# CONTRACT FOR THE SUPPLY OF WRRF TERTIARY FILTER MEMBRANE – EQUIPMENT PURCHASE PROJECT #11281.f

**THIS CONTRACT FOR EQUIPMENT / SUPPLIES PROCUREMENT** is made this 24th day of October, 2023, and entered into by and between the City of Meridian, a municipal corporation organized under the laws of the State of Idaho, hereinafter referred to as "CITY", 33 East Broadway Avenue, Meridian, Idaho 83642, and **FilmTec Corporation**, hereinafter referred to as "SUPPLIER", whose business address is **5400 Dewey Hill Rd., Edina, MN 54439**.

## INTRODUCTION

Whereas, the City has a need for WRRF Tertiary Filter Membrane; and

WHEREAS, the SUPPLIER is specially trained, experienced and competent to provide and has agreed to provide such equipment;

NOW, THEREFORE, in consideration of the mutual promises, covenants, terms and conditions hereinafter contained, the parties agree as follows:

## TERMS AND CONDITIONS

### 1. Equipment / Supply Specifications & Requirements:

1.1 SUPPLIER shall supply the equipment, supplies and services to the City upon execution of this Contract and receipt of the City's written notice to proceed, all items, and comply in all respects, as specified in the Request for Proposals titled "WRRF Tertiary Filter Membrane Equipment Purchase" and suppliers proposal dated May 26, 2023, Exhibit C Changes & Modifications, Exhibit D Warranty Spec 01-79-50 dated 9/26/2023 and Exhibit E Machine and Module Transport and Storage, which by this reference are incorporated herein, together with all addendums issued.

1.2 The SUPPLIER shall provide all equipment and services under this Contract consistent with the requirements and standards established by applicable federal, state and city laws, ordinances, regulations and resolutions and the terms of this contract. The SUPPLIER represents and warrants that it will perform its work in accordance with generally accepted industry standards and practices for the profession or professions that are used in performance of this Contract and that are in effect at the time of performance of this Contract.

## 2. Consideration

2.1 The SUPPLIER shall be compensated on a Fixed Price basis as provided in Exhibit B "Payment Schedule" attached hereto and by reference made a part hereof, for the Not-To-Exceed amount of **$6,809,834.00.**

2.2 The SUPPLIER shall provide the City with a detailed invoice upon delivery of all equipment and supplies, which the City will pay within 30 days of receipt of a correct invoice and approval by the City Project Manager. The City will not withhold any Federal or State income taxes or Social Security Tax from any payment made by City to SUPPLIER under the terms and conditions of this Contract. Payment of all taxes and other assessments on such sums is the sole responsibility of SUPPLIER.

2.3 Except as expressly provided in this Contract, SUPPLIER shall not be entitled to receive from the City any additional consideration, compensation, salary, wages, or other type of remuneration for services rendered under this Contract, including, but not limited to, meals, lodging, transportation, drawings, renderings or mockups. Specifically, SUPPLIER shall not be entitled by virtue of this Contract to consideration in the form of overtime, health insurance benefits, retirement benefits, paid holidays or other paid leaves of absence of any type or kind whatsoever.

## 3. Term:

3.1 This Contract shall become effective upon execution by both parties, and shall expire upon (a) completion of the agreed upon work, or (b) unless sooner terminated as provided below or unless some other method or time of termination is listed in Exhibit A.

3.2 Should SUPPLIER default in the performance of this Contract or materially breach any of its provisions, City, at City's option, may terminate this Contract by giving written notification to SUPPLIER.

3.3 Should City fail to pay SUPPLIER all or any part of the compensation set forth in Exhibit B of this Contract on the date due, SUPPLIER, at the SUPPLIER's option, may terminate this Contract if the failure is not remedied by the City within thirty (30) days from the date payment is due.

## 4. Liquidated Damages:

All eight (8) Milestones in the Milestone / Payment Schedule included in this Contract shall be completed by the dates/times listed in the Milestone / Payment Schedule. SUPPLIER shall be liable to the City for any delay beyond this timeperiod in the amount of $250.00 (Two Hundred Dollars) per calendar day. Such payment shall be construed to be liquidated damages by the Contractor in lieu ofany claim or damage because of such delay and not be construed as a penalty.

**5. Termination:**

The CITY shall have the right to terminate this Contract as follows:

1. If SUPPLIER violates any of the covenants, Contracts, or stipulations of this Contract, falsifies any record or document required to be prepared under this Contract, engage in fraud, dishonesty, or any other act of misconduct in the performance of this contract s or Stipulation of this Contract, CITY shall thereupon have the right to terminate this Contract by giving written notice to SUPPLIER of such termination and specifying the effective date thereof at least fifteen (15) days before the effective date of such termination.

2. If SUPPLIER breaches this Contract by failing to materially fulfill in a timely and proper manner its obligations under this Contract, CITY shall thereupon provide a notice of intent to terminate the contract and give SUPPLIER a 30-day cure period during which SUPPLIER shall prepare a detailed plan to address the issues raised by the CITY. If in the CITY's opinion, SUPPLIER's plan fails to address the said issues, CITY shall thereupon have the right to terminate this Contract by giving written notice to SUPPLIER of such termination and specifying the effective date thereof at least fifteen (15) days before the effective date of such termination.

3. If the City Council determines that termination of the contract is in the best interest of the CITY, CITY shall thereupon have the right to terminate this Contract by giving written notice to SUPPLIER of such termination and specifying the effective date thereof at least fifteen (15) days before the effective date of such termination provided always that if such termination is not due to SUPPLIER's fault, it shall be deemed a termination for convenience and CITY shall pay SUPPLIER for work performed, in accordance with this contract up to the date of termination."

Notwithstanding the above, SUPPLIER shall not be relieved of liability to the CITY for damages sustained by the CITY by virtue of any breach of this Contract by SUPPLIER, and the CITY may withhold any payments to SUPPLIER for the purposes of set-off until such time as the exact amount of damages due the CITY from SUPPLIER is determined. This provision shall survive the termination of this Contract and shall not relieve SUPPLIER of its liability to the CITY for damages.

**6. Independent SUPPLIER:**

6.1 In all matters pertaining to this Contract, SUPPLIER shall be acting as an independent SUPPLIER, and neither SUPPLIER nor any officer, employee or agent of SUPPLIER will be deemed an employee of CITY. Except as expressly

provided in Exhibit A, SUPPLIER has no authority or responsibility to exercise any rights or power vested in the City and therefore has no authority to bind or incur any obligation on behalf of the City. The selection and designation of the personnel of the CITY in the performance of this Contract shall be made by the CITY.

6.2 SUPPLIER, its agents, officers, and employees are and at all times during the term of this Contract shall represent and conduct themselves as independent SUPPLIERs and not as employees of the City.

6.3 SUPPLIER shall determine the method, details and means of performing the work and services to be provided by SUPPLIER under this Contract. SUPPLIER shall be responsible to City only for the requirements and results specified in this Contract and, except as expressly provided in this Contract, shall not be subjected to City's control with respect to the physical action or activities of SUPPLIER in fulfillment of this Contract. If in the performance of this Contract any third persons are employed by SUPPLIER, such persons shall be entirely and exclusively under the direction and supervision and control of the SUPPLIER.

**7. Indemnification and Insurance:**

7.1 SUPPLIER shall indemnify and save and hold harmless CITY from and for any and all losses, claims, actions, judgments for damages, or injury to persons or property and losses and expenses and other costs including litigation costs and attorney's fees, arising out of, resulting from, or in connection with the performance of this Contract by the SUPPLIER, its servants, agents, officers, employees, guests, and business invitees, caused by or arising out of SUPPLIER's negligence or willful misconduct. SUPPLIER shall maintain, and specifically agrees that it will maintain, throughout the term of this Contract, liability insurance, in which the CITY shall be named an additional insured in the minimum amounts as follow: General Liability One Million Dollars ($1,000,000) per incident or occurrence, Professional Liability One Million Dollars ($1,000,000) per incident or occurrence, Automobile Liability Insurance One Million Dollars ($1,000,000) per incident or occurrence and Workers' Compensation Insurance, in the statutory limits as required by law.. The limits of insurance shall not be deemed a limitation of the covenants to indemnify and save and hold harmless CITY; and if CITY becomes liable for an amount in excess of the insurance limits, herein provided, SUPPLIER covenants and agrees to indemnify and save and hold harmless CITY from and for all such losses, claims, actions, or judgments for damages or injury to persons or property and other costs, including litigation costs and attorneys' fees, arising out of, resulting from , or in connection with the performance of this Contract by the SUPPLIER or SUPPLIER's officers, employs, agents, representatives or sub-SUPPLIERs and resulting in or attributable to personal injury, death, or damage or destruction to tangible or intangible property, including use of. SUPPLIER shall provide CITY with a Certificate of Insurance, or other proof of insurance evidencing SUPPLIER'S compliance with the requirements of this paragraph and file such proof of insurance with the CITY at least ten (10) days

prior to the date SUPPLIER begins performance of it's obligations under this Contract. In the event the insurance minimums are changed, SUPPLIER shall immediately submit proof of compliance with the changed limits. Evidence of all insurance shall be submitted to the City Purchasing Agent with a copy to Meridian City Accounting, 33 East Broadway Avenue, Meridian, Idaho 83642.

7.2 Any deductibles, self-insured retention, or named insureds must be declared in writing and approved by the City. At the option of the City, either: the insurer shall reduce or eliminate such deductibles, self-insured retentions or named insureds; or the SUPPLIER shall provide a bond, cash or letter of credit guaranteeing payment of losses and related investigations, claim administration and defense expenses.

7.3 To the extent of the indemnity in this contract, SUPPLIER's Insurance coverage shall be primary insurance regarding the City's elected officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the City or the City's elected officers, officials, employees and volunteers shall be excess of the SUPPLIER's insurance and shall not contribute with SUPPLIER's insurance except as to the extent of City's negligence.

7.4 The SUPPLIER's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

7.5 All insurance coverages for Suppliers subs shall be subject to all of the insurance and indemnity requirements stated herein.

7.6 The limits of insurance described herein shall not limit the liability of the Supplier and Supplier's agents, representatives, employees or subcontractors.

7.7 The limits of insurance described herein shall not limit the liability of the Contractor and Contractor's agents, representatives, employees or subcontractors.

**8. Bonds:**

Payment and Performance Bonds are required per the RFP.

**9. Warranty:**

In addition to any warranty required in the specifications, all equipment, coatings, valves, controls, and other components provided under this Contract shall be guaranteed for *two (2) years* against defects in workmanship and materials from the notice of acceptance. Please see Exhibit D, Revised Section 01 79 50 – Membrane System Warranty dated 9/26/2023 for additional warranty requirements.

**10. Notices:**

Any and all notices required to be given by either of the parties hereto, unless otherwise stated in this Contract, shall be in writing and be deemed communicated when mailed in the United States mail, certified, return receipt requested, addressed as follows:

City of Meridian
Procurement Manager
33 E. Broadway Avenue
Meridian, Idaho 83642
Ph. (208) 489-0417
Email: kwatts@meridiancity.org

FilmTec Corporation
Attn: Christopher Morrow
5400 Dewey Hill Rd.
Edina, MN 54439
Ph.408-771-6202
e-mail: Christopher.morrow@dupont.com

Either party may change their address for the purpose of this paragraph by giving written notice of such change to the other in the manner herein provided.

**11. Attorney Fees:**

Should any litigation be commenced between the parties hereto concerning this Contract, the prevailing party shall be entitled, in addition to any other relief as may be granted, to court costs and reasonable attorneys' fees as determined by a Court of competent jurisdiction. This provision shall be deemed to be a separate contract between the parties and shall survive any default, termination or forfeiture of this Contract.

**12. Time is of the Essence:**

The parties hereto acknowledge and agree that time is strictly of the essence with respect to each and every term, condition and provision hereof, and that the failure to timely perform any of the obligations hereunder shall constitute a breach of, and a default under, this Contract by the party so failing to perform.

