006402983	3.83	0.027665313	0.27	4.10
12,600	0.006505841	3.82	0.028109729	0.27	4.08

	T =	41,349	ft^/day		
	S =	0.00061			
	Theis				
	S = (Q/4πt)* W(U)				
	Where: U =(r^2 *S)/(4Tt)				
Distance Drawdown in the Floridan Aquifer					
caused by site pumping					
Theis Solution		S_1		S_2	
	Q in gpm =	**2,308**		**161**	
	Q in ft^3/day =	444,261		30,991	
					Superposed
Distance	U_1	Drawdown	U_2	Drawdown	Total Drawdown
Feet		Feet		Feet	Feet
12,700	0.006609518	3.80	0.028557685	0.27	4.07
12,800	0.006714014	3.79	0.029009183	0.27	4.06
12,900	0.006819331	3.78	0.029464222	0.26	4.04
13,000	0.006925466	3.76	0.029922803	0.26	4.03
13,100	0.007032422	3.75	0.030384924	0.26	4.01
13,200	0.007140197	3.74	0.030850587	0.26	4.00
13,300	0.007248791	3.73	0.03131979	0.26	3.99
13,400	0.007358206	3.71	0.031792535	0.26	3.97
13,500	0.007468439	3.70	0.032268821	0.26	3.96
13,600	0.007579493	3.69	0.032748648	0.26	3.95
13,700	0.007691366	3.67	0.033232017	0.26	3.93
13,800	0.007804058	3.66	0.033718926	0.26	3.92
13,900	0.00791757	3.65	0.034209377	0.26	3.91
14,000	0.008031902	3.64	0.034703369	0.26	3.89
14,100	0.008147053	3.63	0.035200902	0.25	3.88
14,200	0.008263024	3.61	0.035701976	0.25	3.87
14,300	0.008379814	3.60	0.036206591	0.25	3.86
14,400	0.008497424	3.59	0.036714748	0.25	3.84
14,500	0.008615854	3.58	0.037226445	0.25	3.83
14,600	0.008735103	3.57	0.037741684	0.25	3.82
14,700	0.008855172	3.56	0.038260464	0.25	3.81
14,800	0.00897606	3.54	0.038782785	0.25	3.79
14,900	0.009097768	3.53	0.039308647	0.25	3.78
15,000	0.009220296	3.52	0.039838051	0.25	3.77
15,100	0.009343643	3.51	0.040370995	0.25	3.76
15,200	0.009467809	3.50	0.040907481	0.25	3.74
15,300	0.009592795	3.49	0.041447508	0.25	3.73
15,400	0.009718601	3.48	0.041991076	0.24	3.72
15,500	0.009845227	3.47	0.042538185	0.24	3.71
15,600	0.009972672	3.45	0.043088836	0.24	3.70
15,700	0.010100936	3.44	0.043643027	0.24	3.69
15,800	0.01023002	3.43	0.04420076	0.24	3.67

	T =	41,349	ft^/day		
	S =	0.00061			
	Theis				
	S = (Q/4πt)* W(U)				
	Where: U =(r^2 *S)/(4Tt)				
Distance Drawdown in the Floridan Aquifer					
caused by site pumping					
Theis Solution		S_1		S_2	
	Q in gpm =	**2,308**		**161**	
	Q in ft^3/day =	444,261		30,991	
					Superposed
Distance	U_1	Drawdown	U_2	Drawdown	Total Drawdown
Feet		Feet		Feet	Feet
15,900	0.010359924	3.42	0.044762034	0.24	3.66
16,000	0.010490647	3.41	0.045326849	0.24	3.65
16,500	0.011156558	3.36	0.048204041	0.24	3.60
17,000	0.011842957	3.31	0.051169763	0.23	3.54
17,500	0.012549847	3.26	0.054224014	0.23	3.49
18,000	0.013277226	3.21	0.057366793	0.23	3.44
18,500	0.014025094	3.17	0.060598102	0.22	3.39
19,000	0.014793452	3.12	0.063917939	0.22	3.34
19,500	0.015582299	3.08	0.067326306	0.22	3.30
20,000	0.016391637	3.04	0.070823201	0.21	3.25
20,500	0.017221463	2.99	0.074408626	0.21	3.21
21,000	0.018071779	2.95	0.07808258	0.21	3.16
21,500	0.018942585	2.91	0.081845062	0.21	3.12
22,000	0.01983388	2.88	0.085696074	0.20	3.08
22,500	0.020745665	2.84	0.089635614	0.20	3.04
23,000	0.021677939	2.80	0.093663684	0.20	3.00
23,500	0.022630703	2.76	0.097780282	0.20	2.96
24,000	0.023603957	2.73	0.10198541	0.19	2.92
24,500	0.0245977	2.70	0.106279067	0.19	2.89
25,000	0.025611932	2.66	0.110661252	0.19	2.85
25,500	0.026646654	2.63	0.115131967	0.19	2.82
26,000	0.027701866	2.60	0.11969121	0.19	2.78
26,400	0.028560787	**2.57**	0.123402346	**0.18**	**2.76**
26,500	0.028777567	**2.56**	0.124338983	**0.18**	**2.75**
27,000	0.029873758	**2.53**	0.129075285	**0.18**	**2.72**
27,500	0.030990438	**2.50**	0.133900115	**0.18**	**2.68**
28,000	0.032127608	**2.47**	0.138813475	**0.18**	**2.65**
28,500	0.033285267	**2.44**	0.143815363	**0.18**	**2.62**
29,000	0.034463416	**2.41**	0.148905781	**0.17**	**2.59**
29,500	0.035662054	**2.39**	0.154084728	**0.17**	**2.56**
30,000	0.036881182	**2.36**	0.159352203	**0.17**	**2.53**
30,500	0.0381208	**2.33**	0.164708208	**0.17**	**2.50**

	T =	41,349	ft^/day		
	S =	0.00061			
	Theis				
	S = (Q/4πt)* W(U)				
	Where: U =(r^2 *S)/(4Tt)				
Distance Drawdown in the Floridan Aquifer					
caused by site pumping					
Theis Solution		S_1		S_2	
	Q in gpm =	**2,308**		**161**	
	Q in ft^3/day =	444,261		30,991	
					Superposed
Distance	U_1	Drawdown	U_2	Drawdown	Total Drawdown
Feet		Feet		Feet	Feet
31,000	0.039380907	**2.30**	0.170152741	**0.17**	**2.47**
31,500	0.040661503	**2.28**	0.175685804	**0.17**	**2.44**
32,000	0.041962589	**2.25**	0.181307396	**0.16**	**2.42**
32,500	0.043284165	**2.23**	0.187017516	**0.16**	**2.39**
33,000	0.04462623	**2.20**	0.192816166	**0.16**	**2.36**
33,500	0.045988785	**2.18**	0.198703344	**0.16**	**2.34**
34,000	0.047371829	**2.15**	0.204679052	**0.16**	**2.31**
34,500	0.048775363	**2.13**	0.210743289	**0.16**	**2.29**
35,000	0.050199387	**2.11**	0.216896054	**0.16**	**2.26**
35,500	0.0516439	**2.08**	0.223137349	**0.15**	**2.24**
36,000	0.053108902	**2.06**	0.229467173	**0.15**	**2.21**
36,500	0.054594394	**2.04**	0.235885525	**0.15**	**2.19**
37,000	0.056100376	**2.02**	0.242392407	**0.15**	**2.17**
37,500	0.057626847	**1.99**	0.248987817	**0.15**	**2.14**
38,000	0.059173808	**1.97**	0.255671757	**0.15**	**2.12**
38,500	0.060741258	**1.95**	0.262444226	**0.15**	**2.10**
39,000	0.062329198	**1.93**	0.269305223	**0.15**	**2.08**
39,500	0.063937627	**1.91**	0.27625475	**0.14**	**2.05**
40,000	0.065566546	**1.89**	0.283292806	**0.14**	**2.03**
40,500	0.067215954	**1.87**	0.29041939	**0.14**	**2.01**
41,000	0.068885852	**1.85**	0.297634504	**0.14**	**1.99**
41,500	0.07057624	**1.83**	0.304938147	**0.14**	**1.97**
42,000	0.072287117	**1.81**	0.312330318	**0.14**	**1.95**
42,500	0.074018484	**1.79**	0.319811019	**0.14**	**1.93**
43,000	0.07577034	**1.77**	0.327380249	**0.14**	**1.91**
43,500	0.077542685	**1.76**	0.335038007	**0.14**	**1.89**
44,000	0.079335521	**1.74**	0.342784295	**0.13**	**1.87**
44,500	0.081148845	**1.72**	0.350619111	**0.13**	**1.85**
45,000	0.08298266	**1.70**	0.358542457	**0.13**	**1.83**
45,500	0.084836964	**1.69**	0.366554332	**0.13**	**1.82**
46,000	0.086711757	**1.67**	0.374654735	**0.13**	**1.80**
46,500	0.08860704	**1.65**	0.382843668	**0.13**	**1.78**

	T =	41,349	ft^/day		
	S =	0.00061			
	Theis				
	S = (Q/4πt)* W(U)				
	Where: U =(r^2 *S)/(4Tt)				
Distance Drawdown in the Floridan Aquifer					
caused by site pumping					
Theis Solution		S_1		S_2	
	Q in gpm =	**2,308**		**161**	
	Q in ft^3/day =	444,261		30,991	
					Superposed
Distance	U_1	Drawdown	U_2	Drawdown	Total Drawdown
Feet		Feet		Feet	Feet
47,000	0.090522813	**1.63**	0.39112113	**0.13**	**1.76**
47,500	0.092459075	**1.62**	0.39948712	**0.13**	**1.74**
48,000	0.094415826	**1.60**	0.40794164	**0.13**	**1.73**
48,500	0.096393067	**1.59**	0.416484689	**0.13**	**1.71**
49,000	0.098390798	**1.57**	0.425116266	**0.12**	**1.69**
49,500	0.100409018	**1.55**	0.433836373	**0.12**	**1.68**
50,000	0.102447728	**1.54**	0.442645009	**0.12**	**1.66**
50,500	0.104506927	**1.52**	0.451542173	**0.12**	**1.64**
51,000	0.106586616	**1.51**	0.460527867	**0.12**	**1.63**
51,500	0.108686795	**1.49**	0.46960209	**0.12**	**1.61**
52,000	0.110807463	**1.48**	0.478764842	**0.12**	**1.60**
52,500	0.11294862	**1.46**	0.488016122	**0.12**	**1.58**
53,000	0.115110267	**1.45**	0.497355932	**0.12**	**1.57**
53,500	0.117292404	**1.43**	0.506784271	**0.12**	**1.55**
54,000	0.11949503	**1.42**	0.516301138	**0.12**	**1.54**
54,500	0.121718146	**1.41**	0.525906535	**0.12**	**1.52**
55,000	0.123961751	**1.39**	0.535600461	**0.11**	**1.51**
55,500	0.126225846	**1.38**	0.545382915	**0.11**	**1.49**
56,000	0.12851043	**1.36**	0.555253899	**0.11**	**1.48**
56,500	0.130815504	**1.35**	0.565213412	**0.11**	**1.46**
57,000	0.133141067	**1.34**	0.575261453	**0.11**	**1.45**
57,500	0.13548712	**1.32**	0.585398024	**0.11**	**1.44**
58,000	0.137853663	**1.31**	0.595623124	**0.11**	**1.42**
58,500	0.140240695	**1.30**	0.605936753	**0.11**	**1.41**
59,000	0.142648217	**1.29**	0.61633891	**0.11**	**1.39**
59,500	0.145076228	**1.27**	0.626829597	**0.11**	**1.38**
60,000	0.147524729	**1.26**	0.637408813	**0.11**	**1.37**
60,500	0.149993719	**1.25**	0.648076557	**0.11**	**1.35**
61,000	0.152483199	**1.24**	0.658832831	**0.11**	**1.34**
61,500	0.154993168	**1.22**	0.669677634	**0.11**	**1.33**
62,000	0.157523627	**1.21**	0.680610966	**0.11**	**1.32**
62,500	0.160074575	**1.20**	0.691632826	**0.10**	**1.30**

