

**Connection Requirements For Existing
Commercial & Multi-Structure Privately-Owned
Wastewater Collection Systems to the
Cudjoe Regional Wastewater System (CRWS)**



CONNECTION SUMMARY

Florida Keys Aqueduct Authority

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1.0 Project Background

The Florida Keys Aqueduct Authority (FKAA) was created by Special Act, Chapter 76 – 441, Laws of Florida as amended from time to time and is charged with providing wastewater services in the unincorporated areas of Monroe County Florida. The Cudjoe Regional Wastewater System (CRWS) is the largest and most complex of the FKAA wastewater service areas and will remove pollutants and nutrients adversely affecting nearshore waters through the use of advanced wastewater treatment.

The wastewater collection system that conveys pollutants for treatment is designed to accept only domestic wastewater flow. In order for the collection system to operate properly, it is important to verify that all connections to the system meet certain upstream requirements to limit Inflow* and Infiltration* into the Collection System* that would hydraulically overload the system and/or result in Salinities* that would limit the treatment process.

(See below for definitions)

The FKAA has adopted Rules and Regulations governing the various classes of wastewater customer, customer agreements, connection requirements and pretreatment requirements. This Summary is intended to supplement and clarify the existing Rules and Regulations by summarizing the wastewater connection guidelines for properties with an existing Collection System, commercial buildings, multiple residential buildings or other unique non-single-family residential structures connecting to the CRWS during the initial connection notification period.

This document does not apply to new construction connecting to the CRWS after the CRWS has been placed into service.

A complete list of design details and technical specifications may be found in FKAA's Minimum Design and Construction Standards for Wastewater. These guidelines outline the minimum requirements and the FKAA reserves the right to require a more stringent standard to be met when unusual circumstances or conditions exist on a particular property. These guidelines may be revised from time to time as FKAA deems necessary.

* For the purposes of this section, "INFLOW" shall mean the introduction of surface waters such as storm drainage into the wastewater collection system through surface openings and other defects in the system.

* For the purposes of this section, "INFILTRATION" shall mean the introduction of ground waters into the wastewater collection system through subsurface openings and other defects in the system.

*For the purposes of this section, "SALINITY" shall simply reference salty waters of any origin, generally with chloride concentrations greater than 700 mg/L.

*For the purposes of this section, "Collection System" shall mean any sewage conveyance system consisting of more than a single lateral connection serving greater than two EDU's.

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2.0 Connection Categories and Minimum Testing Requirements

There is great diversity among wastewater customers and it is accurate to say that each collection system is unique with individual customer requirements. Given that, the following is a listing of general categories, followed by minimum testing requirements applicable to each category. A connecting customer may fit into one or more categories. The category that best meets the needs of the CRWS will be utilized.

2.1 Single Lateral Connection Category

The simplest and most common type of connection involves a single pressure or gravity lateral that is not Special Use, connecting to a CRWS connection point and serving a single building. The CRWS connection point could be either a gravity four or six-inch lateral or pump station connection. This type of connection should comprise the majority of connections. Further testing and certification may be required if FCAA inspection reveals potential sources of Inflow and Infiltration (I&I), that need to be addressed such as missing cleanouts, interconnected floor or gutter drains, poorly installed or poorly maintained lateral piping, etc.

The minimum testing requirements for a Single Lateral Connection are as follows:

- **Monroe County building permit and FCAA inspection**

2.2 Multiple Lateral Connection Category, less than or equal to two (2) EDUs

A number of privately-owned CRWS customer connections will be small commercial or mixed-use collection systems, consisting of more than one 4 inch and/or 6 inch lateral PVC pipe, not permitted by an FDEP wastewater construction permit, or multiple pressure connections, converging and discharging into an on-site septic system; although some may have a DOH approved aerobic systems presently under a maintenance contract. Systems falling into this category that are not Special Use, require at a minimum a physical inspection by FCAA and certification* by the Owner that all Inflow and Infiltration (I&I) sources have been eliminated. Further testing and certification may be required if FCAA inspection reveals potential sources of I&I that need to be addressed such as missing cleanouts, interconnected floor or gutter drains, poorly installed, substandard or poorly maintained collection pipe, etc.

