



GE Power & Water  
Water & Process Technologies

**Firm Proposal for**

# **GE DISTRIBUTED POWER**

**MSU Tandil - Project  
Houston - United States**

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**GE Power & Water  
Water & Process Technologies**

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## 1 Technical & Engineering Details

### 1.1 Basis of Design

Since no water analysis was provided, this proposal is offered based on the following water design values assumed by GE Water based in hydrological study sent by end user. GE PACKAGED POWER INC. assumes all responsibilities if values are different than assumed.

Unless otherwise specified, the equipment has been designed to operate indoors, at ambient temperatures less than 40°C and elevations less than 1000 meters.

### 1.2 Influent Quality

The design solution proposed is based on the values below. All values are as mg/l as ion unless otherwise stated.

	Water Treatment System
<b>pH, standard units</b>	6,9 – 8,2
<b>Specific Conductance, at 25°C, µS/cm</b>	< 792
<b>Alkalinity, "P", as CaCO<sub>3</sub></b>	< 300
<b>Alkalinity, "M", as CaCO<sub>3</sub></b>	-
<b>Sulfur, Total, as SO<sub>4</sub></b>	< 12
<b>Chloride, as Cl</b>	< 35
<b>Hardness, Total, as CaCO<sub>3</sub></b>	< 250
<b>Calcium as Ca, ppm</b>	< 97
<b>Magnesium as Mg, ppm</b>	< 41
<b>Barium, Total, as Ba</b>	< 0,05
<b>Strontium, Total, as Sr</b>	< 0,05
<b>Copper, Total, as Cu</b>	< 0,1
<b>Total Chlorine</b>	N/R
<b>Free Chlorine</b>	< 0.5
<b>Iron, Total, as Fe</b>	< 0.5
<b>Iron, Dissolved, as Fe</b>	< 0.05
<b>Sodium, as Na</b>	< 110
<b>Potassium, as K</b>	< 15
<b>Ammonia, as NH<sub>3</sub></b>	< 1
<b>Aluminum, Total, as Al</b>	0.05
<b>Manganese, Total, as Mn</b>	N/R
<b>Nitrate, as NO<sub>3</sub></b>	< 0.05
<b>Phosphate, Total, as PO<sub>4</sub></b>	< 5.0
<b>Colloidal Silica, Total, as SiO<sub>2</sub></b>	< 45
<b>Fluoride, as F</b>	0
<b>Boron, as B</b>	< 0.5
<b>Total Organic Carbon (TOC)</b>	< 3.0
<b>Dissolved Organic Carbon (DOC)</b>	< 1.0
<b>Color, (UPt-Co)</b>	< 1
<b>Turbidity, NTU</b>	< 1



<b>Total Suspended Solids</b>	< 0.1
<b>Total Dissolved Solids</b>	1
<b>Silt Density Index</b>	< 530
	< 3*
<b>Source of Test and Date</b>	Customer Supplied Analysis, N/R
<b>Feed Water Source</b>	Private Well

Notes:

1. N/R = data for this parameter has not been reported, and will be assumed to be 0 (zero)
2. Parameters marked with an asterisk have been assumed. Please confirm these values.
3. **GE PACKAGED POWER INC will provide a complete analysis**
4. **Parameters marked with two asterisks present error in the projection, please to recheck these values**
  1. **Barium < 1: It is necessary to have an analysis with detection level lower than 0,1 ppm**
  2. **Silica 45 ppm: This value is assumed by GE WATER. Need to be confirmed.**

### 1.3 Influent Quality

The design solution proposed is based on the values below. All values are as mg/l as ion unless otherwise Influent Flow Data

Flow rate, pressure and temperature required at inlet to the equipment.

	<b>Water Treatment System</b>	
	<b>Minimum</b>	<b>Maximum</b>
Inlet Flow rate (GPM)	148	235
Pressure (psi)	35	45
Temperature (°F)	60	77

### 1.4 Operation Basis

Hours per day of operation	24
Days per year of operation	355

### 1.5 Product Water / Effluent Quality

The following performance parameters are expected upon equipment start-up, based on the data listed in the influent quality table and design sections above.

	<b>Water Treatment System</b>
Demin Water Flow (GPM)	100gpm
Filtrated Water Flow for Evaporative Cooler (GPM)	50 gpm



## 1.6 Inlet Water Variability

In the event that the influent water exceeds the specifications used in engineering this proposal or the water source changes, the ability of the water treatment system to produce the designed treated water quality and/or quantity may be impaired. Customer may continue to operate the system, but assumes the risk of damage to the system and/or additional costs due to increased membrane cleanings and consumable usage. Additional supplemental equipment can be purchased from GE, which in certain cases can restore normal production rates and minimize system damage. With the largest portfolio of Mobile Water solutions, GE can respond faster and more effectively than anyone to system upsets.



## 2 GE Scope of Supply

### 2.1 Water Treatment System

The proposed treatment system consists of the components described in this section.

#### 2.1.1 Feed / Backwash system pumps - Skid

Model	PUMPS SKID - FEED/BW, 380 V / 50 Hz
Part Number	CFO
Quantity	4 Skid

##### Performance Data

---

Pump Type	Single-stage centrifugal
Pump Model	Goulds 22SH @ 7 ½ inch Impeller (or Equal)
Pump Quantity	2
Motor Hp and Type	40 HP, TEFC
Capacity	300 gpm
Pressure	60 psi

##### Materials of Construction

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Pump	316 Stainless Steel
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##### Installation and Utility Requirements

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Inlet/Discharge Connections	3.0-inch, 2.5-inch
Electrical	<b>50 Hz / 3-phase / 380 VAC</b>
Shipping Weight Estimate	TBD
Operating Weight Estimate	TBD
Skid Dimensions	TBD

##### Features Included

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1. Inverter Duty Motor with Thermal Protection
2. VFD
3. Electrical Panel
4. Skid Frame



### 2.1.2 Multi Media Filter

Model	PRO-M60-CS/PVC-SOL-50Hz
Tank Assembly Part Number	CFO (Ref. 3023928)
Media Kit Part Number	3024687
Quantity	4

#### Design Data

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Number of Media Tanks	1
Minimum Flow	60 gpm
Peak Flow	175 gpm
Backwash Flow (per vessel)	175 gpm to 290 gpm
Drain Size	290 gpm
Minimum Pressure Drop	2 psi
Peak Pressure Drop	7 psi
Media	
<input type="checkbox"/> Anthracite	18 in, 28 ft <sup>3</sup>
<input type="checkbox"/> Silica Sand	12 in, 19 ft <sup>3</sup>
<input type="checkbox"/> Garnet	6 in, 9 ft <sup>3</sup>
<input type="checkbox"/> Gravel Support	0 in, 31 ft <sup>3</sup>
Operating Temperature	34 - 86°F (1 - 30°C)
Ambient Temperature	34 - 120°F (1 - 49°C)
Minimum Inlet Pressure	25 psi
System Pressure Rating	100 psi
Backwash Waste	5780 gal
Backwash Cycle Time	25 Min.

#### Materials of Construction & Controls

---

Piping – External/Internal	Sch. 80 PVC, Sch. 80 PVC
Enclosure	NEMA 4X
Tank Exterior/Interior	Two coat epoxy painted carbon steel, Tnemec Series 20 epoxy lining
Pneumatic Tubing	Polypropylene
Valve(s)	Butterfly with Nylon coated disc and EPDM seats
Valve type	Butterfly
Controller	Hard wiring from system PLC to pre-wired solenoid stack located in NEMA-4X junction box
Control Method	Time Clock
Backwash	Time clock or manual initiation
Instrumentation	Service/ backwash paddle wheel flow indicator Pre- and Post- filter pressure indication





### Installation and Utility Requirements

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Overall Height	125 in
Tank Sideshell Height	72 in
Tank Diameter	60 in
Service Inlet Connection	4.0-inch
Service Outlet Connection	4.0-inch
Backwash to Drain Connection	2.0-inch
Tank Manual Drain Connection	50 Hz / 1 phase / 220 VAC
Power Required	80 psi (5.5 Bar) minimum oil-free
Compressed Air	3750 lbs
Shipping Weight Estimate	7390 lbs
Media Weight Estimate	2.0-inch

### Features Included

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- Communication microswitch included
- ASME code stamp at 100 psi
- Travel stops on service and backwash valves
- 4" media clean out port on side of tank
- Pneumatic actuator - air to open/spring to close
- Sight glass on backwash line



### 2.1.3 Chemical Feed System

Model	CFS-PVDF, 7 gpd, 15 gal tank
Part Number	1242341

#### Operation

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Chemical	Bisulfite
Chemical Dosage Rate	TBD
Pump Operation	Automatic on/off with RO

#### Component Specification

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Output Capability	7 GPD
Pump Type	Prominent Gamma/L Electronic Metering
Pump Wetted Materials	PVDF
Tank Capacity	15 gal
Tank Materials	HDPE
Tank Diameter	16 in
Tank Height	23 in

#### Installation and Utility Requirements

---

Pump	Single pump; mount on day tank or independent pipe stand
Tubing	Connect from pump discharge to interior in feedwater piping
Power Wiring	50 Hz / 1 phase / 220 VAC

#### Features Included

---

- Solenoid driven diaphragm type Prominent gamma/L series pumps are supplied
- Microprocessor-based pump with output displayed in gph or lph
- Discharge tubing, in-line injector with self-contained check valve, suction tubing with foot valve and weight and integral priming bleed valve (all are PVDF)
- Flow monitoring switch on pump outlet
- Adjustable stroke and frequency controls
- Universal Communication Cable
- Alarm output communication
- Low level tank switch
- Standard Injection Quill



### 2.1.4 Chemical Feed System

Model	CFS-PVDF, 7 gpd, 15 gal tank
Part Number	1242341

#### Operation

---

Chemical	Antiscalant
Chemical Dosage Rate	TBD
Pump Operation	Automatic on/off with RO

#### Component Specification

---

Output Capability	7 GPD
Pump Type	Prominent Gamma/L Electronic Metering
Pump Wetted Materials	PVDF
Tank Capacity	15 gal
Tank Materials	HDPE
Tank Diameter	16 in
Tank Height	23 in

#### Installation and Utility Requirements

---

Pump	Single pump; mount on day tank or independent pipe stand
Tubing	Connect from pump discharge to interior in feedwater piping
Power Wiring	50 Hz / 1 phase / 220 VAC