	T =	41,349	ft^/day		
	S =	0.00061			
	Theis				
	S = (Q/4πt)* W(U)				
	Where: U =(r^2 *S)/(4Tt)				
Distance Drawdown in the Floridan Aquifer					
caused by site pumping					
Theis Solution		S_1		S_2	
	Q in gpm =	**2,308**		**161**	
	Q in ft^3/day =	444,261		30,991	
					Superposed
Distance	U_1	Drawdown	U_2	Drawdown	Total Drawdown
Feet		Feet		Feet	Feet
63,000	0.162646013	**1.19**	0.702743216	**0.10**	**1.29**
63,500	0.165237941	**1.18**	0.713942135	**0.10**	**1.28**
64,000	0.167850358	**1.16**	0.725229582	**0.10**	**1.27**
64,500	0.170483264	**1.15**	0.736605559	**0.10**	**1.26**
65,000	0.173136661	**1.14**	0.748070065	**0.10**	**1.24**
65,500	0.175810546	**1.13**	0.7596231	**0.10**	**1.23**
66,000	0.178504922	**1.12**	0.771264663	**0.10**	**1.22**
66,500	0.181219786	**1.11**	0.782994756	**0.10**	**1.21**
67,000	0.183955141	**1.10**	0.794813378	**0.10**	**1.20**
67,500	0.186710985	**1.09**	0.806720529	**0.10**	**1.19**
68,000	0.189487318	**1.08**	0.818716208	**0.10**	**1.17**
68,500	0.192284141	**1.07**	0.830800417	**0.10**	**1.16**
69,000	0.195101453	**1.06**	0.842973155	**0.10**	**1.15**
69,500	0.197939256	**1.04**	0.855234421	**0.10**	**1.14**
70,000	0.200797547	**1.03**	0.867584217	**0.10**	**1.13**
70,500	0.203676328	**1.02**	0.880022542	**0.10**	**1.12**
71,000	0.206575599	**1.01**	0.892549396	**0.09**	**1.11**
71,500	0.209495359	**1.00**	0.905164778	**0.09**	**1.10**
72,000	0.212435609	**0.99**	0.91786869	**0.09**	**1.09**
72,500	0.215396348	**0.98**	0.930661131	**0.09**	**1.08**
73,000	0.218377577	**0.98**	0.943542101	**0.09**	**1.07**
73,500	0.221379296	**0.97**	0.956511599	**0.09**	**1.06**
74,000	0.224401504	**0.96**	0.969569627	**0.09**	**1.05**
74,500	0.227444201	**0.95**	0.982716184	**0.09**	**1.04**
75,000	0.230507388	**0.94**	0.99595127	**0.09**	**1.03**
75,500	0.233591065	**0.93**	1.009274885	**0.09**	**1.02**
76,000	0.236695231	**0.92**	1.022687028	**0.09**	**1.01**
76,500	**0.239819887**	**0.91**	**1.036187701**	**0.09**	**1.00**

Appendix K

FPUA Letter of Commitment

FORT PIERCE UTILITIES AUTHORITY

"Committed to Quality"

Director of Utilities
113 N. Second Street (34950)
Post Office Box 3191
Fort Pierce, Florida 34948-3191

Phone 772-466-1600
Fax 772-595-9841

Florida Municipal Power Agency
Treasure Coast Energy Center

July 22, 2005

Mr. Jim Hay
Florida Municipal Power Agency
8553 Commodity Circle
Orlando, FL 32801

Subject: Treasure Coast Energy Center
Availability of Water and Wastewater Disposal

Dear Jim:

Fort Pierce Utilities Authority (FPUA) is pleased to verify the availability of reclaimed water, potable water, and wastewater disposal services to the Treasure Coast Energy Center (TCEC). In order to address FPUA's need for additional treatment capacity in 2009, FPUA is planning the construction of the Mainland Water Reclamation Facility (WRF), which is scheduled for commercial operation in June 2009. This facility will be constructed on our site in the Midway Industrial Park, adjacent to TCEC. The Mainland WRF will be designed to High Level Treatment Standards and will have an initial capacity of approximately 6.0 million gallons per day (mgd) with future expansion to a maximum capacity of approximately 20.0 mgd. The system will be designed to allow for transfer of adequate volumes of reclaimed water to supply TCEC's initial requirements for approximately 3.0 mgd and ultimate requirements for approximately 12.0 mgd of reclaimed water. FPUA will use its best efforts to provide reclaimed water for TCEC units 1-4 in a manner that is consistent with FMPA's schedule to place these future units on line.

It is anticipated that TCEC will be a normal tariff customer of FPUA's domestic water system. TCEC lies in FPUA's water service area, and a 12 inch water main is located approximately 900 feet southwest of the TCEC site. The projected average requirement of 13,000 gpd and a maximum requirement of 71,000 gpd for TCEC Unit 1 can be readily provided by the FPUA system.

FPUA is installing a Class I industrial and a Class I municipal injection well at the Mainland WRF. The Class I municipal injection well will be permitted to accept TCEC's wastewater when the Class I industrial well is out of service. The wells are being installed prior to the commercial operation of the Mainland WRF to be available to accept TCEC wastewater. The injection wells are scheduled to be in service by January 2008.

TCEC will be a normal tariff customer of FPUA for its small volume of sanitary wastes.

Please let me know if FPUA can be of any additional help.

Yours truly

Elie J. Boudreaux III, PE
Director of Utilities

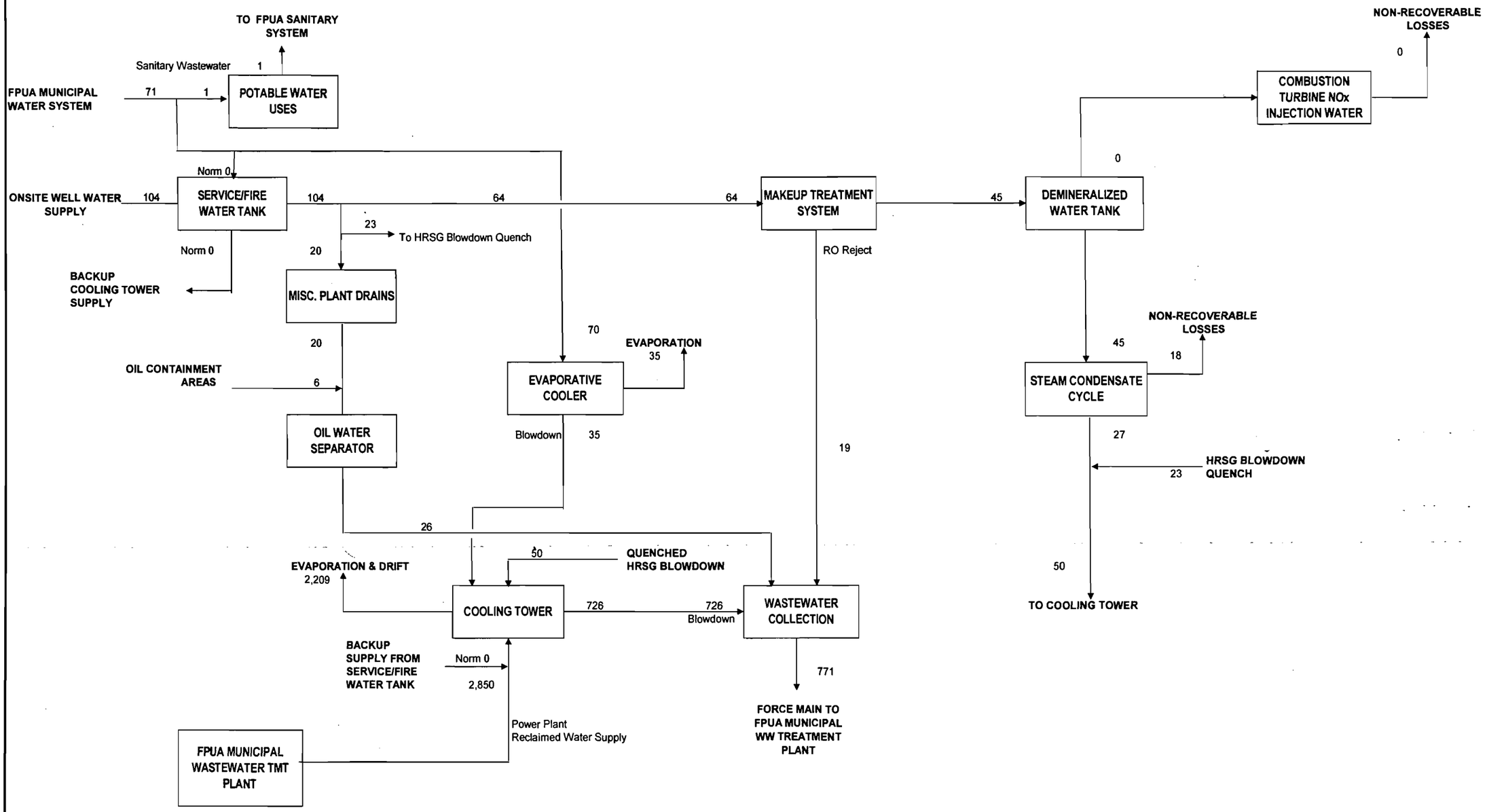
Projected Wastewater Flows from Ft. Pierce Utilities Authority.

