SOUTH FLORIDA WATER MANAGEMENT DISTRICT
WATER USE INDIVIDUAL PERMIT

APPLICATION NO: 160916-12 **PERMIT NUMBER:** 13-06251-W

DATE ISSUED: February 27, 2017 **EXPIRATION DATE:** February 27, 2029

PERMITTEE: FLORIDA POWER AND LIGHT
700 UNIVERSE BOULEVARD
JUNO BEACH, FL 33408

PROJECT NAME: TURKEY POINT GROUNDWATER RECOVERY WELL SYSTEM

PROJECT LOCATION: Miami-Dade County, S28,29,32,33,34/T57S/R40E
S3,4,5,7,8,9,16,17,18,19,20,21,28,29,30/T58S/R40E

PROJECT DESCRIPTION/AUTHORIZING:

The capture of hypersaline water in the Biscayne Aquifer using a recovery well system with an annual withdrawal rate of 5,475.00 million gallons in eastern Miami-Dade County.

This is to notify you of South Florida Water Management District's (District) agency action concerning Permit Application Number 160916-12, received September 16, 2016. This action is taken pursuant to Chapter 373, Part II, Florida Statutes (F.S.), Rule 40E-1.603 and Chapter 40E-2, Florida Administrative Code (F.A.C.). Based on the information provided, District rules have been adhered to and a Water Use Individual Permit is in effect for this project subject to:

1. Not receiving a filed request for an administrative hearing pursuant to Section 120.57 and Section 120.569 (F.S.), or a request for a judicial review pursuant Section 120.68, F.S.
2. The attached 28 permit conditions.
3. The attached 10 exhibits.

By acceptance and utilization of the water authorized under this permit, the Permittee agrees to hold and save the District and its successors harmless from any and all damages, claims or liabilities that may arise by reason of the construction, maintenance or use of activities authorized by this permit. Should you object to the permit, please refer to the attached "Notice of Rights" that addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Should you wish to object to the proposed agency action or file a petition or request, please provide written objections, petitions, requests and/or waivers to: Office of the District Clerk, South Florida Water Management District, 3301 Gun Club Road, West Palm Beach, FL 33406, or by email to clerk@sfwmd.gov.

CERTIFICATION OF SERVICE

I HEREBY CERTIFY THAT this written notice has been mailed or electronically transmitted to the Permittee (and the persons listed in the attached distribution list) this 28th day of February, in accordance with Section 120.60(3), F.S. Notice was also electronically posted on this date through a link on the home page of the District's website (my.sfwmd.gov/ePermitting).

BY: Lisandra Jones
LISANDRA JONES
DEPUTY CLERK, SOUTH FLORIDA WATER MANAGEMENT DISTRICT

SPECIAL PERMIT CONDITIONS

1. This permit is issued to:

   FLORIDA POWER AND LIGHT
   700 UNIVERSE BOULEVARD
   JUNO BEACH, FL 33408

2. This permit shall expire on February 27, 2029.

3. Use classification is:

   Industrial Water Supply

4. Source classification is:

   Groundwater from:
   Biscayne Aquifer

5. Allocation:

   Total annual allocation is 5,475.00 million gallons (MG). (15.00 MGD)

   Total maximum monthly allocation is 465.00 million gallons (MG).

   These allocations represent the amount of water required to meet the water demands as a result of a rainfall deficit during a drought with the probability of recurring one year in ten. The Permittee shall not exceed these allocations in hydrologic conditions less than a 1-in-10 year drought event. Compliance with the annual allocation is based on the quantity withdrawn over a 12-month time period. Compliance with the maximum monthly allocation is based on the greatest quantity withdrawn in any single month. The annual allocation expressed in GPD or MGD is for informational purposes only.

   If the rainfall deficit is more severe than that expected to recur once every ten years, the withdrawals shall not exceed that amount necessary to continue to meet the reasonable-beneficial demands under such conditions, provided no harm to the water resources occur and:

   1. All other conditions of the permit are met; and

   2. The withdrawal is otherwise consistent with applicable declared Water Shortage Orders in effect pursuant to Chapter 40E-21, F.A.C.

6. Withdrawal facilities:

   Groundwater - Proposed:

9 - 24" X 110' X 1042 GPM Wells Cased To 70 Feet

Groundwater - Existing:

1 - 24" X 110' X 1042 GPM Well Cased To 70 Feet

7. The Permittee shall submit all data as required by the implementation schedule for each of the permit conditions to: SFWMD at www.sfwmd.gov/ePermitting, or Regulatory Support, 3301 Gun Club Road, West Palm Beach, FL 33406.

8. The Permittee must submit the appropriate application form incorporated by reference in Rule 40E-2.101, F.A.C., to the District prior to the permit expiration date in order to continue the use of water.

9. The Permittee shall secure a well construction permit prior to construction, repair, or abandonment of all wells, as described in Chapter 40E-3, F.A.C.

10. Prior to any withdrawals at the project, the Permittee shall provide the results of the calibration testing of the identified water accounting method(s) and equip all existing and proposed withdrawal facilities with approved water use accounting method(s) pursuant to Subsection 4.1.1 of the Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District.

11. Every five years from the date of last calibration, the Permittee shall submit re-calibration data for each withdrawal facility.

12. Monthly withdrawals for each withdrawal facility shall be reported to the District quarterly. The water accounting method and means of calibration shall be stated on each report.

13. If at any time there is an indication that the well casing, valves, or controls leak or have become inoperative, repairs or replacement shall be made to restore the system to an operating condition. Failure to make such repairs shall be cause for filling and abandoning the well, in accordance with procedures outlined in Chapter 40E-3, F.A.C.

14. The Permittee shall submit to the District an updated "Summary of Groundwater (Well) Facilities" table ("Section IV - Sources of Water", Water Use Permit Application Form 1379) within 90 days of completion of the proposed wells identifying the actual total and cased depths, pump manufacturer and model numbers, pump types, intake depths and type of meters.

15. If a proposed well location is different from a location specified in the application, the Permittee shall submit to the District an evaluation of the impact of pumpage from the proposed well location on adjacent existing legal uses, pollution sources, environmental features, the saline water

interface, and water bodies one month prior to all new well construction. The Permittee is advised the proposed well locations and resulting impacts must be in compliance with all permitting criteria and performance standards in effect at that time.

16. The Permittee shall implement the following water quality monitoring program:
The Permittee shall collect monthly chloride samples from each recovery well and submit the results to the District quarterly. The purpose of the sampling is to show that the recovery wells are capturing hypersaline groundwater.

17. The Permittee shall submit copies of all reports required by the Florida Department of Environmental Protection including:

- Annual Continuous Surface Electromagnetic Mapping (CSEM) surveys.

- Summary report on the effectiveness of the groundwater extraction system after the fifth year of operation.

STANDARD PERMIT CONDITIONS

1. All water uses authorized by this permit shall be implemented as conditioned by this permit, including any documents incorporated by reference in a permit condition. The District may revoke this permit, in whole or in part, or take enforcement action, pursuant to Section 373.136 or 373.243, F.S., unless a permit modification has been obtained to address the noncompliance.

   The Permittee shall immediately notify the District in writing of any previously submitted material information that is later discovered to be inaccurate.

2. The Permittee is advised that this permit does not relieve any person from the requirement to obtain all necessary federal, state, local and special district authorizations.

3. The Permittee shall notify the District in writing within 30 days of any sale, transfer, or conveyance of ownership or any other loss of permitted legal control of the Project and/or related facilities from which the permitted consumptive use is made. Where Permittee's control of the land subject to the permit was demonstrated through a lease, the Permittee must either submit a new or modified lease showing that it continues to have legal control or documentation showing a transfer in control of the permitted system/project to the new landowner or new lessee. All transfers of ownership are subject to the requirements of Rule 40E-1.6107, F.A.C. Alternatively, the Permittee may surrender the consumptive use permit to the District, thereby relinquishing the right to conduct any activities under the permit.

4. Nothing in this permit should be construed to limit the authority of the District to declare a water shortage and issue orders pursuant to Chapter 373, F.S. In the event of a declared water shortage, the Permittee must adhere to the water shortage restrictions, as specified by the District. The Permittee is advised that during a water shortage, reports shall be submitted as required by District rule or order. The Permittee is advised that during a water shortage, pumpage, water levels, and water quality data shall be collected and submitted as required by District orders issued pursuant to Chapter 40E-21, F.A.C.

5. This permit does not convey to the Permittee any property rights or privileges other than those specified herein, nor relieve the permittee from complying with any applicable local government, state, or federal law, rule, or ordinance.

6. With advance notice to the Permittee, District staff with proper identification shall have permission to enter, inspect, observe, collect samples, and take measurements of permitted facilities to determine compliance with the permit conditions and permitted plans and specifications. The Permittee shall either accompany District staff onto the property or make provision for access onto the property.

7. A. The Permittee may seek modification of any term of an unexpired permit. The Permittee is advised that Section 373.239, F.S., and Rule 40E-2.331, F.A.C., are applicable to permit modifications.