“Buyer and Seller agree that time is of the essence of this Contract and that Buyer will suffer damages if Seller's equipment is not delivered to Buyer within the times specified herein. Further, Buyer and Seller recognize the delays, expense and difficulties involved in proving the actual damages suffered by Buyer if Seller's equipment is not delivered on time. Accordingly, and in lieu of requiring proof of such damages, Seller agrees to pay, as liquidated damages for delay (but not as a penalty) $250 per day that expires after the times specified herein, subject to the following limitation. THE PAYMENT OF LIQUIDATED DAMAGES BY SELLER IS BUYER'S SOLE

AND EXCLUSIVE REMEDY FOR DELAYS. NOTWITHSTANDING ANYTHING TO THE CONTRARY INCLUDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY REMEDY EXPRESSLY PROVIDED HEREIN, SELLER'S LIABILITY FOR DELAY SHALL NOT EXCEED A 100% OF THE PRICE PAID TO SELLER UNDER THE CONTRACT.")

**13. Assignment:**

It is expressly agreed and understood by the parties hereto, that SUPPLIER shall not have the right to assign, transfer, hypothecate or sell any of its rights under this Contract except upon the prior express written consent of CITY.

**14. Discrimination Prohibited:**

In performing the Work required herein, SUPPLIER shall not unlawfully discriminate in violation of any federal, state or local law, rule or regulation against any person on the basis of race, color, religion, sex, national origin or ancestry, age or disability.

**15. Reports and Information:**

15.1 At such times and in such forms as the CITY may require, there shall be furnished to the CITY such statements, records, reports, data and information as the CITY may request pertaining to matters covered by this Contract.

15.2 SUPPLIER shall maintain all writings, documents and records prepared or compiled in connection with the performance of this Contract for a minimum of four (4) years from the termination or completion of this or Contract. This includes any handwriting, typewriting, printing, photo static, photographic and every other means of recording upon any tangible thing, any form of communication or representation including letters, words, pictures, sounds or symbols or any combination thereof.

**16. Audits and Inspections:**

At any time during normal business hours if the City believes the Supplier is in breach of the contract or as required by state and federal law, there shall be made available to the CITY for examination all of SUPPLIER'S records with respect to all matters covered by this Contract. SUPPLIER shall permit the CITY to audit, examine, and make excerpts or transcripts from such records, and to make audits of all contracts, invoices, materials, payrolls, records of personnel, conditions of employment and other data relating to all matters covered by this Contract.

**17. Force Majeure**

Neither party shall be liable for any failure or delay in performing an obligation under this Contract that is due to any of the following Force Majeure events,

provided the event is beyond its reasonable control: acts of God, accident, riots, war, terrorist act, epidemic, pandemic, quarantine, civil commotion, natural catastrophe, national strike, fire, or explosion. Force Majeure shall temporarily suspend the Contract until the Force Majeure event ceases.

**18. Publication, Reproduction and Use of Material:**

No material produced in whole or in part under this Contract shall be subject to copyright in the United States or in any other country. The CITY shall have unrestricted authority to publish, disclose and otherwise use, in whole or in part, any reports, data or other materials prepared under this Contract.

**19. Compliance with Laws:**

In performing the scope of work required hereunder, SUPPLIER shall comply with all applicable laws, ordinances, and codes of Federal, State, and local governments.

**Certifications.**

Pursuant to Idaho Code §§ 67-2359 and 67-2346, Contractor hereby certifies:

A. That Contractor is not currently owned or operated by the government of China and will not, for the duration of this Contract, be owned or operated by the government of China.

B. That Contractor is not currently engaged in, and will not for the duration of the Contract engage in, a boycott of goods or services from Israel or territories under its control.

**20. Changes:**

The CITY may, from time to time, request changes in the Scope of Work to be performed hereunder. Such changes, including any increase or decrease in the amount of SUPPLIER'S compensation, which are mutually agreed upon by and between the CITY and SUPPLIER, shall be incorporated in written amendments which shall be executed with the same formalities as this Contract.

**21. Construction and Severability:**

If any part of this Contract is held to be invalid or unenforceable, such holding will not affect the validity or enforceability of any other part of this Contract so long as the remainder of the Contract is reasonably capable of completion.

**22. Waiver of Default:**

Waiver of default by either party to this Contract shall not be deemed to be waiver of any subsequent default. Waiver or breach of any provision of this Contract shall not be deemed to be a waiver of any other or subsequent breach,

and shall not be construed to be a modification of the terms of this Contract unless this Contract is modified as provided above.

**23. Advice of Attorney**:

Each party warrants and represents that in executing this Contract. It has received independent legal advice from its attorney's or the opportunity to seek such advice.

**24. Entire Contract:**

This Contract contains the entire Contract of the parties and supersedes any and all other Contracts or understandings, oral of written, whether previous to the execution hereof or contemporaneous herewith.

**25. Order of Precedence:**

The order or precedence shall be this Contract (including all exhibits), the Request for Proposals, then DuPont's proposal response dated 5/26/2023.

**26. Applicable Law:**

This Contract shall be governed by and construed and enforced in accordance with the laws of the State of Idaho, and the ordinances of the City of Meridian.

**27. Approval Required:**

This Contract shall not become effective or binding until approved by the City of Meridian.

**28. Ownership of Materials and Licenses.**

Ownership of Materials and Licenses. All devices, designs (including drawings, plans and specifications), estimates, prices, notes, electronic data, software and other documents or information prepared or disclosed by Seller, and all related intellectual property rights, shall remain Seller's property. Seller grants Buyer a non-exclusive, non-transferable license to use any such material solely for Buyer's use of the Work. Buyer shall not disclose any such material to third parties without Seller's prior written consent, unless otherwise required by Idaho or Federal law. Buyer grants Seller a non-exclusive, non-transferable license to use Buyer's name and logo for marketing purposes, including but not limited to, press releases, marketing and promotional materials, and web site content.

**29.** Limitations of Liability

LIMITATION OF LIABILITY. NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, SELLER SHALL NOT BE LIABLE FOR ANY

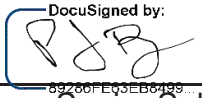
CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER INDIRECT DAMAGES, AND SELLER'S TOTAL LIABILITY ARISING AT ANY TIME FROM THE SALE OR USE OF THE WORK, INCLUDING WITHOUT LIMITATION ANY LIABILITY FOR ALL WARRANTY CLAIMS OR FOR ANY BREACH OR FAILURE TO PERFORM ANY OBLIGATION UNDER THE CONTRACT, SHALL NOT EXCEED 140 PERCENT OF THE PURCHASE PRICE PAID FOR THE WORK. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY.

**CITY OF MERIDIAN**

BY:_____
Keith Watts, Procurement Manager

Dated: _____

**FilmTec Corporation**

DocuSigned by:

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BY:_____
Patrick Regan, Senior Sales Manager

Dated: 10/31/2023 | 4:24 PM EDT

**Approved by City Council:**_____

# Exhibit A

## SCOPE OF WORK

REFER TO REQUEST FOR PROPOSALS PW-2313-11281.F ALL ADDENDUMS, ATTACHMENTS, AND EXHIBITS included in the Request for Proposals Package, all Exhibits to this contract and written proposal by SUPPLIER dated May 26, 2023 are by this reference made a part hereof.

The project consists of supplying an integrated membrane filtration system for the full-scale Tertiary Filtration Project at the City's Wastewater Resource Recovery Facility (WRRF) and for the services outlined in the Request for Proposal (RFP).

# Exhibit B

## MILESTONE / PAYMENT SCHEDULE

A. Total and complete compensation for this Contract shall not exceed **$6,809,834.00**.

| MILESTONE DATES / PRICING SCHEDULE | | | |
|---|---|---|---|
| Contract includes furnishing all labor, materials, equipment and incidentals as required per the Scope of Work in the RFP and all exhibits of this Contract. | | | |
| | | | |
| **MILESTONE** | **MILESTONE NAME** | **COMPLETION DATE** | **PAYMENT** |
| Milestone 1 | Initial Submittal Schedule | 7 Days from Notice to Proceed | None |
| Milestone 2 | Supplier Design Kickoff | 30 Days from Notice to Proceed | None |
| Milestone 3 | Initial Supplier Design Submittal | 90 Days from Notice to Proceed | None |
| Milestone 4 | Final Supplier Design Submittal | 150 Days from Notice to Proceed | Per Proposal (3% max) |
| ***City Construction Bid Process & Contractor NTP*** | | ***277 Days from Final Supplier Design Submittal*** | ***None*** |
| Milestone 5 | Updated Submittal Schedule | 14 Days from Construction Contractor Notice to Proceed | None |
| Milestone 6 | Final Approved Construction Shop Drawings | Varies relative to Contractor Schedule. Refer to Technical Specifications. | 12% |
| Milestone 7 | Delivery of Membrane System | 36 Weeks from Construction Contractor Notice to Proceed | 60% |
| Milestone 8 | Final Approved O&M Manuals and Completed Training | Varies relative to Contractor Schedule. Refer to Technical Specifications. | 5% |
| Milestone 9 | Certification of Proper Installation | Varies relative to Contractor Schedule. Prior to Startup. Refer to Technical Specifications. | 5% |
| Milestone 10 | Substantial Completion | 325 Days from Delivery of Membrane System | None |
| Milestone 11 | Completed Startup Assistance, Training, and Successful Completion of 90 Day Performance | 409 Days from Delivery of Membrane System | 10% |

| | | | |
|---|---|---|---|
| | Testing (including Approval of Final Report) | | |
| Milestone 12 | Final Completion | 438 Days from Delivery of Membrane System | 5% |
| | | | |
| | | **CONTRACT SUB TOTAL** | **$6,595,000.00** |

| **CONTRACT ADDITIONS** | | |
|---|---|---|
| **ITEM** | **NOTES** | **AMOUNT** |
| Shipped Loose pH Meter for the Common UF Filtrate | (Included in Exhibit C – Review Comments, No. 21) | $4,000.00 |
| Chlorine analyzer | | $11,000.00 |
| NEMA 4X for the PCP, the CIP skid panel and the neutralization skid panel | (Included in Exhibit C - Review Comments, No. 43) | $9,500.00 |
| Nylon Coated Ductile Iron Valve Discs | | N/C |
| Siemens Transmitter for Temperature and Pressure | (Included in Exhibit C – Review Comments, No. 11) | $21,000.00 |
| CIP skid Rosemount Analytical Instrument (change from Water Analytics Aquametric) | (Included in Exhibit C – Review Comments, No. 12) | $6,000.00 |
| CIP pump VFDs | (Included in Exhibit C – Review Comments, No. 49) | $38,000.00 |
| Loop Diagrams for the MCP and Panels that Require Contractor Wiring | (Included in Exhibit C - Clarifications, No 7) | $16,000.00 |
| 316SS Air Lines for seven (7) CPII Skids | (Included in Exhibit C - Clarifications, No 28) | $86,334.00 |
| CPVC Piping for CIP Skid | (Included in Exhibit C - Clarifications, No 30) | $12,000.00 |
| CPVC on the Neutralization Skid | (Included in Exhibit C - Clarifications, No 30) | $11,000.00 |
| | | |
| | **CONTRACT ADDITIONS SUB-TOTAL** | **$214,334.00** |
| | | |
| | **CONTRACT TOTAL** | **$6,809,834.00** |
| | | |
| Programming Hourly Rate | (Included in Exhibit C - Clarifications, No 33) | $125.00 / Hr |

# Exhibit C

# Clarifications, Comments & Modifications

# Exhibit C

# Clarifications

**Client:** *City of Meridian*
**Project:** *Tertiary Filtration Project*
**Document:** *Review of DuPont's Proposed Technical Clarifications*