Year	Flow* (MGD)
2005	6.96
2006	7.36
2007	7.90
2008	8.62
2009	9.38
2010	10.13
2011	10.88
2012	11.63
2013	12.04
2014	12.45

*Flow projected as Annual Average Daily Flow.

Appendix L

Revised Water Mass Balances



NOTE:
1. FLOWS ARE IN 1000 GALLONS PER Day (gpd).

COMBUSTION TURBINE FUEL	Natural Gas		
NET PLANT OUTPUT (MW)	299.4	MAKEUP TREATMENT EFFICIENCY	70%
TURBINE CONFIGURATION	1 x1	CYCLE MAKEUP RATE	2.00%
AMBIENT TEMP (°F)	100	LOAD FACTOR	100%
DUCT FIRING	On	CYCLES OF CONCENTRATION	4.0

BLACK & VEATCH

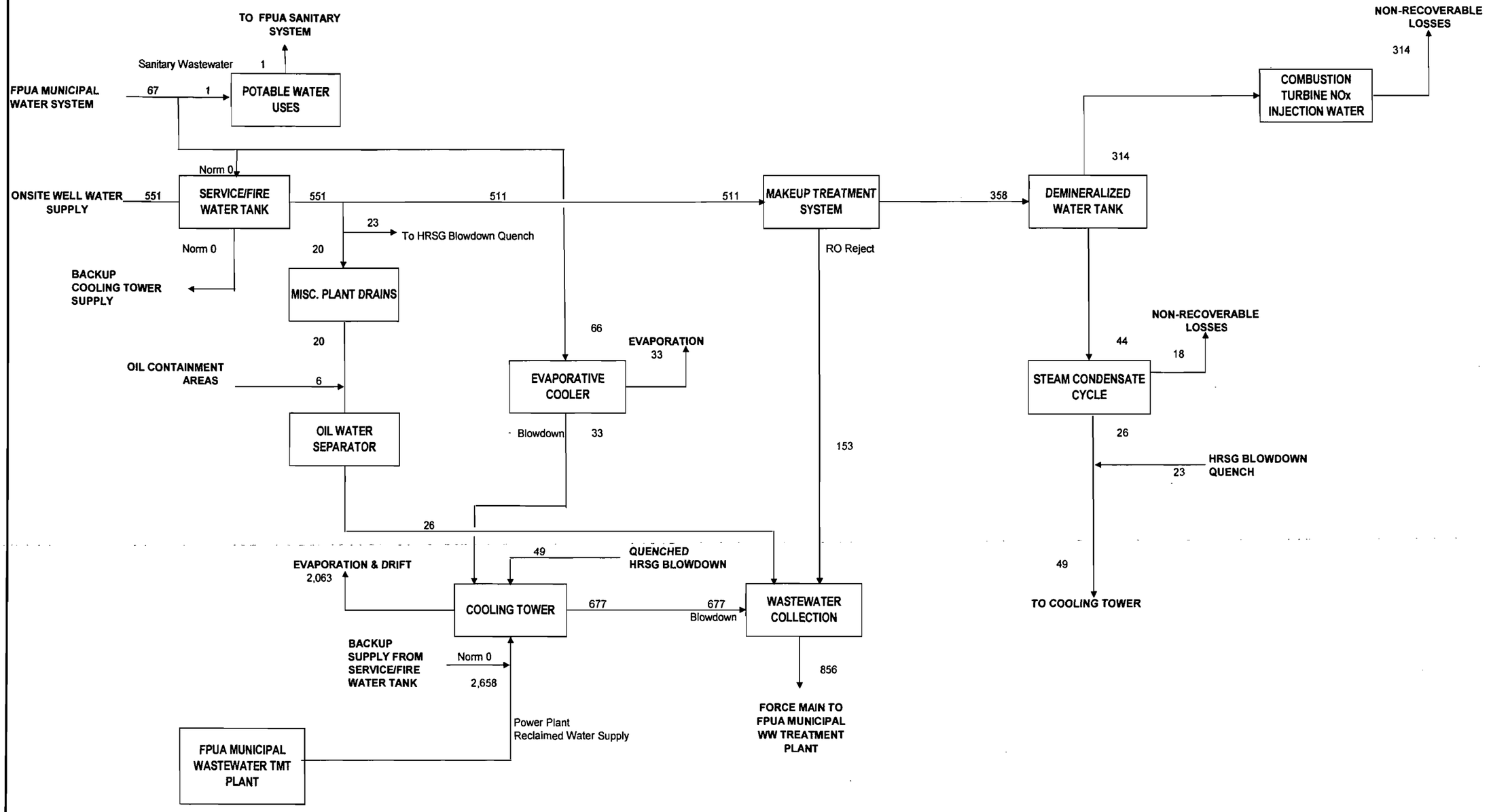
Eng: KRW	Dwg: RMC
Check: JMS	Date: 7/7/2005

Florida Municipal Power Agency
Treasure Coast Energy Center, Unit 1

WATER MASS BALANCE
HB Case 1
100 °F AMBIENT, FIRED, 100% LOAD, Natural Gas

Project	Drawing	Rev
138859.0030	WMB-1	3

Figure 3.5-1



NOTE:				
1. FLOWS ARE IN 1000 GALLONS PER Day (gpd).	COMBUSTION TURBINE FUEL	#2 Fuel Oil		
	NET PLANT OUTPUT (MW)	299.5	MAKEUP TREATMENT EFFICIENCY	70%
	TURBINE CONFIGURATION	1 x1	CYCLE MAKEUP RATE	2.00%
	AMBIENT TEMP (°F)	100	LOAD FACTOR	100%
	DUCT FIRING	On	CYCLES OF CONCENTRATION	4.0

BLACK & VEATCH

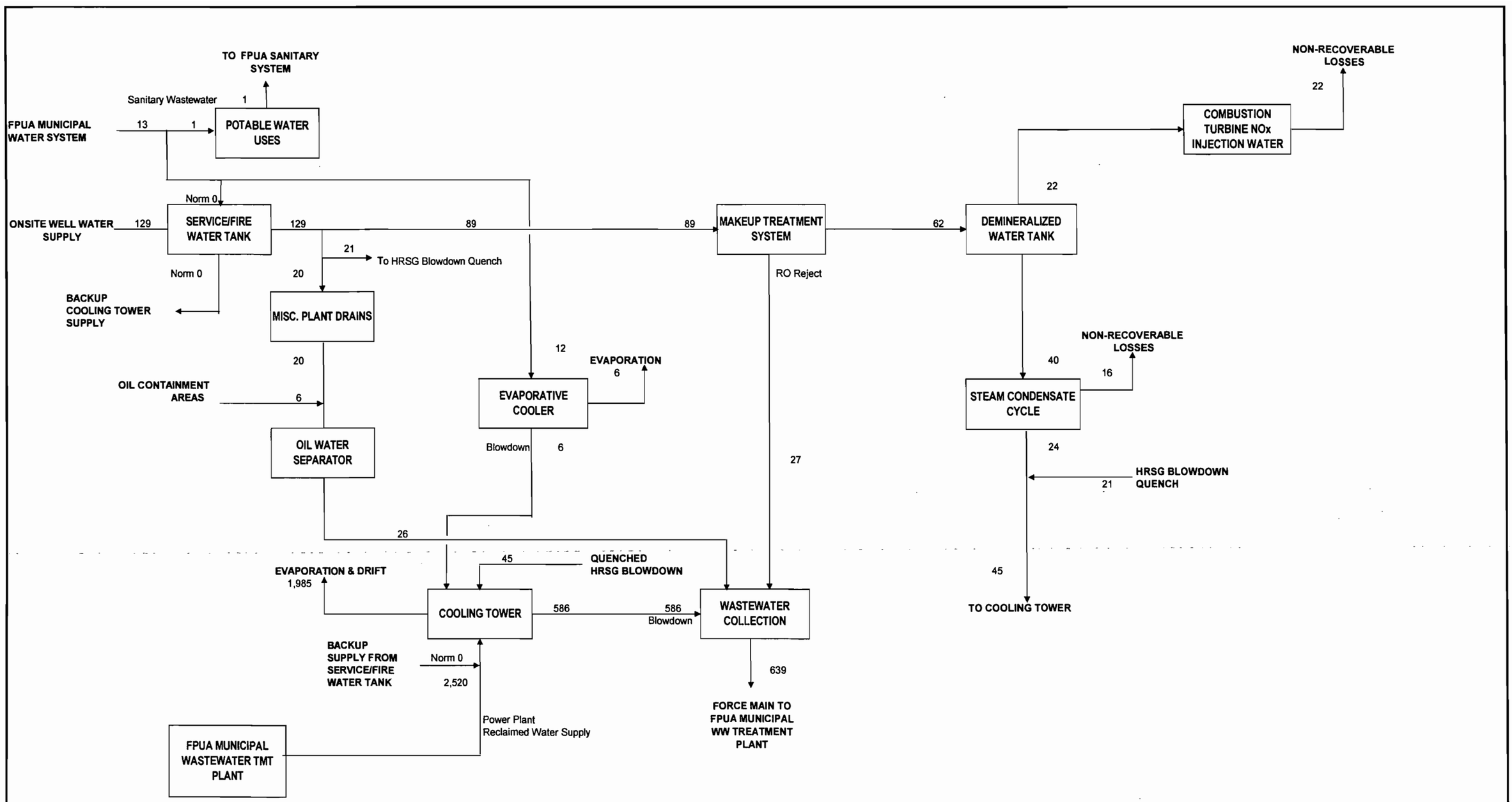
Eng: KRW	Dwg: RMC
Check: JMS	Date: 7/7/2005

Florida Municipal Power Agency
Treasure Coast Energy Center, Unit 1

WATER MASS BALANCE
HB Case 2
100 °F AMBIENT,FIRED, 100% LOAD, #2 Fuel Oil

Project	Drawing	Rev
138859.0030	WMB-2	3

Figure 3.5-2



NOTE:
1. FLOWS ARE IN 1000 GALLONS PER Day (gpd).