   B. The Permittee shall notify the District in writing 30 days prior to any changes to the project that

could potentially alter the reasonable demand reflected in the permitted allocation. Such changes include, but are not limited to, change in irrigated acreage, crop type, irrigation system, large users agreements, or water treatment method. Permittee will be required to apply for a modification of the permit for any changes in permitted allocation.

8. If any condition of the permit is violated, the permit shall be subject to review and modification, enforcement action, or revocation pursuant to Chapter 373, F.S.

9. The Permittee shall mitigate interference with existing legal uses that was caused in whole or in part by the Permittee's withdrawals, consistent with the approved mitigation plan. As necessary to offset the interference, mitigation will include pumpage reduction, replacement of the impacted individual's equipment, relocation of wells, change in withdrawal source, or other means.

   Interference to an existing legal use is defined as an impact that occurs under hydrologic conditions equal to or less severe than a 1-in-10 year drought event that results in the:

   A. Inability to withdraw water consistent with provisions of the permit, such as when remedial structural or operational actions not materially authorized by existing permits must be taken to address the interference; or

   B. Change in the quality of water pursuant to primary State Drinking Water Standards to the extent that the water can no longer be used for its authorized purpose, or such change is imminent.

10. The Permittee shall mitigate harm to the natural resources caused by the Permittee's withdrawals, as determined through reference to the conditions for permit issuance. When harm occurs, or is imminent, the District will require the Permittee to modify withdrawal rates or mitigate the harm. Harm, as determined through reference to the conditions for permit issuance includes:

    A. Reduction in ground or surface water levels that results in harmful lateral movement of the fresh water/salt water interface,

    B. Reduction in water levels that harm the hydroperiod of wetlands,

    C. Significant reduction in water levels or hydroperiod in a naturally occurring water body such as a lake or pond,

    D. Harmful movement of contaminants in violation of state water quality standards, or

    E. Harm to the natural system including damage to habitat for rare or endangered species.

11. The Permittee shall mitigate harm to existing off-site land uses caused by the Permittee's withdrawals, as determined through reference to the conditions for permit issuance. When harm occurs, or is imminent, the District will require the Permittee to modify withdrawal rates or mitigate the harm. Harm as determined through reference to the conditions for permit issuance, includes:

A. Significant reduction in water levels on the property to the extent that the designed function of the water body and related surface water management improvements are damaged, not including aesthetic values. The designed function of a water body is identified in the original permit or other governmental authorization issued for the construction of the water body. In cases where a permit was not required, the designed function shall be determined based on the purpose for the original construction of the water body (e.g. fill for construction, mining, drainage canal, etc.)

B. Damage to agriculture, including damage resulting from reduction in soil moisture resulting from consumptive use; or,

C. Land collapse or subsidence caused by reduction in water levels associated with consumptive use.

NOTICE OF RIGHTS

As required by Sections 120.569 and 120.60(3), Fla. Stat., the following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all of the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a SFWMD decision which affects or may affect their substantial interests shall file a petition for hearing with the Office of the District Clerk of the SFWMD, in accordance with the filing instructions set forth herein, within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: (1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or (2) within 14 days of service of an Administrative Order pursuant to Section 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of written notice through mail, electronic mail, or posting that the SFWMD has or intends to take final agency action, or publication of notice that the SFWMD has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

If the District takes final agency action which materially differs from the noticed intended agency decision, persons who may be substantially affected shall, unless otherwise provided by law, have an additional Rule 28-106.111, Fla. Admin. Code, point of entry.

Any person to whom an emergency order is directed pursuant to Section 373.119(2), Fla. Stat., shall comply therewith immediately, but on petition to the board shall be afforded a hearing as soon as possible.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for an extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

FILING INSTRUCTIONS

A petition for administrative hearing must be filed with the Office of the District Clerk of the SFWMD. Filings with the Office of the District Clerk may be made by mail, hand-delivery, or e-mail. Filings by facsimile will not be accepted. A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the Office of the District Clerk at SFWMD headquarters in West Palm Beach, Florida. The District's normal business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Any document received by the Office of the District Clerk after 5:00 p.m. shall be deemed filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, 3301 Gun Club Road, West Palm Beach, Florida 33406.

- Filings by hand-delivery must be delivered to the Office of the District Clerk. Delivery of a petition to the SFWMD's security desk does not constitute filing. It will be necessary to request that the SFWMD's security officer contact the Office of the District Clerk. An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by e-mail must be transmitted to the Office of the District Clerk at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the Office of the District Clerk receives the complete document. A party who files a document by e-mail shall (1) represent that the original physically signed document will be retained by that party for the duration of the proceeding and of any subsequent appeal or subsequent proceeding in that cause and that the party shall produce it upon the request of other parties; and (2) be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed.

INITIATION OF AN ADMINISTRATIVE HEARING

Pursuant to Sections 120.54(5)(b)4. and 120.569(2)(c), Fla. Stat., and Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, SFWMD file number or any other SFWMD identification number, if known.
2. The name, address, any email address, any facsimile number, and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401–.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Section 120.68, Fla. Stat., and in accordance with Florida Rule of Appellate Procedure 9.110, a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal with the Office of the District Clerk of the SFWMD in accordance with the filing instructions set forth herein within 30 days of rendition of the order to be reviewed, and by filing a copy of the notice with the clerk of the appropriate district court of appeal.

FINAL APPROVED BY EXECUTIVE DIRECTOR FEBRUARY 27, 2017

Last Date for Agency Action:
March 16, 2017

WATER USE STAFF REPORT

Application Number: 160916-12

Permit Number: 13-06251-W

Project Name: TURKEY POINT GROUNDWATER RECOVERY WELL SYSTEM

Water Use Permit Status: PROPOSED

Location: MIAMI-DADE COUNTY, S28,29,32,33,34/T57S/R40E
S3,4,5,7,8,9,16,17,18,19,20,21,28,
29,30/T58S/R40E

Applicant's Name and Address:
FLORIDA POWER AND LIGHT
700 UNIVERSE BOULEVARD
JUNO BEACH, FL 33408

Water Use Classification: Industrial

Sources:

Groundwater from: Biscayne Aquifer

Authorized Allocation:

Annual Allocation: 5,475.00 Million Gallons (MG)

Maximum Monthly Allocation: 465.00 Million Gallons (MG)

Existing Withdrawal Facilities - Groundwater

Source: Biscayne Aquifer
1 - 24" X 110' X 1042 GPM Well Cased to 70 Feet

Proposed Withdrawal Facilities - Groundwater

Source: Biscayne Aquifer
9 - 24" X 110' X 1042 GPM Wells Cased to 70 Feet

Rated Capacity Source	Status Code	GPM	MGM	MGY
Biscayne Aquifer	E	1,042	45.6	548
Biscayne Aquifer	P	9,378	410.5	4,929
Totals:		**10,420**	**456.1**	**5,477**

PURPOSE

The purpose of this application is to withdraw hypersaline water from the Biscayne aquifer using an extraction well system. Withdrawals are from the Biscayne aquifer via one existing withdrawal facility and nine proposed withdrawal facilities.

PROJECT DESCRIPTION

The Florida Power and Light (FPL) Turkey Point Groundwater Recovery System (Project) is an aquifer remediation project designed to contain and retract a hypersaline groundwater plume (greater than 19,000 milligrams per liter [mg/L] chloride concentration) occurring beneath, west, and north of the Turkey Point Cooling Canal System (CCS) as required by the Florida Department of Environmental Protection (FDEP) Consent Order OGC File No. 16-0241 (CO), and the Consent Agreement (CA) between FPL and the Miami-Dade County (MDC) Department of Regulatory and Economic Resources, Division of Environmental Resources Management (DERM) dated October 7, 2015. FPL operates the Turkey Point Power Plant in southeastern Miami-Dade County. The Turkey Point Power Plant facility consists of power plant facilities and a CCS. It is located adjacent to Biscayne Bay, approximately 0.5 miles south of Palm Drive in southeast Miami-Dade County. The purpose of the CCS is to recirculate water to cool the Turkey Point Power Plant. The north end of the CCS is located about four miles southeast of the Homestead Airforce Base adjacent to Biscayne Bay and extends about five miles south and is as wide as two miles at the southern end as shown in Exhibits 1 through 3.

Hypersaline groundwater will be pumped from one existing and nine proposed extraction wells and disposed of in an existing permitted Underground Injection Control (UIC) well (FDEP UIC Permit #293962-002-UC) as part of a groundwater remediation project. Eight of the extraction wells are located on FPL property along the western edge of the Interceptor Ditch (ID) road and two wells are located north of the CCS as shown on Exhibit 3. Well specifications are shown on Exhibit 4. The extraction is anticipated to be conducted over a ten year period, currently expected to begin in 2017. Prior to drilling the proposed wells, FPL will need to obtain well construction permits from the Florida Department of Health in Miami-Dade County.