**Rev. Date:** *8/23/2023*
**By:** *M. Priest*
**Checked:** *N. Smith, M. Shroll*

| No. | Page Label | Reference | Proposed Technical Clarification | Issue / Topic | Final Comments | Status Update | Status |
|---|---|---|---|---|---|---|---|
| 1 | 124 | Present Worth Evaluation Worksheets 2. Cost Variables | Refer to *Section 7.6 Membrane Design Calculations* for flux and feed flow calculations. The flux of the proposed system is below 25 GFD due to a calculated feed flow of 17.56 MGD. | Flux | No action needed. | 7/31/2023 | Resolved |
| 2 | 124 | Present Worth Evaluation Worksheets 4. EFM or TMC | Please note that the concentration of chemical in cell D36 is 0, leading to a $0 calculation for neutralization using Bisulfite. Please also note that there is no place for the proposed acid MW values to be added. | Cleaning Costs | Info received for acid MW; unclear on bisulfite neutralization. | 8/11/2023 | Resolved |
| 3 | 124 | Present Worth Evaluation Worksheets 7. Power Calculations | Please note that separate backwash pumps are not required for the proposed MEMCOR® system. Water for the feed sweep step of the backwash for each unit is taken from the common header of the system. The calculations as they stand in the Present worth evaluation spreadsheet double count this energy from the feed pumps. In order to correct for this Dupont has listed 0.001 ft of pressure in each of the water pressure cells. Please see section *7.6 Membrane System Design Calculations* for further details. | Backwash approach | No action needed. | 7/31/2023 | Addressed Elsewhere |
| 4 | 124 | Present Worth Evaluation Worksheets 7. Power Calculations | Blowers are not required for the proposed system, the aeration for backwash is provided from the compressors. Dupont has used a conversion factor of 7 CFM/HP to calculate the 1,787 kWhr/day that the compressors are estimated to use. | Backwash approach | No action needed. | 7/31/2023 | Addressed Elsewhere |
| 5 | 124 | Section 01 79 50 – 1.3.I | The proposed system shall be warranted up to the specified flux limit of 25 GFD per the RFP and a transmembrane pressure (TMP) of 22 psi based on the maximum TMP for the L40N membrane. | Warranted flux. | The performance warranty needs to reflect the ability to operate at higher flux. The TMP limit is reasonable based on discussion with Dupont. | 7/31/2023 | Addressed Elsewhere |
| 6 | 124 | Section 01 79 50 – 1.4.H.2 | DuPont is taking exception to the irreversible flux loss requirements as specified. The proposed system has been designed to make the quantity and quality of water. | Flux loss warranty | City and Dupont agree on revised Warranty Specification Section 01 79 50. | 8/11/2023 | Resolved |
| 7 | 124 | Section 40 91 00 – 1.1.B.4.d | Loop diagrams have not been included with this proposal. | Loop Diagrams | Dupont will provide Loop Drawings for $16,000. Delivery will be loose and not on a skid. | 8/23/2023 | Resolved |

**Client:** *City of Meridian*
**Project:** *Tertiary Filtration Project*
**Document:** *Review of DuPont's Proposed Technical Clarifications*

**Rev. Date:** *8/23/2023*
**By:** *M. Priest*
**Checked:** *N. Smith, M. Shroll*

| No. | Page Label | Reference | Proposed Technical Clarification | Issue / Topic | Final Comments | Status Update | Status |
|---|---|---|---|---|---|---|---|
| | | Section 40 91 07 – Part 2 | The standard CPII MR4 system uses a vibrating fork level switch to confirm the presence of liquid in the filtrate line of the UF skid. We are currently searching for a replacement level switch on the approved list that performs this function but are unsure if we can find a good fit. | | | | |
| | | Section 40 91 08 – 2.2 | The proposed pressure transmitters are Rosemount, an adder has been provided to switch these to Siemens | | See Review Comment Update No 11 | | |
| | | Section 40 91 12 2.3.B | The proposed CIP skid analytical instrumentation is Water Analytics, but an adder has been provided to include Rosemount instead | | See Review Comment Update No 12 | | |
| | | Section 40 95 10 – 2.2.C.6 | The proposed PCP panel is NEMA 12, but an adder has been provided to include NEMA 4 | | See Review Comment update No 43 | | |
| 8 | 124 | Section 40 95 10 – 2.2.C.3 | The proposed system shall utilize Ethernet communication in lieu of Modbus. | Ethernet vs Modbus | Refer to submittal review comments. City has accepted this proposal. | 7/31/2023 | Addressed Elsewhere |
| 9 | 124 | Section 43 12 51 – 2.6.A | The proposed control air receiver shall be 200 gallons. The proposed process air receiver shall be 3,000 gallons. | Air Receiver Tanks | The design is not sufficiently advanced to address this item. Defer to design phase. | 7/31/2023 | Resolved |
| | | Section 43 30 00 – 2.9.A.3 | The proposed butterfly valves have ductile iron bodies and SS discs. A no cost adder has been provided to change the discs to nylon coated ductile iron. | | | | |
| 10 | 124 | Section 46 61 54 – 1.4.G | The proposed system shall not require separate backwash pumps, backwash tanks nor blowers. | Backwash approach | No action needed. | 7/31/2023 | Addressed Elsewhere |
| 11 | 124 | Section 46 61 54 – 1.8.E.2.f | A 3D .STP file which can be integrated into several drafting applications will be provided. | CAD Models | Defer models and format to design phase coordination. | 7/31/2023 | Resolved |
| 12 | 124 | Section 46 61 54 – 1.9.D.1 | An installed redundant pump shall be provided for both the CIP skid and the Neutralization skid. | Shelf Spares | Installed spare will be included. | 7/31/2023 | Resolved |
| 13 | 124 | Section 46 61 54 – 1.9.D.9 | An MIT system replacement has not been included with this proposal. | Shelf Spares | Installed spare will be included. | 7/31/2023 | Resolved |
| 14 | 125 | Section 46 61 54 – 2.1.D.6 | Total Phosphorous and orthophosphate removal shall be dependent upon the upstream chemical addition as described in 2.1.A.5 and shall not be a requirement for UF filtrate quality alone. | Filtrate Water Quality | No action needed. | 7/31/2023 | Resolved |

**Client:** *City of Meridian*
**Project:** *Tertiary Filtration Project*
**Document:** *Review of DuPont's Proposed Technical Clarifications*

**Rev. Date:** *8/23/2023*
**By:** *M. Priest*
**Checked:** *N. Smith, M. Shroll*

| No. | Page Label | Reference | Proposed Technical Clarification | Issue / Topic | Final Comments | Status Update | Status |
|---|---|---|---|---|---|---|---|
| 15 | 125 | Section 46 61 54 – 2.1.D.6 | A UF system cannot reduce TSS down to non-detect limits. The proposed system shall reduce turbidity to <0.2 NTU given proper calibration and excluding backwash air. | Filtrate Water Quality | Replace non-detect with less than 2 mg/L for TSS | 8/15/2023 | Resolved |
| 16 | 125 | Section 46 61 54 – 2.1.C.2 | The proposed system shall produce the specified net filtered effluent of equal to or less than 17.3 MGD with up to two (2) membrane units temporarily offline at one time with the remaining online membrane units not exceeding the maximum instantaneous flux. Please note that this does require repair time to be short enough to prevent 3 units from being offline simultaneously while following the normal cleaning regime. | Skid Redundancy | This is the defined design basis. Alternately, when repairs take longer, activities will be queued by the PLC programming, as discussed. | 7/31/2023 | Resolved |
| 17 | 125 | Section 46 61 54 – 2.1.D | The proposed system shall operate at a recovery of 90% or greater per MEMCOR's experience with successful operating wastewater plants. Backwash waste should be sent to the head of the primary treatment system to further remove solids and increase overall system efficiency. | Recovery | Resolved to operate as required in the RFP. | 8/11/2023 | Resolved |
| 18 | 125 | Section 46 61 54 – 2.1.D | The plant wide SCADA system shall not be included in the scope of this proposal. | SCADA Scope | No action needed. | 7/31/2023 | Resolved |
| 19 | 125 | Section 46 61 54 – 2.1.D.5.f | Hach TU5300 laser turbidimeters have been included with this offering | Instruments | The design is not sufficiently advanced to address this item. Defer to design phase. | 7/31/2023 | Resolved |
| 20 | 125 | Section 46 61 54 – 2.1.D.6 | Continuous monitoring for SDI and P shall be by others | Filtrate Water Quality | No action needed. | 7/31/2023 | Resolved |
| 21 | 125 | Section 46 61 54 – 2.2.C.6 | 316SS panels around each sample tap (feed, filtrate, and backwash) has not been included with this offer | Stainless Steel Panels | The design is not sufficiently advanced to address this item. Defer to design phase. | 7/31/2023 | Resolved |
| 22 | 125 | Section 46 61 54 – 2.2.E.2 | The proposed system does not require two (2) CIP and neutralization systems<br>- it shall include one (1) CIP system and one (1) neutralization system. A second system can be added in the future if additional UF trains are added and another CIP or neutralization system is required. | CIP and Neutralization Scope of Supply | No action needed. | 7/31/2023 | Resolved |
| 23 | 125 | Section 46 61 54 – 2.2.E.5 | The proposed CIP system shall include only one (1) hot water tank per the P&IDs included with this proposal. | CIP and Neutralization Scope of Supply | After discussion this approach seems reasonable. If during design phase it becomes untenable, it can be re-addressed at that time. | 7/31/2023 | Resolved |

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**Project:** *Tertiary Filtration Project*
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| 24 | 125 | Section 46 61 54 – 2.2.G | Per the above clarification, the proposed system shall not require separate backwash pumps nor backwash tanks. | Backwash approach | No action needed. | 7/31/2023 | Addressed Elsewhere |
| 25 | 125 | Section 46 61 54 – 2.1.C.2 & 2.2.C | To present the most economical solution for the customer, the proposed system shall have room for 5.9% expansion per skid (136/144 modules). Should additional expansion capacity be desired please see *Meridian Present Worth Evaluation Worksheets* for costs to add an additional skid. | Spare Module Space | This has been addressed as part of proposal review comment coordination. | 7/31/2023 | Addressed Elsewhere |
| 26 | 125 | Section 46 61 54 – 2.2.C.1 | The proposed UF units shall have a width of 9', a length of 23' 10.25" and a height of 11' 7.125" | | No action needed. | 7/31/2023 | Resolved |
| 27 | 125 | Section 46 61 54 – 2.2.H | Per the above clarification compressors have been included with this proposal for aeration. Blowers shall not be required. | Backwash approach | No action needed. | 7/31/2023 | Addressed Elsewhere |
| 28 | 125 | Section 46 61 54 – 2.2.K | The air piping on the proposed skid shall be nylon and ABS in lieu of 316SS. | Piping Materials | Refer to piping material modifications provided by Addendum. $110k for nine (not 7 skids). This can be factored for 7 skids. 100/9 = $12,223. Call it $86,334. | 8/23/2023 | Resolved |
| 29 | 125 | Section 46 61 54 – 2.2.L | The proposed backwash piping on each UF skid shall be HDPE in lieu of 316SS. | Piping Materials | Refer to piping material modifications provided by Addendum. For other changes, the design is not sufficiently advanced to address this item. Defer to design phase. | 7/31/2023 | Resolved |
| 30 | 125 | Section 46 61 54 – 2.2.M | The proposed CIP and neutralization skids shall have PVC piping in lieu of 316SS. | Piping Materials | Refer to piping material modifications provided by Addendum. Cost adder to upgrade CIP to CPVC adder is $12,000. Neutralization skid is $11,000.00 | 8/15/2023 | Resolved |
| 31 | 125 | Section 46 61 54 – 2.2.P | Membrane unit filtrate pH has not been included with this proposal. Backwash flow and pressure shall be measured using the on skid feed and pressure instruments. Total chlorine measurement is not provided on the CIP skid. | Instruments Scope of Supply | This has been addressed as part of proposal review comment coordination. | 7/31/2023 | Addressed Elsewhere |
| 32 | 125 | Section 46 61 54 – 2.3.B.4 | The proposed system shall include one PLC in the PCP and remote I/O on each of the UF skids, the CIP skid and the neutralization skid. | Instruments Scope of Supply | No action needed. | 7/31/2023 | Resolved |

