

### Issue 3.

#### Power Failure Issues, Inability to Maintain Service as required:

The Florida Keys receive all normal electrical power by way of a single transmission line from the mainland. This transmission line crosses many miles of open ocean water. Power has been interrupted for extended periods by storm damage or wayward sailboat masts and repairs are complicated by accessibility difficulties. There are diesel generators in Key West that can provide a limited amount of emergency power to the CRS area by back feeding the transmission lines, but it is not uncommon to have power outages lasting many days throughout the CRS islands. A power outage of 53 days was documented in recent years in a sizable subdivision in south Cudjoe Key that is currently under construction to receive all individual grinder pump stations LPS.

When there is no power, there is no waste water pumping and consequently no sanitary sewer service. As an attempt to demonstrate an effort to comply with flood resistance and intrusion resistance requirements of 62-604.400 F.A.C. , the E/One grinder pits specified in the CRWS have a solid cover that is bolted down with tamper-proof bolts and incorporate a minimally sized vent with a plug activated by flood water. See **Exhibit U**. Consequently, when the pit is full, excess waste water that has no room to enter the pit will overflow onto the ground or overflow into the house. It may be that nobody is home and a toilet tank flapper or fill valve is leaking or broken in the open position. The excess waste water may be expected to overflow into the house causing water damage and promoting the growth of mold and bacteria, possibly rendering the home permanently uninhabitable.

It is therefore imperative that all grinder pump stations be emptied on a continual, frequent basis- either by normal pump operation, or in the case of power failure by powering the pump from a generator or using a pump-out truck to empty the tank. Due to the vast quantities of grinder pump stations utilized in the current design, this is an impossibility, but FKAA has refused to acknowledge that fact. At a public meeting in July 2013, FKAA Managing Director of Engineering, Don Hubbs said “We will have two trucks with full crews and a generator that travel through the neighborhoods where low-pressure pumps are located to fire up those pumps and drain those tanks,” He said that the crews should be able to drain 50 units per day each, or about 100 total.

In stark contrast, the following quote comes from a James City County, VA proposal seeking to outsource the troublesome maintenance of its (only) 885 grinder pumps: “During power outages, JCSA found it impossible to support the large number of grinder pumps. This is because a grinder pump needs to be emptied at least twice a day and typically a two-person crew can only empty two or three grinder pumps per hour.”

That sounds more realistic than the FKAA’s promotional fantasy of 100 per day, but with the 2800 grinders expected when Hubbs was quoted, that would still be 28 days between pump outs! That is intolerable and constitutes a serious public health hazard and property damage risk. Where will people dump their “camp bucket” that it will not pollute the environment and create a vector for disease? In the CRWS islands, individual grinder pumps are not a viable alternative to on site treatment systems, vacuum, or gravity sewers that function in reasonable capacity regardless of electrical availability.

Further complicating emergency pumping during an extended power outage, the CRWS design has maximized the use of the E-One grinder pumps by using these residential pumps in "neighborhood lift stations" as well as on individual lots.

The typical neighborhood lift station utilizes 2 to 4 E-1 pumps in a 5' internal diameter

manhole/wetwell.

The 5' manhole has a capacity of 146 gallons per foot of depth.

The average daily (24 hour) flow into the manhole was shown on the permit applications at a low of about 6 gpm, so a 12' reserve capacity manhole would take about 5 hours to fill at that rate. (the rate of fill varies with the number of connections, but 6 gpm was a low number used. There is some additional capacity in surcharging of the gravity piping.)

If all three pumps of a triplex lift station run at once, the discharge rate would be about 33gpm, and it would take 55 minutes to drain the manhole to the pump shut-off point (not counting what comes in during pumping).

The Inner Islands alone had 14 neighborhood lift stations in the original design, so that is about 15 hours of pumping activity for every 5 hours of filling based on a 24 hour average flow. Of course, flows will be higher and the fill rate faster during waking hours, so more manpower and equipment are required to pump at a faster rate.

In a widespread power outage, there is little hope that FKAA can keep up with pumping out the neighborhood lift stations with generators at that rate. Bear in mind that they may also have almost 2,000 individual pump stations that are in danger of overflowing at the same time.

**Design and Specification Guidelines for Low Pressure Sewer Systems (1981) DEP (incorporated by reference 62-604.300 (j) F.A.C.) states**

*“The requirements for an average day’s flow storage is subject to local conditions. Most analysis of these requirements based on nationwide electrical outage data, bear little relation to local conditions of electrical outages and anticipated or experienced repair times for pressure sewer mains.” and “Contingency plans are subject to the review and approval of the Department of Environmental Regulation.”*

**62-604.500(2) F.A.C.** states *“All collection/transmission systems shall be operated and maintained so as to provide uninterrupted service as required by this rule.”*

**62-604.600(9) F.A.C.** states *“If, after review of Form 62-604.300(8)(a) and any supporting documentation, the Department determines that the applicant has not provided reasonable assurance that the construction, modification, expansion, or operation of the installation will be in accordance with applicable laws or rules, including rules of delegated local programs, the Department shall deny the permit or notify the applicant that the general permit cannot be used, as appropriate.”*

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