PROJECTED WATER USE DEMANDS

This remediation action is required under a FDEP Consent Order, OGC File No. 16-0241 and a Consent Agreement by MDC DERM dated October 7, 2015. The Project proposes to extract 15 million gallons per day (MGD) from 10 wells (each withdrawing 1.5 MGD) for a predicted 10 year period. The proposed extraction rates result in a maximum month withdrawal of 465.00 million gallons per month (MGM) and an annual extraction of 5,475.00 million gallons per year (MGY). These allocations are based on FDEP and MDC DERM approved groundwater remediation plans and associated modeling. Exhibit 5 is a summary of the water use demands for the Project.

IMPACT EVALUATION

A transient variable density groundwater flow and transport model of the Biscayne aquifer was developed to assess the potential impacts of the proposed extraction on local water resources and environmental features. The model domain covers an area of approximately 276 square miles and consists of 11 layers. The 11 model layers represent the Miami Oolite, Fort Thompson Formation, and two distinct high hydraulic conductivity layers (high flow zones) which represent preferential flowpaths as detected in lithologic logs. The model simulates interactions between the Biscayne

IMPACT EVALUATION (CONTINUED)

aquifer, Biscayne Bay, and surface water canals, including the CCS. Net recharge (i.e. recharge minus evapotranspiration) and groundwater withdrawals for both municipal and agricultural uses are also simulated using the best available information. The model is executed using the latest version of the SEAWAT code (Version 4). Water density is assumed to vary as a function of both temperature and salinity. A technical report detailing the development, calibration and application of this model is contained in the permit file.

WATER RESOURCE IMPACT EVALUATION

Water Resource Availability

Biscayne Aquifer

The land surface elevation in the vicinity of the Project is approximately 3.5 feet National Geodetic Vertical Datum (NGVD). The base of the Biscayne aquifer occurs around -100 feet NGVD in the vicinity of the extraction wells. Based on water level data obtained from United States Geological Survey monitor well G-3356, the closest well with a substantial data record, located approximately 4.5 miles west of the Project, the lowest recorded water level elevation in the Biscayne aquifer is 0.34 feet NGVD. The results of the groundwater modeling of the extraction well system predicted a maximum drawdown of 0.5 foot leaving a saturated thickness in the Biscayne aquifer of over 99 feet. Therefore, the potential for harm to occur to the water resource availability of the Biscayne aquifer as a result of the withdrawal of the recommended allocation is considered minimal.

Existing Legal Users

Biscayne Aquifer

There are no existing legal users of the Biscyane aquifer within the predicted 0.1-foot drawdown contour resulting from the Project's proposed withdrawals. Therefore, the potential for harm to occur to existing legal users as a result of the withdrawal of the recommended allocation is considered minimal.

Existing Off Site Land Uses

Biscayne Aquifer

Land uses that are dependent upon water being on or near land surface and that existed prior to this application are protected from harm. The cone of depression resulting from the FPL groundwater remediation encompasses lands owned mainly by FPL along with numerous small privately owned parcels and several Miami-Dade County Environmentally Endangered Land (EEL) holdings. All of these lands are undeveloped. Therefore, pursuant to Subsection 3.6.2 of the AH, the use is not expected to result in significant reduction in water levels on the property of an existing offsite land use to the extent that: the designed function of a water body and related surface water management improvements are damaged (not including aesthetic values); or cause damage to agriculture, including damage resulting from reduction in soil moisture resulting from withdrawal of the recommended allocation, or land collapse or subsidence caused by reduction in water levels associated with the

withdrawal of the recommended allocation.

Migration of Saline Water

Biscayne Aquifer

The nearest source of naturally occurring saline water is Biscayne Bay located approximately 1.5 miles east of the extraction wells. All withdrawals associated with the Project are located approximately four miles seaward of the saltwater-freshwater interface in the Biscayne aquifer. The intended purpose of this Project is to remove hypersaline groundwater from the Biscayne aquifer. The proposed water use should result in the seaward (eastern) movement of the saltwater interface thereby increasing the amounts of fresh groundwater within the Biscayne aquifer in this area. Based on this information, the potential for saline water intrusion or upconing to occur in areas of the Biscayne aquifer not already affected by saltwater intrusion as a result of the withdrawal of the recommended allocation is considered minimal.

Wetland Environments

Biscayne Aquifer

The area of influence of the water use depicted on Exhibit 6 includes the Model Lands and a portion of the FPL Everglades Mitigation Bank, which primarily consists of large contiguous tracts of seasonally inundated sawgrass marsh (Category 2) wetlands interspersed with spikerush and tree islands.

The water withdrawals from the bottom 20 feet of the Biscayne aquifer have the potential to influence water in shallower portions of the aquifer and seepage from adjacent surface water bodies. Therefore, a model was conducted simulating conditions up to a 1-in-10 drought condition. The resulting drawdown is depicted in Exhibit 6, indicating a maximum drawdown of less than 0.3 foot could occur west and north of the Turkey Point CCS under drought conditions during operation of the wells. The maximum shallow drawdown occurs in the vicinity of extraction wells RWS-1 and RWS-2, north of the CCS. The cone of depression as delineated by the 0.1 foot drawdown contour is bifurcated by L-31E Canal which provides some buffering influence due to canal storage. Based upon the above, the potential for harm to occur to wetlands as a result of the authorized withdrawal of the recommended allocation is considered minimal.

In addition, FPL has worked with the South Florida Water Management District (District) and the state and federal Comprehensive Everglades Restoration Plan (CERP) partnership to incrementally increase the culvert gate setting in the FPL Everglades Mitigation bank to improve wetland hydroperiods in the Model Lands north of the L-31E Canal.

Sources of Pollution

Biscayne Aquifer

The nearest known pollution source is Delta Homestead C&D Facility, located about

WATER RESOURCE IMPACT EVALUATION (CONTINUED)

1.8 miles northwest of the closest production well (RW-1). This facility is outside the Project's cone of depression. Based on this information, the potential for the induced movement of contaminants from known sources of pollution to occur as a result of the withdrawal of the recommended allocation is considered minimal.

ADDITIONAL INFORMATION

Regional Issues

Regional Water Availability

The modeling shows that the cone of depression generated by the extraction wells (under Scenario Alt-3D) does not extend to the nearest C&SF primary canal (C-103), but does cross the Florida City Canal which is connected to the C-103 Canal via the L-31E Canal at the S-20F structure. In order to evaluate the amount of water induced from the Florida City Canal due to the FPL withdrawals, a local mass balance analysis was conducted over the entire Reach of MODFLOW river cells representing the Florida City Canal in the model for Stress Periods 61 through 72. These stress periods correspond to the January through December 2011 climatic conditions. The average reduction in seepage into the Florida City Canal over this 12 month period was found to be 14,400 gallons per day (GPD), with a maximum-month seepage of 27,804 GPD, occurring in Stress Period 68, compared to the non-pumping condition (Scenario ALT2).

During a review of consumptive use permits in the area of the Florida City and C-103 Canals a Water Use Permit (Keys Gate Golf Club, Water Use Permit 13-00168-W) was identified which was permitted to irrigate 710 acres of landscaping during the time frame in which the base condition allocations were calculated for irrigation permits (April 2001 through April 2006, Subsection 3.2.1 of the Applicant's Handbook (AH) for Water Use Permit Applications within the South Florida Water Management District). This water use permit was subsequently reissued in 2007 for 100 acres of landscape irrigation, resulting in a termination in base condition of 610 acres.

As per Subsection 3.2.1.E.6.c of the AH, water may be made available through the termination or reduction of base condition water use withdrawals. The recommended allocations for the 710 acre base condition and the current 100-acre permit for Keys Gate were calculated using the current Modified Blaney-Criddle calculation, which calculates the quantity of water to be allocated over a 12-month time frame under a (1-in-10 drought condition for the associated use class [Subsection 2.3.1.C, AH]) to determine the difference in allocation between the two permits (Exhibits 7 and 8).

The calculated annual supplemental 1-in-10 year drought allocation for the 710 acre base condition permit for Keys Gate is 556.82 MGY, and the current calculated annual supplemental 1-in-10 year drought crop allocation for Keys Gate is 115.77 MGY, resulting in a terminated base condition of approximately 441 MGY. Therefore, the

difference in these two annual allocations is 441.053 MGY (about 1.2 MGD). This amount of additional pumpage was input and run with the ALT2D scenario, which represents current conditions without the FPL Extraction System operating. Local mass balance analyses showed that an additional 32,000 gallons per day of induced seepage from the Florida City Canal occurred when Keys Gate was irrigating 710 acres, with about 45,000 GPD induced during Stress Period 68. These mass balance analyses show a net average annual increase in flows to the Florida City Canal of 17,600 GPD on average, and an additional 17,196 GPD during Stress Period 68 occurred as a result of subtracting the seepage induced from the Florida City Canal by the FPL pumping scenario from the reduced seepage resulting from the retired Keys Gate allocation.

Therefore, the requested allocation will not cause a net increase in the volume or cause a change in timing on a monthly basis of surface water and groundwater withdrawn from the Lower East Coast Everglades Waterbodies or the North Palm Beach County/Loxahatchee River Watershed Waterbodies over that resulting from the base condition water use.