#### Features Included

---

- Solenoid driven diaphragm type Prominent gamma/L series pumps are supplied
- Microprocessor-based pump with output displayed in gph or lph
- Discharge tubing, in-line injector with self-contained check valve, suction tubing with foot valve and weight and integral priming bleed valve (all are PVDF)
- Flow monitoring switch on pump outlet
- Adjustable stroke and frequency controls
- Universal Communication Cable
- Alarm output communication
- Low level tank switch
- Standard Injection Quill



### 2.1.6 Chemical Feed System for Feed pH Adjustment

Model CFS-PVDF, 7 gpd, 15 gal tank  
Part Number 1242341

#### Operation

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Chemical Acid  
Chemical Dosage Rate TBD  
Pump Operation Automatic on/off with RO

#### Component Specification

---

Output Capability 7 GPD  
Pump Type Prominent Gamma/L Electronic Metering  
Pump Wetted Materials PVDF  
Tank Capacity 15 gal  
Tank Materials HDPE  
Tank Diameter 16 in  
Tank Height 23 in

#### Installation and Utility Requirements

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Pump Single pump; mount on day tank or independent pipe stand  
Tubing Connect from pump discharge to interior in feedwater piping  
Power Wiring 50 Hz / 1 phase / 220 VAC

#### Features Included

---

- Solenoid driven diaphragm type Prominent gamma/L series pumps are supplied
- Microprocessor-based pump with output displayed in gph or lph
- Discharge tubing, in-line injector with self-contained check valve, suction tubing with foot valve and weight and integral priming bleed valve (all are PVDF)
- Flow monitoring switch on pump outlet
- Adjustable stroke and frequency controls
- Universal Communication Cable
- Alarm output communication
- Low level tank switch
- Standard Injection Quill



### 2.1.1.7 Chemical Feed System for inter Stage Pass

Model	CFS-PVDF, 7 gpd, 15 gal tank
Part Number	1242341

#### Operation

---

Chemical	Caustic
Chemical Dosage Rate	TBD
Pump Operation	Automatic on/off with RO

#### Component Specification

---

Output Capability	7 GPD
Pump Type	Prominent Gamma/L Electronic Metering
Pump Wetted Materials	PVDF
Tank Capacity	15 gal
Tank Materials	HDPE
Tank Diameter	16 in
Tank Height	23 in

#### Installation and Utility Requirements

---

Pump	Single pump; mount on day tank or independent pipe stand
Tubing	Connect from pump discharge to interior in feedwater piping
Power Wiring	50 Hz / 1 phase / 220 VAC

#### Features Included

---

- Solenoid driven diaphragm type Prominent gamma/L series pumps are supplied
- Microprocessor-based pump with output displayed in gph or lph
- Discharge tubing, in-line injector with self-contained check valve, suction tubing with foot valve and weight and integral priming bleed valve (all are PVDF)
- Flow monitoring switch on pump outlet
- Adjustable stroke and frequency controls
- Universal Communication Cable
- Alarm output communication
- Low level tank switch
- Standard Injection Quill



### 2.1.8 PRO E-Cell – Combined Reverse Osmosis and EDI Module

Model	PRO E-Cell NA-100DP-50hz-380V
Part Number	CFO

#### Design Data

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Elevation	0 to 5,000 feet (1,500 meters) above mean sea level
Water Temperature	60 °F
Operating pH	6-8.5
Inlet Water Pressure	30-60 psi (2-4 bar)
Inlet Water Flow	146.6 gpm
<b>Product Water Flow</b>	<b>100 gpm</b>
Overall Water Recovery	68 %

#### RO System

Design Permeate Flow	105.3 gpm
Feed Flow	146.6 gpm
Concentrate Flow Rate	41.3 gpm
Design Recovery	75% (1st pass); 85% (2nd pass)
System Operating Pressure	200 psi

#### EDI System

Recovery %	95%
Feed Flow Rate	105.3 gpm
Concentrate Outlet Flow Rate	3.2 gpm
Electrode Outlet Flow Rate	2.1 gpm
Minimum Product Flow Rate	80 gpm
Operating Pressure	70-100 psi (5-7 bar)
Pressure Drop	20–35 psi (1.5–2.5 bar)
Current Range	31.2 Amp Max

#### Components

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##### Cartridge Filtration

Housing Quantity	2
Housing Model, Manufacturer	HX-0740-3.0-V-316, GE
Cartridge Filter Quantity	14
Cartridge Filter Model	ROsave.Zs, RO.Zs 01-40-XK, Melt Blown polypropylene
Cartridge Filter Rating	1-micron nominal, 40-inches
TIES of Filter	56
Valves Included	Pre-filter manual isolation, post filter manual isolation, vent and drain



**Membrane Element Housings**

Membrane Housing Model	450P-8
Membrane Housing Manufacturer	WaveCyber or Equal
Housing Length	6 Elements
Housing Diameter	8 in
Number of Housings	6 (1st pass); 3 (2nd pass)
Banking Arrangement	4-2 (1st pass); 2-1 (2nd pass)

**High-Pressure Pump**

Model	<b>SS24011 or equal (1st pass); SS12516 or equal (2nd pass)</b>
Manufacturer	GE / Tonkaflo
Quantity	2 (1 per pass)
Motor Hp	50 HP / 37 KW (pass 1); 30 HP / 22 KW (pass 2)
Motor Starter	Variable Frequency Drive (VFD), GE AF-650 GP

**Membrane Elements**

Model	<b>AK-400</b>
Manufacturer	GE
Quantity	36 (1st pass); 18 (2nd pass)
Membrane Type	TFC, Low Energy

**E-Cell™ Stacks**

Model	E-Cell 3X
Manufacturer	GE E-Cell
Stack Quantity	4

**EDI Power Supply**

DC Rectifier	DC Drive, 400VDC, 21 Amp Max
DC Drive Quantity	1
DC Drive Manufacturer	ABB DCS-800

**Materials of Construction**

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Frame	Epoxy-coated carbon steel
Fittings and Couplings	Zinc-Plated Fasteners and Victaulic
<b>RO System</b>	
Low Pressure Piping	Schedule 80 PVC
High Pressure Piping	316 Stainless Steel
Filter Housing	316 SS, Bead Blasted
High-Pressure Pump Internals	Noryl
Membrane Element Housings	FRP
<b>EDI System</b>	
EDI Feed Piping	PVC
Electrode and Concentrate Piping	PVC
Dilute Piping	PVC



**Installation and Utility Requirements**

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RO Inlet Connection	3.0-Inch ANSI Flange
EDI Product Outlet Connection	2.0-Inch ANSI Flange
RO1 Reject to Drain	2.0-Inch ANSI Flange
RO2 Product Dump	2.0-Inch ANSI Flange
EDI Product Dump	2.0-Inch ANSI Flange
EDI Concentrate Outlet	0.5-Inch ANSI Flange
EDI Electrode Outlet	0.5-Inch ANSI Flange
Instrument Air	0.25-Inch FPT
Air Requirement	80 psig (5.5 barg), oil-free, 2 scfm (50 slpm)
Drain to be Sized for	150 gpm
Power	<b>380VAC, 50hz, 3-Phase (3 connections)</b>
Amps	
Skid Dimensions	276.4 inch L x 67 inch W x 91.6 inch H
Shipping Weight	12200 lbs
Operating Weight	14900 lbs

**PLC Control and Electrical System**

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**Components**

Processor	Allen Bradley Compact Logix PLC
Control Enclosure	Nema 4
Operator Interface	Allen Bradley PanelView +1000
Communications	Ethernet
Motor Control	Nema 4 VFD. Mounted on RO Skid
Conduit	Single and three-phase power wire in liquid-tight flexible conduit. Low voltage signal wire shall be provided in shielded multiconductor cable per NFPA 79. Wires to be run in central cable tray.

**Control Screens Included**

- Security access screen
- System overview
- System data display
- Alarm history
- Individual component display of operational status, 4-20 mA instruments and control
- Alarm status and indication
- Alarm description
- Set point screens





**Instrumentation**

Instrument	Display	Manufacturer	Locations
Flow Meters	HMI	GF Signet 3-2537-6C-P0	RO Permeate (both passes), RO concentrate (both passes), EDI Product, EDI Concentrate, EDI Electrode
Pressure Switch	HMI	United Electric Spectra 10 Series	RO Feed (both passes), RO permeate pass 2, RO concentrate (both passes)
Pressure Transmitter	HMI	GE Sensing CERABAR T PMC131	RO Primary (both passes), RO Final (both passes), RO Permeate (pass 1), EDI Feed, EDI Product, EDI concentrate, EDI Electrode, EDI Dilute Feed
Pressure Gauge	Gauge Panel	Ashcroft or equal	Pre-filter, post-filter, primary, final, interstage, permeate, concentrate, pump discharge
Conductivity / Temperature	HMI	GF Signet 3-2850-52	RO Feed, RO Permeate (both passes), EDI Product (resistivity)
pH Meter	HMI	GF Signet 3-2724,3-2750-2	RO Feed (both passes)
ORP (Optional)	HMI	GF Signet 3-2725-6,3-2750-2	RO Pass 1 Feed

**Additional Comments**

- Two-pass RO and EDI mounted on common skid
- RO Pumps VFD and EDI Rectifier mounted on skid
- Pass 1 normalized permeate flow calculated and displayed
- Cartridge Filter and RO pumps mounted on skid
- Allen Bradley PLC and HMI control system mounted on skid
- UL 508 / cUL approved electrical panel
- Transformer



## 2.2 Quality Basis

For the purposes of establishing a quality basis for equipment supply, reference is made herein to particular equipment manufactured by certain suppliers. The term “or equal” where used herein shall be deemed to mean “GE Approved Equivalent.” GE reserves the right to substitute equipment that GE considers to be of equal quality and suitability for the intended application from alternative suppliers to those named herein. With regard to determining the suitability or otherwise of any particular manufacturer’s equipment for inclusion as part of water treatment systems, GE’s decision shall be final.