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| 33 | 126 | Section 46 61 54 – 2.3.B.4 | Dupont has included 100 hours for programming and configuration of the graphics, software and screens to match the existing CITY standards. These standards were not available during the bid, if more time is required it shall be included via change order. | Programming Labor | Dupont labor rate to provide addition programming and configuration of graphics to match existing City standards is 125 per hr. | 7/31/2023 | Resolved |
| 34 | 126 | Section 46 61 54 – 3.4.E.1.a | Dupont shall be present during equipment off-loading for the required three days over one trip, but off-loading shall be by others | Scope of Field Services | No action needed. | 7/31/2023 | Resolved |
| 35 | 126 | Section 46 61 54 – 3.6.B.4.c.6 | In the absence of the table 3 referenced we have designed the proposed system to produce filtrate water < 0.2 NTU with properly calibrated turbidimeters excluding air after backwash. | Filtrate Water Quality | This has been addressed as part of proposal review comment coordination. | 7/31/2023 | Addressed Elsewhere |
| 36 | 126 | Section 46 61 54 – 3.6.C.2 | The supplier shall not be responsible for operating and maintaining the membrane system through the 90-day operational test. | 90 Day Operational Period Responsibility | Specific roles and responsibilities between the supplier and contractor can be better defined during design, and prior to contract bid. City agrees Dupont not responsible for operations and not required to be on-site for entire 90 days. Section 46 61 54, para 3.4.E.1.e. requires supplier on site 12 business days over 4 trips. | 8/15/2023 | Resolved |
| 37 | 126 | Section 46 61 54 – 3.6.C.3 | Monitoring of chemical and power usage shall be by the city. | Performance Test Monitoring | City accepts not requiring monitoring for chemical or power but Dupont will support in providing information as avaialble. | 8/15/2023 | Resolved |
| 38 | 126 | Section 46 61 54 – 3.6.D.3.b | Some operational parameters shall be measured by instruments not included with this proposal, and some parameters shall be calculated. | Startup Plan and Data Collection | The design is not sufficiently advanced to address this item. Defer to design phase. | 7/31/2023 | Resolved |

# Exhibit C

# Comments

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*City of Meridian*
*Tertiary Filtration Project*
*Membrane Proposal Review - Dupont*

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| File | No. | Page Label | Critical Comment | Comments | Discipline | Status | Final Comments | Status Update |
|---|---|---|---|---|---|---|---|---|
| General Comment | 1 | n/a | Yes | | General | Resolved | There are many substitutions and deviations proposed, some are explicit and some are not. No deviations or substitutions are approved upon proposal acceptance, unless specifically agreed to in writing at time of procurement agreement. Review and approval / rejection for all remaining items is deferred to design coordination phase. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 2 | 93 | | Spec 46 61 54 2.1 C 2 a indicates redundancy so 2 units may be offline and system can operate continuously to produce 17.3 MGD | Process-Mechanical | Resolved | The proposed design considers the requirements of section 2.1.C.2<br>"Two membrane units may be offline simultaneously for a combination of two of the following: Backpulse, CIP or maintenance clean, MIT, or repair."<br>Seven (7) units are required to be operating to produce 17.3 MGD. To reduce downtime one of the "offline" units will need to come online when one of the seven (7) unit has a cleaning event (backwash, MW, CIP, AHT). To consider two units fully offline without cycling offline units in would require an additional unit. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 3 | 93 | | Confusing wording. If 2 units are available to turn on, aren't they offline? | Process-Mechanical | Resolved | As referenced above, the units are available to turn on unless they are currently performing one of the following: Backpulse, CIP or maintenance clean, MIT, or repair. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 4 | 93 | | Confusing wording. If 2 units are available to turn on, aren't they offline? | Process-Mechanical | Resolved | Same as above | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 5 | 93 | | Confusing wording. If 2 units are available to turn on, aren't they offline? | Process-Mechanical | Resolved | Same as above | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 6 | 93 | | Is ~ 2.4 min / backwash (22 min / 9 skids) adequate so only one if offline at a time? What happens during maintenance? | Process-Mechanical | Resolved | Each backwash shall have a duration of ~120 seconds, and with 7 duty skids there will be times where no unit is backwashing. There will be times that a unit enters backwash when the other offline unit is in maintenance wash, AHT or CIP. Backwash is a resource and 2 units will not be able to backwash at the same time. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 7 | 93 | | Does that mean one unit is always offline / backwashing? Does that mean skids backwash before they need to? | Process-Mechanical | Resolved | Backwashes occur each 22minute time interval an will not backwash before required. There will be times when no units are in backwash. | 7/7/2023 |

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|---|---|---|---|---|---|---|---|---|
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 8 | 94 | | Based on 7 units in operation.... does that mean the system can meet 17.3 MGD with 2 units offline? | Process-Mechanical | Resolved | Seven (7) units are required to be operating to produce 17.3 MGD. To reduce downtime one of the "offline" units will need to come online when one of the seven (7) unit has a cleaning event (backwash, MW, CIP, AHT). To consider two units fully offline without cycling offline units in would require an additional unit. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 9 | 100 | | Section 43 30 00 indicates same material as body. Substitution not approved; review and approval / rejection deferred to design coordination phase. | Process-Mechanical | Resolved | Additional cost or deduct for changing the valve material will be deferred to the design coordination phase. Dupont's supplier has verbally committed to offering nylon coated ductile iron valve discs at no extra charge. | 8/4/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 10 | 101 | | not listed as acceptable type of level switch in specification 40 91 07 | Process-Mechanical | Resolved | Given our prior experience, vibrating fork is the preferred type for our proprietary membrane skids. However, a conductive probe can be substituted if preferred. In this case, Rosemount is preferred. Dupont engineering team is looking into this, but since this is a flow present signal as opposed to a liquid level signal they are struggling to find an adequate replacement using the types in the specification. | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 11 | 101 | | not listed as approved manufacturer. may fall under "owner approved equal"; however, will need to discuss with City. pdf page 320 | Process-Mechanical | Resolved | Please consider Rosemount pressure transmitters. Siemens transmitter adder (SF): $21k | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 12 | 102 | | Manufacturer: Rosemount per spec 40 91 12 Section 2.3 B PDF page 336 | Process-Mechanical | Resolved | To change the Water Analytics Aquametric instruments on the CIP skid to Rosemount. CIP skid Rosemount Analytical instrument adder: $6k | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 13 | 104 | | dewpoint analyzer?  intake filter-silencer? Spec 43 12 51 Section 2.7 A | Process-Mechanical | Resolved | Both the dewpoint analyzer and the intake filter silencer are included in the current proposed compressed air package (per spec) | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 14 | 107 | | One container each coating material used? 1 year lubricant? Spec section 46 61 54 1.9 D | Process-Mechanical | Resolved | The container of each coating material used and 1 year supply of lubricants are currently included | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 15 | 124 | | Is this reflected in the cost? | Process-Mechanical | Resolved | Yes, the current proposal price does not include backwash pumps, backwash tanks (filtrate is what is in the rack header, not external supply. ~600 gal. After that the feed provides cross flow sweep of fibers) nor blowers. | 8/2/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 16 | 124 | | Blowers were required as part of proposal. Section 43 12 10 | Process-Mechanical | Resolved | City is willing to proceed with air-driven backwash | 7/7/2023 |

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| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 17 | 125 | | This is a cost adder.... is this acceptable to City? | Process-Mechanical | Deferred | To be resolved during negotiation / scope of supply validation | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 18 | 125 | | Does this mean it's shipped loose? | Process-Mechanical | Deferred | A shipped loose pH meter for the common UF filtrate can be provided. $4k adder. | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 19 | 125 | | Spec 46 61 54 2.2 E 2 requires capability of running 2 CIP simultaneously. One CIP tank will not sufficiently meet. | Process-Mechanical | Resolved | Dupont recommends a single tank as it is only used as water preheating, not chemical batch mixing; no chemicals are circulated through the tank.<br><br>2.2.E.2 reads "The CIP system shall be provided to allow two cleans to be performed simultaneously, **if required**, one by each CIP system. A future CIP system in envisioned for future membrane skids." It is our interpretation that the 2nd CIP tank can be added when the future CIP system / future membrane skids are added. Two CIP systems can be provided if required, but it is not necessary for the proposed system. | 8/2/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 20 | 125 | | see comment above.. blowers required. | Process-Mechanical | Resolved | Noted | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 21 | 125 | | Membrane unit filtrate pH has not been included with this proposal | Process-Mechanical | Under Review | We can provide a shipped loose pH meter for the common UF filtrate if desired. The adder for a shipped loose pH meter for the common UF filtrate is $4k. The adder for the Chlorine analyzer for the CIP waste line is $11k<br>See Clarification Tab line 31 for reference. | 7/24/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 22 | 126 | | Spec 46 61 54 Section 2.1 D 6 | Process-Mechanical | Resolved | Noted | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 23 | 126 | | , if more time is required it shall be included via change order. | Process-Mechanical | Resolved | Proposal acceptable | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 24 | 130 | | 4 ft minimum spacing between units per spec 46 61 54 section 2.2 C 2 | Process-Mechanical | Resolved | Spacing will be per collaborative design effort; 4 ft minimum.<br><br>Alternative layout shall be provided. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 25 | 130 | | units not to exceed 6 ft width per spec 46 61 54 section 2.2 C 2 | Process-Mechanical | Resolved | Skids as proposed (MR4) are acceptable | 7/7/2023 |

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| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 26 | 130 | | how do operators access interior modules? | Process-Mechanical | Resolved | City has chosen to move forward with the butterfly arrangement which eliminates this issue. | 8/23/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 27 | 158 | | should be supplied by supplier. Spec 46 61 54 Section 1.4 G. Only 1 tank? See comment above. | Process-Mechanical | Resolved | One tank to be supplied for exsiting conditions and expanded in the future as proposed. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 39 | 130 | | Widths and Lengths of building detailed here consistent with current civil footprint. | Civil | Resolved | The new layout shows the same existing building footprint with 4' spacing between skids | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 41 | 54 | | Submit a network architecture diagram showing protocoled devices. See 40_91_00 Section 1.3, G for specifications. | I&C | Resolved | To be resolved during design progression to allow for review and approval.<br><br>As noted this shall be created during submittals | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 42 | 106 | | The chemical metering pumps and chemical tanks will be installed in an adjacent building, and the Membrane Supplier will need to provide a RIO panel in this building that controls/monitors the chemical systems via fiber integration with main PLC. See drawings 000-I-604,605 for network concept. All field devices in the chemical system will be spec'd for analog and digital signal integration. The chemical RIO shall be NEMA 1 rated | I&C | Resolved | To be resolved during design progression to allow for review and approval.<br><br>MEMCOR can provide this panel, please provide digital input and output counts (Contractor Scope of Supply - FYI only) | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 43 | 106 | | All Membrane Supplier control panels installed in the filtration building shall be NEMA 4 rated | I&C | Rejected | Provide panels per the specifications<br><br>this adder is ~$9.5k for the PCP, the CIP skid panel and the neutralization skid panel | 7/24/2023 |

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| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 44 | 109 | | Integration of the Membrane system onto facility SCADA is by others. Membrane Supplier to provide addresses and registers for exchange of information between Supplier PLC and SCADA. | I&C | Resolved | | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 45 | 124 | | Acceptable per addendum | I&C | Resolved | | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 46 | 153 | | Vendor equipment and instruments shall conform to owner's tagging standards. See Control Narrative appendix to PER report. | I&C | Resolved | | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 47 | 155 | | All of these and the network blocks need to be shown on the control network diagram. | I&C | Resolved | To be resolved during design progression to allow for review and approval. | 7/24/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 48 | 156 | | All PIT's, TIT's, and hydrostatic LIT's that are furnished/provided by Vendor are to be loop-powered. If PY and TY are signal isolators, they are not needed on loop-powered devices. | I&C | Resolved | Further I&C and electrical coordination required. To be resolved during design progression to allow for review and approval. | 8/4/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 49 | 158 | | VFD | I&C | Resolved | VFD required for this application.<br>CIP skid pump VFDs: $65k (total pricing for both pumps). An adder (including deduct for constant speed drive) of $38,000. | 8/15/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 50 | 159 | | PSL's are not externally powered. External power indicators on the P&ID in this proposal are generally questionable. Accurize them, or the field Contractor may over bid the job. | I&C | Resolved | Further I&C and electrical coordination required. To be resolved during design progression to allow for review and approval. | 8/4/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 51 | 160 | | Switches are not externally powered. Typ | I&C | Resolved | Further I&C and electrical coordination required. To be resolved during design progression to allow for review and approval. | 8/4/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 52 | 162 | | Membrane backwash is not being recycled but instead going to plant drain. The tank and recycle pumps shown 'by others' should be removed from this proposal. | I&C | Resolved | Noted | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 61 | 150 | | The total system load is less than Stantec's design basis load. A preliminary load total is 280kVA. This system does not use backpulse pumps. It also does not use blowers. It uses a compressor instead which also provides instrument air. Hence, the lower load and operating cost. | Electrical | Resolved | Noted | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 62 | 158 | | Inconclusive if motors comply with Div 26 motor spec. | Electrical | Resolved | Supplier confirmed compliance to div 26. | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 63 | 161 | | This system uses a compressor in lieu of multiple blowers. | Electrical | Resolved | Noted | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 68 | 21 | | This note appears to be in conflict with the executive summary which states the price is good for 18 months. | General | Addressed Elsewhere | Reference Contracts tab line no. 7 where a CIP of 3% is discussed. | 8/11/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 69 | 89 | Yes | Confusing statement; Dupont should be asked to clarify. | General | Resolved | As referenced above, the units are available to turn on unless they are currently performing one of the following: Backpulse, CIP or maintenance clean, MIT, or repair. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 70 | 90 | | Design flow is based on maximum month scenario. Design recoveries should be based on that scenario, not average daily flow. | Process-Mechanical | Resolved | Confirmed from bottom up check. | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 71 | 92 | | This method is silent on LRV assessment. Confirm that membrane guidance manual approach to LRV calculation is performed. | Process-Mechanical | Resolved | Yes, we convert the AHT (or PDT) value to an LRV as per (using equations defined in) the Membrane Filtration Guidance Manual (MFGM). | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 72 | 94 | | These modules have been referred to as both 721 and 731 sf in this proposal in multiple locations. Please clarify. | Process-Mechanical | Resolved | The proposed module surface area is 731 sf | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 73 | 121 | Yes | Schedule limitations not compliant with the warranty spec. | General | Resolved | See revised warranty spec language for final schedule implications. | 8/11/2023 |