Minimum Flows and Levels

The withdrawal source for the Project is the Biscayne aquifer. The Biscayne aquifer is a minimum flows and levels (MFL) water body covered under a prevention strategy set forth in Chapter 40E-8, Florida Administrative Code (F.A.C.). The Biscayne aquifer MFL is defined as the water level which results in movement of the saltwater interface landward to the extent the water quality of an established withdrawal point is insufficient to serve as a water supply source. As discussed in the saline water intrusion section of this staff report, this project is not expected to affect landward movement of the saltwater interface. Therefore, the recommended allocation is consistent with the Biscayne Aquifer MFL Prevention Plan.

Water Reservations

The Project is located within the portion of Miami-Dade County which covers the water reservation area for Biscayne Bay as identified in Rules 40E-10.021 and 40E-10.061, F.A.C. The Project is withdrawing groundwater which, in accordance with Subsection 3.11.3 of the AH, is not considered a withdrawal of reserved water.

Project Site Issues

Legal Control and Land Use

The wells and appurtenances will be owned by FPL and constructed on FPL land with the exception of a transmission pipe from the northern most extraction well (RWS-1). This pipeline project component is proposed to occur above ground on District right of way east of the toe of the L-31E levee from Palm Drive south to the northwest corner of the CCS. (Applications for a District right-of-way (ROW) permit and FDEP/United States Army Corps of Engineers environmental resource permit have been filed for this part of the Project). The Project is compatible with the industrial power plant land use upon which the water use will occur. As of January 23, 2017, the District ROW permit

ADDITIONAL INFORMATION (CONTINUED)

had not been issued.

Water Use Accounting

The Permittee will install and maintain flow meters on the 10 extraction wells. The Permittee is required to submit calibration data for each well prior to use (Special Permitting Condition 10, as well as recalibration data on each flow meter every five years (Special Permitting Condition 11).

Permit Reporting Requirements

Pursuant to Special Permit Condition 12, the Permittee shall report monthly withdrawals for each withdrawal facility to the District quarterly.

Pursuant to Special Permit Condition 14, the Permittee shall submit an updated "Summary of Groundwater (Well) Facilities" table within 90 days of completion of the proposed wells.

Pursuant to Special Permit Condition 16, the Permittee shall collect monthly chloride samples from each recovery well and submit the results to the District quarterly.

Pursuant to Special Permit Condition 17, the Permittee shall submit copies of all reports required by the Florida Department of Environmental Protection including: Annual Continuous Surface Electromagnetic Mapping (CSEM) surveys and the summary report on the effectiveness of the groundwater extraction system after the fifth year of operation.

Potential Use of Reclaimed Water

The purpose of this permit is to extract a plume of hypersaline water from the Biscayne aquifer. The use of reclaimed water is not technically feasible for this Project.

Permit Duration

The hypersaline extraction system is designed to run for a period of 10 years as stipulated in FDEP Administrative Order OGC File No. 16-0241. Therefore, the permit duration shall be for a period of 12 years to account for time for the Project start-up and mobilization as well as any potential down time during the 10 year operational period.

ENVIRONMENTAL RESOURCE PERMIT STATUS:

Not Applicable

RIGHT OF WAY PERMIT STATUS:

MODIFICATION
APPLICATION NO. 160920-2.

RECOMMENDATIONS

Project Name: TURKEY POINT GROUNDWATER RECOVERY WELL SYSTEM

Application Number: 160916-12

Permit Number: 13-06251-W

RECOMMENDATION

Authorizing: The capture of hypersaline water in the Biscayne aquifer using a recovery well system with an annual withdrawal rate of 5,475.00 million gallons in eastern Miami-Dade County.

STAFF EVALUATION

REVIEWER:

Trisha Stone, NRM

John A. Lockwood, P.G., WU

SUPERVISOR:

Barbara J. Conmy, NRM

Simon Sunderland, P.G., WU

QUALITY ASSURANCE REVIEW:

Stephanie Lancaster, P.G. **Date:** 2/2/17

WATER USE BUREAU CHIEF:

Maria C. Clemente, P.E. **Date:** 2/6/17

SPECIAL PERMIT CONDITIONS

1. This permit is issued to:

   FLORIDA POWER AND LIGHT
   700 UNIVERSE BOULEVARD
   JUNO BEACH, FL 33408

2. This permit shall expire on February 27, 2029.

3. Use classification is:

   Industrial Water Supply

4. Source classification is:

   Groundwater from:
   Biscayne Aquifer

5. Allocation:

   Total annual allocation is 5,475.00 million gallons (MG). (15.00 MGD)

   Total maximum monthly allocation is 465.00 million gallons (MG).

   These allocations represent the amount of water required to meet the water demands as a result of a rainfall deficit during a drought with the probability of recurring one year in ten. The Permittee shall not exceed these allocations in hydrologic conditions less than a 1-in-10 year drought event. Compliance with the annual allocation is based on the quantity withdrawn over a 12-month time period. Compliance with the maximum monthly allocation is based on the greatest quantity withdrawn in any single month. The annual allocation expressed in GPD or MGD is for informational purposes only.

   If the rainfall deficit is more severe than that expected to recur once every ten years, the withdrawals shall not exceed that amount necessary to continue to meet the reasonable-beneficial demands under such conditions, provided no harm to the water resources occur and:

   1. All other conditions of the permit are met; and

   2. The withdrawal is otherwise consistent with applicable declared Water Shortage Orders in effect pursuant to Chapter 40E-21, F.A.C.

6. Withdrawal facilities:

SPECIAL PERMIT CONDITIONS

Groundwater - Proposed:

9 - 24" X 110' X 1042 GPM Wells Cased To 70 Feet

Groundwater - Existing:

1 - 24" X 110' X 1042 GPM Well Cased To 70 Feet

7. The Permittee shall submit all data as required by the implementation schedule for each of the permit conditions to: SFWMD at www.sfwmd.gov/ePermitting, or Regulatory Support, 3301 Gun Club Road, West Palm Beach, FL 33406.

8. The Permittee must submit the appropriate application form incorporated by reference in Rule 40E-2.101, F.A.C., to the District prior to the permit expiration date in order to continue the use of water.

9. The Permittee shall secure a well construction permit prior to construction, repair, or abandonment of all wells, as described in Chapter 40E-3, F.A.C.

10. Prior to any withdrawals at the project, the Permittee shall provide the results of the calibration testing of the identified water accounting method(s) and equip all existing and proposed withdrawal facilities with approved water use accounting method(s) pursuant to Subsection 4.1.1 of the Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District.

11. Every five years from the date of last calibration, the Permittee shall submit re-calibration data for each withdrawal facility.

12. Monthly withdrawals for each withdrawal facility shall be reported to the District quarterly. The water accounting method and means of calibration shall be stated on each report.

13. If at any time there is an indication that the well casing, valves, or controls leak or have become inoperative, repairs or replacement shall be made to restore the system to an operating condition. Failure to make such repairs shall be cause for filling and abandoning the well, in accordance with procedures outlined in Chapter 40E-3, F.A.C.

14. The Permittee shall submit to the District an updated "Summary of Groundwater (Well) Facilities" table ("Section IV - Sources of Water", Water Use Permit Application Form 1379) within 90 days of completion of the proposed wells identifying the actual total and cased depths, pump manufacturer and model numbers, pump types, intake depths and type of meters.

SPECIAL PERMIT CONDITIONS

15. If a proposed well location is different from a location specified in the application, the Permittee shall submit to the District an evaluation of the impact of pumpage from the proposed well location on adjacent existing legal uses, pollution sources, environmental features, the saline water interface, and water bodies one month prior to all new well construction. The Permittee is advised the proposed well locations and resulting impacts must be in compliance with all permitting criteria and performance standards in effect at that time.

16. The Permittee shall implement the following water quality monitoring program:
    The Permittee shall collect monthly chloride samples from each recovery well and submit the results to the District quarterly. The purpose of the sampling is to show that the recovery wells are capturing hypersaline groundwater.

17. The Permittee shall submit copies of all reports required by the Florida Department of Environmental Protection including:

    - Annual Continuous Surface Electromagnetic Mapping (CSEM) surveys.

    - Summary report on the effectiveness of the groundwater extraction system after the fifth year of operation.

STANDARD PERMIT CONDITIONS

1. All water uses authorized by this permit shall be implemented as conditioned by this permit, including any documents incorporated by reference in a permit condition. The District may revoke this permit, in whole or in part, or take enforcement action, pursuant to Section 373.136 or 373.243, F.S., unless a permit modification has been obtained to address the noncompliance.

   The Permittee shall immediately notify the District in writing of any previously submitted material information that is later discovered to be inaccurate.

2. The Permittee is advised that this permit does not relieve any person from the requirement to obtain all necessary federal, state, local and special district authorizations.