## 2.3 Equipment Startup Services

The proposed equipment is provided with 40 days of service as specified below:

DAYS	Water Treatment System
0	<b>Phase 1 – Equipment Installation Technical Advisory Services:</b> In support of unloading the equipment, rigging the equipment into place, installing interconnecting piping, installing interconnecting wiring, installing power wiring, installing pneumatic lines, verifying adequate drainage, testing for adequate water and air pressure, testing power supply, and testing interconnecting wire circuitry. All actual labor is provided by others.
1	<b>Phase 2 – Pre-start-up Inspection Visit:</b> Includes time to inspect installation work, address questions, develop punch list of completion items necessary prior to return visit.
2	<b>Phase 3 – Filter Media Loading / RO Membrane Loading:</b> Includes technical advisory services in support of loading media (activated carbon, sand, resin, support gravel) and loading membrane elements (if not loaded in factory).
7	<b>Phase 4 – Equipment Start-up:</b> Includes preparing the equipment to operate (flush, backwash, steam, regenerate, etc.), operating the equipment manually, operating the equipment automatically, testing control system, flushing preservative, and system sanitization (applies only to drinking water systems). Also includes informal, hands-on training conducted by the service technician in the water treatment room, in front of the equipment.
0	<b>Phase 5 – Initial Production Run:</b> Includes time to be present for special owner testing such as a time period free of alarms, production run of specific product, etc.
0	<b>Phase 6 – Formal Training:</b> This includes formal training that typically takes place after the equipment has been started up. <b>Training could be in English or Spanish.</b> This does not include informal training that takes place during Phase 4 with an operator being present and assisting the technicians performing start-up. Training materials are GE standard and available in English. Consult with sales representative if there are additional requirements.
<b>TOTAL 10</b>	This total assumes no weekends or a holiday are required and is based on an eight-hour workday. Travel time to and from the job site for GE Field Service personnel is included in this estimate. Travel/living (T&L) expenses are also included where the field service representative is based within the country or region. For job sites in remote areas where additional T&L costs may be incurred to deliver the service, expenses such as airfare may be added as additional costs. To ensure personnel availability, GE requires a minimum of two weeks' advance notice to schedule equipment start-ups.

The commissioning plan also allows for up to 2 hours of site safety training.

On-time completion of GE’s startup and commissioning services requires satisfactory installation of all equipment by Customer. If additional service time is required for GE’s commissioning scope due to Customer’s changes in scope or delays in completion of installation, additional charges will apply, billed at GE’s Field Service Labor Rates.



## 2.4 Factory Acceptance Test

As applicable, all components as defined above are factory tested as per GE standards before leaving our facility. The ITP (Inspection and Test Plan) includes a test and / or inspection as defined in the ITP procedure for platform skids, prefabricated pipe (all assembled pipe, not loose supplied pipe), machinery (pumps, blowers, etc.), tanks, valves, instruments ,electrical panels / junction boxes, electrical instruments, loose materials (cables, cable trays, etc.), and VFDs, as applicable.

If applicable, an FAT report (Factory Acceptance Test) is provided to the customer. It includes certificates, test reports, and CE declaration of conformity, as applicable. Should any testing different from the testing described above be required, please consult with your GE Sales Representative.

## 2.5 Documentation Package – Level 1

Drawing and Data Submission Schedule AOA = After Order Acceptance				
CATEGORY	DESCRIPTION	ESTIMATED DATE	COMMENTS	SUBMITTAL TYPE
PROCESS	P & I Diagram	2-4 weeks AOA	P&ID diagram for GE manufactured major components	Information Only
	Operation and Maintenance Manual	Within two weeks after shipment	Includes the following components: 5. <input type="checkbox"/> Operation and maintenance procedures <input type="checkbox"/> Spare parts list <input type="checkbox"/> Trouble shooting procedure <input type="checkbox"/> MSDS sheets (if applicable) <input type="checkbox"/> Subcomponent O&M manuals <input type="checkbox"/> Control narrative* <input type="checkbox"/> Control logic summary chart* <input type="checkbox"/> Operation sequence chart*	Information Only
MECHANICAL	General Arrangements	4-6 weeks AOA	Drawings of each individual piece of equipment manufactured by GE, showing piping & valves but excluding interconnecting pipe work	Information Only
ELECTRICAL	Electrical Drawing	4-6 weeks AOA	Includes the following components: <input type="checkbox"/> PLC and control panel layouts (when a PLC is included in GE scope) <input type="checkbox"/> Electrical schematic diagrams <input type="checkbox"/> Electrical bill of material <input type="checkbox"/> Motor HP listing* <input type="checkbox"/> Terminal block layouts*	Information Only
	PLC Ladder Logic (when a PLC is included in GE scope)	After customer acceptance	Includes a copy of the annotated PLC program. Customer responsible to purchase necessary software.	Information Only

\* Not included for all equipment types

GE submits drawing or document to provide information to the customer consistent with the text in the proposal and related contract documents. GE's remaining engineering, sourcing, and manufacturing activities will proceed uninterrupted in order to meet GE's delivery commitments **without** waiting for an approval by the customer of the drawing or document. If the customer requests changes to the submitted drawing or document, GE will issue a change order proposal for the customer's consideration reflecting the added costs and delays necessary to implement the changes.



Note: Drawings, Operation and Maintenance manuals, HMI screens, Ladder Logic, and other system and component documentation are all provided in **Spanish**. Contact GE if you require any of these items to be translated into another language.

### 2.5.1 Drawing List & Delivery Estimates

Equipment	Drawing Available?	P&ID	GA
Feed Pump Skid	No	4 Weeks after PO	4 Weeks after PO
MMF	Yes, Standard Filter drawing available as reference	2-3 Days for Reference Drawings 4 weeks after PO for Final	2-3 Days for Reference Drawings 4 weeks after PO for Final
Tank	No	2 – 4 Weeks after PO	2 – 4 Weeks after PO
Pro E-Cell feed pump	No	Shipping loose - no drawing available	2 – 4 Weeks after PO
Pro ECell 100 DP	Yes, Standard Pro E-Cell drawing available as reference	2-3 Days for Reference Drawings 4 weeks after PO for Final	2-3 Days for Reference Drawings 4 weeks after PO for Final
CIP-Skid	Yes, Standard CIP Skid as reference	2-3 Days for Reference Drawings 4 weeks after PO for Final	2-3 Days for Reference Drawings 4 weeks after PO for Final
Control Narrative	N/A Control Narrative to be delivered after customer acceptance (PLC)	--	--
Operation and Maintenance Manual (Spanish)	Within two weeks after shipment	--	--



### 3 Commercial Offer

#### 3.1 Pricing Table

Pricing for the proposed equipment, consumables, and / or services is summarized in the table below. All pricing is based on the operating conditions and influent water analysis that are detailed in the Basis of Design section of this proposal.

##### Base Price

Qty	Description
1	Skid System Feed/Backwash Pump (2x Pumps 380/50/3 per skid) – <b>US\$ 60,000.00</b>
1	Multi-Media Filter (PRO-M60-CS/PVC-SOLENOID-60HZ) – <b>US\$ 40,000.00</b>
1	Chemical Feed (CFS-PVDF, 7 gpd, 15 gal tank) for Chemical Type: Caustic – <b>US\$ 2,500.00</b>
1	Chemical Feed (CFS-PVDF, 7 gpd, 15 gal tank) for Chemical Type: Bisulfite – <b>US\$ 2,500.00</b>
1	Chemical Feed (CFS-PVDF, 7 gpd, 15 gal tank) for Chemical Type: Antiscalant – <b>US\$ 2,500.00</b>
4	Chemical Feed (CFS-PVDF, 7 gpd, 15 gal tank) for Chemical Type: Acid – <b>US\$ 10,000.00</b>
1	PRO E-Cell NA-100DP without RO Membranes – <b>US\$ 238,300.00</b>
1	Central PLC – <b>US\$ 65,000.00</b>
40	Start Up Days – <b>US\$ 48,000.00</b>
1	Full Set of RO Membranes (54 Membranes per Train Total of 216 Membranes) – <b>US \$82,500.00</b>
1	Difference due to PM/Eng Cost distribution* <b>US\$26,775.00</b>

##### Total System Price

**\$578,075.00 USD**

\*Costs of Project Manager and Engineering (including PLC Eng) it's higher than the allocated 25% evenly distributed for all Trains. The Amount of the \$26,775 represents the required adjustment

#### 3.2 Freight

**All pricing is FCA (INCOTERMS 2010) in Minnetonka, USA**

#### 3.3 Invoicing and Payment Terms

1. 30% down payment with purchase order acceptance
2. 10% on Delivery of Engineering Drawings
3. 10% On manufacturing start date confirmation by GE
4. 20% on completion of FAT Testing
5. 30% Prior to Equipment shipment
6. Invoices are due upon receipt.

#### 3.4 Equipment Shipment and Delivery

Equipment shipment is estimated at **16 weeks after order acceptance**. The Buyer and Seller will arrange a kick-off meeting after contract acceptance to develop firm shipment schedule. Title and risk of loss will transfer upon delivery in accordance with FCA (INCOTERMS 2010) designated factory.



GE Power & Water  
Water & Process Technologies



### 3.5 Pricing Notes

1. All prices quoted are in USD.
2. Any sales or value added tax is not included.
3. The customer will pay all applicable local, state, provincial, or federal taxes and duties as provided in GE Standard Terms and Conditions of Sale.
4. The equipment delivery date, start date, and date of commencement of operations are to be negotiated.
5. Commercial terms and conditions shall be in accordance with GE's Standard Terms and Conditions of Sale.
6. This proposal and the rates provided herein are subject to final site, environmental, GE compliance check, and financial due diligence by GE.
7. This proposal supersedes all previous proposals and correspondence.
8. Seller's price and delivery schedule are based on the assumption that Buyer will take delivery as and when foreseen by the schedule. Where this is not the case, the Parties must agree in advance an alternative place of delivery, failing which the Seller will be entitled to ship the equipment to storage. Buyer shall issue a Change Order to take into account any additional cost or delay incurred by GE in implementing this change.
9. Seller may manufacture and source the Equipment and any part thereof globally in the country or countries of its choosing, provided that the Equipment complies with all of the requirements specified in this Agreement.

### 3.6 Conditional Offering

Customer understands that this proposal has been issued based upon the information provided by customer, and currently available to, GE at the time of proposal issuance. Any changes or discrepancies in site conditions (including but not limited to system influent water characteristics, changes in environmental, health, and safety (EH&S) conditions, and/or newly discovered EH&S concerns), Customer financial standing, Customer requirements, or any other relevant change, or discrepancy in, the factual basis upon which this proposal was created, may lead to changes in the offering, including but not limited to changes in pricing, warranties, quoted specifications, or terms and conditions. GE's offering in the proposal is conditioned upon a full GE EH&S and Customer financial review.

