RESOLUTION 12-04-2017

A RESOLUTION APPROVING THE PURCHASE OF MEBRANES AND RELATED EQUIPMENT FROM SUEZ WATER TECHNOLOGIES & SOLUTIONS IN AN AMOUNT NOT TO EXCEED $637,377.00

BE IT HEREBY RESOLVED:

SECTION 1: The attached document represent an approved purchase authorization for the acquisition of sewer membranes and related equipment from SUEZ Water Technologies & Solutions in an amount no to exceed $637,377.00.

SECTION 2: This Resolution shall become effective upon passage.

Approved on this 13th day of December, 2017.

Kirk F. Hunsaker, Mayor

Susan B. Farnsworth, City Recorder

SANTAQUIN CITY Incorporated January 4, 1932 STATE OF UTAH

Water Technologies & Solutions

membrane expansion proposal

to:	City of Santaquin referred to here as Santaquin or Buyer	**date:**	December 13, 2017
		no. of pages:	27 including cover
attention:	Norm Beagley Jason Callaway	**email:**	nbeagley@santaquin.org jcallaway@santaquin.org
plant address:	1215 North Center Street Santaquin, Utah 84655 USA	**telephone no.:** **cell no.:** **fax no.:**	+1 (801) 754-1011 x 225 801 420 3033
from:	Jason Diamond, regional lifecycle manager, western USA	**email:** **telephone no.:** **cell no.:**	Jason.Diamond@ge.com 905 465 3030 x3273 905 399 7055
cc:	Jim Goodley (J-U-B), Mike Brown & Chad Miner (Coombs-Hopkins), Chris Allen (SUEZ)		
subject:	membrane expansion: 96 x ZW500D 370 ft² modules in 2 x ZW500D 48M LEAP cassettes	**proposal no.:**	195114-4
		original project no.:	200446
plant data:	Please provide corrections if inaccurate Santaquin Water Reclamation Facility: 3 trains in service with space for 3 additional trains, 2 x 48M cassettes per train, 48 x ZW500D 370 ft² modules installed per cassette. Commissioned March 2012.		

SUEZ Water Technologies & Solutions

As of October 2, 2017, we are pleased to announce that GE's former Water & Process Technologies business has officially become a part of SUEZ. A new Business Unit called Water Technologies & Solutions has been created within SUEZ, combining its industrial water offering with GE's Water business.

With the creation of SUEZ Water Technologies & Solutions, you will see no change to the substance of your existing contract(s). While the name of the business will change to SUEZ, the underlying legal entity and associated tax ID # will remain.

proposal provisos

This proposal has been issued based on the information provided by the customer and on information currently available to SUEZ Water Technologies & Solutions at the time of proposal issuance. Any changes or discrepancies in site conditions, including but not limited to changes in system influent water characteristics, changes in environmental health and safety (EH&S) conditions, changes in the reissued state/provincial disposal system permit, changes in buyer financial standing, buyer 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, guarantees, quoted specifications, or terms and conditions.

confidential and proprietary information

trademarks

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1 introduction

SUEZ Water Technologies & Solutions is pleased to present this proposal at the request of City of Santaquin for addition of a fourth train of wastewater membrane modules to expand the capacity of the Santaquin Wastewater Treatment Plant.

The plant was originally designed for expansion in 3 phases. Currently, the plant is operating under the Phase 1 design of 0.65 MGD average day flow (ADF) and 1.5 MGD peak hourly flow (PHF). SUEZ's proposal will include the membranes and equipment needed to increase the flow by 33%.

SUEZ is a proven leader in delivering tangible value to our clients over the life of the plant. Our measure of success is how well we deliver solutions that help our clients meet their critical business objectives.

Through long-acquired membrane experience, SUEZ has clearly distinguished itself from other membrane manufacturers. A mature service culture and deep technical expertise are at the ready to serve and support Santaquin through this next membrane lifecycle.

2 scope – SUEZ

2.1 scope quantity table

base

Quantity	Description
1 set	membrane tank cassette mounting assemblies, including beams, brackets, hanger arms and braces
2	ZeeWeed 500D 48M LEAP cassettes
96	ZeeWeed 500D 370 ft² membrane modules
1 set	permeate collection & air distribution header piping
1	instrumentation, including: • Level transmitter and switches, • Pressure transmitter and switches • Turbidimeter
1	air ejector assembly
1	permeate pump - includes VFD, flowmeter, pressure gauge and required isolation valves
1	membrane aeration blower, including flow switch, pressure indicator, required isolation valves and sound attenuating enclosure
1	chemical injection components for in-line mixing of sodium hypochlorite and citric acid
1	remote I/O panel

Quantity	Description
1	HMI OS software upgrade to Microsoft Windows 10
1	replacement black box for InSight (discount pricing of USD $1,600 with InSight renewal) - compatible with the OS system software upgrade
General	
Included	off-site service support: 1. project management – co-ordination of SUEZ scope for the expansion project. SUEZ main contact for Buyer 2. mechanical engineering – specification/fabrication support for custom equipment 3. electrical engineering – instrumentation specification & electrical integration of equipment into the current system 4. programming – control upgrades for new equipment and additional membranes 5. drafting - updated P&IDs, general arrangement, layout and electrical drawings 6. documentation – assembly and provision of updated operating & maintenance manuals
Included	on-site service support: field service and start-up assistance - 25 days support over 3 visits from SUEZ field-service personnel for commissioning, membrane installation supervision, plant start-up and operator training
Included	membrane warranty– 1-year full replacement plus 4-year pro-rated replacement, See section 10
Included	train performance warranty - 1 year from equipment commissioning or 18 months from shipment, whichever occurs first. See section 11
Included	equipment mechanical warranty - 1 year from equipment commissioning or 18 months from shipment, whichever occurs first. See section 12

Note 1: Additional man-hours will be billed separately from the proposed system capital cost at a rate of $1,650 per day plus living and traveling expenses at a fixed rate of $250 per day. Detailed SUEZ service rates are available upon request.