3. The Permittee shall notify the District in writing within 30 days of any sale, transfer, or conveyance of ownership or any other loss of permitted legal control of the Project and/or related facilities from which the permitted consumptive use is made. Where Permittee's control of the land subject to the permit was demonstrated through a lease, the Permittee must either submit a new or modified lease showing that it continues to have legal control or documentation showing a transfer in control of the permitted system/project to the new landowner or new lessee. All transfers of ownership are subject to the requirements of Rule 40E-1.6107, F.A.C. Alternatively, the Permittee may surrender the consumptive use permit to the District, thereby relinquishing the right to conduct any activities under the permit.

4. Nothing in this permit should be construed to limit the authority of the District to declare a water shortage and issue orders pursuant to Chapter 373, F.S. In the event of a declared water shortage, the Permittee must adhere to the water shortage restrictions, as specified by the District. The Permittee is advised that during a water shortage, reports shall be submitted as required by District rule or order. The Permittee is advised that during a water shortage, pumpage, water levels, and water quality data shall be collected and submitted as required by District orders issued pursuant to Chapter 40E-21, F.A.C.

5. This permit does not convey to the Permittee any property rights or privileges other than those specified herein, nor relieve the permittee from complying with any applicable local government, state, or federal law, rule, or ordinance.

6. With advance notice to the Permittee, District staff with proper identification shall have permission to enter, inspect, observe, collect samples, and take measurements of permitted facilities to determine compliance with the permit conditions and permitted plans and specifications. The Permittee shall either accompany District staff onto the property or make provision for access onto the property.

7. A. The Permittee may seek modification of any term of an unexpired permit. The Permittee is advised that Section 373.239, F.S., and Rule 40E-2.331, F.A.C., are applicable to permit modifications.

   B. The Permittee shall notify the District in writing 30 days prior to any changes to the project that could potentially alter the reasonable demand reflected in the permitted allocation. Such changes include, but are not limited to, change in irrigated acreage, crop type, irrigation system, large users agreements, or water treatment method. Permittee will be required to apply for a modification of the permit for any changes in permitted allocation.

8. If any condition of the permit is violated, the permit shall be subject to review and modification, enforcement action, or revocation pursuant to Chapter 373, F.S.

9. The Permittee shall mitigate interference with existing legal uses that was caused in whole or in part by the Permittee's withdrawals, consistent with the approved mitigation plan. As necessary to offset the interference, mitigation will include pumpage reduction, replacement of the impacted individual's equipment, relocation of wells, change in withdrawal source, or other means.

   Interference to an existing legal use is defined as an impact that occurs under hydrologic conditions equal to or less severe than a 1-in-10 year drought event that results in the:

   A. Inability to withdraw water consistent with provisions of the permit, such as when remedial structural or operational actions not materially authorized by existing permits must be taken to address the interference; or

   B. Change in the quality of water pursuant to primary State Drinking Water Standards to the extent that the water can no longer be used for its authorized purpose, or such change is imminent.

10. The Permittee shall mitigate harm to the natural resources caused by the Permittee's withdrawals, as determined through reference to the conditions for permit issuance. When harm occurs, or is imminent, the District will require the Permittee to modify withdrawal rates or mitigate the harm. Harm, as determined through reference to the conditions for permit issuance includes:

    A. Reduction in ground or surface water levels that results in harmful lateral movement of the fresh water/salt water interface,

    B. Reduction in water levels that harm the hydroperiod of wetlands,

    C. Significant reduction in water levels or hydroperiod in a naturally occurring water body such as a lake or pond,

D. Harmful movement of contaminants in violation of state water quality standards, or

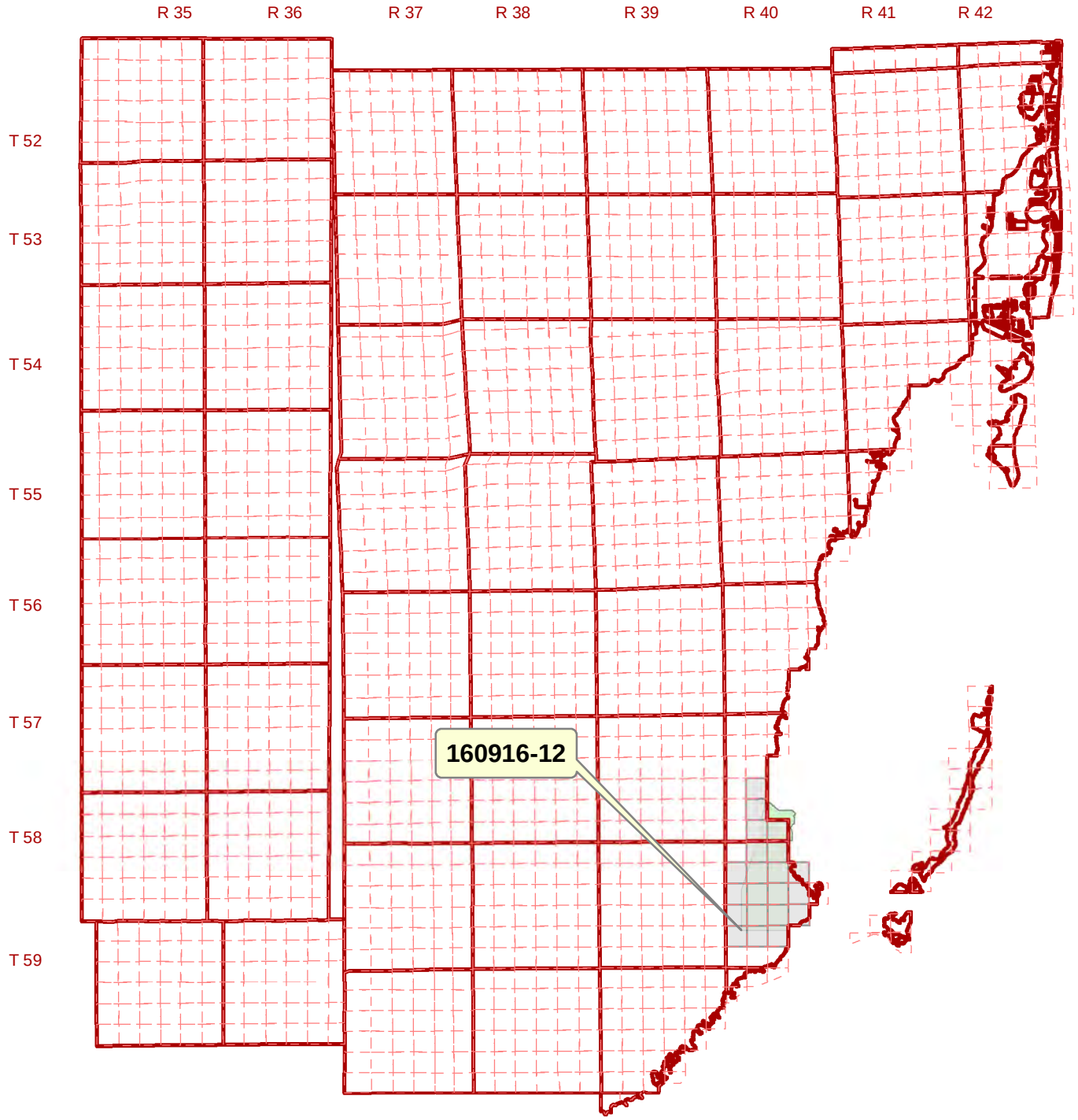
E. Harm to the natural system including damage to habitat for rare or endangered species.

11. The Permittee shall mitigate harm to existing off-site land uses caused by the Permittee's withdrawals, as determined through reference to the conditions for permit issuance. When harm occurs, or is imminent, the District will require the Permittee to modify withdrawal rates or mitigate the harm. Harm as determined through reference to the conditions for permit issuance, includes:

    A. Significant reduction in water levels on the property to the extent that the designed function of the water body and related surface water management improvements are damaged, not including aesthetic values. The designed function of a water body is identified in the original permit or other governmental authorization issued for the construction of the water body. In cases where a permit was not required, the designed function shall be determined based on the purpose for the original construction of the water body (e.g. fill for construction, mining, drainage canal, etc.)