### 3.7 After-Sales Service

Should you want to learn more about GE's expert service offerings on your equipment, including Insight, GE's Remote Monitoring & Diagnostics program, please contact your local GE Water Sales Representative or visit our website <http://www.gewater.com/index.jsp> to get connected with a Customer Service Representative in your region. In North America, please dial 1-866-GEWATER to contact a customer service representative.



## 4 Acceptance

### 4.1 How to Place an Order

To ensure accurate and prompt order entry, product delivery, billing and accounts receivables processing, please ensure your Purchase Order contains the following information:

- **Hard Copy:** GE requires a hard copy of the PO with full customer and order details – by postal mail or e-mail.
- **Entity:** Please identify GE Osmonics, Inc., 5951 Clearwater Drive Minnetonka, MN 55343 USA as the ‘Seller’ on any Purchase Order(s).
- **Communicate** your PO to our central order processing department at:

E-Mail:	<a href="mailto:Luiz.Bezerra@ge.com">Luiz.Bezerra@ge.com</a>
Postal Mail:	GE Osmonics, Inc

- **Proposal Number:** Please reference the **Proposal No. 209447, Revision #3 dated 10/27/2016**, in any purchase orders.
- **Quantity** with units of measure (UOM) needs to be stated for each item listed in the PO.
- **Unit Price and / or Total Price** need to be stated alongside the information so that the Purchase Order can be cross checked against any proposal detail.
- **Delivery Location (Ship-to Address):** Please clearly define the delivery location.
- **Delivery Date:** Please include your requested delivery date in your PO. Upon receipt of the PO the requested delivery date will be reviewed, if that date is achievable based upon current factory loading it will be confirmed back to you via the confirmation information indicated on your PO, if the requested delivery date is not achievable a representative will contact you to discuss how to proceed. If a delivery date is not included in your PO the next available production capacity will be utilized and confirmed back to you.
- **Execute:** Please sign and date below and include this page with your purchase order. Upon acceptance of the PO, GEWPT will sign and date this page and return it to GE PACKAGED POWER INC.

For: GE PACKAGED POWER INC

For: GE Osmonics, Inc.

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_





## Appendix A. Exceptions & Clarifications

### A.1 Exceptions

GE would like to note the following exceptions to the:

- Engineering included in this proposal is of an individual system (Except for PLC). Integration with equipment acquired from Inventory will be responsibility of GE Distributed Power.



## A.2 Technical Clarifications

GE would like to note the following list of technical clarifications:

1. **Well water is considering as feed water,, if the feed water source is different a new pretreatment must be specified**
2. Proposal does not include engineering or materials for equipment interconnection.
3. Integration of controls excludes any existing or customer-supplied equipment. It also excludes interface with a SCADA, BMS, or other data monitoring system.
4. All materials required for equipment integration will be responsibility of GE PACKAGED POWER INC or end User. The required piping and wiring materials to interconnect the PRO-ECELL system and the chemical feeds included in this proposal will be provided by GE PACKAGED POWER INC too, including but not limited to:
  1. All wire cables between the PRO ECELL and the Chemical feeds under GE Scope of supply
  2. All Plastic tubing between the PRO ECELL and the chemical feeds
  3. All required civil works will be responsibility of GE PACKAGED POWER INC
4. GE PACKAGED POWER INC did not provide a complete analysis on feed water parameters and water quality specifications to GE Water & Process Technologies. GE PACKAGED POWER INC only specified required equipment for double pass RO plus EDI in order to obtain demineralized water for turbine uses. System functionality and warranties are subject to compliance with feedwater.
5. **It is necessary to recheck the Silica concentration in feed water analysis in order to confirm the design.**
6. The proposal is based in a previous project using Pro E-Cell 100 DP
7. The VFDs and Starter required for pump and for Pro E-Cell system are included in our scope
8. The CIP system is not included in this offer
9. GE is considering Hypochlorite injection before feed pump as part of customer scope
10. GE PACKAGED POWER INC is requiring equipment for 380 V /3 Ph /50 Hz.
11. Chemicals and consumables required for startup are not included in this proposal.
12. The equipment are designed to operate indoors



## Appendix B. Customer Scope of Supply

All delivery or services not specified in the GE Scope of Supply are included in the Customer Scope of Supply.

### B.1 Safety and Environmental

- First aid and emergency medical response
- Eyewash and safety showers in the water treatment area
- Chemical spill response
- Security and fire protection systems per local codes
- Environmental use and discharge permits for all chemicals at the customer facility either listed in this document or proposed for use at a later date
- Any special permits required for GE or Customer employees to perform work related to the water treatment system at the facility
- All site testing, including soil, ground and surface water, air emissions, etc.
- Disposal of all solid and liquid waste from the GE System
- The Customer will identify and inform GE personnel of any hazards present in the work place that could impact the delivery of GE's scope of supply and agrees to work with GE to remove, monitor, and control the hazards to a practical level.
- The Customer will provide training to GE's personnel on all relevant and standard company operating procedures and practices for performing work on site. Such training programs may include, but are not limited to, general environmental health and safety (EHS), HAZOP, fire protection, drug testing, incident notice, site conduct, standard first aid, chemical receiving, electrical safety, etc. Customer will provide a certificate of training for GE personnel. This program will be fully documented, training materials will be provided, and attendance list will be kept.

### B.2 Jobsite and Installation Review

- Review of GE supplied equipment drawings and specifications
- Overall plant design, detail drawings of all termination points where GE equipment or materials tie into equipment or materials supplied by others
- Stamping, signing or sealing of general drawings as per Federal, State, Provincial or local regulations or codes (excludes structural designs – where required)
- All easements, licenses and permits required by governmental or regulatory authorities in connection with the supply, erection and operation of the system
- All applicable civil design and works, including any building, site preparation, grading, excavations, foundations, and trenches and accessories
- All electrical labor and supplies leading up to jobsite, including fittings, conduit, supports, cable trays, wire and hardware, and air conditioned panels as required for installation and ongoing operations
- All labor and supplies leading up to jobsite including fittings, conduit, supports, cable trays, wire and hardware required to appropriately ground / earth the equipment as required for installation and ongoing operations
- All mechanical labor and supplies leading up to the jobsite including interconnecting piping, heat tracing (if required), fittings, conduit, pipe supports, and hardware as required for installation and ongoing operations
- All instrumentation and automatic pneumatic valves including, but not limited to, air / sample line tubing, fittings, conduit, supports, isolating valves leading up to jobsite and between GE-supplied skids and hardware as required for installation and ongoing operations
- Loading, unloading and transportation of the equipment and materials required for GE to perform the duties outlined in the GE Scope of Supply to the jobsite and/or warehouse



- All access structures (scaffolding) and mechanical lifting equipment (cranes, forklifts, and scissor lifts)
- Providing a suitable site/shelter for the placement of the proposed equipment, either inside appropriate housing, or outdoors, taking into account the local and seasonal climatic conditions. Note: electrical and controls equipment, including the PLC, may require air-conditioned rooms or enclosure to prevent overheating of sensitive electronic equipment or damage to LCD screens and care should be taken to shield or locate control cables away from high power cables to prevent interference.
- Storage of cassette / membranes / stacks on site. These must be stored in a sheltered area, protected from freezing, direct sunlight or extreme heat, and sealed as shipped until ready for use. Storage should be in a dark, dry, level area, out of direct sunlight, and at a temperature of 5-30°C (39-86°F). It is recommended that the cassettes / membranes / stacks not be stored longer than necessary prior to installation. Coordinate with GE for appropriate shipment times. Maximum storage duration of a cassette / membrane / stack is 8 / 12 / 3 months from the date of shipment. If these timescales are exceeded GEWPT can provide instruction to extend the storage period.
- Bulk chemical storage and tanks, including secondary containment in accordance with local codes
- Receiving, off-loading, logging, and storing all chemicals and materials in accordance with Manufacturer's recommendation that are shipped to the site
- Compressed instrument air for pneumatic valves and instruments
- Equipment anchor bolts
- Telephone / fax / modem access for GE staff while on site
- Laboratory services, operating and maintenance personnel during equipment check out, start-up and operation
- Any on-site painting or touch-up painting of equipment supplied
- Disposal of membrane preservative
- Motor control center (MCC)
- SCADA / DCS to control GE-supplied equipment. GE shall supply a functional logic description (control narrative)
- Configuration of instrument and PLC signals from the water treatment system to the plant DCS or PLC

### **B.3 Start-Up and Commissioning**

- Installation and removal of temporary screens (1 mm mesh / 0.5 mm mesh) on all process lines entering the membrane system / basins to prevent membrane damage (for UF systems only)
- Flushing and disinfection of all piping and membrane tanks (for UF systems only)
- Verification of removal of all residual debris from construction
- Supply raw materials, chemicals, oils, lubricants, and utilities during start-up and operation
- Telephone / fax / modem access for GE staff while on site
- Laboratory services, operating and maintenance personnel during equipment checkout, start-up and operation
- Loading of media, membranes, stacks, modules, and resins
- Commissioning
- Equipment and device tagging
- Any required sanitization and / or passivation of new piping / equipment



## B.4 Facility Management

- Warehouse storage space and facilities, as are available at the site, and are reasonably appropriate to store parts, consumables, tools, etc. in accordance with manufacturers' recommendations. Such warehouse storage space will be a segregated area, secured and protected from adverse climate as may be reasonably required. Customer will be responsible for risk of loss of GE's parts while in storage at the site. Customer will maintain GE's parts stored at the site free and clear of any and all liens of Customer and Customer's lenders, bondholders, contractors, and other creditors of any nature.
- Free access and egress of the facility for all authorized work for GE staff
- Workshop facilities with standard workshop tools and equipment, as is reasonably appropriate, that are necessary to meet the repair and maintenance requirements of the system. Such equipment includes, but is not limited to, benches, vices, drill press, electric saws, hand tools, power tools, pneumatic tools, etc.
- All access structures (scaffolding) and mechanical lifting equipment (cranes, forklifts, and scissor lifts)
- Adequate illumination and emergency lighting for all areas in which GE staff will be executing the scope of supply
- Equipment for movement of chemical drums, totes, and resin, as is reasonable
- All site utilities such as raw water, instrument quality air, potable water, and power required for operation of the proposed equipment included in this scope of supply.