The minimum testing requirements for a Multiple Lateral Connection, less than or equal to two (2) EDUs are as follows:

- **Monroe County building permit, Owner I&I certification and FCAA inspection**
- **An FDEP new permit application or modification of an existing permit with drawings.**

*Certification Form Attached as Attachment #1

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2.3 Multiple Lateral Connection Category, greater than two (2) EDU's but less than ten (10) EDU's

For collection systems greater than 2 EDU's but less than 10 EDU's, an FDEP collection system construction permit will be required; or in the case of a system with an existing FDEP permit, such permit will need to be modified to reflect the new discharge location. It is incumbent on the system Owner to permit the collection system and its connection or to modify the existing permit. This process will generally require the procurement of professional engineering services to prepare drawings and an FDEP permit application. Once completed, the signed and sealed permit application including drawings will be approved by FCAA for Owner submittal to FDEP for connection permitting. This process may require upgrades to the collection system including the installation of rain guards on all manholes.

In addition to the above, collection systems in this category require salinity sampling to evaluate infiltration, and smoke testing to evaluate Inflow potential. FCAA must be present to observe the sampling and smoke testing. FCAA may spot check salinity testing, particularly at flood-tide time frames. Should salinities exceed 700 mg/L, FCAA will require additional testing including a video survey of the collection system to help identify and repair the salinity source(s).

The minimum testing requirements for a Multiple Lateral Connection, greater than two (2) EDU's but less than ten (10) EDU's are as follows:

- **Monroe County building permit, Owner I&I certification and FCAA inspection**
- **An FDEP new permit application or modification of an existing permit with drawings.**
- **Smoke testing to detect potential Inflow sources**
- **Salinity testing to detect potential Infiltration sources**
- **FCAA witness of all testing and collection system inspection**

2.4 Large Collection System Category greater than 10 EDU's

Connecting collection systems greater than 10 EDU's will require all items above plus the system will require upgrading to meet FCAA design criteria and, if necessary, FDEP criteria. The existing compliant or upgraded system will need to submit a video survey certified by a Professional Engineer. The professional engineer will be required to complete a System Conditions Report as outlined in this Connection Summary.

The minimum testing requirements for large collection systems greater than 10 EDU's are as follows:

- **Monroe County building permit, Owner I&I certification and FCAA inspection**

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- An FDEP new permit application or modification of an existing permit with drawings may be necessary
- Smoke testing to detect potential Inflow sources
- Salinity testing to detect potential Infiltration sources
- A System Conditions Report including a video survey certified by a Professional Engineer.
- FKAA witness of sampling, testing and collection system inspection.

2.5 Special Use Collection System Connections

Special Use collection system categories includes, restaurants and food service establishments; automotive, marine and other repair shops; seasonal establishments such as RV parks; and other collection systems that may have additional requirements such as oil/grease traps, temporary cleanout or holding tank discharge points, wash-down areas with floor drains, and other uses and features that could introduce I&I or undesirable materials.

Each of these connections will need to be individually evaluated utilizing many if not all the above testing requirements regardless of the number of EDUs impacting the CRWS. These will be determined by FKAA on a case-by-case basis.

3.0 Testing & Reporting

In addition to any testing and reporting specified in the permits issued by Monroe County and, if applicable, the FDEP, the following requirements apply:

3.1 General Collection System Testing Requirements

- A. Owners of privately-owned Collection Systems that desire to connect to the CRWS shall, prior to connection, demonstrate that certain minimum I&I standards are being met. Testing shall be accomplished through a combination of visual inspections including videotaping, smoke testing, low pressure air tests, salinity testing and leakage test methods all at the owner's expense.
- B. For systems greater than 10 EDU's, collection system testing must be witnessed by and a certified System Conditions Report signed and sealed by a Florida Licensed Professional Engineer and shall be submitted to FKAA prior to connection approval.
- C. All collection system sampling and testing shall be performed in the presence of authorized FKAA staff. Any testing not observed by FKAA staff shall be deemed invalid and will be required to be repeated at the owner's expense.
- D. All collection system testing shall be performed after all work adjacent to and over all piping to be tested has been completed.

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- E. All defects in piping systems shall be repaired and/or replaced and retested until acceptable. Collection System repairs and upgrades shall be in accordance with FDEP and FCAA design criteria standards.
- F. Additional details can be found in the FCAA's Minimum Design Standards for Wastewater.