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| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 74 | 123 | Yes | DuPont has provided comments and suggested modifications to the sample agreement. Stantec recommends City review in advance of selection to assess which are acceptable or can be resolved with negotiation, and which are not and must be rejected. | General | Addressed Elsewhere | To be resolved during negotiation | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 75 | 124 | Yes | Flux and TMP limits to a conservative design basis are not feasible. Facility may be rerated after testing.<br><br>Water quality is a necessary part of the design, and Dupont certification that their membrane formulation will work without irreversible loss is needed.<br><br>These are not compliant with specified requirements. | General | Resolved | The City is willing to defer the higher flux testing until after the Process Performance warranty period; this means that higher flux testing to the specified value following that period does not invalidate the module warranty as specified. The maximum TMP of L40N of 22 psi will be held to match the module design constraints. | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 76 | 124 | Yes | DuPont has submitted a list of deviations. Stantec recommends City review in advance of selection to assess which are acceptable or can be resolved with negotiation, and which are not and must be rejected. None have identified cost or schedule impacts so these will need to be addressed during further review. | General | Addressed Elsewhere | Refer to City Clarification Feedback dated 7/31 | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 77 | 125 | | Does not meet specification for 10% spare space on skids. | Process-Mechanical | Deferred | Provisionally accepted, pending final decisions on number of skids purchased. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 97 | 2 | | Incorrect project number. | General | Resolved | City Project Number is PW-2313-1128.1 | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 98 | 5 | | This says Appendix D on dedicated project team. Also, the resumes are shown after all of the drawings. Not sure if that is a mistake or not | General | Resolved | Please refer to the Appendix C - Resume's for additional details on the project team. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 99 | 53 | | add size of service center, staff tenure and capabilities | General | Resolved | Noted. Update: Please review attached. | 7/24/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 100 | 55 | | in TOC, it says the resumes are in Appendix C. | General | Resolved | Correct, appendix C include the resumes | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 101 | 100 | | Where can we find specs on DuPont standards? Please include clarification on this | General | Resolved | Please review attached. Update: Please review attached. | 7/24/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 102 | 107 | | Missing price of spare parts | General | Resolved | The price for the spare parts is included in the total proposal price | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 113 | 27 | | Based on Spec 46 61 54 2.1.D, maximum instantaneous flux = 25 gfd. Does not match calculated flux at proposed 7 skids, 731 sf per module. Stantec to verify. | Process-Mechanical | Resolved | Please use a feed flow of 17.3 mgd (plus 26,000 gpd other filtrate needs) when confirming via calculations. More data can be supplied upon request. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 114 | 37 | | Based on Spec 46 61 54 2.1.D, maximum instantaneous flux = 25 gfd. Does not match calculated flux at proposed 7 skids, 731 sf per module. Stantec to verify. | Process-Mechanical | Resolved | Please see above. | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 115 | 89 | Yes | Daily operating recovery of 95% shall be met during worst raw water quality conditions. Reference: PAGE 46 61 54-20. Stantec investigating difference. | Process-Mechanical | Resolved | The recovery of the proposed system is >90% | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 116 | 103 | | Number of the CIP Tanks is 2 in Membrane Procurement Technical Specification Reference: Page 551, Table 2-13: Clean in-place design criteria | Process-Mechanical | Resolved | To be resolved during negotiation / scope of supply validation<br><br>Please see above | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 117 | 108 | | Missing the number of trips on site required, in addition to number of days. Reference: PAGE 46 61 54-36 | General | Resolved | Please see below | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 118 | 108 | | 1 trip | General | Resolved | Included as specified | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 119 | 108 | | 3 trips | General | Resolved | Included as specified | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 120 | 108 | | 3 trips | General | Resolved | Included as specified | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 121 | 108 | | 1 trip | General | Resolved | Included as specified | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 122 | 108 | | 4 trips | General | Resolved | Included as specified | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 123 | 108 | | 2 trips | General | Resolved | Included as specified | 7/7/2023 |

| File | No. | Page Label | Critical Comment | Comments | Discipline | Status | Final Comments | Status Update |
|---|---|---|---|---|---|---|---|---|
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 124 | 118 | Yes | Missing this criterion for performance condition: Total Membrane System Recovery: Minimum of ninety-five percent (95.0%) based on the total plant volume produced relative to the total plant feed volume over the course of any one (1) day. REFERENCE: MEMBRANE PROCUREMENT TECHNICAL SPECIFICATION PAGE 46 61 54 -39 and 46 61 54 -40. | General | Resolved | The recovery of the proposed system is >90% | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 125 | 119 | | MISSING INCLUDING ALL THE PARAMETERS AS DEFINEND FOR RAW WATER QUALITY. REFERENCE: MEMBRANE PROCUREMENT TECHNICAL SPECIFICATION 46 61 54-18. | Process-Mechanical | Resolved | The proposed system has been designed to treat the water quality described in the specification | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 126 | 119 | Yes | Operation up to a flux 45 gfd and maximum TMP pressure of 35 psi for pressure membrane systems shall not invalidate the System Performance Warranty. Reference: Membrane Procurement Technical Specifications-PAGE 01 79 50 - 3 PART I. | Process-Mechanical | Addressed Elsewhere | Refer to Item 75; Resolved on approach on Clarifications log.<br><br>The system is warranted as proposed. The published maximum transmembrane pressure of L40N is 22psi. If alterative design fluxes are going to be considered for re-rating the facility a pilot or online study would be recommended.<br><br>Resolved with revised warranty discussions. | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 127 | 125 | | The combination of chemical addition and the membrane system must reduce the total phosphorous to the target level. The main objective of The Tertiary Membrane Filtration Project is to provide adequate capacity to meet 2040 flow conditions and bring average WRRF total phosphorus. The Suppler shall guarantee if the membrane system is capable of reducing total phosphorous to the target level under reasonable coagulant dosing scenarios. | Process-Mechanical | Addressed Elsewhere | The specification acknowledges pretreatment needs; this is a shared responsibility. Refer to discussion of Proposed Dupont Clarification NO. 14.<br><br>Ultrafiltration modules remove particulate phosphate but not soluble. With proper prep retreatment the total phosphorous can be reduced and DuPont can support Stantec and the City in selecting suitable coagulants for PVDF membranes. Since the upstream biological process and coagulant dosing are outside DuPont's control the total phosphorous in the filtrate cannot be guaranteed. | 8/8/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 128 | 131 | | It should be neutralization tank. | Process-Mechanical | Resolved | Correct, this has been changed on the updated layout | 7/7/2023 |
| 1-A-085163 Meridian ID CPII Proposal 230526.pdf | 129 | 160 | | The membrane supplier requires to provide the NEUT Tank Size and Capacity. It was provided in general layout but not in the P&ID sheet | Process-Mechanical | Resolved | The proposed system requires a neutralization tank with a 15,000 gallon working volume | 7/7/2023 |

# Exhibit C

# Modifications

**Client:** *City of Meridian* *8/23/2023*
**Project:** *Tertiary Filtration Project* *Stantec*
**Document:** *Review of DuPont's Proposed Contract Modifications, Technical Feedback* *City*

| No. | Reference | Proposed Modification | Issue / Topic | Final Comments | Status | Date |
|---|---|---|---|---|---|---|
| 1A | SAMPLE AGREEMENT 2.2 | DuPont foresees the project payment milestone schedule will be established in the final agreement, this schedule will be subject to mutual agreement between the Buyer and Seller. Given the project's scope, it is expected that multiple deliveries will be necessary, and thus invoices for partial deliveries are expected to be duly accepted. | Milestone Schedule | The City and Dupont agreed to assign milestones as part of the agreement. | Resolved | 8/15/2023 |
| 1B | | | Partial Deliveries and Payments | Require justification in advance for early deliveries, with clear storage, custody and risk allocation. Address in advance any warranty implications for early delivery. The proposed warranty language could conceivable allow for warranty to expire prior to end of construction. If partial deliveries are allowed, make them clearly identified with appropriate progress payment terms in advance.<br><br>Introduce provision in the agreement for development and definition during project design. Partial payments for incremental deliveries acceptable to City, included in milestone schedule as feasible now. | Resolved | 8/15/2023 |

| | | |
|---|---|---|
| **Client:** | *City of Meridian* | *8/23/2023* |
| **Project:** | *Tertiary Filtration Project* | *Stantec* |
| **Document:** | *Review of DuPont's Proposed Contract Modifications, Technical Feedback* | *City* |

| No. | Reference | Proposed Modification | Issue / Topic | Final Comments | Status | Date |
|---|---|---|---|---|---|---|
| 2 | SAMPLE AGREEMENT SECTION 5 | In the event of a termination for convenience (TFC), including circumstances where it is deemed in the best interest of the City and without any fault on the part of the Seller, the Seller shall be entitled to receive payment for all work performed, regardless of whether it has been delivered or remains undelivered, up until the date of termination. | Payment for incurred expenses | The method for assessing the expenses incurred, as well as disposition of all material assets covered by those expenses should be defined in advance. Note that some materials could have value to Dupont (materials that can be used for other projects) but may not have value for the City (City would not want to acquire). Goods restocking fee (for already delivered materials, or materials in factory).<br><br>TFC will be maintained by the City, in the event of termination, City would need justification for payment. City would receive materials paid for within a reasonable limit. TFC very unlikely. | Resolved | 8/15/2023 |
| 3 | SAMPLE AGREEMENT Article 7 | In Article 7, the City requests that the Supplier indemnify it against specific claims that are "not caused by or arising out of the tortious conduct of the City or its employees." This language should be amended to cover claims "caused by or arising out of the Supplier's negligence or<br>willful misconduct." | Indemnity | Revised laguage agreed to in email correspoindence dated 8.22.23 from Kurt Starman. | Resolved | 8/23/2023 |

