CROWN JEWEL ANALYSIS

- SYSTEM OWNER
- CRITICAL SYSTEM OR SUBSYSTEM
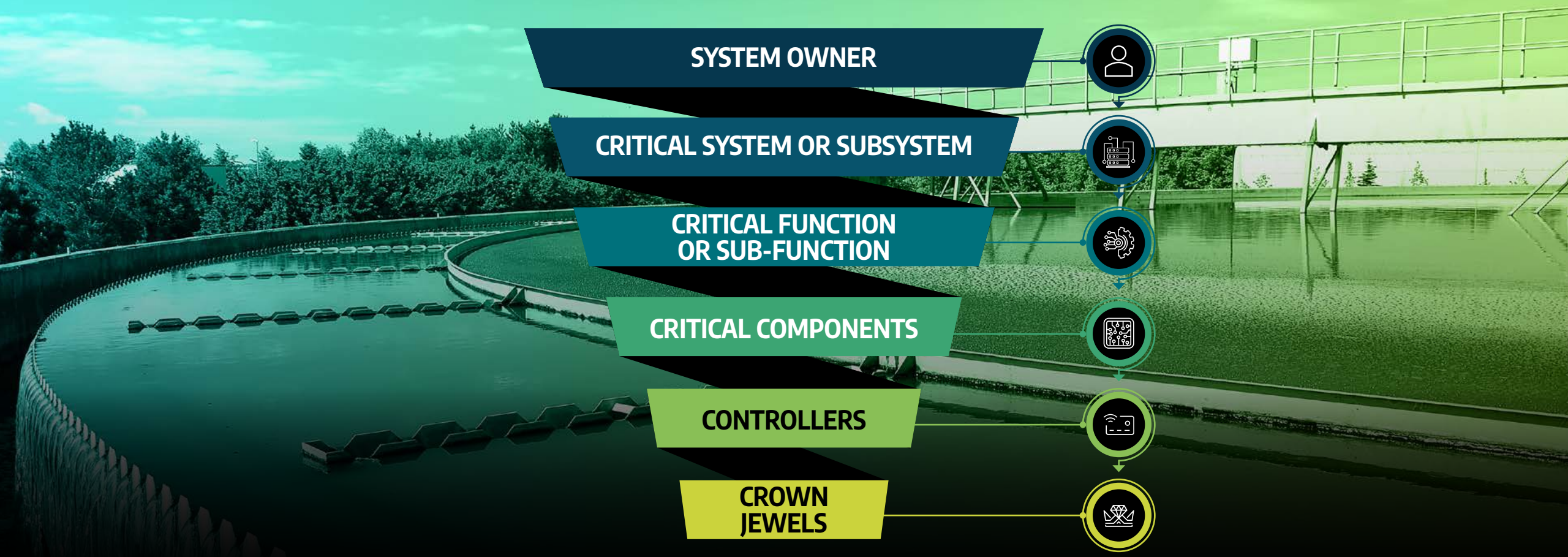- CRITICAL FUNCTION OR SUB-FUNCTION
- CRITICAL COMPONENTS
- CONTROLLERS
- CROWN JEWELS

SECTOR: WASTEWATER TREATMENT CONTROL

Crown Jewel Analysis (CJA) is an iterative process that works top-down to systematically determine the physical & logical assets, data, and communication and control interfaces required for primary system function. Knowing the specific devices required for operation enables every aspect of vulnerability management, incident response, disaster recovery, and where protection and detection should be prioritized.

Raw wastewater pumping is the primary function in wastewater processes. As wastewater is collected in sanitary sewers, it flows by gravity to lower hydraulic grade-line elevations, where pump stations are located. If pump stations are not operational, wastewater collections systems and sanitary sewers are likely to surcharge and overflow, impacting households, businesses and other locations.

Below is a simplified example of a Crown Jewel Analysis for the wastewater treatment control industry. Categories below are arbitrary and some products could be placed in more than one (or many) categories.

SYSTEM OWNER
Specific provider within an industry discipline, geographic region or demographic that may be targeted

- WASTEWATER TREATMENT PLANT

WASTEWATER TREATMENT PLANT

CRITICAL SYSTEM OR SUBSYSTEM
Collection of assets, facilities, networks and/or operators that provide a specific, collective function and output

- WWTP INFLUENT PUMP STATION
- NORTH PUMP STATION
- EAST PUMP STATION
- SOUTHEAST PUMP STATION

WWTP INFLUENT PUMP STATION

CRITICAL FUNCTION OR SUB-FUNCTION
Required principal tasks of a system such as heating, cooling, exchanging, pumping, separating, compressing, distributing, storing, etc.

- INFLUENT PUMP STATION LEVEL CONTROL

INFLUENT PUMP STATION LEVEL CONTROL

Shown here are examples of physical and logical devices that are representative of these levels of the model. These will be unique to the critical function of the CJA. Items listed below are commonly found in the wastewater treatment industry and are not CJA specific for this example.

CRITICAL COMPONENTS
Physical assets required to complete a system critical function

VARIABLE FREQUENCY DRIVES (VFDS)	ULTRASONIC LEVEL TRANSMITTERS	INFLUENT GATE ACTUATORS
PUMPS	LEVEL MONITORING INSTRUMENTATION	
ELECTRIC MOTORS	INFLUENT GATES	

CONTROLLERS
Represented by their direct interconnection between the logical and the physical network

INFLUENT PUMP STATION PLC	FACILITY PLC PROVIDING OPERATIONAL INTERLOCKS	
PANEL VIEW OITS		

CROWN JEWELS
Critical data, logical assets and/or communication and control interfaces required to exercise control over components, and thus, functions

PLCs	VFDs	
PANEL VIEWS	FIREWALL	
I&C TECHNICIAN LAPTOPS	REMOTE ACCESS CONNECTION	

COMMON VENDORS:

AutomationDirect | EMERSON | GE | Ignition by Inductive Automation

OSIsoft | OVATION | RSView 32 | Rockwell Automation

SIEMENS | VTScada Software for Monitoring & Control | WinCC Professional | Wonderware AVEVA

To request a Crown Jewel Analysis of your OT environment, email sales@dragos.com.

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