Note 2: All SUEZ supplied equipment is designed for installation in an unclassified area by others.

optional

Quantity	Description
1	Sodium hypochlorite chemical duty/standby dosing system, including: 2 x Sigma 3b Smart Control Pumps ProMinent Pro Sip-FMB traditional 2-pump package on floor-mounted frame Package is designed for two pumps to operate in a duty/stand-by configuration with only one pump operating at a time. Pumps share a suction and discharge header that includes (as standard) a 160psi pressure gauge, 1000mL calibration column and back pressure valve. Each pump has its own pressure relief valve and pulsation dampener as standard. Package is designed for use with ProMinent DN32 sized Sigma pumps.

Quantity	Description
1	Citric acid chemical duty/standby dosing system, including: Sigma 2b Smart Control Pumps ProMinent Pro Sip-FMB Traditional 2-pump package on floor mounted frame Package is designed for two pumps to operate in a duty/stand-by configuration with only one pump operating at a time. Pumps share a suction and discharge header that includes (as standard) a 160psi pressure gauge, 1000mL calibration column and back pressure valve. Each pump has its own pressure relief valve and pulsation dampener as standard. Package is designed for use with ProMinent DN25 sized Sigma pumps.
1	Off-site support to implement programming changes and update drawings
1	On-site implementation (2 x 8-hr days added to field service and start-up assistance trip included in base price).
1	Delivery of pre-mounted pump and accessory frames to site.

2.2 preliminary schedule

On receipt of purchase order from Santaquin the preliminary schedule would be:

- membrane manufacturing: 1 week after receipt of PO a release will be sent to the production facility to begin membrane manufacturing;
- submittal of equipment specifications to Santaquin: 3 – 4 weeks after receipt of PO;
- Santaquin review period: 2 weeks following receipt of equipment specifications;
- delivery of non-membrane equipment to Santaquin: 12 – 15 weeks following equipment approval release from Santaquin;
- delivery of membrane modules is typically 12 - 20 weeks after receipt of order. Delivery of membranes will be timed to arrive at Santaquin approximately 3 – 4 weeks following receipt of non-membrane equipment to allow for installation and verification of equipment prior to installation of the membrane modules.

Equipment supplied will be the equivalent of existing equipment, unless obsolete. If obsolete, equipment submitted will be closest replacement available with differences highlighted for review by Santaquin.

The preliminary schedule is subject to change based on continuing discussions and mutual agreement between SUEZ and Santaquin

2.3 delivery

- DDP - Delivery will be by standard ocean/ground on the basis of DDP Santaquin Water Reclamation Facility 12753 S 5600 W Street, Santaquin, UT, USA 84655 or other named place of destination; Incoterms 2010. DDP = Delivery Duty Paid. Partial shipments will be acceptable unless otherwise specified. Where delivery cannot be accepted at this destination, Santaquin shall specify an alternate, equivalent destination without delay.
- Due to varying origins and availability, non-membrane items included in this proposal may be shipped separately from the membranes. Should separate shipments be required, where possible, SUEZ will strive to provide these items on or before the delivery of the membranes.
- origin - Delivery of ZeeWeed membranes originates from the SUEZ Water Technologies & Solutions, ZENON Membrane Products (ZEM), Bláthy Ottó u 4, Oroszlány, 2840 Hungary facility.
- title & risk - Title and risk of loss or damage to membrane modules, cassette frames, equipment and crating shall pass to Santaquin upon delivery on vehicles at the named place of destination. Buyer assumes responsibility and risk during and following unloading.
- export documents - All ZeeWeed membrane module shipments into the USA require clearance documentation from the EPA. SUEZ will prepare and provide the required EPA documentation to the Carrier.
- MPF - Merchandise Processing Fee is a fee assessed for formal custom entries based on 0.35% of the invoice value, with a minimum of USD $25 per formal entry and a maximum of USD $485. On the basis of DDP terms, this fee will be paid by SUEZ within the quoted price.
- taxes and duty - Any new duty imposed after the date of this proposal is the responsibility of Santaquin. All applicable Local, State, or Federal taxes are the responsibility of Santaquin.
- temperature - UF membranes cannot be allowed to freeze or overheat and may require temperature-controlled freight and handling according to the season and the planned routing. If required, the price of temperature control will be included within the firm quote on freight by SUEZ.
- handling –ZW500D 48M membrane cassette frames are shipped and will arrive on-site on their sides. An Eye Bolt Kit, included in this proposal, should be used to safely turn the cassette(s) upright. Adequate work area and height and equipment will also be needed to be available to safely turn the cassettes upright for installation.

3 ZeeWeed configuration

configuration data	existing plant configuration	proposed configuration after expansion
number of trains, plant	6*	6*
number of trains populated with membranes	3	4
number of cassette spaces per train	2	2
cassette frames installed per train	2	2
total cassettes installed, plant	6	8
type of ZeeWeed membrane	ZW500D	ZW500D
module surface area, ft²	370	370
maximum number of modules per cassette	48	48
installed number of modules per cassette	48	48
total module count, train	96	96
total surface area in operation, ft², train	35,520	35,520
total module count, plant	288	384
total surface area in operation, ft², plant	106,560	142,080
% spare space (based on module spaces) note 1	0%	0%
% surface area increase/decrease from existing, plant		33%
minimum temperature, °C	10	10**
flow capacity, average daily flow ADF, GPD	650,000	870,000
design net flux, GFD at ADF at min. temp., (gal/ft²/day)	6.1	6.1

* Current backpulse tank has been sized and installed to be converted to a future membrane train. At that time, backpulse and cleaning solution permeate will be drawn from the common permeate header.