## Appendix C. Chemical Recommended

1. Chlorine removal:
  1. Chemical: CORTROL DCL 30
  2. Concentration: 100%
  3. Dosage: 6 ppm / ppm of free chlorine
  4. Observation: Chlorine must be removed before RO
  5. Concentration in rejection: Part as Sulphate in rejection
  
2. Antiscalant:
  1. Chemical: Hypersperse MSI410
  2. Concentration: 100%
  3. Dosage: TBD according to feed water, y
  4. Observation: a different antiscalant could be required according to feed water quality
  5. Concentration in rejection: TBD
  
3. Feed pH adjustment:
  1. Chemical: Caustic
  2. Concentration: 25%
  3. Dosage: pH adjustment to 7.5 to 8.0 depending feed water quality
  4. Observation: caustic is necessary for pH adjustment before second pass RO to suitable pH in the EDI feed

4. MSDS:

CORTROL DCL 30	 DCL30-MSDS.pdf
Hypersperse MSI410	 HYPERSPERSE MSI410-MSDS.pdf



## Appendix D. Conditions of Sale and Warranties

**SELLER:**

GE Osmonics, Inc.  
5951 Clearwater Drive  
Minnetonka, MN 55343  
USA

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**BUYER:**

GE PACKAGED POWER INC  
Houston,  
USA

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**As used in the Terms and Conditions of Sale, the term “Goods” shall mean materials as outlined in the GE Scope of Supply section of this proposal.**

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## D.1 General Terms and Conditions of Sale – Sale of Capital Equipment

1. **Exclusive Terms and Conditions.** Together with any other terms the Parties agree to in writing, these General Terms and Conditions – together with the last proposal in order of time issued by the Seller – form the exclusive terms (“Agreement”) whereby Buyer agrees to purchase, and Seller agrees to sell products and equipment (jointly “Equipment”) and to provide advice, instruction and other services in connection with the sale of that Equipment (“Services”). If Buyer sends to Seller other terms and conditions to which Seller may not respond, including but not limited to those contained in Buyer’s purchase order, such shall not apply. This Agreement may only be revised by a change order approved in writing by both Parties. All terms not defined herein shall be defined in Seller’s proposal.

2. **Equipment and Services.** The Equipment to be delivered and the Services to be provided shall be as set out in this Agreement. Unloading, handling, storage, installation, and operation of Buyer’s systems or the Equipment are the responsibility of Buyer. Buyer shall not require or permit Seller’s personnel to operate Buyer’s systems or the Equipment at Buyer’s site.

3. **Prices and Payment.** Buyer shall pay Seller for the Equipment and Services in accordance with the payment schedule (as set forth in Seller’s proposal or, if applicable, in any special conditions agreed to in writing by the Parties). Unless otherwise specified in writing, payment is due net thirty (30) days from the date of Seller’s invoice. Seller may require a Letter of Credit or other payment guarantee, in which case the stated amount of the guarantee will be adjusted by Buyer in the event of any currency-based adjustment to prices or payment amounts per the Payment Schedule, and Buyer shall deliver the adjusted guarantee within five (5) days of request by Seller. Buyer agrees to reimburse Seller for collection costs, including 2% (two percent) interest per month (not to exceed the maximum amount permitted by applicable law), should Buyer fail to timely pay. Buyer shall have no rights to make any deduction, retention, withholding or setoff relating to any payments due under this Agreement.

4. **Taxes and Duties** Seller shall be responsible for all corporate taxes measured by net income due to performance of or payment for work under this Agreement (“Seller Taxes”). Buyer shall be responsible for all taxes, duties, fees, or other charges of any nature (including, but not limited to, consumption, gross receipts, import, property, sales, stamp, turnover, use, or value-added taxes, and all items of withholding, deficiency, penalty, addition to tax, interest, or assessment related thereto, imposed by any governmental authority on Buyer or Seller or its subcontractors) in relation to the Agreement or the performance of or payment for work under the

Agreement other than Seller Taxes (“Buyer Taxes”). The Agreement prices do not include the amount of any Buyer Taxes. If Buyer deducts or withholds Buyer Taxes, Buyer shall pay additional amounts so that Seller receives the full Agreement price without reduction for Buyer Taxes. Buyer shall provide to Seller, within one month of payment, official receipts from the applicable governmental authority for deducted or withheld taxes. Buyer shall furnish Seller with evidence of tax exemption acceptable to taxing authorities if applicable, prior to execution of the Agreement by both Parties or issuance by the Seller of the order acceptance. Buyer’s failure to provide evidence of exemption at time of order will relieve Seller of any obligation to refund taxes paid by Seller.

5. **Delivery, Title, Risk of Loss.** Unless otherwise specified in this Agreement, Seller shall deliver all Equipment to Buyer FCA (Incoterms 2010) Seller’s facility. The time for delivery of the Equipment to Buyer shall be specified in this Agreement. Seller’s sole liability for any delay in delivery of the Equipment shall be as expressly set out in this Agreement. The place of delivery specified herein shall be firm and fixed, provided that Buyer may notify Seller no later than forty-five (45) days prior to the scheduled shipment date of the Equipment of an alternate point of delivery, Buyer shall compensate Seller for any additional cost in implementing the change. If any part of the Equipment cannot be delivered when ready due to any cause not attributable to Seller, Buyer shall designate a climate-controlled storage location, and Seller shall ship such Equipment to storage. Title and risk of loss shall thereupon pass to Buyer, and amounts payable to Seller upon delivery or shipment shall be paid by Buyer along with expenses incurred by Seller. Services provided herein shall be charged at the rate prevailing at the time of actual use and Buyer shall pay any increase, and Buyer shall pay directly all costs for storage and subsequent transportation. Failure by Buyer to take delivery of the Equipment shall be a material breach of this Agreement.

Title and risk of loss to the Equipment shall be transferred from Seller to Buyer at the point of delivery upon handover in accordance with this Agreement. Title and risk of loss to the Services shall pass as they are performed.

6. **Warranties and Remedies.** Seller warrants that Equipment shall be delivered free from defects in material, workmanship and title and that Services shall be performed in a competent, diligent manner in accordance with any mutually agreed specifications. Seller’s warranty does not cover the results of improper handling, storage, installation, commissioning, operation or maintenance of the Equipment by Buyer or third parties, repairs or alterations made by Buyer without Seller’s written





consent, influent water which does not comply with agreed parameters, or fair wear and tear.

Unless otherwise expressly provided in this Agreement, the foregoing warranties are valid:

- (a) for chemicals and Services, for six (6) months from their date of delivery or the provision of Services;
- (b) for consumables, including filters and membranes (other than membranes for process treatment), twelve (12) months from their date of delivery;
- (c) for membranes for process treatment, ninety (90) days from their date of delivery, ;
- (d) for Equipment other than chemicals and consumables, the earlier of, fifteen (15) months from delivery or shipment to storage, or twelve (12) months from start-up/first use;
- (e) for software, ninety (90) days from the date of receipt;
- (f) for Equipment not manufactured by Seller, the warranty shall be the manufacturer's transferable warranty only,

Any claim for breach of these warranties must be promptly notified in writing, and Buyer shall make the defective item available to the Seller, or the claim will be void. Seller's sole responsibility and Buyer's exclusive remedy arising out of or relating to the Equipment or Services or any breach of these warranties is limited to repair at Seller's facility or (at Seller's option) replace at Seller's facility the defective items of Equipment, and re-perform defective Services. In performance of its obligations hereunder, Seller will not control the actual operation of either Buyer's systems or the Equipment at the Buyer's site.

Warranty repair, replacement or re-performance by Seller shall not extend or renew the applicable warranty period.

The warranties and remedies are conditioned upon (a) proper unloading, handling, storage, installation, use, operation, and maintenance of the Equipment and Buyer's facility and all related system in accordance with Seller's instructions and, in the absence, generally accepted industry practice, (b) Buyer keeping accurate and complete records of operation and maintenance during the warranty period and providing Seller access to those records, and (c) modification or repair of Equipment or Services only as authorized by Seller in writing. Failure to meet any such conditions renders the warranty null and void.

The warranties and remedies set forth in this article are in lieu of and exclude all other warranties and remedies, statutory, express or implied, including any warranty of merchantability or of fitness for a particular purpose.

Unless otherwise expressly stipulated in this Agreement, Seller gives no warranty or guarantee as to process results or performance of the Equipment, including but not limited to product quality, flow, production, capacity, membrane life, chemical consumption, regulatory compliance or energy consumption.

**7. General Indemnity.** Seller shall indemnify and hold harmless Buyer from claims for physical damage to third party property or injury to persons, including death, to the extent caused by the negligence of Seller or its officers, agents, employees, and/or assigns while engaged in activities under this Agreement. Buyer shall likewise indemnify and hold harmless

Seller from claims for physical damage to third party property or injury to persons, including death, to the extent caused by the negligence of the Buyer, its officers, agents, employees, and/or assigns. In the event such damage or injury is caused by the joint or concurrent negligence of Seller and Buyer, the loss shall be borne by each Party in proportion to its negligence. For the purposes of this article (i) "Third party" shall not include Buyer or any subsequent owner of the Equipment, their subsidiaries, parents, affiliates, agents, successors or assigns including any operation or maintenance contractor, or their insurer; and (ii) no portion of the Equipment is "third party property".

**8. Compliance with Laws and Permits.** All permits, authorizations, and licenses which are required to construct, install and/or operate Buyer's facility or equipment, to use the Equipment, or to manage and dispose of any wastes, discharges, and residues resulting from Buyer's use of the Equipment, shall be obtained and maintained by Buyer at Buyer's sole expense. Buyer is responsible for compliance with all laws and regulations applicable to the storage, use, handling, installation, maintenance, removal, registration, and labeling of all Equipment after delivery of the Equipment, as well as for the proper management and disposal of all wastes, discharges, and residues.