3.2 System Conditions Report

- A. A System Condition Report must be signed and sealed by a Professional Engineer registered in the State of Florida and shall be submitted to the FCAA prior to FDEP permitting and shall include the following:
 - B. A description of the facility's buildings and ancillary facilities which are connected (or plan to be connected) to the CRWS, including a description of the location and the type of facilities located at the site.
 - C. A written evaluation of the condition of the existing collection facilities located at the site – include all gravity mains, laterals, manholes, pump stations, force mains, valving, and Include materials of construction, age, and general condition of each system component. Describe the condition of manhole(s), rainguards and wet well interiors and include photographs of each.
 - D. Note if any of the following were observed:
 - Standing water or surcharged sewers;
 - Inflow and infiltration test results
 - Collection system video log results and a copy of the actual video for viewing
 - Evidence of root intrusion
 - Roof drains, yard drains and/or storm drains tied into the system
 - Incorrectly sized, clogged or non-functional grease traps
 - Other noticeable or apparent problems and/or abnormalities
 - A certified drawing of the collection system tested; including all pipe lengths and pipe diameters, manhole inventory and profile drawings of existing manholes showing invert elevations in NGVD.
 - The System Condition Report should identify personnel present at the time of testing; their signatures, times and dates of testing; the testing and inspection procedures conducted; results of the tests; and any calculations and ambient weather and tidal status condition at the time of the evaluation.

4.0 Inspections

- A. Inspections will be required, but may vary with the complexity of the project. In no instance will a property be allowed to connect to the central system before all (except abandonment) inspections are complete. Be sure to discuss these requirements with the permitting agencies including FCAA.

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- B. The applicant shall provide FCAA 48-hour notice (two business days) prior to the commencement of testing, to allow for Authority observation and inspection. In no instance will a Systems Conditions Report be deemed sufficient by the FCAA if FCAA staff were not present during the required testing.

5.0 Wastewater Pretreatment - Industrial Users and Oil/Grease Interceptor Requirements

- A. In order to prevent the introduction of pollutants into the collection and treatment system that may interfere with system operations, facilities that might discharge hazardous, toxic, or unusually strong discharges including oil or grease are regulated by FCAA and such substances may be prohibited or subject to additional charges.

6.0 Abandonment & Decommissioning

- A. The owner is responsible for abandoning existing systems including but not limited to septic systems, onsite systems, cesspits and FDEP permitted package plants. Under no circumstances are privately owned treatment plant sludges or other residues allowed to be discharged to the CRWS.

7.0 Conclusions and Contact Information

- A. The CRWS is a publicly-owned system that is here to serve customers and our fragile environment. It is incumbent on each of us as connected wastewater customers to ensure that the system is operating as designed, treating domestic wastewater only. The collection system connection requirements contained herein will help ensure that every CRWS customer is properly served.

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ATTACHMENT #1

OWNER CERTIFICATION FORM

(this form must be properly and fully executed prior to collection system connection approval)

FLORIDA KEYS AQUEDUCT AUTHORITY

OWNER'S CERTIFICATION OF COLLECTION SYSTEM

PROJECT ADDRESS: _____

ENGINEER: _____

COLLECTION SYSTEM DESCRIPTION: _____

REPAIRS AND CORRECTIVE ACTIONS TAKEN _____

(attached final drawings as required)

PROPERTY OWNER'S AFFIDAVIT

I solemnly swear and affirm:

That the wastewater collection system serving the above named real Property owned by me and all associated wastewater collection system elements that I intend to connect to and discharge to the Cudjoe Regional Wastewater System (CRWS) have been upgraded, repaired and otherwise renewed such that infiltration and inflow have been eliminated and that only domestic wastewater will be introduced into the CRWS. All work has been completed on my wastewater collection system in accordance with the connection requirements of FCAA; whose representatives have subsequently inspected and verified collection system integrity and compliance. By execution of this OWNER'S CERTIFICATION AND AFFIDAVIT, I further agree to periodic inspections by FCAA conducted for the sole purpose of ensuring that the introduction of infiltration, inflow and other nondomestic wastewater elements continue to be absent in my collection system and that I agree to maintain at my cost, the system in good operating condition for the purpose of elimination of non- domestic wastewater elements such as rainwater and salty groundwaters. I hereby certify on this date:

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PROPERTY OWNER _____

Print Name: _____

Date: _____

FKAA INSPECTOR: I hereby certify that I have inspected the wastewater collection system serving this property and have found it to meet FKAA connection requirements, free of inflow and infiltration.

SIGNED _____

Print Name _____

WITNESS:

Personally appeared before me this _____ day of _____, 20____, known (or made known) to me to be the:

(Owner) (Authorized Rep.)

(Name of Signator(s): who, being by me duly sworn, subscribed to the foregoing affidavit in my presence.

My Commission Expires: _____

Notary Public

(Type Name): _____

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Wastewater Connection & General Contact Information



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Monroe County Permitting Information



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Package Plant Abandonment and Multi-Structure Permitting



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Septic Abandonment Information



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