** Impact of increasing minimum design temperature to 14 °C on expansion train and existing trains under review

4 price

qty	item	part no.	unit price	total price
96	ZeeWeed membrane modules under GMRP - ZW500D 370 ft² WW	3111047	1,320.31	126,750
2	ZeeWeed cassette frames under GMRP - ZW500D: 48 module LEAP cassette std:316L SS	3134796	28,913.44	57,827
1	off-site service support hours, as outlined in section 2	3097215		159,000
1	on-site technical advisory services (labor + T&L), as outlined in section2	135491		
1	All other equipment, as specified in section 2			232,300
1	freight & freight insurance DDP plant site, INCO® terms 2010. Includes: brokerage at Canada US border - flat fee, US EPA documentation flat fee, US MPF fee ~0.3464% - merchandise processing fee, US customs duty 3.9%	3095534		11,700
	all figures are in USD. **please make purchase order to ZENON Environmental Corporation.**		**Total:**	**587,577**

optional

qty	item		total price
1	sodium hypochlorite chemical dosing system		27,365
1	citric acid chemical dosing system		24,122
1	off-site support including programming changes and updated drawings		2,400
1	on-site implementation (2 x 8-hr days added to field service and start-up assistance trip included in base price)		4,183
1	delivery to site		1,730
	all figures are in USD.	**Total**	**59,800**

invoicing schedule	% of total invoice
An invoice will be issued upon acceptance by SUEZ of customer Purchase Order. Percent calculation based on full scope of the Purchase Order. Shipment of membranes is contingent on receipt of this initial milestone payment.	30%
An invoice will be issued when membrane module shipping documents are supplied to the Carrier.	20%
An invoice will be issued when membrane modules have been received by the customer.	40%
A final invoice will be issued upon completion of installation.	10%
total	**100%**

contractual basis for membrane replacement price

The base price of ZW-500D 340 ft² membrane modules for this project is $1,084 US per module.

The base price of an empty, non-LEAP 48M cassette frame is $19,933 USD per cassette.

This price was guaranteed for 20 years subject to adjustment for inflation (PPI Producer Price Index) or a maximum equivalent price per gallon of treatment capacity in the event that the module area/permeability etc. changes such that the same amount of feed water can be treated with fewer modules of the next generation design.

GMRP price escalation - calculation of the PPI begins on August 20, 2009 (month of submittal of the bid) and will expire at the end of business on August 19, 2029.

To benefit from Guaranteed Membrane Replacement Pricing (GMRP) within the contracted time limits, the customer must both submit a PO and accept membrane delivery with a typical 20-week lead time and must fulfill these two conditions prior to the GMRP expiry date

Membrane replacement prices are quoted EXW SUEZ Factory, with packaging, freight, and taxes extra as the cost of shipping and packaging the membranes to site will depend on the quantity per shipment. Membrane replacement prices are quoted without taxes

adjusted membranes replacement price to November 2017	modules	cassettes
contractually guaranteed membrane replacement price USD$	1,084.00	19,933.00
LEAP adjustment factor (non-LEAP vs. LEAP) – USD$	-	5,900.00
initial PPI value - August 2009	169.40	169.40
current PPI value as of November 2017	189.60	189.60
PPI factor	11.920%	11.920%
surface area adjustment factor (340 ft² vs. 370 ft²)	8.824%	-
adjusted membrane replacement price for this proposal - USD$	1,320.31	28,913.44
These prices are subject to further inflation adjustment through to the date of Purchase Order.		

ITEM 4: MEMBRANE MODULE PRICE

The MBR Supplier shall submit a firm unit cost for the membrane modules proposed and provide the cost of membrane units to be purchased at a later date;

Part Identification	Size and Type	Number of Units (required for Phase I design)	Cost per Unit,	Future Cost per Unit	Specify Fixed or Indexed as described in Section 11300.
Membrane Units	ZEEWEED 500D	6	$19,933*	$19,933	INDEXED
Membrane Cartridge	ZEEWEED 500D MODULE (340 ft²)	252	$1,084	$1,084	INDEXED

* PRICING INDICATED IS FOR 1 × EMPTY ZEEWEED 500D CASSETTE (48-MODULE CAPACITY)

ARTICLE 5 - TIME OF COMPLETION

D. Membrane Module Price

1. The MFEM shall establish the membrane module price (as indicated in the Bid Pricing Form) and guarantees that membrane modules have been provided to the Owner at prices not to exceed the prevailing market price.

2. In the Bid Form, the MFEM shall indicate if the membrane module pricing is to be fixed at the time of the Bid opening, or variable with the Producer Price Index (PPI) index. The PPI adjustment is the most recent Month PP Index divided by the PPI index for the month of the submittal of the Bid.

3. During the full replacement warranty period, the MFEM shall provide replacement modules at no cost to the Owner, including module replacement and shipping costs to the site.

4. Module Price during the pro-rata warranty period shall be calculated as follows:

$$\text{Pro Rata Module Price} = \frac{\text{Module Price x applicable PPI adjustment x Months of Beneficial Use}}{\text{Membrane Module Warranty Period (Months)}}$$

5 scope - Santaquin

SUEZ's proposal is based on adding membranes to a fully operational plant and assumes the use of existing equipment and infrastructure, including but not limited to:

- ❑ Membrane system backpulse tank and lines.
- ❑ Membrane cleaning system, including sodium hypochlorite and citric acid.
- ❑ Compressed air system.

- ❑ Headworks.
- ❑ Biological treatment system.