**9. Buyer's Site Conditions.** Buyer warrants that any data furnished to the Seller concerning conditions at Buyer's site (including but not limited to any existing Buyer facility, equipment or processes, influent water or other substances to be treated or measured with the Equipment) is accurate and complete, and the Seller reserves the right to utilize the most appropriate design compatible with generally accepted engineering practices, and to make changes in details of design, manufacture and arrangement of Equipment unless precluded by any limitations specified in this Agreement. Seller shall notify Buyer of (1) any conditions at Buyer's site which materially differ from those indicated in the data furnished by Buyer, (2) any previously unknown physical conditions at Buyer's site of an unusual nature, not revealed by previous investigations and differing from those ordinarily encountered in the type of work provided for in this Agreement, and (3) the presence of any Hazardous Materials (as defined below), the existence of a contaminated soil, unexploded ordinance, or archaeological remains. If such conditions cause an increase in Seller's cost or in the time required for the performance of Seller's obligations, Seller shall be entitled to an equitable adjustment in the Agreement Price and an extension in the time for performance.

**10. Hazardous Materials and Wastes.** In the event that Seller encounters any Hazardous Materials (meaning toxic substances, hazardous substances, pollutants, contaminants, regulated wastes, or hazardous wastes as such terms may be defined or classified in any law, statute, directive, ordinance or regulations promulgated by any applicable governmental entity) at Buyer's site, other than Hazardous Materials introduced by Seller or that are otherwise the express responsibility of Seller under this Agreement, Buyer shall immediately take whatever precautions are required to legally eliminate such Hazardous Materials so that the Seller's work under this Agreement may safely proceed. At no time shall Seller be deemed to have taken title to or the responsibility for the management or disposal of any wastes, Hazardous Materials, influent water, any resultant



product streams, wastewater streams, discharges, cleaning materials, or any other materials or substances processed by the Equipment or otherwise located at Buyer's site. Seller does not take responsibility for and hereby expressly disclaims responsibility for the characterization of wastes, Hazardous Materials, or for the identification, selection, or management of disposal facilities for any wastes.

**11. Excusable Delays.** Seller shall not be liable nor in breach or default of its obligations under this Agreement to the extent performance of such obligations is delayed or prevented, directly or indirectly, due to causes beyond the reasonable control of Seller, including, but not limited to: acts of God, natural disasters, unusually severe weather, fire, terrorism, war (declared or undeclared) epidemics, material shortages, insurrection, act (or omissions) of Buyer or Buyer's suppliers or agents, any act (or omission) by any governmental authority, strikes, labor disputes, transportation shortages, or vendor non-performance. The delivery or performance date shall be extended for a period equal to the time lost by reason of delay or non-performance, plus such additional time as may be necessary to overcome the effect of the delay or non-performance. If delivery or performance is delayed for a period exceeding 180 (one hundred and eighty) days, either Party may terminate this Agreement without further liability provided that Seller shall be paid an amount equal to that which would be payable to Seller under the article entitled "Termination". If Seller is delayed by any acts (or omissions) of Buyer, or by the prerequisite work of Buyer's other contractors or suppliers, Seller shall be entitled to an equitable adjustment in schedule, price and/or performance, as applicable.

**12. Emergencies.** If the safety of Seller's personnel is threatened or likely to be threatened by circumstances outside the reasonable control of Seller, including but not limited to war, armed conflict, civil unrest, riots, terrorism, kidnapping, presence of or exposure to hazardous materials, unsafe working conditions, or by the threat of such circumstances or a lack of adequate protections against such circumstances, Seller shall be entitled to take all necessary steps to ensure the security and safety of its personnel including the evacuation of personnel until such circumstances no longer apply. Any such occurrence shall be considered an excusable delay event. Buyer shall reasonably assist in the event of any such evacuation.

**13. Confidentiality, Intellectual Property.** Both Parties agree to keep confidential the other Party's proprietary non-public information, if any, which may be acquired in connection with this Agreement. Buyer will not, without Seller's advance written consent, subject Equipment to testing, analysis, or any type of reverse engineering. Seller retains all intellectual property rights including copyright which it has in all drawings and data or other deliverables (including the Equipment) supplied or developed under this Agreement. Buyer agrees that it will not file patent applications on the Equipment or any development or enhancement of the Equipment, or of processes and methods of using the Equipment, without Seller's express prior written permission. Buyer further agrees that in any event any such patents will not be asserted against Seller or its other buyers based upon purchase and use of such Equipment. Seller grants to Buyer a non-exclusive, non-terminable, royalty free license to use the intellectual property embedded in Equipment delivered to and paid for by the Buyer, as well as any drawings, design or data delivered to and paid for by the Buyer, for the purposes of owning, financing, using, operating and maintaining the relevant Equipment at Buyer's site. Such license may only be assigned to a

subsequent owner of the Equipment or to an operations and maintenance subcontractor. Such license does not extend to the re-creation of the Equipment or the manufacture of spares or consumables by Buyer or third parties

Any software Seller owns and provides pursuant to this Agreement shall remain Seller's property. Seller provides to Buyer a limited, non-exclusive and terminable royalty free project-specific license to such software for the use, operation or maintenance at Buyer's site of any Equipment purchased hereunder to which the software is a necessary component. Buyer agrees not to copy, sub-license, translate, transfer, reverse engineer, or decode the software.

Seller shall indemnify and hold harmless Buyer from any rightful claim of any third party that any Equipment or Service infringe a patent in effect in the USA, or country of delivery (provided there is a corresponding patent issued by the USA), or USA copyright or copyright registered in the country of delivery. If the Buyer notifies the Seller promptly of the receipt of any such claim, does not take any position adverse to the Seller regarding such claim and gives the Seller information, assistance and exclusive authority to settle and defend the claim, the Seller shall, at its own expense and choice, either (i) settle or defend the claim and pay all damages and costs awarded in it against the Buyer, or (ii) procure for the Buyer the right to continue using the Equipment or Service, or (iii) modify or replace the Equipment or Service so that it becomes non-infringing, or (iv) remove the infringing Equipment and refund the price. The above paragraph shall not apply to any misuse of Equipment or Equipment which is manufactured to the Buyer's design, or to alleged infringement arising from the combination, operation, or use of any Equipment or Services with other equipment or services when such combination is part of any allegedly infringing subject matter. The foregoing list of subsections (i), (ii), (iii), and (iv) and related terms state the entire liability of the Seller for intellectual property infringement by any Equipment or Service.

**14. Limitations on Liability.** Notwithstanding anything else contained in this Agreement, to the maximum extent permitted by law, and regardless of whether a claim is based in contract (including warranty or indemnity), extra-contractual liability, tort (including negligence or strict liability), statute, equity or any other legal theory:

- (a) THE TOTAL LIABILITY OF THE SELLER AND OF ITS INSURER FOR ALL CLAIMS ARISING OUT OF OR RELATING TO THE PERFORMANCE OR BREACH OF THIS AGREEMENT OR USE OF ANY EQUIPMENT OR SERVICES SHALL NOT EXCEED THE TOTAL PRICE PAID BY BUYER UNDER THIS AGREEMENT OR (IN THE CASE OF AN AGREEMENT FOR SERVICES WITH A TERM OF MORE THAN ONE YEAR) THE ANNUAL PRICE PAYABLE BY BUYER UNDER THIS AGREEMENT;
- (b) IN NO EVENT SHALL SELLER BE LIABLE FOR ANY LOSS OF PROFITOR REVENUES, LOSS OF PRODUCTION, LOSS OF USE OF EQUIPMENT OR SERVICES OR ANY ASSOCIATED EQUIPMENT, INTERRUPTION OF BUSINESS, COST OF CAPITAL, COST OF REPLACEMENT WATER OR POWER, DOWNTIME COSTS, INCREASED OPERATING COSTS, CLAIMS OF BUYER'S CUSTOMERS FOR SUCH DAMAGES, OR FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, INDIRECT, PUNITIVE OR EXEMPLARY DAMAGES;
- (c) SELLER'S LIABILITY SHALL END UPON EXPIRATION OF THE APPLICABLE WARRANTY PERIOD, PROVIDED THAT BUYER



MAY CONTINUE TO ENFORCE A CLAIM FOR WHICH IT HAS GIVEN NOTICE PRIOR TO THAT DATE BY COMMENCING AN ACTION OR ARBITRATION, AS APPLICABLE UNDER THIS AGREEMENT, BEFORE EXPIRATION OF ANY STATUTE OF LIMITATIONS OR OTHER LEGAL TIME LIMITATION BUT IN NO EVENT – TO THE EXTENT PERMITTED BY APPLICABLE LAW – LATER THAN FIVE (5) MONTHS AFTER EXPIRATION OF SUCH WARRANTY PERIOD.

For the purposes of this article, "Seller" shall mean Seller, its affiliates, subcontractors and suppliers of any tier, and their respective agents and employees, individually or collectively. If Buyer is supplying Seller's Equipment or Services to a third party, Buyer shall require the third party to agree to be bound by this article. If Buyer does not obtain this agreement for Seller's benefit for any reason, Buyer shall indemnify and hold Seller harmless from all liability arising out of claims made by the third party in excess of the limitations and exclusion of this article.

**15. Termination.** This Agreement and any performance pursuant to it may be terminated by either Party, and the consequences of such termination shall be as set out in the next paragraph, if the other Party

- (a) becomes insolvent, makes an assignment for the benefit of its creditors, has a receiver or trustee appointed for the benefit of its creditors, or files for protection from creditors under any bankruptcy or insolvency laws; or
- (b) fails to make any payment when due or to establish any payment security required by this Agreement, or commits a material breach or defaults in its material obligations under this Agreement, and such default is not cured within thirty (30) days of written notice from the other Party.

Upon the termination of this Agreement by Seller for cause Buyer shall pay to Seller within thirty (30) days of receipt of invoice the price of all Equipment or Services delivered at the date of termination, plus an amount equal to all costs and expenses incurred in the engineering, sourcing, financing, procurement, manufacture, storage and transportation of the Equipment including materials, work in progress and any cancellation charges assessed against Seller by Seller's suppliers including reasonable overhead and profit on all such costs and expenses. Alternatively, if any schedule of termination payments has been agreed between the Parties, Buyer shall pay to Seller within thirty (30) days of receipt of invoice the amounts set out in that schedule.