**Client:** *City of Meridian* *8/23/2023*
**Project:** *Tertiary Filtration Project* *Stantec*
**Document:** *Review of DuPont's Proposed Contract Modifications, Technical Feedback* *City*

| No. | Reference | Proposed Modification | Issue / Topic | Final Comments | Status | Date |
|---|---|---|---|---|---|---|
| 4 | SAMPLE AGREEMENT Article 12 | "Buyer and Seller agree that time is of the essence of this Contract and that Buyer will suffer damages if Seller's equipment is not delivered to Buyer within the times specified herein. Further, Buyer and Seller recognize the delays, expense and difficulties involved in proving the actual damages suffered by Buyer if Seller's equipment is not delivered on time. Accordingly, and in lieu of requiring proof of such damages, Seller agrees to pay, as liquidated damages for delay (but not as a penalty) $250 per day that expires after the times specified herein, subject to the following limitation. THE PAYMENT OF LIQUIDATED DAMAGES BY SELLER IS BUYER'S SOLE AND EXCLUSIVE REMEDY FOR DELAYS. NOTWITHSTANDING ANYTHING TO THE CONTRARY INCLUDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY REMEDY EXPRESSLY PROVIDED HEREIN, SELLER'S LIABILITY FOR DELAY SHALL NOT EXCEED A 10% OF THE PRICE PAID TO SELLER UNDER THE CONTRACT.") | Liquidated damages and limit of liability | City (Keith and David) and Dupont legal to directly discuss. City and Dupont agreed to 100% in Warranty negotiations (01 79 50 6) and agreement discussions with email dated 9.26.23 from Dupont. 8/15/23 Update: Resolved | Resolved | 8/15/2023 |

| | | |
|---|---|---|
| **Client:** | *City of Meridian* | *8/23/2023* |
| **Project:** | *Tertiary Filtration Project* | *Stantec* |
| **Document:** | *Review of DuPont's Proposed Contract Modifications, Technical Feedback* | *City* |

| No. | Reference | Proposed Modification | Issue / Topic | Final Comments | Status | Date |
|---|---|---|---|---|---|---|
| 5 | SAMPLE AGREEMENT ADD Article 27 | Ownership of Materials and Licenses. All devices, designs (including drawings, plans and specifications), estimates, prices, notes, electronic data, software and other documents or information prepared or disclosed by Seller, and all related intellectual property rights, shall remain Seller's property. Seller grants Buyer a non-exclusive, non-transferable license to use any such material solely for Buyer's use of the Work. Buyer shall not disclose any such material to third parties without Seller's prior written consent. Buyer grants Seller a non-exclusive, non-transferable license to use Buyer's name and logo for marketing purposes, including but not limited to, press releases, marketing and promotional materials, and web site content. | Ownership of Materials and Licenses | City will disclose as required by law (federal/state). Use language as noted. | Resolved | 8/15/2023 |
| 6 | SAMPLE AGREEMENT ADD Article 28 | LIMITATION OF LIABILITY. NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, SELLER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER INDIRECT DAMAGES, AND SELLER'S TOTAL LIABILITY ARISING AT ANY TIME FROM THE SALE OR USE OF THE WORK, INCLUDING WITHOUT LIMITATION ANY LIABILITY FOR ALL WARRANTY CLAIMS OR FOR ANY BREACH OR FAILURE TO PERFORM ANY OBLIGATION UNDER THE CONTRACT, SHALL NOT EXCEED THE PURCHASE PRICE PAID FOR THE WORK. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY. | Limitation of Liability | Limit Of Liability cap at 1.4x the contract value. Dupont confirmed agreement. | Resolved | 8/23/2023 |

| | | |
|---|---|---|
| **Client:** | *City of Meridian* | *8/23/2023* |
| **Project:** | *Tertiary Filtration Project* | *Stantec* |
| **Document:** | *Review of DuPont's Proposed Contract Modifications, Technical Feedback* | *City* |

| No. | Reference | Proposed Modification | Issue / Topic | Final Comments | Status | Date |
|---|---|---|---|---|---|---|
| 7 | Meridian Present Worth Evaluation Worksheets | The proposal is based on the current market conditions and material cost and is valid for ninety ~~(90) days~~ 150 days from the date of issue. The price listed herein shall remain valid with a Notice to Proceed (NTP) to Fabricate by August 30th, 2024, as long as the CPI increases by no more than 2% between the Bid Date and the Notice to Proceed (NTP) to Fabricate. Should the CPI increase more than 2% during this period, then the contract shall be equitably adjusted for the increase above 2% from the Bid Date based on the CPI index "CPI-U, US City Average, all Items (non-seasonally adjusted)" as compiled by the U.S. Department of Labor. | Price Indexing | Refer to discussion on the proposal review comments No 68. DuPont has also extended the price validity of their proposal by an additional 60 days (revised date of October 22, 2023). NTP for entire project will be submitted along with NTP for fabrication of parts of the project will be provided to help reduce total amount of potential escalation. CPI increase of more than 3% would then be applied to remaining items not included in the notice to proceed fabrication. City asking for reduction in price if more than 3% drop in CPI. Update: Total NTP with line item approval for payments. Dupont agrees to downward correction also. | Resolved | 8/23/2023 |
| 8 | Section 01 79 50 | Please refer to *Section 10 – Membrane System Warranty* for DuPont's warranty offering herein. | Warranty | Resolved in revised warranty specification. | Reopened | 8/23/2023 |

# SECTION 01 79 50 – MEMBRANE SYSTEM WARRANTY

## PART 1 -- GENERAL

### 1.1 GENERAL

A. All membrane system equipment, software and performance bond documents shall be furnished to the CITY, in a form acceptable to the CITY, simultaneously with the execution of the Purchase Order Agreements with CITY.

B. The SUPPLIER shall provide manufacturer's warranty certificates for the membrane modules and individual equipment as specified in individual equipment specification sections, in a form acceptable to the CITY, for the membrane system and individual equipment.

C. These warranties are not the exclusive remedy for the CITY in the event of any breach of this Agreement.

### 1.2 MEMBRANE SYSTEM EQUIPMENT AND SOFTWARE WARRANTY

A. For a period of 2 years, commencing from the date of Final Completion of the general construction contract, the SUPPLIER guarantees the following:

1. **Membrane System Equipment Warranty.** That all work, materials, equipment and products provided by the SUPPLIER, exclusive of the membrane modules, will be free from defects in materials and workmanship. The Seller warrants the Work, or any components thereof, through the earlier of (i) thirty (30) months from delivery of the Work or (ii) twenty-four (24) months from Final Completion the Work or ninety (90) days from the performance of services (the "Warranty Period").

2. **PLC Software Warranty.** That SUPPLIER will make necessary changes and implement upgrades to the PLC software relating to providing solutions to all membrane system programming defects or deficiencies encountered during testing and operation of the membrane system.

B. Subject to the following sentence, Seller warrants to CITY that the (i) Work shall materially conform to the description in Seller's Documentation and shall be free from defects in material and workmanship and (ii) the Services shall be performed in a timely and workmanlike manner. Determination of suitability of treated water for any use by CITY shall be the sole and exclusive responsibility of CITY.

C. The foregoing warranty shall not apply to any Work that is specified or otherwise demanded by CITY and is not manufactured or selected by Seller, as to which (i) Seller hereby assigns to CITY, to the extent assignable, any warranties made to Seller and (ii) Seller shall have no other liability to CITY under warranty, tort or any other legal theory.

D. If CITY gives Seller prompt written notice of breach of this warranty within the Warranty Period, Seller shall, at its sole option and as CITY's sole and exclusive remedy, repair or replace the subject parts, re-perform the Service or refund the purchase price.

E. SUPPLIER shall provide a Performance Bond to CITY to secure SUPPLIER's performance of its obligations herein.

F. The SUPPLIER shall make, or have made at the expense of the SUPPLIER, repairs, adjustments, replacements, or other corrective work necessary to restore or bring into full compliance with the requirements of the specifications any part of the work, materials, or equipment, which during the 2 year warranty period is found to be deficient with respect to any provision of the Specification.

G. Unless otherwise agreed to in writing by Seller, (i) CITY shall be responsible for any labor required to gain access to the Work so that Seller can assess the available remedies.

H. If Seller and City determine that any claimed breach is not, in fact, covered by this warranty, CITY shall pay Seller its then customary charges for any repair or replacement made by Seller. Seller shall evaluate claimed breach and inform the City before performing warranty work, if the breach is not covered by the warranty.

I. Seller's warranty is conditioned on CITY's (a) operating and maintaining the Work in accordance with Seller's instructions, (b) not making any unauthorized repairs or alterations, and (c) not being in default of any payment obligation to Seller. Seller's warranty does not cover (i) damage caused by chemical action or abrasive material, misuse or improper installation (unless installed by Seller) and (ii) media goods (such as, but not limited to, resin, membranes, or granular activated carbon media) once media goods are installed.

J. If a defect or deficiency is of a kind which in the reasonable opinion of the CITY requires immediate correction to avoid injury to the CITY, the CITY may make or have made such repairs, adjustments, replacements, or other corrective work, and the SUPPLIER agrees to promptly pay the CITY invoice for the corrective work. Such payment shall be made within 30 days of the date shown on the CITY's invoice to the SUPPLIER.

If a defect or deficiency is of a kind which in the reasonable opinion of the CITY does not require immediate correction, and the SUPPLIER has failed to mobilize to the Site or has failed to commence undertaking corrective work within 7 calendar days of notification from the CITY, then the CITY may make or have made such repairs, adjustments, replacements, or other corrective work and the SUPPLIER agrees to promptly pay the CITY's invoice. Such payment shall be made within 30 days of the date shown on the CITY's invoice to the SUPPLIER.

K. If, in the performance testing or operation of the equipment after installation, the CITY finds latent defects or finds that equipment and/or software programming fails to meet any requirements of the Specifications, the CITY shall have the right to make reasonable use of such equipment until it can be shut down for correction of defects without injury to the CITY; provided that the period of such operation pending the correction of defects shall not exceed 6 months without the written consent of the SUPPLIER.

L. Prior to the expiration of the Membrane System Equipment and Software Warranty period, the SUPPLIER shall provide a electronic copy of documentation of the updated system software to the CITY.

## 1.3 SYSTEM PERFORMANCE WARRANTY

A. For a period of 2 years, commencing from the date of Final Completion of the general construction contract, the SUPPLIER shall warrant that the membrane equipment and ancillary systems when operated within conditions specified in the Technical Specifications and PER will meet the Performance Criteria as specified in Section 46 61 54 – Pressurized Membrane System and as listed below.

B. **Equipment Performance Criteria**
Subject to provisions below, DuPont (the "Supplier") warrants to the City of Meridian (the "CITY") that Supplier's Equipment will meet the following performance criteria during the ITP (the "Initial Performance Test"):

| 2 PARAMETER | VALUE | UNITS |
|---|---|---|
| Production Capacity Total[1] | 17.3 | MGD |
| Minimum Temperature | 14.83 | DegC |
| CIP Frequency[4] | 30 | days |
| Acid Maintenance Wash Frequency[4] | 48 | hours |
| Chlorine Maintenance Wash Frequency[4] | 72 | hours |
| Filtrate Turbidity[3] | ≤ 0.1 95% and ≤ 0.3 maximum | NTU |

Notes:
*(1) The net production rate of finished water over a 24-hour period of continuous operation, equal to the rate of raw water entering the Membrane Filtration System multiplied by the overall system recovery when operated at or below the average flux rate.*
*(2) When operating at the maximum design capacity.*
*(3) When a properly maintained and calibrated analyzer receives the appropriate sample flow and excluding potential regrowth.*
*(4) A clean in place will be performed before the beginning of the performance test.*
*(5) Maintenance wash frequency includes acid and chlorine maintenance cleans to be performed at a minimum of every seven (7) days.*

B. Feed water characteristics shall be per Section 46 61 54 2.1.A.4 Design Influent Quality.

Prior to and during the 2 year Performance Test, the CITY shall be responsible for the following: (i) operation of the Equipment in accordance with Supplier's O&M manual and Supplier's instructions, (ii) resolution, to Supplier's satisfaction, of any issues identified by Supplier as described in the following paragraph, (iii) demonstration that the feed water quality has continuously met the Feed Water Characteristics by means of a sampling and water analysis program mutually agreed to by CITY and Supplier, (vi) payment of all costs associated with the Test including without limitation, laboratory testing services, and (v) site preparedness including without limitation, availability of water, calibration of instruments, permits and resolution of Supplier's issue list. The CITY's substantial and meaningful failure to meet any of these responsibilities shall nullify the Performance Warranty.

If during the Test the Equipment fails to meet the Equipment Performance Criteria provided above the CITY shall provide Supplier access to its plant and all relevant operating data so that Supplier may evaluate the performance of the Equipment. In addition, Supplier shall have the right to inspect the Equipment and recommend operational changes for implementation by CITY. Recommendations provided by Seller

will not change the parameters of this warranty.

For the same period, the SUPPLIER shall warrant that the operational values that were provided by the SUPPLIER for use in Proposal Evaluation and Life Cycle Cost determination shall be met; this establishes the basis for the Performance Bond described herein.