COMBUSTION TURBINE FUEL	Annual Avg		
NET PLANT OUTPUT (MW)	309.5	MAKEUP TREATMENT EFFICIENCY	70%
TURBINE CONFIGURATION	1 x1	CYCLE MAKEUP RATE	2.00%
AMBIENT TEMP (°F)	73	LOAD FACTOR	90%
DUCT FIRING	On	CYCLES OF CONCENTRATION	4.0

BLACK & VEATCH

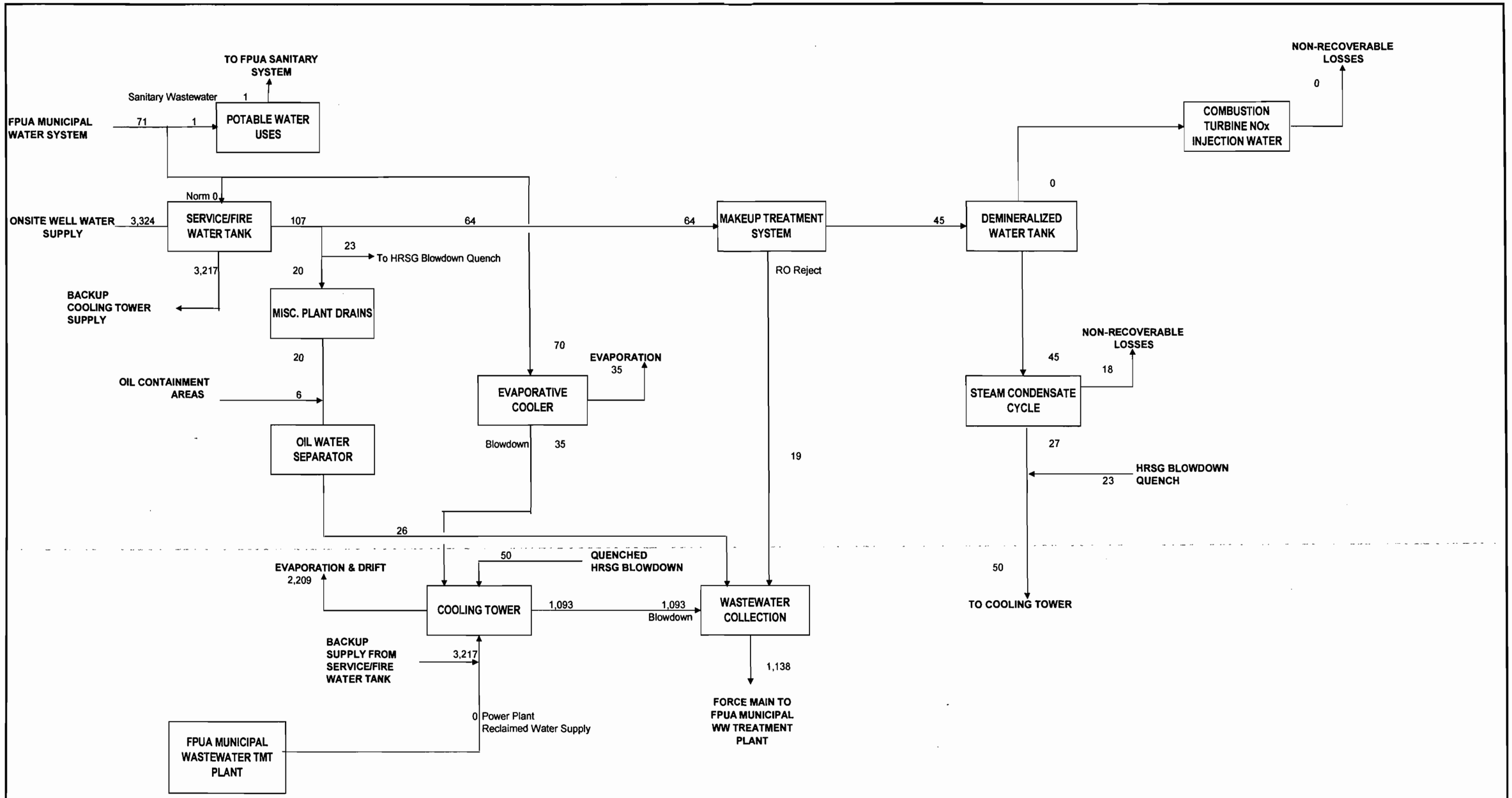
Eng: KRW	Dwg: RMC
Check: JMS	Date: 7/7/2005

Florida Municipal Power Agency
Treasure Coast Energy Center, Unit 1

WATER MASS BALANCE
ANNUAL AVERAGE (500 hr on # 2 Fuel Oil)

Project	Drawing	Rev
138859.0030	WMB-3	3

Figure 3.5-3



NOTE:
1. FLOWS ARE IN 1000 GALLONS PER Day (gpd).

COMBUSTION TURBINE FUEL	Natural Gas		
NET PLANT OUTPUT (MW)	299.4	MAKEUP TREATMENT EFFICIENCY	70%
TURBINE CONFIGURATION	1 x1	CYCLE MAKEUP RATE	2.00%
AMBIENT TEMP (°F)	100	LOAD FACTOR	100%
DUCT FIRING	On	CYCLES OF CONCENTRATION	3.0

BLACK & VEATCH

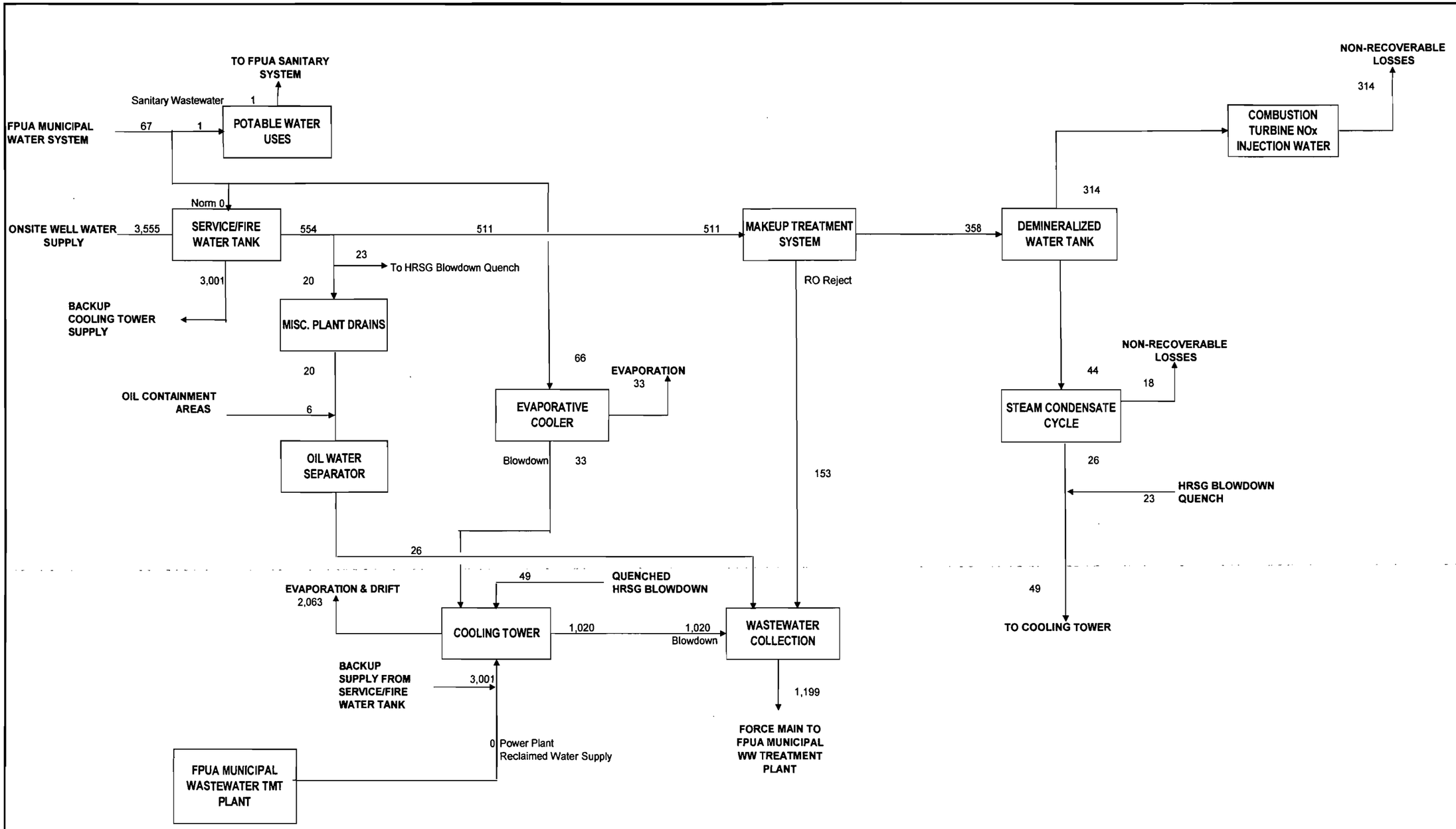
Eng: KRW	Dwg: RMC
Check: JMS	Date: 7/7/2005

Florida Municipal Power Agency
Treasure Coast Energy Center, Unit 1

WATER MASS BALANCE - WELL WTR MAKEUP
HB Case 1
100 °F AMBIENT, FIRED, 100% LOAD, Natural Gas

Project	Drawing	Rev
138859.0030	WMB-7	1

Figure 3.5-4



NOTE:
1. FLOWS ARE IN 1000 GALLONS PER Day (gpd).