The following items are for supply by Buyer and will include, but are not limited to:

- ❑ Overall plant design responsibility.
- ❑ Installation on site of all SUEZ -supplied equipment.
- ❑ Installation of the chemical dosing systems, including removal (as necessary) of any existing equipment as well as electrical and plumbing connections to the new equipment.
- ❑ Supply and installation of all additional equipment required to fully operate the new membrane train, including but not limited to:

Equipment	P&ID	Tag
Membrane tank influent sluice gate & actuator	200446-D-004	20-SG-101
Membrane tank influent deflector plate	200446-D-004	N/A
Membrane tank membrane scour air isolation valve	200446-D-004	20-HV-200
Membrane tank drain valve & actuator	200446-D-004	20-FV-501
Membrane permeate header Citric Acid injection isolation valve	200446-D-005	23-HV-330
Membrane permeate header Citric Acid injection check valve	200446-D-005	23-CV-330
Membrane permeate header Sodium Hypochlorite injection isolation valve	200446-D-005	23-HV-130
Membrane permeate header Sodium Hypochlorite injection check valve	200446-D-005	23-CV-130

- ❑ Review and approval of design parameters related to the membrane separation system.
- ❑ Review and approval of SUEZ -supplied equipment drawings and specifications.
- ❑ Detail drawings of all termination points where SUEZ equipment or materials tie into equipment or materials supplied by others.
- ❑ Equipment foundations, civil work, full floor coverage equipment contact pads, buildings, etc.
- ❑ Receiving, unloading and safe storage of Suez-supplied equipment at site until ready for installation. Membranes 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 at a temperature of 5-30°C (41-86°F). Membranes have a shelf life of 1 year before requiring re-preservation and should not be stored longer than necessary prior to installation. Santaquin is responsible for risk of loss of Seller's parts while in storage at the customer's plant.
- ❑ HVAC equipment design, specifications and installation (where applicable).

- ❑ UPS, Power Conditioner, Emergency power supply and specification (where applicable).
- ❑ Lifting devices including Crane able to lift 5 ton for membrane removal, lifting davit crane and guide rails for submersible mixers and pumps, hoists, etc.
- ❑ Membrane tanks.
- ❑ Treated water storage tank – as required.
- ❑ Process and utilities piping, pipe supports, hangers, valves, etc. including but not limited to:
  - Piping, pipe supports and valves between SUEZ-supplied equipment and other plant process equipment
  - Piping between SUEZ-supplied equipment.
- ❑ Electrical wiring, conduit and other appurtenances required to provide power connections as required from the electrical power source to the SUEZ control panel and from the control panel to any electrical equipment, pump motors and instruments external to the SUEZ-supplied enclosure.
- ❑ All bolts, brackets and fasteners to install SUEZ-supplied equipment. Seismic structural analysis and anchor bolt sizing.
- ❑ Alignment of rotating equipment.
- ❑ Raw materials, chemicals, and utilities during equipment start-up and operation.
- ❑ Supply of seed sludge for process start-up purposes, as required.
- ❑ Disposal of initial start-up wastewater and associated chemicals, as required.
- ❑ Weather protection as required for all SUEZ supplied equipment.
- ❑ All tasks required for the onsite installation of the membranes, including installation of beams, brackets, hanging arms, new cassettes and disposal of all materials.

Santaquin retains control of the work site and retains final responsibility for the installation and commissioning process.

6 solution design notes

6.1 permits

regulatory requirements

Santaquin is responsible to review and report to the permit granting agency on the impact of any of the proposed changes on the regulatory permit. SUEZ will provide the necessary manufacturer's technical support on regulatory issues.

utilization

SUEZ understands that these modules are required to expand the current capacity of the system.

membrane slack

SUEZ's membranes are supplied and shipped with an initial factory fiber slack designed to optimize membrane air scouring during operation as well as accommodate a degree of shrinkage. Membranes shrink in length early in their lifecycle when exposed to higher temperature water. The pace of shrinkage slows with age. With the installation of new membranes, the requirements for slack adjustment start a new cycle.

Due to the wide variety of operating environments in which our products can be utilized, it is difficult to generally predict the rate of shrinkage. If membranes operate in a condition of insufficient slack for an extended period of time, irreversible damage to the fiber-urethane bond may occur. Please refer below to the recommended inspection frequencies based on your plant's membrane tank operating temperature. Visual inspections should begin during the membrane installation and be repeated over time on the same cassette. Digital pictures will allow for comparative analysis of the fiber slack over time.

maximum operating temperature	recommended slack inspection frequency
0-24 °C / 32-76 °F	every 2 years
25-30 °C / 77-86 °F	once per year
>30 °C / > 86 °F	twice per year

bubble test pressure

The bubble test pressure for the purchased membranes is 2 psi horizontally and 3 psi vertically.

6.2 technical

MLSS concentration

MLSS concentration in the membrane tank during annual average, max month, and max week flows must not exceed 10 g/L and during max day and peak hour flows must not exceed 14 g/L.

biological system

Biological system expansion design, including equipment, will be completed by Santaquin or their 3rd party designate.

pre-screen

Trash and non-biodegradable solids, such as hair, lint, grit and plastics may foul or damage the membranes if allowed to pass into the membrane chamber. SUEZ recommends that an internally-fed screen with mesh or punched-hole openings less than or equal to 2 mm with no possibility of bypass or carryover be operated upstream of the new membranes to ensure effective operation and to maximize membrane life.

7 health & safety

Santaquin

- ❑ Santaquin will identify and inform Seller's personnel of any site specific hazards present in the work place that could impact the delivery of Seller's scope of supply and agrees to work with Seller to remove, monitor, and control the hazards to a practical level.
- ❑ Santaquin will provide training to Seller's personnel on all site specific 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 & safety (EHS), HAZOP, fire protection, drug testing, incident notice, site conduct, standard first aid, chemical receiving, electrical safety, etc. Santaquin will provide a certificate of training for Seller's personnel. This program will be fully documented, training materials will be provided, and attendance list will be kept.
- ❑ If any type of lifting devices will be used on site, Santaquin will provide proof of its maintenance, inspection and certification documentation upon request and will assist the SUEZ service representative to complete a safety inspection checklist.
- ❑ Where confined space entry may be required, Santaquin will provide early notice and will collaborate with SUEZ in planning adequate staffing and in advising the local fire/rescue department as required.
- ❑ No time or cost provision has been made for preparations such as safety record clearances, drug testing, insurance confirmations or pre-job-training in excess of 1 hour. Prior to finalizing the Purchase Order and the work schedule, Santaquin will advise SUEZ of any pre-job or pre-mobilization requirements. Where these requirements exceed 1 hour, this time will be charged to Santaquin at rates set out in the prevailing SUEZ labor rate sheet.
- ❑ Where certain short duration activities require two people for safety and the SUEZ Service representative is alone at site, Santaquin will cooperate as required to assure that correct safety precautions are taken.
- ❑ Santaquin is responsible for the following environmental provisions:
  - environmental use and discharge permits for all chemicals at Santaquin's facility either listed in this document or proposed for use at a later date;
  - any special permits required for Seller's or Santaquin's 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 Seller's system including waste materials generated during construction, start up and operation.