C. The 2-year warranty period shall be extended by 12 months if:

1. SUPPLIER fails to satisfactorily complete the 2-year Performance Warranty test

2. System requires operational changes or cleaning beyond the operation and maintenance as stated in Proposal Present Worth Evaluation Worksheets.

D. A Performance Bond shall be provided by SUPPLIER to CITY to secure SUPPLIER's performance of its obligations herein. Said Bond shall remain in effect through the performance of the contract and the 2-year System Performance Warranty period, and any extension thereof per above. The SUPPLIER warrants satisfactory performance of the membrane modules and ability of the membrane system to achieve operational and treatment requirements at the membrane flux as specified. Additional requirements are as summarized above and proposed in the Proposal Present Worth Evaluation Worksheets.

E. CITY shall make available to SUPPLIER electronic records of historical performance for SUPPLIER review.

Within 7 calendar days of notification by CITY of unsatisfactory performance of the membrane system, the SUPPLIER will take the necessary actions, to maintain the performance of the membrane system in accordance with the membrane performance requirements set out herein.

F. If during the Test the Equipment fails to meet the Equipment Performance Criteria provided above the CITY shall provide Supplier access to its plant and all relevant operating data so that Supplier may evaluate the performance of the Equipment. In addition, Supplier shall have the right to inspect the Equipment and recommend operational changes for implementation by CITY. Upon implementation of any Supplier-recommended operational changes, Supplier shall have the right to commence a second Test. If during the second Test, the Equipment fails to comply with the Equipment Performance Criteria listed above while the feed water continues to comply with the Feed Water Characteristics, Supplier shall be in breach of the Performance Warranty. Alarms raised by the control system shall be addressed by the CITY and shall not cause an interruption of the Test.

The SUPPLIER is responsible for increases in power or chemical consumption over the Present Worth period when compared to Guaranteed Operation and Maintenance Present Worth Cost as calculated in the Present Worth Evaluation Worksheets. If during the Performance Testing the Equipment fails to meet the power or chemical consumption requirements stated in the bid form, DuPont will pay Liquidated Damages ("LDs") as sole and exclusive remedy for failure to meet these requirements. The LDs will be paid in the form of a lump sum payment for complete satisfaction of failure to meet these requirements. LDs will be calculated based on the Present Worth Evaluation Worksheets submitted with the proposal.

G. If Seller is in breach of the Performance Warranty as provided above, the Seller shall, as its sole obligation and as CITY's sole and exclusive remedy, subject to the limitations below, in its sole discretion:

1. Review and optimize system operation as appropriate

2. Repair modules

3. Perform additional cleaning

4. Replace modules with new modules

5. Add modules into expansion slots

6. Replace modules with new modules of different version, acceptable to the CITY and ENGINEER, which offer technological advantages.

7. Provide additional equipment or make modifications to the plant to enable Seller's equipment to meet the Equipment Performance Criteria within existing building without additional capital cost to the City.

8. CITY agrees to provide space for the additional equipment within the existing building and further acknowledges that additional operating expenses related to the additional equipment will be for CITY's account.

**H. Completion of Obligations**

The Seller shall have met or been deemed to have met its Performance Warranty obligations and shall have no further obligations or liability to CITY upon:

(i) the Seller's Test report confirming successful completion of the Test,

(ii) the Equipment being exposed to feed water that is outside of the feed water characteristics, the feed water contains substances that are harmful to membrane systems including without limitation solvents, oil, polymers other than polymers expressly approved by Seller, or the feed water contains sand, grit and/or debris,

(iii) the CITY is in default of its payment obligation to Seller,

(iv) the CITY makes any repairs or alterations to the Equipment without Seller's prior written consent

(v) the CITY fails to commence or complete the Test within the timeframes specified above for reasons other than those reasonably attributable to Seller, or

**Limitations**

THE REMEDIES PROVIDED TO CITY ABOVE ARE THE CITY'S SOLE AND EXCLUSIVE REMEDIES FOR ANY FAILURE BY SELLER TO SATISFY THIS PERFORMANCE WARRANTY.

NOTWITHSTANDING ANYTHING TO THE CONTRARY INCLUDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY REMEDY EXPRESSLY PROVIDED HEREIN, SELLER SHALL IN NO EVENT BE LIABLE FOR ANY INDIRECT, CONSEQUENTIAL, INCIDENTAL, SPECIAL OR PUNITIVE DAMAGES.

SELLER'S LIABILITY UNDER THIS PERFORMANCE WARRANTY SHALL NOT EXCEED 100% OF THE PRICE PAID TO SELLER UNDER THE EQUIPMENT CONTRACT.

SELLER'S TOTAL CUMULATIVE LIABILITY UNDER THIS PERFORMANCE WARRANTY AND THE EQUIPMENT CONTRACT, INCLUDING WITHOUT LIMITATION ANY LIABILITY FOR MECHANICAL WARRANTY CLAIMS OR FOR ANY BREACH OR FAILURE TO PERFORM ANY OBLIGATION UNDER THE EQUIPMENT CONTRACT, SHALL NOT EXCEED THE LIABILITY LIMITATION SET FORTH IN THE EQUIPMENT CONTRACT.

THE FOREGOING LIMITATIONS APPLY REGARDLESS OF WHETHER THE LIABILITIES OR DAMAGES ARISE, OR ARE ALLEGED TO ARISE, UNDER CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY.

2.1 This Section Intentionally Left Blank

## 2.2 EXTENDED MEMBRANE MODULE WARRANTY

B. For a period of seven (7) years, commencing from the date of wet startup of the equipment or Six (6) months after the delivery of the final low pressure membrane skid/rack to the CITY. If the membranes are stored per the SUPPLIER'S recommendations warranty commencement can be extended up to twenty-four (24) months from delivery. Supplier shall have access to the membranes after delivery prior to wet startup for periodic inspection. The SUPPLIER guarantees that the membrane modules will be free from defects in materials and workmanship. Defects shall be defined as herein.

C. SUPPLIER shall provide a warranty certificate, to secure SUPPLIER's performance of its obligations herein. Certificate shall be submitted for CITY review and approval simultaneously with the initial 60% design submittal for the membrane system (Section 46 61 54).

D. During the first 2 years of the warranty period, repair and replacement shall be the sole responsibility of the SUPPLIER. A replacement will be supplied by Seller at no charge including labor, materials, tools, packaging, shipping, shipping coordination.

E. If a low-pressure membrane module shall require replacement under the repair and replacement conditions described in section 3 below during the next sixty (60) months of the Module Warranty Period, a replacement will be supplied by Seller and invoiced based upon a pro-rata value of a total of eighty-four (84) months. The pro-rata value shall be determined using a replacement price of US $1,750.00 per module adjusted by the increase in the North American Consumer Price Index (CPI) All Urban Consumers (US City Average) from the date of bid and reducing this price by 1/84th for each month remaining in the 84-month period.

F. CITY shall be responsible for pulling, transferring, and returning modules to and from the preservation solution and the cell/skid.

G. Replacement modules supplied by the Seller to CITY under warranty shall assume the balance of the low-pressure membrane module warranty that remained on the defective low pressure membrane module that was replaced under warranty.

H. CITY will return to Seller a photograph of the end of each low-pressure membrane module with the serial number for a replacement module.

I. Membrane modules that serve as replacement modules under the terms of the Extended Membrane Module Warranty shall be free from defects in materials and workmanship as described herein.

J. The CITY shall provide the SUPPLIER with notification of any defect at least 7 calendar days in advance of its intent to remove the membrane module(s) from service to preservation. SUPPLIER shall have the option during such advance notice period to send in a technician to witness the membrane module(s) in operation prior to removal. The SUPPLIER shall commence repair or replace of defective membrane module(s) within 14 calendar days of notification during the first 2-years of the term. During the last 5-years of the warranty term, SUPPLIER shall ship and deliver to the site of the WORK

replacement membrane modules and supplies for module repairs for installation by the CITY. The 7-day advance notice shall be waived by the SUPPLIER if immediate membrane module removal and replacement is required to meet capacity requirements.

K. Repair and Replacement Conditions: In the event an individual low pressure membrane module exhibits defects in material or workmanship, as defined in the Paragraph below, the Seller shall, at its sole option and as the CITY's sole remedy, conduct either of the following: Repair the low-pressure membrane module at no cost to CITY; or Provide replacement low pressure membrane modules per the warranty replacement schedule listed above.

L. Defects in materials and workmanship are as defined herein:

1. **Integrity Failure Defects:** Membrane integrity testing shall be established to meet the Design and Performance Criteria for each membrane module and for each membrane cell/skid. Membrane modules shall be considered to have integrity failure defects under the following conditions:

   a. If a module fails the membrane integrity test and cannot be repaired.

   b. If for a single membrane module more than 0.50 percent (one-half of one percent) of the fibers have required repair (i.e., by pinning or gluing) over the Extended Membrane Module Warranty period, then that module shall be considered to be defective. An individual fiber shall be defined as requiring repair if it has been determined that it is causing the system to fail the membrane integrity test as specified (Section 46 61 54.D.5).

M. Operation up to a flux of 45 gfd and module maximum design pressure of 22 psi for pressure membrane systems, shall not invalidate the Extended Membrane Module Warranty.

N. Membrane module warranty commencement for project delays: Membrane modules warranty shall be as described within this specification, except in the case that the project is delayed to an extent that membrane modules cannot be stored without loss of performance capability. The full seven-year warranty will commence if:

1. The project is delayed beyond twenty four (24) months from delivery. Supplier shall have access to the membranes after delivery prior to wet startup for periodic inspection.

2. Any modules that have been delivered fail to meet manufacturer guidance for long term storage.

3. Low Pressure Membrane Module Warranty Exclusions: The CITY recognizes that damage resulting from any of the following shall be excluded from coverage under the low-pressure membrane module warranty:

a. Alteration or faulty installation of membrane system equipment, components or low-pressure membrane modules by any person other than an employee or representative of Seller without

the Seller's prior written consent.

b. CITY causing or permitting any low-pressure membrane modules to dry or to have a moisture content below that specified in the operating instructions.

c. Chemical or physical conditions such as (but not limited to) pH, temperature or climatic factors outside recommended operating parameters in the appropriate section of the Operating and Maintenance Manual even where Seller is aware of the existence of these conditions.

d. Supply of influent water exhibiting parameters inconsistent with the parameters determined or specified at the time of bid and/or pilot testing. Deviance from any specified influent parameters may diminish or, in certain cases, void this warranty.

e. Exposure of the low-pressure membrane modules to oil, organic solvents and other substances not normally present in wastewater. In particular, wastewater from oil filters and/or compressors shall not be permitted to come in contact with the low-pressure membrane modules at any time.

f. Permanent or temporary exposure of the low-pressure membrane modules to sand, grit or other particulate that may result in fiber damage or abrasion.

g. Improper maintenance of the equipment (including failure to perform general pinning maintenance) as defined in Seller supplied Operating and Maintenance Manual.

h. Use of water treatment chemicals or cleaning procedures other than chemicals, cleaning solutions and procedures approved by the Seller.

i. Use of cationic polymer in the CITY's water treatment process without the prior written consent of Seller.

2. Warranty Conditions: This warranty is conditioned upon CITY:

a. Not being in default of any payment obligations to Seller; and

b. Maintaining hand-written or electronic operational logs and providing such logs to Seller in the event of a warranty claim.

3. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INDIRECT, CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER DAMAGES AND SELLER'S TOTAL LIABILITY UNDER THIS CONTRACT, WHEN ADDED TO ALL LIABILITY OF SELLER TO THE CITY AND ANY END USER OF THE SYSTEM, IF DIFFERENT FROM THE CITY, UNDER THIS CONTRACT SYSTEM SALE CONTRACT, SHALL NOT EXCEED THE LIMITATION ON LIABILITY SET FORTH IN THE SYSTEM SALE CONTRACT. THE FOREGOING LIMITATIONS APPLY REGARDLESS OF WHETHER THE LIABILITIES OR DAMAGES ARISE OR ARE ALLEGED TO ARISE UNDER CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY.