**16. Governing Law, Dispute Resolution.** This Agreement shall be governed by the substantive laws of the State of New York. In the event of a dispute concerning this Agreement, the complaining Party shall notify the other Party in writing thereof. Management level representatives of both Parties shall meet at an agreed location to attempt to resolve the dispute in good faith. Should the dispute not be resolved within thirty (30) days after such notice, the complaining Party shall seek remedies exclusively through arbitration. The seat of arbitration shall be the federal district court in Philadelphia, PA, and the rules of the arbitration will be the Commercial Arbitration Rules of the American Arbitration Association, which are incorporated by reference into this article

Notwithstanding the foregoing, each Party shall have the right to commence an action or proceeding in a court of competent jurisdiction, subject to the terms of this Agreement, in order to seek and obtain a restraining order or injunction to enforce the

confidentiality intellectual property provisions set forth in the first two paragraphs of article 13; nuclear use restrictions set forth in article 17, or to seek interim or conservatory measures not involving monetary damages.

**17. No Nuclear Use.** Equipment and Services sold by Seller are not intended for use in connection with any nuclear facility or activity, the Buyer warrants that it shall not use or permit others to use the Equipment or Services for such purposes, without the advance written consent of Seller. If, in breach of this, any such use occurs, Seller (and its parent, affiliates, suppliers and subcontractors) disclaims all liability for any nuclear or other damage, injury or contamination, and, in addition to any other rights of Seller, Buyer shall indemnify and hold Seller (and its parent, affiliates, suppliers and subcontractors) harmless against all such liability.

**18. Export Control.** Seller's obligations are conditioned upon Buyer's compliance with all USA and other applicable trade control laws and regulations. Buyer shall not trans-ship, re-export, divert or direct Equipment (including software and technical data) other than in and to the ultimate country of destination declared by Buyer and specified as the country of ultimate destination on Seller's invoice.

**19. Changes.** Each Party may at any time propose changes in the schedule or scope of Equipment or Services. All changes to the Equipment or Services shall be subject to mutual agreement via a written change order or variation, which shall only become effective once signed by both Parties. The scope, Agreement price, schedule, and other provisions will be equitably adjusted to reflect additional costs or obligations incurred by Seller resulting from a change, after Seller's proposal date, in Buyer's site-specific requirements or procedures, or in industry specifications, codes, standards, applicable laws or regulations. It shall be acceptable and not considered a change if Seller delivers Equipment (including Equipment replacement under warranty) that bears a different, superseding or new part or version number compared to the part or version number listed in the Agreement, provided that in no circumstance shall this affect any other of Seller's obligations including those set forth in article 6.

**20. Conflicts; Survival, Assignment.** If there is any conflict between this Agreement and any written proposal or quotation provided by Seller, then the terms and conditions set forth in this Agreement shall prevail. If any term or condition of this Agreement or any accompanying terms and conditions are held invalid or illegal, then such terms and conditions shall be reformed to be made legal or valid, or deleted, but the remaining terms and conditions shall remain in full force and effect, and this Agreement shall be interpreted and implemented in a manner which best fulfills Parties' intended agreement. Those provisions which by their nature remain applicable after termination shall survive the termination of this Agreement for any reason. Seller may assign or novate its rights and obligations under the Agreement, in whole or in part, to any of its affiliates or may assign any of its accounts receivable under this Agreement to any party without Buyer's consent, and the Buyer hereby agrees, by signing this Agreement, to such assignment and to execute any document that may be necessary to complete Seller's assignment or novation. This Agreement shall not otherwise be assigned by either Party without the other Party's prior written consent, and any assignment without such consent shall be void

Seller may (i) manufacture and source the Equipment and any part thereof globally in the country or countries of its choosing; and



(ii) may subcontract portions of the Services, so long as Seller remains responsible for such.

**21. No third party beneficiary.** Except as specifically set forth in the article entitled "Limitations on Liability" and "No Nuclear Use", this Agreement is not intended to, and does not, give to any person who is not a party to this Agreement any rights to enforce any provisions contained in this Agreement.

**22. Entire Agreement.** This Agreement embodies the entire agreement between Buyer and Seller and supersedes any previous documents, correspondence or agreements between them. No modification, amendment, revision, waiver, or other change shall be binding on either Party unless agreed in writing by the Party's authorized representative. Any oral or written representation, warranty, course of dealing, or trade usage not specified herein shall not be binding on either Party. Each Party agrees that it has not relied on, or been induced by, any representations of the other Party not contained in this Agreement.

**23. USA Government Contracts.** This article 28 applies only if the Agreement is for the direct or indirect sale to any agency of the USA Government and/or is funded in whole or in part by any agency of the USA Government. Buyer agrees that all Equipment and Services provided by Seller meet the definition of "commercial-off-the-shelf" ("COTS") or "commercial item" as those terms are defined in Federal Acquisition Regulation ("FAR") 2.101. To the extent the Buy American Act, Trade Agreements Act, or other domestic preference requirements are applicable to this Agreement, the country of origin of Equipment is unknown unless otherwise specifically stated by Seller in this Agreement. Buyer agrees that any Services offered by Seller are exempt from the Service Contract Act of 1965 (FAR 52.222-41). Buyer represents and agrees that this Agreement is not funded in whole or in part by American Recovery Reinvestment Act funds unless otherwise specifically stated in the Agreement. The version of any applicable FAR clause listed in this Section 18 shall be the one in effect on the effective date of this Agreement. If Buyer is an agency of the USA Government, then as permitted by FAR 12.302, Buyer agrees that all paragraphs of FAR 52.212-4 (except those listed in 12.302(b)) are replaced with these Terms and Conditions. Buyer further agrees the subparagraphs of FAR 52.212-5 apply only to the extent applicable for sale of COTS and/or commercial items and as appropriate for the prices under this Agreement. If Buyer is procuring the Equipment or Services as a contractor, or subcontractor at any tier, on behalf of any agency of the U.S Government, then Buyer agrees that FAR 52.212-5(e) or 52.244-6 (whichever is applicable) applies only to the extent applicable for sale of COTS and/or commercial items and as appropriate for the prices under this Agreement.



## D.2 Pure Water Membrane Element Warranty and Three-Year Prorated Performance Guarantee

### Warranty Terms

Seller warrants the spiral wound pure water membrane elements (the “Elements”) provided that the Elements are exclusively used at all times in accordance with Seller’s recommended design and operating instructions and provided that the Buyer complies with the Operating Conditions and Buyer’s Responsibilities as referenced below. The Seller warrants the Elements to be free from defects in material and workmanship for twelve (12) months from the earlier of (the point in time below being the “Start of the Warranty Period”):

1. *Wet Elements*
  1. First use in system
  2. Three (3) months after delivery to the Buyer FCA (Incoterms 2010)
3. *Dried Elements*
  1. First use in system;
  2. Six (6) months after delivery to the Buyer FCA (Incoterms 2010)

In addition to the aforementioned, in relation to the Elements purchased by the Buyer from the Seller with Pure Water RO Systems (including OSMO\* PRO Series, OSMO BEV Series, and OSMO MUNI Series), the Seller provides a thirty-six (36) month prorated performance guarantee for its Elements from the Start of the Warranty Period. During the prorated period, the Seller guarantees that when operated within the storage and operating conditions stated in this warranty document under standard test conditions (see the Element specification fact sheet) and after an appropriate cleaning cycle, the permeate flow rate of the Elements shall be at least seventy percent (70%) of the minimum value stated on the specification fact sheet and the salt passage shall not exceed twice the maximum value stated on the specification fact sheet (the “Prorated Performance Guarantee”).

### Buyer’s Responsibilities

In addition to the Buyer’s Responsibilities in other documents that may apply, Buyer shall also comply with the following:

#### *Storage Conditions*

1. Until first use all Elements must be stored in their original packaging and original packaging conditions (including but not limited to original vacuum sealed, bags intact)
2. All dry, dried or drip/dry membrane elements (excluding cellulosic elements) may be stored no longer than twelve (12) months at ambient temperatures less than 86°F (30°C) and greater than 32°F (0°C).
3. All wet membrane elements shipped from any GE facility must be stored in a cool dry location out of direct sunlight or artificial light at temperatures under 86°F (30°C) and greater than 32°F (0°C) no longer than six (6) months.

#### *For cellulosic membrane Elements, dry or wet:*

1. Stored in a cool dry location out of direct sunlight or artificial light at ambient temperatures less than 86°F (30°C) and greater than 32°F (0°C) for no longer than three (3) months.

#### *Operating Conditions*

The warranties herein and applicable in any other document are strictly subject to the Buyer complying at all times with the following operating conditions (jointly the “Operating Conditions”), and become void if the Operating Conditions are not met.

1. The feed water to the Elements should be free of oil, grease, colloidal, particulate matter or biological growth;
2. The feed water to the Elements should be free of ozone, permanganate, hexavalent chromium, free chlorine, hypochlorous acid, hypochlorite and other oxidizing agents harmful to the Elements;
3. The Elements shall be operated so that temperature, pressure, pH, Feed SDI15, turbidity and other ambient and operating parameters at no time are outside the range described in the operations and maintenance manuals of the Elements;



4. The Elements shall be maintained in good, clean condition. When the normalized permeate flow rate of the Elements have declined by ten per cent (10%), the Elements must be cleaned using Seller's accepted cleaning procedure;
5. The membrane system design where Elements are installed shall be consistent with sound engineering practice, and the Elements shall not at any time be exposed to water hammer or permeate backpressure. Permeate backpressure is here defined as a positive value of the permeate static pressure minus the concentrate static pressure;
6. Only Seller's approved cleaners, biocides, dispersants, or other chemicals may be used with the Elements. The Buyer is responsible for knowing the membrane element material and for ensuring that chemicals harmful to the membrane or material are never in contact with the Elements;
7. The operating parameters and system performance of the membrane systems where the Elements are used shall be routinely 1) recorded, 2) normalized, 3) reviewed and 4) filed in an operating data log-sheet in an orderly format ((operating parameters shall include, at a minimum, feed stream temperature and pH, feed stream and operating pressures, feed conductivity, dates, durations and chemicals used for system cleaning);
8. In the event of an Element warranty claim, the collected data (including that in section f and g ) above shall be made available to the Seller upon request;
9. Upon request, the Buyer shall allow Seller's representative to visit and examine the equipment and operating procedures where the Elements under warranty are used.

#### **Warranty Claim Procedure**

Any claim for breach of these warranties must be promptly notified in writing and Buyer shall make the defective item available to the Seller as per the below procedure, or the claim will be void.