COMBUSTION TURBINE FUEL	#2 Fuel Oil		
NET PLANT OUTPUT (MW)	299.5	MAKEUP TREATMENT EFFICIENCY	70%
TURBINE CONFIGURATION	1 x1	CYCLE MAKEUP RATE	2.00%
AMBIENT TEMP (°F)	100	LOAD FACTOR	100%
DUCT FIRING	On	CYCLES OF CONCENTRATION	3.0

BLACK & VEATCH

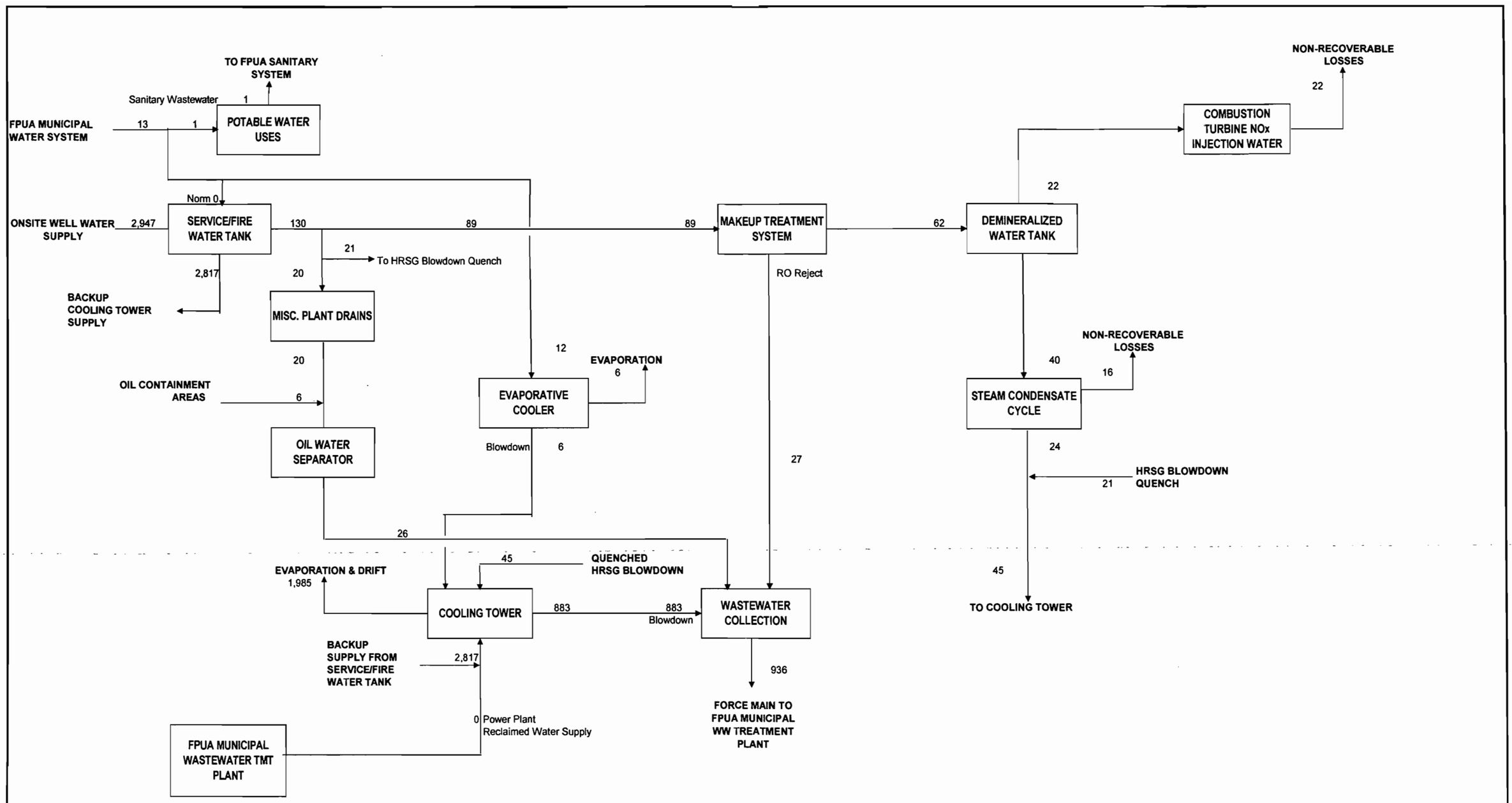
Eng: KRW | Dwg: RMC | Check: JMS | Date: 7/7/2005

Florida Municipal Power Agency
Treasure Coast Energy Center, Unit 1

WATER MASS BALANCE - WELL WTR MAKEUP
HB Case 2
100 °F AMBIENT,FIRED, 100% LOAD, #2 Fuel Oil

Project	Drawing	Rev
138859.0030	WMB-8	1

Figure 3.5-5



NOTE:
1. FLOWS ARE IN 1000 GALLONS PER Day (gpd).

COMBUSTION TURBINE FUEL	Annual Avg		
NET PLANT OUTPUT (MW)	309.5	MAKEUP TREATMENT EFFICIENCY	70%
TURBINE CONFIGURATION	1 x1	CYCLE MAKEUP RATE	2.00%
AMBIENT TEMP (°F)	73	LOAD FACTOR	90%
DUCT FIRING	On	CYCLES OF CONCENTRATION	3.0

BLACK & VEATCH

Eng: KRW | Dwg: RMC

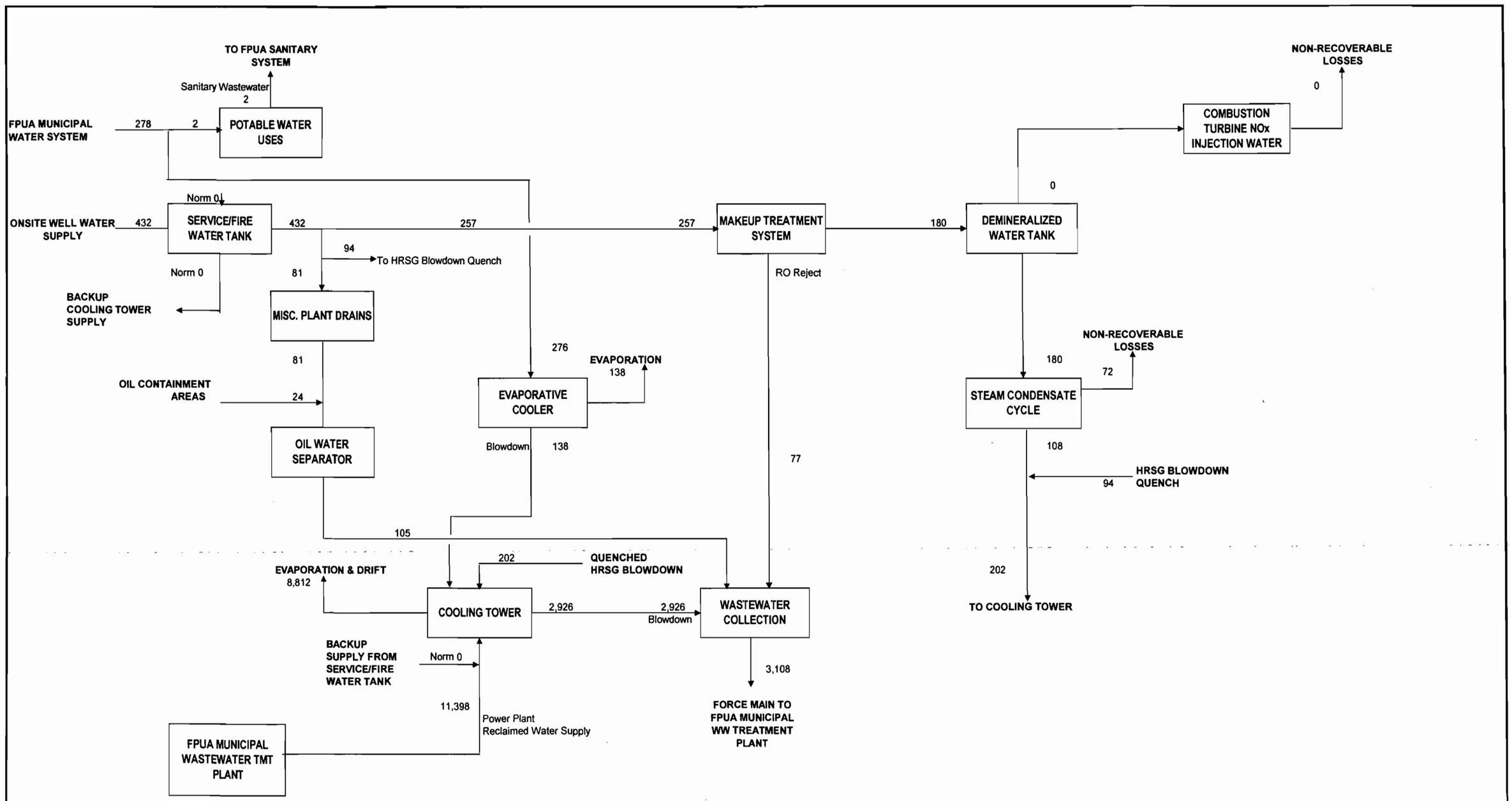
Check: JMS | Date: 7/7/2005

Florida Municipal Power Agency
Treasure Coast Energy Center, Unit 1

WATER MASS BALANCE - WELL WTR MAKEUP
ANNUAL AVERAGE (500 hr on # 2 Fuel Oil)

Project	Drawing	Rev
138859.0030	WMB-9	1

Figure 3.5-6



NOTE:
1. FLOWS ARE IN 1000 GALLONS PER Day (gpd).

COMBUSTION TURBINE FUEL	Natural Gas		
NET PLANT OUTPUT (MW)	1197.6	MAKEUP TREATMENT EFFICIENCY	70%
TURBINE CONFIGURATION	Four 1 x 1	CYCLE MAKEUP RATE	2.00%
AMBIENT TEMP (°F)	100	LOAD FACTOR	100%
DUCT FIRING	On	CYCLES OF CONCENTRATION	4.0