THE WARRANTIES SET FORTH IN THIS CONTRACT ARE THE SELLER'S SOLE AND EXCLUSIVE WARRANTIES AND ARE SUBJECT TO THE LIMITATION OF LIABILITY PROVISION ABOVE. SELLER MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

## 2.3 GUARANTEED MEMBRANE MODULE PURCHASE PRICE (MMPP)

B. The Baseline Membrane Module Purchase Price (BMMPP) shall be the value, in U.S. Dollars, for one membrane module listed in the SUPPLIER's Proposal. Price shall include all costs associated with the membrane modules, including materials, tools, packaging, shipping, and shipping coordination with delivery to the site of the WORK, and all costs associated with the return of any defective modules replaced under the

Extended Membrane Module Warranty to the SUPPLIER.

C. The actual MMPP at the time of purchase shall be the least of the following three options:

1. The current market price of the membrane module at the time of purchase.

2. The BMMPP subject to a 2% annual increase from the date of Final Completion of the general construction contract.

3. The BMMPP subject to an increase using the Consumer Price Index ("CPI"). The CPI shall be the CPI for Western Urban Consumers. The baseline for calculation of upward adjustments to the CPI shall be the CPI index published as of the date of Final Completion of the general construction contract. The CPI adjustment will be the latest CPI index published as of the date when a module purchase order is made by the CITY, compared with the CPI value as of the date of Final Completion of the general construction contract.

D. The SUPPLIER shall guarantee the acceptance of the above Membrane Module Purchase Price (MMPP) determination as the maximum purchase price per module for twenty (20) years following the date of Final Completion of the general construction contract for installation of the membrane system.

E. The SUPPLIER agrees to accept this pricing per module for purchases by CITY not associated with a warranty, defect, repair and replacement or performance claim, and for replacement under the Extended Membrane Module Warranty.

## 2.4 SUBMITTALS

### B. Shop Drawings

1. Membrane Warranty

   a. Provide a listing of chemical constituents, concentrations and exposure time that would result in voiding the membrane warranty.

   b. For each of the above chemical constituents, identify the instrumentation required and alarm limits necessary to satisfy the warranty provisions of this Section.

2. UF Membrane Modules:

   a. Include element construction details

      - Materials of Construction
      - Dimensions
      - Provide standard commercial part numbers and materials for elastomeric seals. Note that Buna-N seals are not acceptable.

b. Standard performance parameters

- Operating Temperature
- pH and oxidant tolerance (continuous and intermittent)
- range of membrane flux
- clean water normalized specific flux (permeability or resistivity)
- minimum bubble point or maximum pressure decay test parameters.

c. Storage and handling requirements.

d. Provide standard operating and maintenance data, including storage solutions (concentration and volume) used during shipment and recommended rinsing solution and volume and long and short-term storage protocols.

C. Factory Test Reports

1. Submit prior to delivery of the membrane modules the following:

a. The membrane module supplier shall identify each membrane module by a unique serial number and indicate the membrane Lot.

b. Certification of wet testing for each membrane module conducted at the membrane module supplier's facilities. The membrane module supplier shall certify that each membrane module has passed the quality assurance/quality control tests for membrane element integrity. Acceptable quality assurance and quality control tests include bubble point or pressure hold tests above the minimum value recommended by the membrane module supplier.

D. Certificates of Warranty

1. The listing of chemical constituents, concentrations and exposure time that would void the membrane warranty.

- END OF SECTION -

EXHIBIT E

MEMCOR®
a DuPont brand

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**Sourcebook Document**

| | |
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# MACHINE AND MODULE TRANSPORT AND STORAGE

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# 1 Introduction

When Modules are not in operation, suitable storage conditions must be provided to prevent membrane degradation. Storage and transport precautions must be observed at every step of the life of the Modules from shipment to delivery to the job site and beyond when units are put in storage for extended periods of time. Storage requirements differ for PP and PVDF and for submerged or pressure type products. Storage and transport requirements for MBR Modules are described elsewhere.

Definitions:

- Module[1] - The Memcor assembly of Hollow Fibre Membranes sealed with “pots” at each end.
- Spare Module – a wet Module sealed in a plastic bag & packaged in either individual or 4 Module cardboard cartons.
- Array – An assembled housing for a MEMCOR® CP or XP (pressurized) unit.
- Cell – An open tank that contains the Submerged Membrane Filtration Module Rack(s)
- Empty Array – an Array with no Modules installed.
- ShockWatch® Indicator – An impact indicator that provides a visible indication of mishandling.

[1] The advice in this document applies to PVDF Modules made from Jan 2014 onwards. For PVDF Modules prior to this refer to Sourcebook archive doc# SD-228

# 2 Transport from Australia

Modules can be shipped as Spare Modules or already installed in an Array in the case of pressurized systems. In transit, the following recommendations must be followed for PP and PVDF Modules and Arrays.

## 2.1 Shipping Recommendations

- Modules and Arrays containing Modules must be shipped at ambient temperatures >0°C and <40°C (32-104°F), kept dry to avoid deterioration of packaging, and protected from direct sunlight.
- When shipping to cold climates where there is a risk of freezing:
    - Modules must be transferred to a temperature controlled truck or shipping container at the port of entry for road transport.
    - Arrays will be shipped as Empty Arrays. These should be kept covered to prevent water ponding or debris collecting on surfaces. The Modules will be shipped separately and transferred to a temperature controlled storage location via temperature controlled trucks as indicated above.
- Spare Modules are protected by a carton and are sealed in a black HDPE bag with a small amount of water to maintain a humid environment. If opened for inspection, the bag must be resealed or the Module must be placed in a new, sealed bag with a small amount of water (approximately 100 mL) to maintain a humid environment.
- Spare Modules and Arrays must be kept sealed. Spare Modules must remain in original packaging and crating until installation.
- Arrays shipped with pre-installed Modules are shipped with a small amount of drinking water added (dechlorinated drinking water for PP Modules) to maintain a humid environment.
- Arrays or crates containing Modules must not be subjected to significant mechanical shocks. A ShockWatch® Indicator (Fig. 1) is attached to each Array and each crate containing Modules when more than 56 Modules are part of the same shipment. If the ShockWatch® Indicator is found activated, accept delivery but notify shipping agent and supplier.
- Temperature dataloggers (Fig. 2) are included in some shipments for temperature monitoring. Follow the directions on the instruction sheet accompanying any datalogger.


**Figure 1 - Example of ShockWatch® Indicator**

http://www.shockwatch.com.au/shipping_and_handling_monitors/impact_indicators/


**Figure 2 – Example of Temperature datalogger**

http://www.logtagrecorders.com/products/trix-8.html

# 3 Storage of Spare Modules as Inventory

Maintenance of stock in locations outside of Australia may be required in order to meet timely delivery, satisfy local market requirements or comply with regulatory or customer-driven requirements. Storage of Modules as inventory must comply with the following:

- Store all Spare Modules in accordance with all instructions printed on the shipping carton:
    - Store flat
    - Store indoors and away from direct sunlight
    - Do not expose to temperatures ≤0°C or >40°C. Storage between 5°C and 25°C is preferred.
    - Keep dry (dampness leads to deterioration of the carton)
    - Do not “end stack”
    - Identify bags leaking and re-bag Modules when identified
- Rotate stock – Spare Modules typically carry a one year warranty commencing upon delivery.

# 4 Storage during Assembly Process

This section covers storage needs for Modules used during the unit assembly process. Typically, this section applies to pressure Modules (M10, L10 and L20) installed in Arrays that are being assembled with other equipment to form a pre-assembled unit.

- Arrays are to be kept sealed at all times except when the necessary connections to external pipework are made. Blanking spades are provided to assist with this. If Modules are installed and arrays are not going to be worked on within 7 days the Array should be completely filled with clean (fresh) drinking water (dechlorinated for PP Modules). Store Array on level ground and drain before moving or commencing work.
- During Assembly, Arrays must be stored under the following conditions:
    - Store away from direct sunlight
    - Do not expose to temperatures ≤0°C or >40°C
- Any external pipework must be thoroughly cleaned before removing blanking spades to prevent debris from entering the Array.
- After connection of the pipework and instruments, the Arrays must be filled with a small quantity of water to maintain a humid environment. If a unit is pressure-tested after assembly, a small amount (approximately 10L) of drinking water must be maintained in the Arrays after the test to maintain a humid environment.
- When Modules must be removed from an Array or cell, observe the following recommendations:
    - Modules should be kept moist at all times.
    - For temporary storage, small quantities of Modules should be immersed in a tank filled with drinking water (dechlorinated for PP) for less than 48 hours. Take steps to prevent microbial contamination or damage caused by swarf by covering the tank.
    - For larger quantities of Modules and/or Modules that need to be stored for more than 48 hours, Modules should be re-bagged and stored as spares (Section 3 above).

# 5 Transport to Job Site

Apply the same criteria as per Section 2 and ship within the temperature range >0°C and <40°C (32-104°F). In climates where there is a risk of freezing or extreme heat, it will be necessary to ship Modules in a temperature controlled environment.

Where it is not feasible to ship in a temperature controlled environment, it may be necessary to schedule shipments to avoid these periods of temperature extremes.

# 6 Storage at Job Site

This section described the storage of Arrays and Spare Modules at the customer's site prior to installation.

- Spare Modules should be stored in accordance with the instructions printed on the carton. Refer to Section 3.
- Arrays must be stored at ambient temperatures >0°C and <40°C (32-104°F), kept dry and protected from direct sunlight. Arrays should be covered or stored indoors to prevent water or debris collecting in the top isolation valve area.
- If Modules are installed and Arrays are not going to be worked on within 48 hours of delivery the Array should be completely filled as below:
    - If storage time will exceed 7 days, use appropriate storage solutions as per section 7.
    - If storage will be for less than 7 days then it is acceptable to use clean (fresh) drinking water (dechlorinated for PP)

# 7 Storage after Installation

This section describes the procedures for storage of systems for shutdowns greater than 7 days for surface water systems, and shutdowns greater than 3 days for waste water, coagulant dosed & seawater systems.

- If Modules have been in operation, perform a standard CIP in accordance with site operating instructions, otherwise proceed to next step.
- Open all filtrate isolation valves
- Fill system with storage solution.
    - For PVDF membranes this is a maximum 5 ppm sodium hypochlorite solution in clean (fresh) drinking water or RO permeate.
    - For PP membranes this is 0.5% MemClean EXA2 (or 0.25% sodium hydroxide) with a pH of approximately 12.8 and conductivity of 12.9 $mS.cm^{-1}$.
- Measure and record free chlorine concentration and pH of storage solution.
- Once a week inspect for leaks and add more water if necessary
- Monthly for surface water systems and weekly for wastewater, coagulant dosed & seawater systems
    - Recirculate the solution and measure and record the free chlorine concentration, pH & conductivity of storage solution.
    - For PVDF membranes, if residual free chlorine is $\leq$ 0.5 ppm top up with sodium hypochlorite solution to a maximum of 5 ppm.

  - For PP membranes, if pH <12 add more sodium hydroxide to increase the pH to 12.8
- Monthly for wastewater and coagulant dosed systems drain and refill the unit with fresh drinking water or RO permeate
- Maintain plant room temperatures to avoid freezing conditions or recirculate via the CIP system to ensure water in the Array cannot freeze.
- When Modules must be removed from an Array or cell, observe the following recommendations:
  - Modules should be kept moist at all times.
  - For temporary storage, small quantities of Modules should be immersed in a tank filled with drinking water (dechlorinated for PP) for less than 48 hours. Take steps to prevent microbial contamination or damage caused by swarf by covering the tank.
  - For larger quantities of Modules and/or Modules that need to be stored for more than 48 hours, Modules will be re-bagged and stored like spares (Refer Section 3.1).

# 8 Freezing Conditions

It is recommended that freezing conditions be avoided. Frozen Modules are extremely brittle and any mechanical shock may cause substantial damage. Freezing may void warranty on Modules and Array components. Ship and store Modules in a temperature controlled environment if necessary.

If freezing of an Array or cell is unavoidable observe the following precautions prior to freezing occurring:

- If Modules have been in operation, perform a standard CIP in accordance with site operating instructions, otherwise proceed to the next step.
- Complete a backwash and drain down the system
- Completely drain the unit and all pipework
- Protect the Modules from drying out
  - For pressurised systems seal or isolate the Array to prevent the entry of contaminants
  - For submerged systems remove Modules from the cell and place into sealed plastic bags.
- Avoid all mechanical shock
- Allow Modules to thaw before moving, handling, or filling with water.