The Buyer contacts either its Seller Sales or Customer Care Representative to complete a Returned Goods Authorization (the "RGA") form. Upon receipt of an RGA number and product return instructions, Buyer ships the Elements freight prepaid to the Seller's designated facility c/o the Quality Assurance department. Elements must be kept damp at all times and must be clean and bagged in a watertight bag before returning. The Seller has the option of making inspections and tests of the alleged defective Elements and the membrane system where the elements are or were used. In addition, the Seller may request Buyer to perform such inspections or tests and forward the results thereof to Seller, or request the Buyer to return all or some of the Elements to the Seller for warranty claim evaluation.

If during inspection of the membrane system at Buyer's site, the Element failure is determined to be from a cause other than breach of warranty in this document, the Buyer shall pay to Seller a fee of USD 500.00 (five hundred) per day plus all direct expenses incurred by Seller's representatives in connection with any inspection and testing of such Elements and the membrane system. Buyer hereby agrees that the real costs for the Seller will be difficult to measure and that the above stated daily amount plus all direct expenses incurred by Seller's representatives is reasonable, and that it is in lieu of all such actual costs and not as a penalty.

Should the Seller determine that the returned Elements perform as warranted the Elements will be returned to the Buyer freight collect and the cost associated with any membrane analysis and diagnostic work will be levied against the Buyer.

Refer to the following link to find the Seller Customer Care Representative in your region.  
[http://www.gewater.com/who\\_we\\_are/our\\_locations/index.jsp](http://www.gewater.com/who_we_are/our_locations/index.jsp)

#### **Repairs and Replacement**

Seller's sole responsibility and Buyer's exclusive remedy arising out of or relating to the Element or any breach of these warranties and guarantees is limited to repair or (at Seller's option) replacement of defective Elements. The Seller's total liability shall not exceed the replacement value of the Elements that do not meet the warranties stated herein. Replacement value is the ex-works Element price current at the time of replacement. Elements replaced as a consequence of a defect in material or workmanship are allotted the full replacement price, and for the Prorated Performance Guarantee are credited at 1/36 (one thirty-sixth) per month of remaining Prorated Performance Guarantee, Replacements are limited to the quantity of Elements required to return the system to the level of guaranteed performance. The repaired or replaced elements under the Prorated Performance Guarantee will be



shipped to the Buyer prepaid, and carry the same Prorated Performance Guarantee for the outstanding months. For the sake of clarity repair or replacement of defective Elements shall not extend or renew the applicable warranty period or Prorated Performance Guarantee period.

#### **Exclusive Warranty**

Notwithstanding anything else contained in any other documents (including the sale agreement by which the Element has been sold to the Buyer and/or any priority of documents provision), as far as the Elements are concerned, this warranty document shall prevail over any conflicting terms.

Unless otherwise expressly stipulated in a sale agreement by which the Element has been sold to the Buyer, Seller gives no warranty or guarantee as to process results or performance of the Element, including but not limited to product quality, flow, production, capacity, membrane life, chemical consumption, regulatory compliance or energy consumption.

THE WARRANTIES AND REMEDIES IN THIS WARRANTY DOCUMENT ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES AND REMEDIES, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

#### **DISCLAIMER AND LIMITATION ON LIABILITY**

TO THE MAXIMUM EXTENT PERMITTED BY LAW, IN NO EVENT SHALL SELLER BE LIABLE FOR ANY LOSS OF PROFIT OR REVENUES, LOSS OF PRODUCTION, LOSS OF USE OF EQUIPMENT OR SERVICES OR ANY ASSOCIATED EQUIPMENT, INTERRUPTION OF BUSINESS, COST OF CAPITAL, COST OF REPLACEMENT WATER OR POWER, DOWNTIME COSTS, INCREASED OPERATING COSTS, CLAIMS OF BUYER'S CUSTOMERS FOR SUCH DAMAGES, OR FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, INDIRECT, PUNITIVE OR EXEMPLARY DAMAGES ARISING OUT OF OR RELATING TO THE PERFORMANCE OR ACTUAL OR ALLEGED BREACH OF THE AGREEMENT, REGARDLESS OF WHETHER A CLAIM IS BASED IN CONTRACT (INCLUDING WARRANTY OR INDEMNITY), EXTRA-CONTRACTUAL LIABILITY, TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY), STATUTE, EQUITY OR ANY OTHER LEGAL THEORY.

#### **Assignment**

Buyer is not entitled to extend or transfer this warranty to any other party than MSU, without the prior written consent of Seller.

#### **Definitions**

The following terms shall have the meaning set forth below when used in this warranty document:

"Buyer" means the party purchasing the Equipment from the Seller.

"Equipment" means the spiral wound membrane elements sold by the Seller to the Buyer and any membrane system where the Elements are installed.

"Seller" means a business component of, or legal entity within the GE Water & Process Technologies business of the General Electric Company which is selling Equipment.



## D.3 E-Cell Stack Warranty

### Materials and Workmanship

GE Water warrants that all E-Cell stacks supplied by GE Water will be free from defects in materials and workmanship provided that the stacks are stored, operated and maintained in accordance with the published information and good engineering practice.

The sole remedy of the Purchaser in the case of breach of warranty shall be to require GE Water to repair or replace the stack.

### Warranty Period

GE Water warrants the performance of the stacks for three years pro-rated, from whichever of the following occurs first:

1. First use in system
2. Twelve months from shipment

### Initial Performance

The stacks are warranted to have the initial minimum permeate flow and the initial minimum deionization performance as noted on the product technical bulletins when tested under standard conditions as specified.

Buyer is responsible for:

1. Testing of each element to confirm performance within 30 days of first use
2. Notification of deficiency to GE Water within 30 days of first use

### Performance during Three-Year Warranty Period

During the first three years of operation, warrants that:

The maximum deionization performance, when operated under standard conditions and pressure required to give the initial rated flow, shall equal the specified average maximum value over the first three year period of operation.

### Performance Remedy

GE Water will, upon confirmation of loss of performance during the warranty period, credit 1/36th of the original purchase price of the stacks for each unused month of the warranty period toward the purchase of replacement elements at the current prevailing price.

The warranty of any replacement stack shall extend only for the remaining balance of the original stack warranty.

### Warranty Claim

To return an E-Cell Stack™ for a warranty claim, please contact GE Water for an E-Cell Stack™ Return Authorization Form. Return the completed form to your GE Water sales or technical support representative, including a new Purchase Order for the replacement stack(s) and for the test and / or autopsy of the failed stack. Once the stack is received by GE Water, it will be tested and / or autopsied to determine the cause of failure, at which point it will be determined whether or not the stack qualifies for warranty.

A replacement stack can only be obtained by providing GE Water with a purchase order. Replacement of stacks under a Return Authorization Form will be at the discretion of GE Water. An autopsy charge of \$975 USD will be applied to the purchase order, in addition to the stack replacement charge if the stack is deemed to be not under warranty.

### Warranty Conditions

This stack warranty shall be null and void if any of the following conditions are not met:

3. The feed water to the stacks must have:
  1. Less than 1 NTU turbidity
  2. A 15 minute silt density index (SDI<sub>15</sub>) of less than 1.0
  3. No oil or grease
  4. No organic or inorganic matter harmful to the membranes
  5. Temperature less than 104 deg. F/40 deg. C
  6. Never have been exposed to pH less than 1 or greater than 12 during cleaning or shutdown
  7. Never have been exposed to pressures greater than 100psig/6.8 Bar
  8. No chlorine (total), ozone, permanganate or other strong oxidizing agent
4. The stacks shall be protected against water hammer.
5. The stacks shall be maintained in a clean condition, unfouled by particulate matter, precipitates or biological growth
6. The stacks are never subjected to voltage or currents higher than specified.
7. All parameters are within the design specified by GE Water

The performance warranty of the E-Cell stacks shall be null and void if any of the following conditions are not met:

8. The recovery ratios shall be as specified by GE Water in the equipment design data sheets.
9. There shall be no fouling by colloidal or precipitated solids.
10. Neither surfactants, nor any other non-approved chemical, shall come in contact with the stack.





11. Operation must be in complete accordance with the written instructions provided by GE Water
12. Operating logs must be maintained, and made available to the seller, demonstrating that, during the entire period in which the stack has been in service, all parameters were within the design specified by GE Water

**Warranty Basis**

This warranty is offered based on the equipment being operated in complete compliance with the written instructions issued by GE Water and the following:

13. The water being treated shall be no worse than the design analysis and shall contain no more than:

Feed							
	MK-3 & MK-3Pharm	MK-3Mini	MK-2E	MK-2Pharm	MK-2PharmHT	MK-2Mini	MK-2MiniHT
TEA or TEC (ppm as CaCO <sub>3</sub> )	< 25	< 25	< 25	< 16	< 16	< 25	< 25
Conductivity (μS/cm)	65	65	65	40	40	65	65
pH	4 to 11	4 to 11	5 to 9	5 to 9	5 to 9	5 to 9	5 to 9
Hardness (ppm as CaCO <sub>3</sub> )	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Silica (ppm as SiO <sub>2</sub> )	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TOC (ppm)	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Turbidity (NTU)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Color Units (APHA)	5	5	5	5	5	5	5
Total Chlorine (ppm)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fe, Mn, H <sub>2</sub> S (ppm)	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Product							
	MK-3 & MK-3Pharm	MK-3Mini	MK-2E	MK-2Pharm	MK-2PharmHT	MK-2Mini	MK-2MiniHT
Conductivity μS/cm (MOhm.cm)	< 0.0625 (> 16)	< 0.0625 (> 16)	< 0.0625 (> 16)	< 0.10 (> 10)	< 0.10 (> 10)	< 0.0625 (> 16)	< 0.10 (> 10)
pH	6.5 to 8.0	6.5 to 8	6.5 to 8	6.5 to 8	6.5 to 8	6.5 to 8	6.5 to 8
Nominal Flow Rate gpm (m <sup>3</sup> /hr)	15 (3.41)	5 (1.14)	15 (3.41)	15 (4.09)	18 (4.09)	5 (1.14)	5 (1.14)
1 hr Hot Water Sanitization Cycles	N/A	N/A	N/A	N/A	150	N/A	150

**Acknowledgement of Rights of Asahi Glass Engineering Co. Ltd.**

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