BLACK & VEATCH

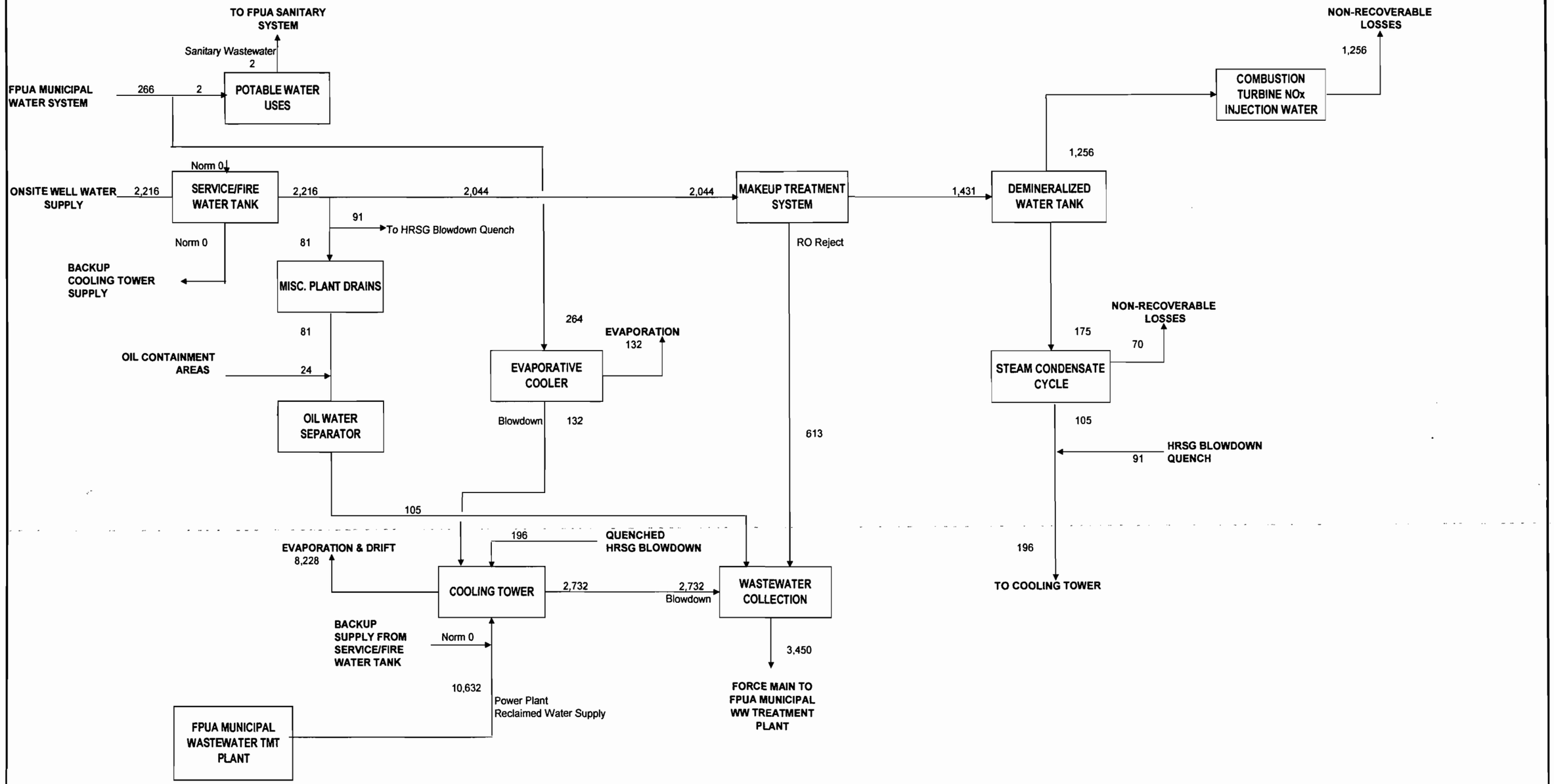
Eng: KRW	Dwg: RMC
Check: JMS	Date: 7/7/2005

Florida Municipal Power Agency
Treasure Coast Energy Center, Units 1 - 4

4-UNIT WATER MASS BALANCE
HB Case 1
100 °F AMBIENT, FIRED, 100% LOAD, Natural Gas

Project	Drawing	Rev
138859.0030	WMB-4	1

Figure 3.5-7



NOTE:
1. FLOWS ARE IN 1000 GALLONS PER Day (gpd).

COMBUSTION TURBINE FUEL	#2 Fuel Oil		
NET PLANT OUTPUT (MW)	1198	MAKEUP TREATMENT EFFICIENCY	70%
TURBINE CONFIGURATION	Four 1 x 1	CYCLE MAKEUP RATE	2.00%
AMBIENT TEMP (°F)	100	LOAD FACTOR	100%
DUCT FIRING	On	CYCLES OF CONCENTRATION	4.0

BLACK & VEATCH

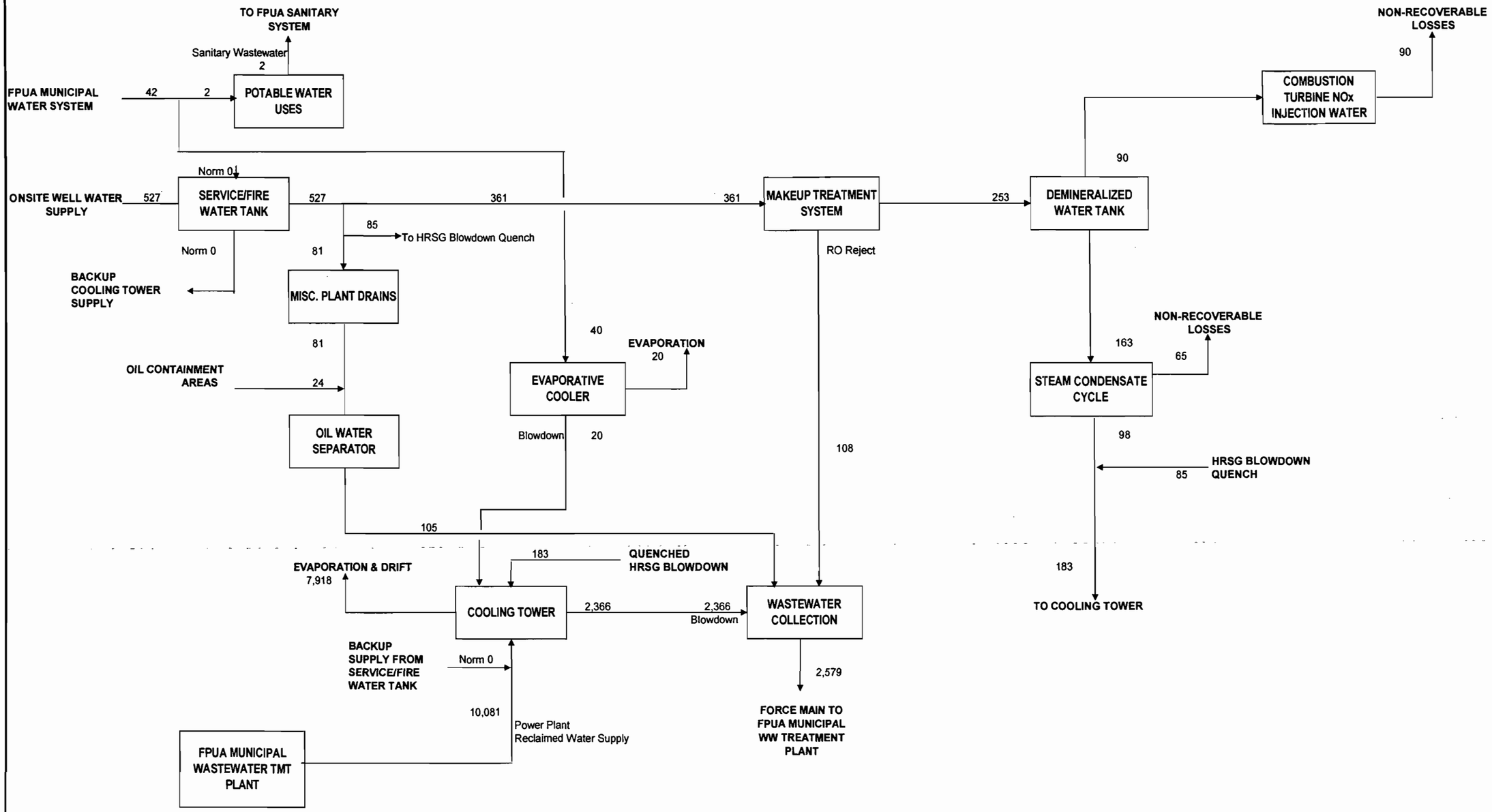
Eng: KRW | Dwg: RMC
Check: JMS | Date: 7/7/2005

Florida Municipal Power Agency
Treasure Coast Energy Center, Units 1 - 4

4-UNIT WATER MASS BALANCE
HB Case 2
100 °F AMBIENT,FIRED, 100% LOAD, #2 Fuel Oil

Project	Drawing	Rev
138859.0030	WMB-5	1

Figure 3.5-8



NOTE:
1. FLOWS ARE IN 1000 GALLONS PER Day (gpd).

COMBUSTION TURBINE FUEL	Annual Avg		
NET PLANT OUTPUT (MW)	1237.9	MAKEUP TREATMENT EFFICIENCY	70%
TURBINE CONFIGURATION	Four 1 x 1	CYCLE MAKEUP RATE	2.00%
AMBIENT TEMP (°F)	73	LOAD FACTOR	90%
DUCT FIRING	On	CYCLES OF CONCENTRATION	4.0

BLACK & VEATCH

Eng:	KRW	Dwg:	RMC
Check:	JMS	Date:	7/7/2005

Florida Municipal Power Agency
Treasure Coast Energy Center, Units 1 - 4

4-UNIT WATER MASS BALANCE
ANNUAL AVERAGE (500 hr on # 2 Fuel Oil)

Project	Drawing	Rev
138859.0030	WMB-6	1

Figure 3.5-9

Appendix M

Water Use Tables

Revised Water Use Request

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

TABLE E

Water Received From or Distributed To Other Entities

Delivering or Receiving Entity: Treasure Coast Energy Center

Type of Water (Raw, treated, reclaimed, etc.): Treated potable water from Ft. Pierce Utility Authority Municipal Water System
If the water passes through treatment, please note which treatment plant from Table I:

Year	Actual or Projected		Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Totals
2008	Projected	Delivered													
		Received	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	4.80
2009	Projected	Delivered													
		Received	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	4.80
2010	Projected	Delivered													
		Received	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	4.80
2011+	Projected	Delivered													
		Received	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	4.80
	Subsequent values to stay the same until gen units are added	Delivered													
		Received													

Instructions for Completing TABLE E, Water Received From or Distributed To Other Entities

Delivering or Receiving Entity: Enter the name and relevant permit numbers of the entity delivering or receiving water

Type of Water (Raw, treated, reclaimed, etc.):

If the water passes through treatment, please note which treatment plant from Table I:

Year

Actual/Projected: Enter the recorded (for past years) or project (for future years) amount of water (in millions of gallons) to be received or delivered for each month of the year. If both receipts and deliveries have happened or will happen within the same month, enter both amounts

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

TABLE E

Water Received From or Distributed To Other Entities

Delivering or Receiving Entity: Treasure Coast Energy Center

Type of Water (Raw, treated, reclaimed, etc.): Reclaimed water from Ft. Pierce Utility Authority
If the water passes through treatment, please note which treatment plant from Table I:

Year	Actual or Projected		Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Totals
2008	Projected	Delivered													
		Received													0
2009	Projected (Recl system to be in place by June 5, 2009	Delivered													
		Received						76.65	76.65	76.65	76.65	76.65	76.65	76.75	536.5
2010	Projected	Delivered													
		Received	76.65	76.65	76.65	76.65	76.65	76.65	76.65	76.65	76.65	76.65	76.65	76.65	919.8
2011+	Projected	Delivered													
		Received	76.65	76.65	76.65	76.65	76.65	76.65	76.65	76.65	76.65	76.65	76.65	76.65	919.8
	Subsequent values to stay the same until gen units are added	Delivered													
		Received													

Instructions for Completing TABLE E,
Water Received From or Distributed To Other Entities

Delivering or Receiving Entity: Enter the name and relevant permit numbers of the entity delivering or receiving water

Type of Water (Raw, treated, reclaimed, etc.):