- ❑ Santaquin is responsible for provision of health and safety facilities to Seller's field service representatives to the same extent that they are provided to Santaquin's own employees, including provision of:
  - eyewash and safety showers in the water treatment area;
  - chemical spill response;
  - security and fire protection systems per local codes;

SUEZ

- ❑ All work on site will be performed in accordance with applicable law and will be performed reasonably, in a clean and safe manner. The SUEZ service representative will abide by the more stringent of the applicable health, safety and environmental policies and procedures of either Santaquin or SUEZ.
- ❑ SUEZ will provide all applicable safety training required by SUEZ policies or by state or national health and safety regulations. The SUEZ service representative will have undergone workplace hazardous material information system (WHMIS) training and will come equipped with necessary personal protective equipment (PPE).
- ❑ Emergencies - In emergencies affecting the safety of persons, work or property at the site and adjacent thereto, SUEZ will act, without previous instructions from Santaquin, as the situation warrants. SUEZ will notify Santaquin immediately thereafter.

8 quality at SUEZ – the vision

We are driven by a passion for delivering on every commitment. We are dedicated to providing our customers the highest quality offerings with unparalleled customer service and responsiveness. We are committed to working through any problem in an open and honest manner—always with unyielding integrity.

quality policy

At SUEZ Water Technologies & Solutions, we are committed to:

- ❑ passionately driving customer satisfaction and loyalty by partnering with customers to help achieve their success.
- ❑ delivering results with a sustained global compliance culture.
- ❑ continually improving everything we do.
- ❑ empowering our employees to engage and own quality.

We will accomplish this by building on our strong foundation of quality and raising the bar to the next level of success. By operationalizing quality and engaging everyone on our team, we will create a culture where our customers, suppliers and employees feel the difference.

9 terms and conditions of sale

a - specific terms and conditions of sale

1 legal entity for contracting

ZENON Environmental Corporation is the name of the Seller, and means a business component of, or legal entity within the SUEZ Water Technologies & Solutions business (SUEZ) which is selling ZeeWeed modules.

Please advise us if this SUEZ entity is not set up in your purchasing system as a vendor and you do have another SUEZ entity set up. We are keen to make the purchase process as convenient as possible for Santaquin.

short form: Where a short reference is required in this document, for convenience, we are called simply **SUEZ**.

2 payment terms

3 On approved credit, payment terms are net 30 days from customer receipt of invoice. Please see the invoicing schedule in section 4.proposal validity

Prices quoted and proposal terms are valid up to thirty (30) days after the date of issue of this proposal unless confirmed with a purchase order.

4 bonds

Performance or payment bonds are not included in the price. These bonds can be purchased on request but will be at an additional cost.

5 flight booking

Prices quoted for installation which include airfare are either based on timely confirmation of a visit schedule or based on receipt of a purchase order in time to book any flights seven days in advance. Additional airfare charges related to late arrival of a purchase order will be extra and billed through to Santaquin without mark-up.

6 warranty on programming

SUEZ warrants that the PLC program will conform to the specifications in the relevant sections of the CLSC and OSC (revised for the project) and will be free from defects in workmanship when operated at all times in accordance with SUEZ's written instructions. If any defects are found and reported by Santaquin within a period not exceeding twelve (12) months beyond the completion of the site acceptance test, SUEZ will make modifications to the PLC code as deemed necessary. Any changes requested by Santaquin after this period will be at the customer's expense.

7 purchase order guidelines

Please ensure that your purchase order has covered the following points. This will ensure accurate and prompt order entry, product delivery, invoicing and accounts receivables processing and will prevent administrative delays for all parties.

- **legal entity** – Please be sure your purchase order is issued in the name of the specific SUEZ legal entity issuing this proposal cited above. We will be glad to work with your purchasing department to set this entity up as an approved supplier/vendor. Please advise us if this SUEZ entity is not set up in your purchasing system as a vendor and you do have another SUEZ entity set up.
- **hard copy** – Our strong preference is to receive a hard copy of your purchase order rather than a PO number alone.
- **proposal number and date** – Please reference the 6-digit proposal number and the proposal date which are found in the footer of each page.
- **price** – State the total price you are accepting for this order.
- **taxes** – Provide any required tax exemption certificates.

- **ship-to address** – Please clearly define the plant site address or delivery location and the receiver's email & telephone. Please specify receiving hours and any special off-loading requirements.
- **delivery date** – Please include your requested delivery date or agreement start date.
- **purchase order** – Please send your purchase order to SUEZ by email to service.pocentral@ge.com.

b – general terms and conditions of sale

SUEZ's standard terms and conditions apply. See attachment a.

Note to purchasing agent: The SUEZ's standard set of commercial terms & conditions are written for moderate value transactions to allow an efficient and rapid provision of services and parts. Where corporate agreement terms have been previously agreed, these may be brought forward by either party and applied by mutual consent. If either of these terms sets are not immediately acceptable, please expect a typical 6-10 week cycle of mutual review to build agreement on changes.