    B. Damage to agriculture, including damage resulting from reduction in soil moisture resulting from consumptive use; or,

    C. Land collapse or subsidence caused by reduction in water levels associated with consumptive use.



MIAMI-DADE COUNTY, FLORIDA

N

Application No: 160916-12

Map Date: 2016-12-22

Permit No: 13-06251-W

Sec 28,29,32,33,34/T57S/R40E

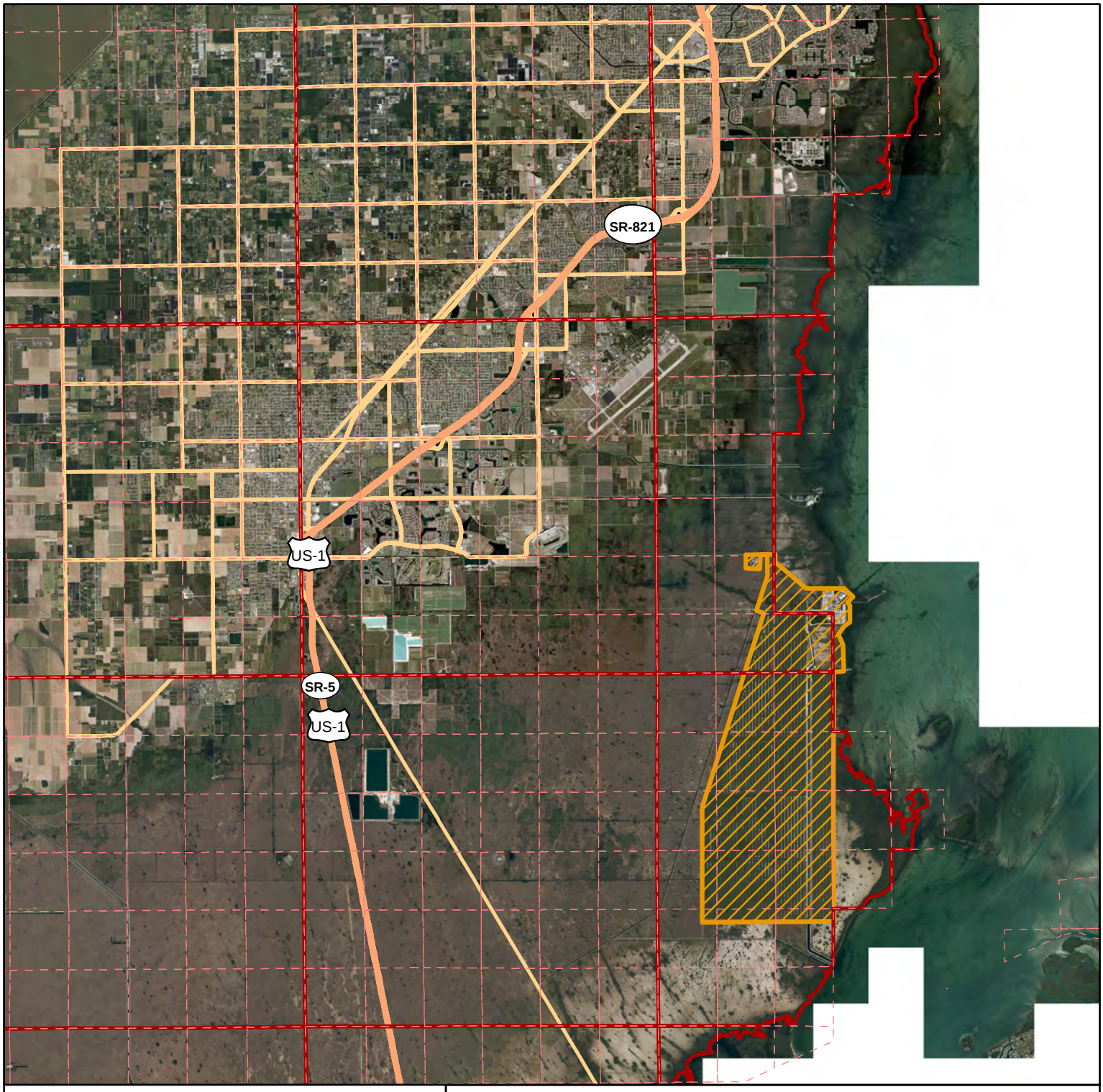
Sec 3,4,5,7,8,9,16,17,18,19,20,21,28,29,30/T58S/R40E

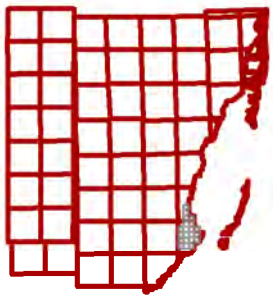
Project Name: TURKEY POINT GROUNDWATER RECOVERY WELL SYSTEM

0 5 10

Miles

Exhibit No: 1





MIAMI-DADE COUNTY, FLORIDA

N

Legend

Application

Map Date: 2016-12-22

Application No: 160916-12

Permit No: 13-06251-W

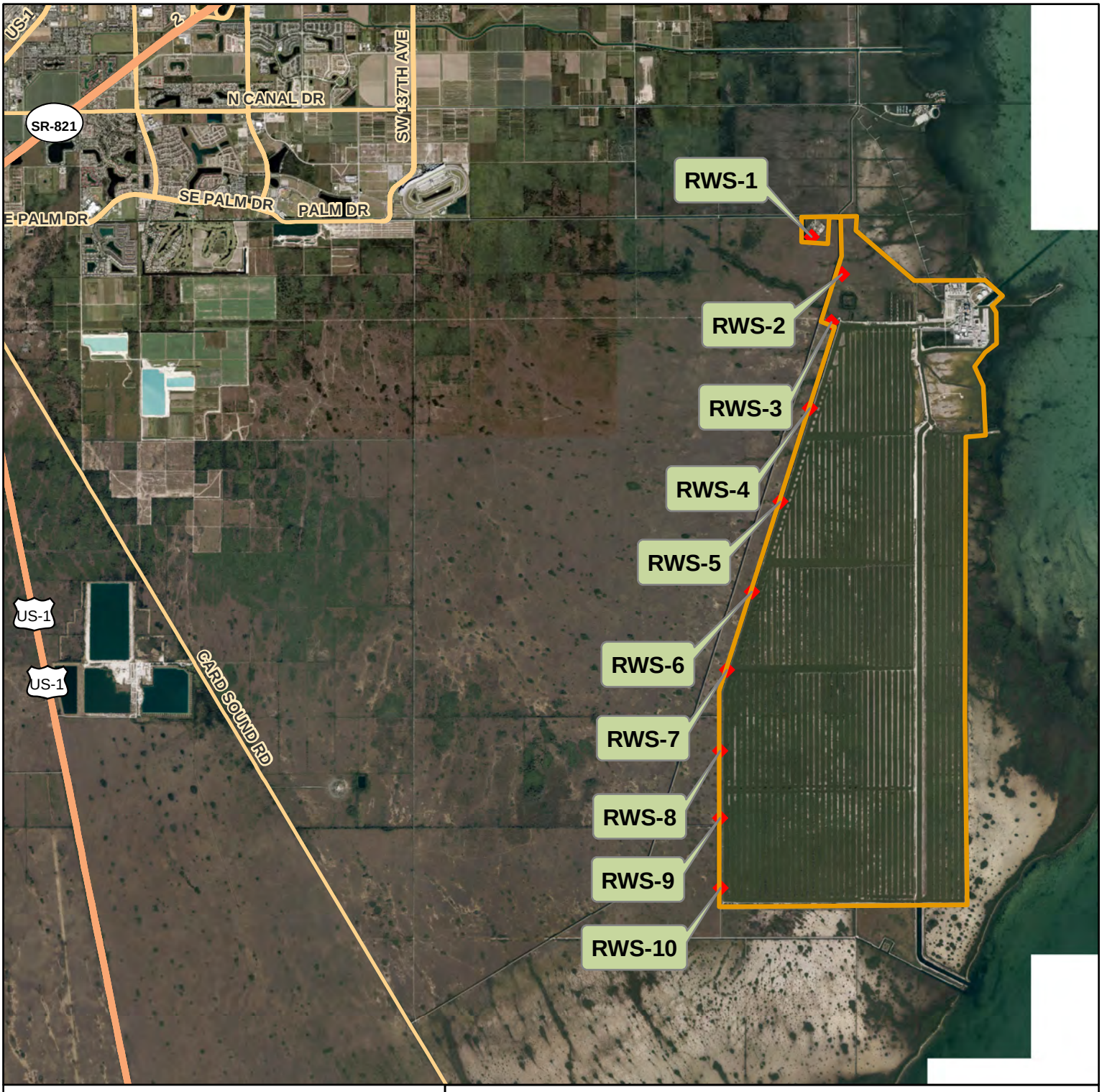
Sec 28,29,32,33,34/T57S/R40E
Sec 3,4,5,7,8,9,16,17,18,19,20,21,28,29,30/T58S/R40E

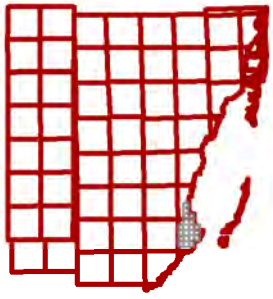
Project Name: TURKEY POINT GROUNDWATER RECOVERY WELL SYSTEM

0 2.5 5

Miles

Exhibit No: 2





MIAMI-DADE COUNTY, FLORIDA

Application

WELL

N

Map Date: 2016-12-22

Application No: 160916-12

Permit No: 13-06251-W

Sec 28,29,32,33,34/T57S/R40E
Sec 3,4,5,7,8,9,16,17,18,19,20,21,28,29,30/T58S/R40E
Project Name: TURKEY POINT GROUNDWATER
RECOVERY WELL SYSTEM

0 1.25 2.5

Miles

Exhibit No: 3

TABLE - A

Description Of Wells.