If the water passes through treatment, please note which treatment plant from Table I:

Year

Actual/Projected: Enter the recorded (for past years) or project (for future years) amount of water (in millions of gallons) to be received or delivered for each month of the year. If both receipts and deliveries have happened or will happen within the same month, enter both amounts

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Service Area :Treasure Coast Energy Ctr

Treatment Plant (Table I) Wells

TABLE F
Past Water Use

Year	Past Population*	Per Capita Usage	Total Annual Use (MG)	Average Month Use (MG)	Maximum Month Use (MG)	Ratio Max:Average
N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source of Projected Population Information:

TABLE G
Projected Water Use

Year	Projected Population*	Per Capita Usage	Total Annual Use (MG)	Average Month Use (MG)	Maximum Month Use (MG)	Ratio Max:Average
2008	N/A, Industrial Use Only	N/A, Industrial Use Only	1075.66	91.36	110.21	1.21
2009	N/A, Industrial Use Only	N/A, Industrial Use Only	561.4	46.78	110.21	2.36
2010	N/A, Industrial Use Only	N/A, Industrial Use Only	47.09	4.00	12.16	3.04
2011+	N/A, Industrial Use Only	N/A, Industrial Use Only	47.09	4.00	12.16	3.04
Values above assume completion of FPUA Mainland Wtr Recl Facility by June 2009			Subsequent values to stay same until gen units are added	Subsequent values to stay same until gen units are added	Subsequent values to stay same until gen units are added	Subsequent values to stay same until gen units are added

* Source of Projected Population Information:

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

TABLE I

Water Treatment Method and Losses

Treatment Plant Name:	Treasure Coast Energy Center
Service Area(s) (Table F & G)	N/A Industrial Use Only
Treatment Method	Raw Well Water for Non-potable use only, RO and Demin used for boiler makeup treatment
Plant Capacity	Boiler makeup treatment - 250,000 gpd
Maximum TDS or Chloride in Raw Water Being Treated	Not yet determined, typical TDS of 1000 mg/l estimated
Maximum TDS or Chloride Limit of Treatment Method	2000 mg/l
Reject Discharge Point	To plant wastewater system; ultimately to FPUA for disposal in injection well
Chloride Concentration of	
Reject Water	1860 estimated
Receiving Water	
System Efficiency Losses (%)	Negl. Wells are located at TCEC
Wellfield to Treatment Plant	
Treatment Loss	25
Other In-Plant Loss	negl
Distribution System Loss	negl
Other (specify)	
Other (specify)	
Other (specify)	
Other (specify)	
Cumulative System Loss	25

If applicable, please submit a copy of the approval letter from the Department of Environmental Protection for the discharge of reject water resulting from the treatment process.

Instructions for Completing TABLE I, Water Treatment Method and Losses

Allocation is determined based on both the reasonable-beneficial need for water for the use intended and upon all the various losses that can occur between the point of water withdrawal and the point of water use. This form provides information about and description of the various losses that occur during water treatment and transportation.

Treatment Plant Name: *This is your designation of the treatment plant; if we contact you, this is what you would recognize it as.*

Service Area(s): *Name(s) of service areas identified in Table F & G (if applicable) served by this treatment plant*

Treatment Method: *Method used to treat the water to potable standards. Typical choices are:*

Reverse Osmosis Membrane softening Lime Softening

Other (specify)

Plant Capacity: *Maximum sustained output capacity of treated water (million gallons per day)*

Maximum TDS or Chloride in Raw Water Being Treated: *For treatment systems using source water with chloride ion concentration in excess of 250 mg/l, the highest level of either total dissolved solids or chloride ion concentration of the source water. Please indicate whether this value is measured or estimated.*

Maximum TDS or Chloride Limit of Treatment Method: *For treatment systems using source water with chloride ion concentration in excess of 250 mg/l, the highest level of either total dissolved solids or chloride ion concentration the treatment system can process. Please indicate whether this value is measured or estimated.*

Reject Discharged Point: *If the treatment process produces reject water, indicate where that water is discharged.*

Chloride Concentration: *Please provide the chloride ion concentration of both the reject water and the receiving source.*

System Efficiency Losses: *Please indicate the percentage of water lost between the water source and the consumer, by category. This may include, but is not limited to, losses between production wells and the treatment plant, losses due to water treatment technology, other in-plant losses such as maintenance and washing, distribution system losses, and any other losses you have identified.*

Cumulative System Loss: *Please calculate the cumulative efficiency loss representing the component losses identified previously.*

Treasure Coast Energy Center - Unit 1
Water Use Permit Application Form
REVISED

The following quantities are being requested in the SCA and Consumptive Use Permit Application for TCEC Unit 1. These amounts, based on using groundwater for cooling, have been revised from the original application (April 2005) due to changes in the proposed project's water use.

Daily Max = 3.555 MGD

- U1-WMB8: 100% load on oil with groundwater cooling water

Monthly Max = 110.21 MG

- daily max * 31d

90-day Max = 303.97 MG

- 500 hrs on oil + 1,660 hrs on gas with groundwater as cooling water
- oil: 3.555 MGD/24 = 148,125 GPH * 500 hr = 74.063 MG
- gas: 3.324 MGD/24 = 138,500 GPH * 1,660 hr = 229.91 MG
- 74.063 MG + 229.91 MG = 303.97 MG

Annual = 2.947 MGD = 1.1 BGY

- U1-WMB9: 500 hr on oil

Note that Item F.1 asks for the average gallons per day needed; however, the maximum gallons per day needed are given here to avoid underestimation of water needs.

Appendix N

Dewatering and Storm Water Basin Calculations

BLACK & VEATCH

Calculation Record

Client Name: FMPA Page 1 of 2

Project Name: Treasure Coast Energy Center Project No.: 138859

Calculation Title: Dewatering Analysis

Calculation No./File No.: 138859.52.5406.1104

Calculation Is: (check all that apply) ☐ Preliminary ☐ Final ☐ Nuclear Safety-Related

Objective **Determine the response of the detention area to the dewatering discharge. Estimate the detention time of the dewatering discharge in the detention area.**

Unverified Assumptions Requiring Subsequent Verification			
No.	Assumption	Verified By	Date

See Page _____ of this calculation for additional assumptions.

This Section Used for Computer Generated Calculations

Program Name/Number: _____ Version: _____

Evidence of or reference to computer program verification, if applicable:

Bases or reference thereto supporting application of the computer program to the physical problem:

Review and Approval						
Rev	Prepared By	Date	Verified By	Date	Approved By	Date
0	G.V. Johnson	6/23/05	M.J. Tuttle	6/24/05		
	G.V. Johnson	7/21/05	M J Tuttle	7/22/05		

FMPA **G.V. Johnson**
Treasure Coast Energy Center **7/20/2005**
Dewatering Analysis - 0.8 MGD Discharge Rate

OBJECTIVE

Determine the response of the detention area to the dewatering discharge. Estimate the detention time of the dewatering discharge in the detention area.

REFERENCES

1. FMPA Treasure Coast Energy Center, Hydrologic Analysis Calculation, G.V. Johnson, B&V, 3/10/2005.
2. Dewatering discharge rate provided by Mike Tuttle, B&V, 7/20/2005.

STAGE - DISCHARGE RELATIONSHIP

Sharp-Crested Weir Length, ft	20
Discharge Coefficient	3.13
Sharp-Crested Weir Invert Elev.	17.6

Elevation:	V-Notch Q, cfs	Weir Q, cfs	Total Q, cfs	Det. Area (acres)
17.25	0.00	0.00	0.00	9.952
17.60	0.50	0.00	0.50	10.051
17.6472	0.60	0.73	**1.24**	10.065
19.00	1.81	103.70	105.51	10.448
20.00	2.33	232.75	235.08	10.732
21.00	2.76	392.46	395.21	11.016

DEWATERING

Dewatering Discharge Rate	800000	gal/day
Dewatering Discharge Rate	1.24	cfs
Detention Area El @ Discharge Rate	17.6472	
Detention Area Surface Area @ 17.6472	10.065	acres
Detention Area Surface Area @ 17.25	9.952	acres
Det. Area Storage (17.25-17.6472)	3.975	acre-feet
Det. Area Storage (17.25-17.6472)	173168	cubic feet
Detention Time (Storage/Discharge)	139901.4	seconds
Detention Time (Storage/Discharge)	**38.9**	hours

RESULTS

For a steady state dewatering discharge rate of 2,000,000 gallons per day, the stage in the detention area will be elevation 17.7133. At this stage, the detention time of the dewatering discharge is 18.1 hours.

BLACK & VEATCH

Calculation Record

Client Name: FMPA Page 1 of ~~18~~ 2

Project Name: Treasure Coast Energy Center Project No.: 138859

Calculation Title: Update Composite Curve Number

Calculation No./File No.: 138859.52.5406.1103

Calculation Is: (check all that apply) ☐ Preliminary ☐ Final ☐ Nuclear Safety-Related

Objective Update the composite curve number developed in the hydrologic analysis calculation to account for changes in site surfacing. Determine if the detention area capacity is still sufficient.

Unverified Assumptions Requiring Subsequent Verification			
No.	Assumption	Verified By	Date

See Page _____ of this calculation for additional assumptions.

This Section Used for Computer Generated Calculations

Program Name/Number: Version:

Evidence of or reference to computer program verification, if applicable:

Bases or reference thereto supporting application of the computer program to the physical problem:

Review and Approval						
Rev	Prepared By	Date	Verified By	Date	Approved By	Date
0	G. V. Johnson	6/23/05	MJ TUTTLE	6/24/05		

FMPA
Treasure Coast Energy Center
Update Composite Curve Number

G.V. Johnson
6/23/2005
MJT
6/24/05

OBJECTIVE

Update the composite curve number developed in the hydrologic analysis calculation to account for changes in site surfacing. Determine if detention area capacity is still sufficient.

REFERENCES

1. FMPA Treasure Coast Energy Center, Hydrologic Analysis Calculation, G.V. Johnson, B&V, 3/10/2005.
2. Updated plant surfacing areas provided by Mike Tuttle, B&V, 6/20/2005.

ORIGINAL COMPOSITE CURVE NUMBER

The calculation below is the original composite curve number from Ref. 1.