10 Seller's warranty - ZeeWeed membrane module 1+ 4-year prorated replacement– Santaquin

This schedule sets out the warranty with respect to ZeeWeed membrane modules ("membrane modules"). No other warranties, expressed or implied are made in connection with the sale of these products, including, without limitation, warranties as to fitness for any particular purpose or use or merchantability of these products. The warranty provided herein will be the exclusive and sole remedy of Buyer, and in no event will the Seller be liable for any special, direct, indirect or consequential damages, including, without limitation, loss of profits. This warranty is not transferable.

1 product

This warranty applies to only the membrane modules supplied under the contract of sale. Membrane module means the fibers and the potted plastic headers. This warranty does not cover air piping to the membrane module, permeate piping from the membrane module, piping connection fittings, connecting hardware and cassette frames with their associated components including but not limited to spacers, aerator tubes, aerator assemblies, screen, module dummies or module blanks.

Identification: membrane modules are shipped by the Seller with a serial number identification which confirms their place in the cohort set of membrane modules covered by this membrane module warranty.

2 Seller

ZENON Environmental Corporation is the name of the Seller, and means a business component of, or legal entity within the SUEZ Water Technologies & Solutions business (SUEZ) which is selling ZeeWeed modules and is the Seller offering this warranty. The Seller may assign this warranty to other SUEZ affiliates.

3 Buyer

Buyer means City of Santaquin.

4 project

Project means the 96 membrane modules sold under this proposal number 195114-2.

5 contract of sale

Contract of sale means the sales contract governing the sale of membrane module(s) for the project between Buyer and the Seller or its SUEZ affiliate.

6 scope of warranty

The Seller warrants that its membrane module(s) will be free of defects due to faulty materials or errors in manufacturing workmanship.

Regular membrane module inspection and normal fiber repair shall be the responsibility of Buyer.

All replacement membrane modules will be shipped on the basis of INCOTERMS 2010 FCA SUEZ manufacturing facility.

All ancillary costs including but not limited to bagging, boxing, crating, freight, freight insurance, applicable taxes, import duties, certifications, brokerage, receiving, forklift services, storage at site, re-attachment hardware, hose/clamp/camlock replacement, crane services, installation, fiber repair materials, glycerin flushing, commissioning and waste disposal are the responsibility of Buyer.

full replacement – Full replacement means that in the case of a valid warranty claim for a membrane module failure, Buyer receives a replacement membrane module and does not pay for the value of use of the membrane module prior to failure.

prorated replacement – Prorated replacement means Buyer pays for actual use of a membrane module from which Buyer has derived value over time. Prorated replacement allows the Seller to pay reasonable compensation under warranty for any product use not enjoyed by Buyer due to premature failure.

The ratio of full replacement to prorated replacement in this warranty is set out in Item 8 of Section 10.

7 warranty start date

For the original membrane modules in a plant, this membrane warranty will start on the earlier of:

a. The date that installation of the original membrane module(s) has been substantially completed, or

b. Six months from the date of shipment of the original membrane module(s) to Buyer.

For replacement or expansion membranes, this membrane warranty will start on the earlier of:

a. The date of installation, or

b. 1 month from the date of delivery to site.

8 warranty duration

total warranty duration: a total of **60** months composed of a base period and an extended period.

base period with full replacement: **12** months

All purchasers of ZeeWeed membrane modules are entitled to this base period of full replacement warranty coverage without purchasing an extended Seller's warranty.

extended period with prorated replacement: a total of **48** months following the base period

Replacement membrane modules are covered by warranty only to the extent of the warranty of the original membrane module which has been replaced. At all events, this warranty shall expire and be of no force or effect **60** months following the warranty start date.

9 notification of claim

All claims filed under this warranty shall be made in writing by Buyer within 30 days of identifying a defect.

Buyer shall provide the following information:

a. A description of the defect giving rise to the claim;

b. Photographs showing the manufacturing defect;

c. The serial number(s) of the membrane module(s) which is (are) the subject of the warranty claim; and

d. Operating data and repair history for the life of membrane modules which are the subject of a warranty claim.

10 verification of claim

After receipt of written notification of a defect, the Seller will promptly undertake such investigations as, in the Seller's opinion, are necessary to verify whether a defect exists. The Seller reserves the right to require additional data as necessary to validate claims. Buyer may, in the course of these investigations, be requested to return membrane module(s) to the Seller for examination. The Seller may also conduct reasonable tests and inspections at Buyer's plant or premises. If the results of the investigation do not validate the defect claimed, Buyer will reimburse the Seller for all reasonable expenses associated with said investigation, including expenses for all tests, inspections, and associated travel.

11 satisfaction of claims

The Seller will have the right to satisfy claims under this warranty in a flexible manner. Such flexibility may include the repair of existing membrane modules or changes in operating protocols or membrane module replacement or by upgrading failed membrane modules with newer membrane module(s) that may embody design and efficiency improvements. Buyer consents to the supply of replacement membrane modules which may be of a different design than original membrane modules.

12 membrane module replacement price – prorated replacement

The base Membrane Module Replacement Price (MMRP) used to calculate the prorated amount to be paid by the Buyer to replace defective Membrane Modules under warranty shall be **USD$ 1,084.00** + adjustment for inflation. The inflation adjustment will be calculated according to changes in the Producer Price Index, Total manufacturing industries - PCUOMFG—OMFG as published by the US Bureau of Labor Statistics for the period from August 20, 2009 through to the latest available PPI Index report.

For Membrane Modules supplied under valid warranty claims, the prorated share that the Buyer will pay is calculated as follows:

$$\text{Prorated Share of Price} = \frac{\text{Number of whole months elapsed between the Membrane Module Replacement Date \& the Warranty Start Date}}{\text{Warranty Duration in Months}} \times \text{Membrane Module Replacement Price} \times \text{Changes in PPI Index}$$

13 operating information

To maintain the membrane module warranty, membrane system operation records from initial start-up date until claim must be maintained by Buyer and made available to the Seller upon request. Records must be provided in sufficient detail to verify uninterrupted compliance with the Seller's operations and maintenance manual prepared by the Seller and supplied to Buyer as part of the contract. At a minimum, operation data must include information on feed water quality, temperatures, flows, trans-membrane pressures, aeration rates, permeate quality, cleaning intervals, cleaning chemical concentrations, elapsed time since start-up, relevant analytical data and reporting of any screen bypass events.