Application Number: 160916-12

Well ID	274890	274891	274882	274883	274884	274885
Name	RWS-1	RWS-2	RWS-3	RWS-4	RWS-5	RWS-6
Map Designator	RWS-1	RWS-2	RWS-3	RWS-4	RWS-5	RWS-6
FLUWID Number						
Well Field						
Existing/Proposed	P	P	E	P	P	P
Well Diameter(Inches)	24	24	24	24	24	24
Total Depth(feet)	110	110	110	110	110	110
Cased Depth(feet)	70	70	70	70	70	70
Facility Elev. (ft. NGVD)						
Screened Interval						
From						
To						
Pumped Or Flowing	P	P	P	P	P	P
Pump Type	Turbine	Turbine	Turbine	Turbine	Turbine	Turbine
Pump Int. Elev.						
Feet (NGVD)						
Feet (BLS)						
Pump Capacity(GPM)	1042	1042	1042	1042	1042	1042
Year Drilled			2016			
Planar Location						
Source						
Feet East	869422	870883	870377	869335	867903	866521
Feet North	404682	402886	400574	396413	391908	387566
Accounting Method	Flow Meter	Flow Meter	Flow Meter	Flow Meter	Flow Meter	Flow Meter
Use Status	Primary	Primary	Primary	Primary	Primary	Primary
Water Use Type	Aquifer Remediation and Recovery	Aquifer Remediation and Recovery	Aquifer Remediation and Recovery	Aquifer Remediation and Recovery	Aquifer Remediation and Recovery	Aquifer Remediation and Recovery
Aquifer	Biscayne Aquifer	Biscayne Aquifer	Biscayne Aquifer	Biscayne Aquifer	Biscayne Aquifer	Biscayne Aquifer

TABLE - A

Description Of Wells.

Application Number: 160916-12

Well ID	274887	274888	274889	274886
Name	RWS-7	RWS-8	RWS-9	RWS-10
Map Designator	RWS-7	RWS-8	RWS-9	RWS-10
FLUWID Number				
Well Field				
Existing/Proposed	P	P	P	P
Well Diameter(Inches)	24	24	24	24
Total Depth(feet)	110	110	110	110
Cased Depth(feet)	70	70	70	70
Facility Elev. (ft. NGVD)				
Screened Interval From				
To				
Pumped Or Flowing	P	P	P	P
Pump Type	Turbine	Turbine	Turbine	Turbine
Pump Int. Elev. Feet (NGVD)				
Feet (BLS)				
Pump Capacity(GPM)	1042	1042	1042	1042
Year Drilled				
Planar Location Source				
Feet East	865340	864994	864999	865009
Feet North	383770	379860	376633	373252
Accounting Method	Flow Meter	Flow Meter	Flow Meter	Flow Meter
Use Status	Primary	Primary	Primary	Primary
Water Use Type	Aquifer Remediation and Recovery	Aquifer Remediation and Recovery	Aquifer Remediation and Recovery	Aquifer Remediation and Recovery
Aquifer	Biscayne Aquifer	Biscayne Aquifer	Biscayne Aquifer	Biscayne Aquifer

Summary Of Water Use Demands & Recommended Allocation Components

Application Number: 160916-12

Industrial **Recommended Allocation (MGD):** 15 **Recommended Maximum Month Withdrawals (MGM):** 465

Description	Number	Rec. Unit Demand (gallons)	<--------- Recommended Demands-- Avg. Daily MGD	Peak Factor	Max Monthly MGM	Delivery System Efficiency	<--------Recommended Alloca Daily MGD	Max. Monthly MGM
Aquifer Remediation	150,000	100	15	1	465	100%	15	465.00

Exhibit No: 5

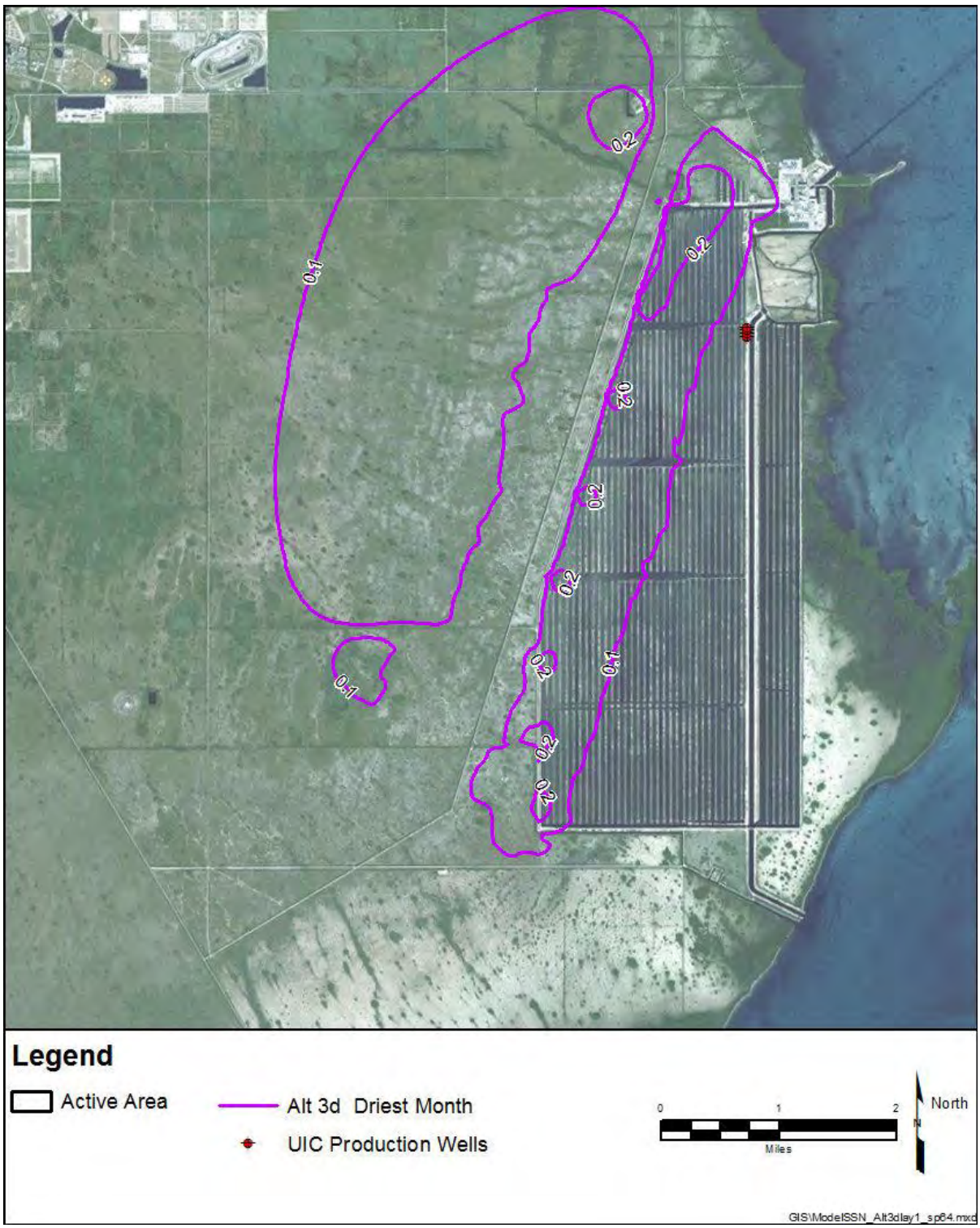


Figure 2: Alternative 3D Layer 1 drawdowns during 1 in 10 drought conditions

Calculations of Irrigation Requirements (1-in-10)

Rainfall Station:	Homestead	1-in-10	**Crop No.:** 1
Irrigation System:	Sprinkler		**Parcel Name:**
Irrigated Acreage:	710.00		**Crop No. in Parcel:** 1
Crop:	Turf Grass		
Soil Type:	3.60		
Multiplier	1.30		
Efficiency	0.77		

Calculations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average Rainfall (inches)	1.72	1.86	2.29	3.18	6.73	9.39	7.95	8.27	10.27	7.18	2.15	1.35	62.34
Evapotranspiration (inches)	2.00	2.34	3.82	5.00	6.50	7.30	7.77	7.49	6.38	5.07	3.31	2.33	59.31
Average Effective Rainfall (inches)	1.14	1.25	1.63	2.33	4.86	6.74	6.01	6.12	6.90	4.74	1.50	0.92	44.14
1-in-10 Effective Rainfall (inches)	0.96	1.05	1.37	1.96	4.08	5.66	5.05	5.14	5.80	3.98	1.26	0.78	37.09
Average Irrigation (inches)	0.86	1.09	2.19	2.67	1.64	0.56	1.76	1.37	0.00	0.33	1.81	1.41	15.69
1-in-10 Irrigation (inches)	1.04	1.29	2.45	3.04	2.42	1.64	2.72	2.35	0.58	1.09	2.05	1.55	22.22

1-in-10 Annual Supplemental Crop Requirement = 22.22 inches

Annual Supplemental Crop Water Use:

22.22 inches X 710 Acres X 1.3 X 0.02715 MG/AC-IN = 556.82 MG

1-in-10 Maximum Monthly Supplemental Crop Requirement = 3.04 inches

Maximum Monthly Supplemental Crop Water Use:

3.04 inches X 710 Acres X 1.3 X 0.02715 MG/AC-IN = 76.18 MG

Notes:

Evapotranspiration was calculated using a modified Blaney-Criddle method.
Average effective rainfall is the amount that is useful to crops in an average year
Drought rainfall is the rainfall minimum representative of a 1-in-10 year drought
Drought effective rainfall is the amount that is useful to crops in a 1-in-10 year drought event.
Average irrigation is the net amount that should be required for maximum yields during an average year.
Drought irrigation is the net amount that should be required for maximum yields during a 1-in-10 year drought.