	Area(ac)	CN	Area*CN
Impervious(bldg, tanks, pavement)	7.566	98	741.468
Aggregate Surfaced (HSG=B)	36.125	85	3070.625
Grass-Good Cond. (HSG=B)	0.9955	61	60.7255
Total	44.687		3872.819
Composite CN (Area*CN/Area)	**86.7**		

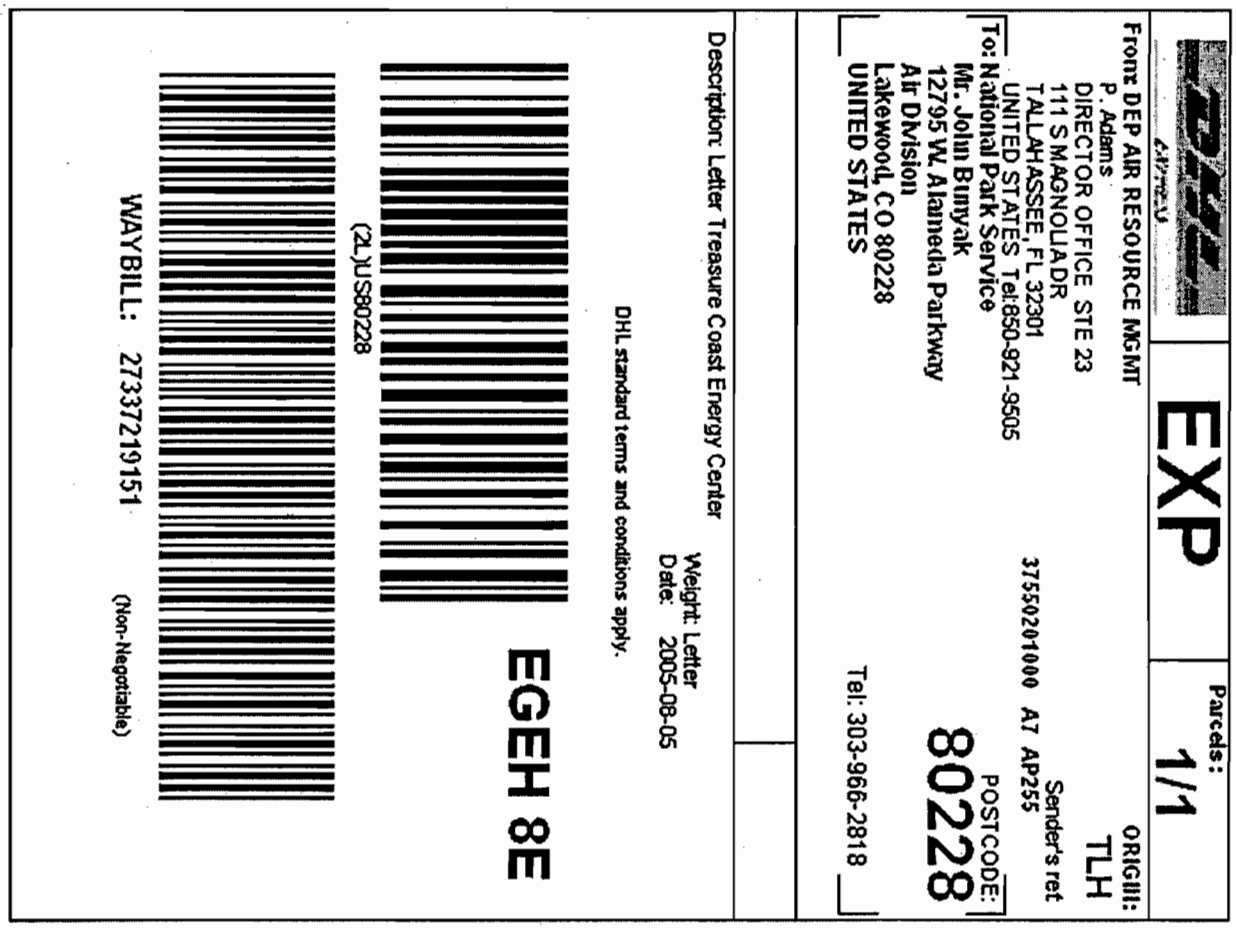
UPDATED COMPOSITE CURVE NUMBER

The calculation below is the updated composite curve number based on Ref 2.

	Area(ac)	CN	Area*CN
Impervious(bldg, tanks, pavement)	11.385	98	1115.73
Aggregate Surfaced (HSG=B)	16.208	85	1377.68
Grass-Good Cond. (HSG=B)	17.448	61	1064.328
Total	45.041		3557.738
Composite CN (Area*CN/Area)	**79.0**		

DETENTION AREA CAPACITY

The updated composite curve number is less than the original composite curve number. Therefore, the volume of stormwater runoff directed to the detention area will be reduced. Thus, the capacity of the detention area developed in Ref. 1 is sufficient to meet all design requirements.



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SENDER'S RECEIPT
Waybill #: 27337219151

To(Company):
National Park Service
Air Division
12795 W. Alameda Parkway

Lakewood, CO 80228
UNITED STATES

Attention To: Mr. John Bunyak
Phone#: 303-966-2818

Sent By: P. Adams
Phone#: 850-921-9505

Rate Estimate: 9.37
Protection: Not Required
Description: Letter Treasure Coast Energy Center

Weight (lbs.): Letter
Dimensions: 0 x 0 x 0

Ship Ref: 37550201000 A7 AP255
Service Level: Next Day 12:00 (Next business day by 12 PM)

Special Svc:

Date Printed: 8/5/2005
Bill Shipment To: Sender
Bill To Acct: 778941286

DHL Signature (optional) _____ Route _____ Date _____ Time _____

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SENDER'S RECEIPT
Waybill #: 27337314255

To(Company):
U.S. EPA Region 4
Air Permits Section
61 Forsyth Street

Atlanta, GA 30303
UNITED STATES

Attention To: Mr. Gregg M. Worley
Phone#: 404-562-9141

Sent By: P. Adams
Phone#: 850-921-9505

Rate Estimate: 6
Protection: Not Required
Description: Treasure Coast Energy Center letter

Weight (lbs.): Letter
Dimensions: 0 x 0 x 0

Ship Ref: 37550201000 A7 AP255
Service Level: Next Day 12:00 (Next business day by 12 PM)

Special Svc:

Date Printed: 8/5/2005
Bill Shipment To: Sender
Bill To Acct: 778941286

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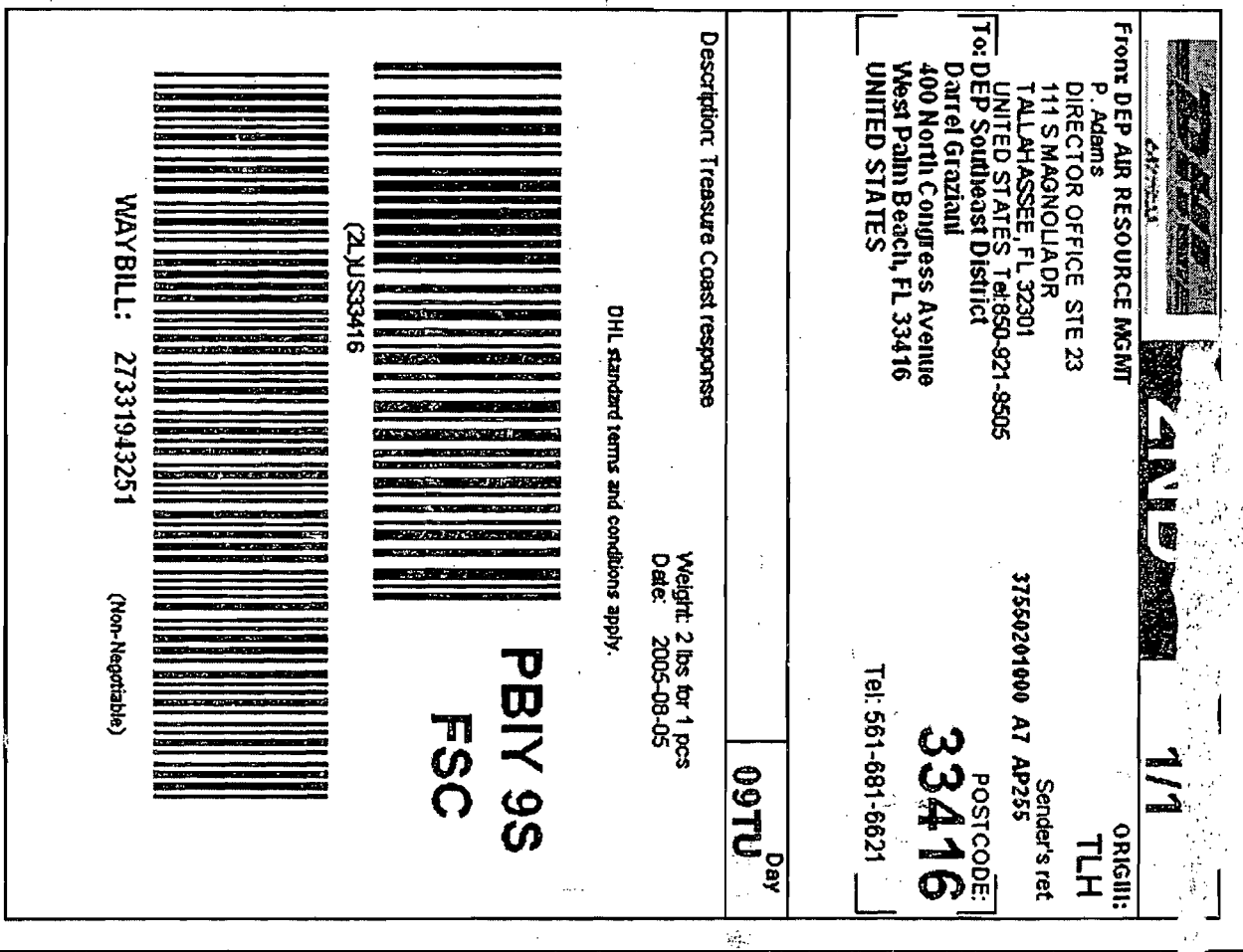

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SENDER'S RECEIPT
Waybill #: 27331943251

To(Company):
DEP Southeast District

400 North Congress Avenue

West Palm Beach, FL 33416
UNITED STATES

Attention To: Darrel Graziani
Phone#: 561-681-6621

Sent By: P. Adams
Phone#: 850-921-9505

Rate Estimate: 3.25
Protection: Not Required
Description: Treasure Coast response

Weight (lbs.): 2
Dimensions: 0 x 0 x 0

Ship Ref: 37550201000 A7 AP255
Service Level: 2nd Day (2nd business day by 5 PM)

Special Svc:

Date Printed: 8/5/2005
Bill Shipment To: Sender
Bill To Acct: 778941266

DHL Signature (optional) _____ Route _____ Date _____ Time _____

For Tracking, please go to www.dhl-usa.com or call 1-800-225-5345

Thank you for shipping with DHL

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