Buyer shall maintain and share access to a single reference copy in electronic form of a membrane module map containing the history of activity by membrane module. Buyer shall log its procedures performed related to a membrane module including relocation of membrane modules, repairs, replacements and any other noteworthy events.

Buyer authorizes the Seller to conduct any reasonable review of operation and maintenance records or to inspect facilities where membrane modules are installed, upon reasonable notice to Buyer. Such reviews and/or inspections are intended to also assist the Seller and Buyer in detection of membrane system faults and to optimize the care and operation of the membrane modules.

14 limitation of warranties

Occurrence of any of the following as reasonably determined by the Seller will void this warranty:

a. A material failure to operate the membrane system in accordance with Seller's operations and maintenance manual supplied to Buyer as part of the contract, including material failure to adhere to the Seller's specified membrane module cleaning procedures and the use of anything other than Seller-approved membrane module cleaning agents.

b. Failure to adhere to the preventive maintenance program as presented in the Seller's operations and maintenance manual, in published product manuals and in specifications.

c. Failure to adhere to all transportation and module storage recommendations outlined by Seller.

d. Failure to ensure correct operation and/or functioning of the screening equipment.

e. Introduction of destructive foreign materials into the membrane module tanks. Destructive foreign materials may include natural or human-made materials that are introduced into the membrane system influent channel or tanks originating from construction and maintenance activities or from inadequate pretreatment or from aquatic species including clams and snails or from damage to the tank or tank coating. Buyer shall be responsible to maintain correct function of the screen mechanism, to flush accumulated grit from the tank bottom and to flush accumulated foreign materials from the membrane modules.

f. Failure to install and maintain operating data acquisition and electronic data transmission functions at the plant.

g. Physical abuse or misuse, incorrect removal or installation of membrane modules by non-Seller personnel including fiber damage caused by operator error in handling of membrane modules or cassettes.

h. Unauthorized alteration of any components or parts originally supplied by the Seller.

i. Intentional damage.

15 return procedure

In the event that the return of a membrane module is required pursuant to this warranty, Buyer will first obtain a return goods authorization (RGA) number from the Seller. Membrane module(s) shipped to the Seller for warranty examination must be shipped freight prepaid. If Buyer desires temporary replacement membrane module(s) to replace those alleged to be defective and returned to the Seller for warranty examination, Buyer shall be responsible for the cost associated with any such replacements until examination of the returned membrane modules pursuant to this warranty is complete. Any membrane module examined by Seller as part of a warranty claim where the membrane module is subsequently found to be performing as warranted or where a membrane module failure is not covered under the warranty will be returned to Buyer, freight collect.

11 train performance warranty

A one (1) year performance warranty is offered on the new train delivered under this proposal to provide an additional 33% system capacity and membrane permeate quality consistent with the existing membrane system. This warranty provides protection and assurance to the owner with respect to the performance of the membrane system.

11.1 Warranty Provisions

SUEZ warrants, subject to the provisions herein after set forth, that after stable operation of the new train has been attained and operators have acquired reasonable skills, the membrane train supplied under this proposal will be capable of producing the results set forth in Table 2, provided that:

- The Equipment is operated and maintained at all times in accordance with the SUEZ Operations and Maintenance manual,
- The Equipment is operated within the mixed liquor characteristics defined in Table 1 of this section,
- SUEZ has, until performance of its obligation herein is met, reasonable access to the Equipment and the operational data relating thereto,
- The Buyer/Owner furnishes adequate and competent operating, supervisory and maintenance staff, and necessary laboratory facilities with test equipment and personnel,
- The Buyer/Owner utilizes the services of SUEZ until its performance obligations are met,
- The Buyer/Owner supplies all necessary raw materials and services of a quantity and of a quality specified by SUEZ,
- An adequate and continuous power supply is available that will enable operation of all required equipment,
- The following pre-treatment guidelines are followed:
  - ***Fats, Oil and Grease (FOG)*** – FOG concentration shall not exceed 150 mg/L of emulsified FOG in the feed with no free oil and less than 10 mg/L of mineral oil. In the event that the wastewater FOG concentration exceeds any of these values, appropriate removal mechanisms must be included in the headworks design.
  - ***Pre-screening*** - A punched hole or woven wire mesh screen with a maximum size opening of no greater than 2 mm and without possibility of bypass of any particle larger than 2 mm in all directions must be included in the headworks.
  - ***Process Chemical Additives*** - The use of any chemicals added to the wastewater treatment process (e.g.: polymers, flocculants, coagulants,

antifoams) that may come in contact with the ZeeWeed® membranes must be approved by SUEZ prior to use. This includes chemicals used in processes outside of the SUEZ system that may be transferred to the SUEZ system, such as in solids handling facilities.

11.2 Membrane Train Performance

Subject to the terms defined above and the mixed liquor characteristics defined in Table 1, the membrane train offered herein will be capable of meeting the permeate capacity and quality defined in Table 2.