Calculations Of Irrigation Requirements

APPLICATION NUMBER: 070618-16

RAINFALL STATION: Homestead
IRRIGATION SYSTEM Sprinkler
PARCEL ACREAGE: 100
LAND USE: Golf Course

CROP: Turf
SOIL TYPE: 0.8
PARCEL NAME: TURF
IRR. MULTIPLIER 1.3

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
MEAN RAINFALL	1.72	1.86	2.29	3.18	6.73	9.39	7.95	8.27	10.27	7.18	2.15	1.35	62.34
EVAPOTRANSPIRATION	2.00	2.34	3.82	5.00	6.50	7.30	7.77	7.49	6.38	5.07	3.31	2.33	59.31
AVG. EFFECTIVE RAIN	0.81	0.89	1.17	1.67	3.47	4.82	4.30	4.38	4.94	3.39	1.07	0.66	31.57
DROUGHT RAINFAL	0.68	0.75	0.98	1.40	2.91	4.05	3.61	3.68	4.15	2.85	0.90	0.55	26.51
AVERAGE IRRIGATION	1.19	1.45	2.65	3.33	3.03	2.48	3.47	3.11	1.44	1.68	2.24	1.67	27.74
DROUGHT IRRIGATION	1.32	1.59	2.84	3.60	3.59	3.25	4.16	3.81	2.23	2.22	2.41	1.78	32.80

ANNUAL SUPPLEMENTAL CROP REQUIREMENT: 32.80 **INCHES**

ANNUAL SUPPLEMENTAL CROP WATER USE:

32.80 IN X 100 AC X 1.3 X 0.02715 MG/AC-IN = 115.77 **MG**

MAXIMUM MONTHLY SUPPLEMENTAL CROP REQUIREMENT: 4.16 **INCHES**

MAXIMUM MONTHLY SUPPLEMENTAL CROP WATER USE:

4.16 IN X 100 AC X 1.3 X 0.02715 MG/AC-IN 14.68 **MG**

TOTAL ANNUAL DEMAND: 115.77 **MG**

TOTAL MAXIMUM MONTHLY DEMAND: 14.68 **MG**

Requirement by Permit Condition Report

App No: 160916-12
Permit No: 13-06251-W
Project Name: TURKEY POINT GROUNDWATER RECOVERY WELL SYSTEM

Permit Condition No: 11 **Permit Condition Code:** WUSTD021-2

Facility Name	Requirement Name	Col Freq	Sub Freq	Due Date
WELL - RWS-1	Calibration report for WELL RWS-1	Every Five Years	Every Five Years	30-SEP-2017
WELL - RWS-3	Calibration report for WELL RWS-3	Every Five Years	Every Five Years	30-JUN-2017
WELL - RWS-4	Calibration report for WELL RWS-4	Every Five Years	Every Five Years	30-SEP-2017
WELL - RWS-5	Calibration report for WELL RWS-5	Every Five Years	Every Five Years	30-SEP-2017
WELL - RWS-6	Calibration report for WELL RWS-6	Every Five Years	Every Five Years	30-SEP-2017
WELL - RWS-7	Calibration report for WELL RWS-7	Every Five Years	Every Five Years	30-SEP-2017
WELL - RWS-8	Calibration report for WELL RWS-8	Every Five Years	Every Five Years	30-SEP-2017
WELL - RWS-9	Calibration report for WELL RWS-9	Every Five Years	Every Five Years	30-SEP-2017
WELL - RWS-2	Calibration report for WELL RWS-2	Every Five Years	Every Five Years	30-SEP-2017
WELL - RWS-10	Calibration report for WELL RWS-10	Every Five Years	Every Five Years	30-SEP-2017

Permit Condition No: 12 **Permit Condition Code:** WUSTD022-2

Facility Name	Requirement Name	Col Freq	Sub Freq	Due Date
WELL - RWS-1	Monthly withdrawal for WELL RWS-1	Monthly	Quarterly	31-JUL-2017
WELL - RWS-2	Monthly withdrawal for WELL RWS-2	Monthly	Quarterly	31-JUL-2017
WELL - RWS-3	Monthly withdrawal for WELL RWS-3	Monthly	Quarterly	31-JUL-2017
WELL - RWS-4	Monthly withdrawal for WELL RWS-4	Monthly	Quarterly	31-JUL-2017
WELL - RWS-5	Monthly withdrawal for WELL RWS-5	Monthly	Quarterly	31-JUL-2017
WELL - RWS-6	Monthly withdrawal for WELL RWS-6	Monthly	Quarterly	31-JUL-2017
WELL - RWS-7	Monthly withdrawal for WELL RWS-7	Monthly	Quarterly	31-JUL-2017
WELL - RWS-9	Monthly withdrawal for WELL RWS-9	Monthly	Quarterly	31-JUL-2017
WELL - RWS-8	Monthly withdrawal for WELL RWS-8	Monthly	Quarterly	31-JUL-2017
WELL - RWS-10	Monthly withdrawal for WELL RWS-10	Monthly	Quarterly	31-JUL-2017

Exhibit No: 9

Requirement by Permit Condition Report

Permit Condition No: 14 **Permit Condition Code:** WUWC004-1

Facility Name	Requirement Name	Col Freq	Sub Freq	Due Date
WELL - RWS-1	Summary of Groundwater Facilities for WELL RWS-1	One time Only	One time Only	01-OCT-2017
WELL - RWS-2	Summary of Groundwater Facilities for WELL RWS-2	One time Only	One time Only	01-OCT-2017
WELL - RWS-4	Summary of Groundwater Facilities for WELL RWS-4	One time Only	One time Only	01-OCT-2017
WELL - RWS-5	Summary of Groundwater Facilities for WELL RWS-5	One time Only	One time Only	01-OCT-2017
WELL - RWS-6	Summary of Groundwater Facilities for WELL RWS-6	One time Only	One time Only	01-OCT-2017
WELL - RWS-7	Summary of Groundwater Facilities for WELL RWS-7	One time Only	One time Only	01-OCT-2017
WELL - RWS-8	Summary of Groundwater Facilities for WELL RWS-8	One time Only	One time Only	01-OCT-2017
WELL - RWS-9	Summary of Groundwater Facilities for WELL RWS-9	One time Only	One time Only	01-OCT-2017
WELL - RWS-10	Summary of Groundwater Facilities for WELL RWS-10	One time Only	One time Only	01-OCT-2017

Permit Condition No: 16 **Permit Condition Code:** WUPCM001-3

Facility Name	Requirement Name	Col Freq	Sub Freq	Due Date
WELL - RWS-1	Chlorides for RWS-1	Monthly	Quarterly	31-JUL-2017
WELL - RWS-2	Chlorides for RWS-2	Monthly	Quarterly	31-JUL-2017
WELL - RWS-3	Chlorides for RWS-3	Monthly	Quarterly	31-JUL-2017
WELL - RWS-4	Chlorides for RWS-4	Monthly	Quarterly	31-JUL-2017
WELL - RWS-5	Chlorides for RWS-5	Monthly	Quarterly	31-JUL-2017
WELL - RWS-6	Chlorides for RWS-6	Monthly	Quarterly	31-JUL-2017
WELL - RWS-7	Chlorides for RWS-7	Monthly	Quarterly	31-JUL-2017
WELL - RWS-8	Chlorides for RWS-8	Monthly	Quarterly	31-JUL-2017
WELL - RWS-9	Chlorides for RWS-9	Monthly	Quarterly	31-JUL-2017
WELL - RWS-10	Chlorides for RWS-10	Monthly	Quarterly	31-JUL-2017

Permit Condition No: 17 **Permit Condition Code:** WUZZUD001

Facility Name	Requirement Name	Col Freq	Sub Freq	Due Date
PERMIT	Annual Continuous Surface Electromagnetic Mapping (CSEM) surveys	Yearly	Yearly	31-MAR-2018
PERMIT	5-year Summary Report on the effectivieness of the groundwater extraction system	Every Five Years	Every Five Years	31-MAR-2022

Exhibit No: 9

STAFF REPORT DISTRIBUTION LIST

TURKEY POINT GROUNDWATER RECOVERY WELL SYSTEM

Application No: 160916-12

Permit No: 13-06251-W

INTERNAL DISTRIBUTION

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GOVERNMENT AGENCIES

X Dept of Environmental Protection - West Palm Beach
X Miami-Dade County Engineer Public Works Department
X Miami-Dade Water and Sewer Department

OTHER INTERESTED PARTIES

X Conservation Concepts LLC
X Natural Resources Defense Council

Exhibit No:10