Table 1: Mixed Liquor Characteristics for Warranty Purposes

Parameter	Design Value	Accepted Operating Range
Mixed liquor temperature (°C)	10	10 – 30
MLSS concentration in membrane tanks (mg/L) 1	10,000	8,000 – 14,000
pH of mixed liquor in membrane tanks (SU)	7.0	6.5 – 7.5
NH3-N concentration in mixed liquor entering membrane tanks (mg/L)	0.5	≤ 1.0
Colloidal TOC (cTOC) concentration in mixed liquor entering membrane tanks (mg/L) 2	7	≤ 10
Soluble alkalinity of mixed liquor entering membrane tanks (mg/L as CaCO3)	100	50 – 150
Time to filter (TTF) of mixed liquor in membrane tanks (s) 3	100	≤ 200
Material greater than 2-mm in size in mixed liquor in membrane tanks (mg/L) 4	0	≤ 1
Instantaneous air flow rate to independent membrane modules during air scour at diffuser (scfm per module)	10.38	9.8 – 11

1. Membrane tank MLSS concentration of 12,000 mg/L is permissible only during MDF and 14,000 mg/L during PHF. Membrane tank MLSS concentration to be 8,000 to 10,000 mg/L during all other flow conditions.
2. Colloidal TOC (cTOC) is the difference between the TOC measured in the filtrate passing through a 1.5 µm filter paper and the TOC measured in the ZeeWeed membrane permeate.
3. Time to filter (TTF) is the time to filter 100 mL of a 200 mL mixed liquor sample through a 1.5 µm filter paper (9 cm in diameter).
4. Per SUEZ standard Sieve Test procedure.
5. Chemicals that are not compatible with the ZeeWeed PVDF membrane are not permitted in the membrane tank.

Table 2: Guaranteed Membrane Filtration System Performance

Parameter	Phase 1	Guaranteed Values for train 4*
Membrane Filtration System Hydraulic Capacity for Phase 1		
Average Day Flow, ADF, with all trains in service (MGD) [1]	≤ 0.65	≤ 0.22
Maximum Month Flow, MMF, with all trains in service (MGD) [1]	≤ 0.72	≤ 0.24
Maximum Day Flow, MDF, with all trains in service (MGD) [1]	≤ 0.85	≤ 0.28
Peak Hour Flow, PHF, with all trains in service (MGD) [1]	≤ 1.50	≤ 0.50
Membrane Filtration System Permeate Quality		
TSS (mg/L)	≤ 5	≤ 5
Turbidity (NTU)	≤ 0.2, 95% of the time [2] ≤ 0.5, 100% of the time	≤ 0.2, 95% of the time [2] ≤ 0.5, 100% of the time

1. The flow conditions are defined as follows:
   Average Day Flow (ADF) – The average flow rate occurring over a 24-hour period based on annual flow rate data.
   Maximum Month Flow (MMF) – The average daily flow rate occurring during the 30-day period with the highest flow based on annual flow rate data.
   Peak Hour Flow (PHF) – The maximum flow rate sustained over a 1-hour period based on annual flow rate data.
   ** Values for guaranteed flows subject to amendment based on review of minimum temperature increase.*

2. Turbidity ≤ 0.2 NTU 95% of the time within 24 hours, as specified by Title 22.

The Seller's obligation under this warranty is to repair or replace any device or part provided by Seller that is preventing the production of the quantity and quality of membrane permeate specified when required, which shall prove to have been thus defective. The train performance warranty period is twelve (12) months from the date of substantial completion or 18 months from shipment, whichever occurs first. Substantial completion is defined as completion of equipment commissioning.

12 mechanical warranty terms

material and workmanship warranty

The mechanical warranty is only applicable to equipment supplied by the Seller. The Seller's obligation under this warranty is to repair or replace, at its factory, any device or part thereof, which shall prove to have been thus defective. The mechanical warranty period is twelve (12) months from the date of substantial completion or 18 months from shipment, whichever occurs first. Substantial completion is defined as completion of equipment commissioning.

The Seller assumes no liability for any damage to the equipment caused by inadequate storage or handling per manufacturer's recommendations in supplied technical literature, or by defective or sub-standard workmanship of materials provided by the Buyer/Owner or any other third party responsible for handling, storing or installing the equipment.

The Buyer/Owner undertakes to give immediate notice to the Seller if goods or performance appear defective and to provide the Seller with reasonable opportunity to make inspections and tests. If the Seller is not at fault, the Buyer/Owner shall pay the Seller the costs and expenses associated with the inspections and tests.

Goods shall not be returned to the Seller without the Seller's permission. The Seller will provide the Buyer/Owner with a "Return Goods Authorization" (RGA) number to use for returned goods. All returns are F.C.A. – Oakville, Ontario, Canada. All costs associated with the removal and shipment of the defective part from the Buyer/Owner's facility to the Seller's factory and all costs related to return shipment to the Buyer/Owner's facility and installation of a repaired or replacement part shall be the Buyer/Owner's responsibility.

Implied warranties, including but not limited to warranties of fitness for particular purpose, use or application, and all other obligations or liabilities on the part of the Seller, unless such warranties, obligations or liabilities are expressly agreed to in writing by the Seller, are null and void

13 signed agreement

Through the issue of this proposal, SUEZ signals their intent to enter into an agreement with Santaquin. Santaquin and SUEZ acknowledge that they have read and understood this agreement and agree to be bound by the terms and conditions specified in it.

offered by legal entity:	ZENON Environmental Corporation, also known as SUEZ or Seller	**accepted by legal entity:**	City of Santaquin also known as Santaquin or Buyer
		authorized signature by:	Kirk F. Hunsaker
		title:	Mayor
		signature date:	12/13/17
		signature:	
		purchase order no:	

Upon acceptance of this proposal, please forward the following either

• by email with .pdf attachments or • by postal mail or • by fax.

1) this signature page completed to:

2) a hard copy of your purchase order, and

3) any required tax exemption certificates

service.pocentral@ge.com
or
SUEZ Water Technologies & Solutions
attention: Contracts Administrator
Please contact service.pocentral@ge.com for correct address
or
fax no.: 905 469 2243

This agreement comes into force when SUEZ has issued a formal acceptance of Santaquin's Purchase order or formal acceptance of this Santaquin signed agreement.

doc. control: author: JCU / RM filename: Santaquin membrane expansion 195114-5 96 x ZW500D 340ft² Dec 13 2017
last modified: 12/13/2017 9:16 AM technical review: EC / Blkt commercial review: MS/RM/JD DOA: Blkt JI

attachment a SUEZ standard terms and conditions