Welcome to the JEA Awards Meeting

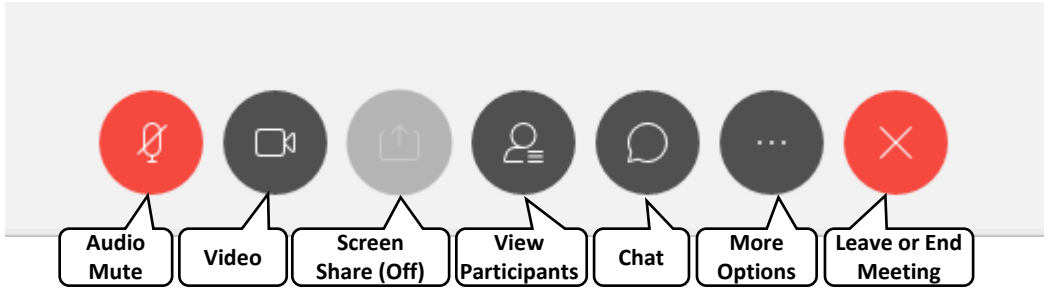
You have been joined to the meeting with your **audio muted** by default.

We will unmute your lines during the public comment time and provide opportunity for you to speak.

During the meeting, interested persons can also email Halley Stewart at reimhj@jea.com to submit public comments to be read during the meeting regarding any matter on the agenda for consideration. Public comments by e-mail must be received no later than 9:00 a.m. to be read during the public comment portion of the meeting.

Please contact Halley Stewart by telephone at (904) 665-8815 or by email at reimhj@jea.com if you experience any technical difficulties during the meeting.

Below is a summary of the meeting controls you will see at the bottom of your screen.



AWARDS COMMITTEE
AGENDA

DATE: **Thursday, March 17, 2022**

TIME: **10:00 A.M.**

PLACE: **JEA, Customer Center, Bid Office, 1st Floor, 21 West Church Street, Jacksonville, FL 32202 OR**
WebEx/Teleconference
WebEx Meeting Number (access code): 160 199 4252
WebEx Password: pxP6CqUSt63

Public Comments:

Awards:

1. Approval of the minutes from the last meeting (03/03/2022).

2. **DEFERRED** - 1410515446– Request approval to award a contract to Farrell Brothers Marine Construction, Inc. for construction services for the Grampell Dr. Bulkhead Improvements Project in the amount of $797,400.00, subject to the availability of lawfully appropriated funds.

3. Request approval to award a change order to Four Waters Engineering Inc. for additional engineering services for the Engineering Services for the Design of the Martin Luther King: Fairfax to Brentwood Water Main Replacement project in the amount of $161,500.50, for a new not-to-exceed amount of $693,526.50, subject to the availability of lawfully appropriated funds.

4. Request approval for a one (1) year single source award to Oracle America, Inc. for the first year annual subscription for Oracle migration of EBS and ISG applications from the Exa Platform to new Oracle IaaS OCI cloud solution in the amount of $681,372.00, subject to the availability of lawfully appropriated funds.

5. Request approval to award a one (1) year contract renewal to Sagewell, Inc. for On-Road Residential Electrification Program and Strategy in the amount of $455,175.00, for a not-to-exceed amount of $776,990.00 subject to the availability of lawfully appropriated funds.

6. Request approval to award a contract to Trojan Technologies Group ULC Corporation for a Trojan UV300Plus system in the amount of $448,650.00, subject to the availability of lawfully appropriated funds.

7. Request approval to award a contract amendment to Garney Companies Inc., for the construction of the Southwest Water Reclamation Facility (WRF) Expansion in the amount of $102,771,513.00, for a new not-to-exceed amount of $114,220,667.00, subject to the availability of lawfully appropriated funds.

8. 1410471846 - Request approval to award a contract to PTI Transformers LP in the amount of $2,094,243.06, subject to the availability of lawfully approved funds.

Informational Items: N/A

Open Discussion: N/A

Public Notice: N/A

General Business: N/A

SPECIAL NOTES: Copies of the above items are available in JEA Procurement, if needed for review. If a person decides to appeal any decision made by the Awards Committee, with respect to any matter considered at this meeting, that person will need a record of the proceedings, and, for such purpose, needs to ensure that a verbatim record of the proceedings is made, which record includes the evidence and testimony upon which the appeal is to be based. If you have a disability that requires reasonable accommodations to participate in the above meeting, please call 665-8625 by 8:30 a.m. the day before the meeting and we will provide reasonable assistance for you.

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Award #	Type of Award	Business Unit	Estimated/ Budgeted Amount	Amount	Awardee	Term	Summary
1	Minutes	N/A	N/A	N/A	N/A	N/A	Approval of minutes from the 03/03/2022 meeting.
2 - Defer	Defer	Defer	Defer	Defer	Defer	Defer	Defer
3	Change Order	Vu	$160,000.00	$161,500.50	Four Waters Engineering, Inc.	Project Completion (Expected: July 2024)	**Engineering Services for the Design of the Martin Luther King: Fairfax to Brentwood Water Main Replacement** Originally approved by Awards Committee on 05/06/2021 in the amount of $532,026.00 to Four Waters Engineering, Inc. A copy of the original award is attached as backup. This award request is for a change order to the design contract with Four Waters Engineering for the Fairfax to Brentwood water main replacement project. During the 30% design review meeting for the project, the O&M department noted a preference to install a new 4-in distribution water line in parallel with the proposed 20-in transmission water main along the route on W. 21st St. for the water services to minimize the number of connections/taps in the new 20-in water main. The hourly rates used to develop the change order quote are the same as originally agreed upon. The quote for this additional design was reviewed by JEA project staff and deemed reasonable compared to past projects. A copy of the fee table is attached for reference. Request approval to award a change order to Four Waters Engineering Inc. for additional engineering services for the Engineering Services for the Design of the Martin Luther King: Fairfax to Brentwood Water Main Replacement project in the amount of $161,500.50, for a new not-to-exceed amount of $693,526.50.
4	Single Source	Krol	$681,372.00	$681,372.00	Oracle America, Inc.	One (1) Year w/ Two - 1 Yr. Renewals	**Oracle Migration of EBS and ISG application** JEA originally awarded the Oracle engineered hardware and softwre for Oracl Oracle applications in 2015 on a proprietary basis. Oracle Exadata and Exalog was approved at JEA ERP steering committee in January of 2022. The previou backup. This request is for $681,372.00 for the first year of annual allocated universal migration of EBS and ISG applications from the Oracle Exa Platform to new (credits and this purchase is primarily for JEA data compute and storage usage. all the specific products and services being purchased and are attached as back implementation or post implementation services which will be awarded separa below project objectives for reference. • Modernize the current JEA EBS platform to maintain Oracle suppor

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							• Move EBS and ISG applications to OCI • Upgrade database from 12c to 19c as part of this migration – require the current 12c database • Virtualized instances for deployment application & Database tier • Partner will drive effort and execution with minimal input from JEA • EBS upgrade not in scope This award is only for one year using Oracle's funded allocation model as opp funded allocation pricing model allows JEA more flexibility in the first year o JEA for the following reasons: 1. JEA can "ramp up" to the costs associated in the bill of materials. (i as the implementation progressed/completed in the first 12 months). 2. JEA has no liability or requirement to spend the total $681,372.00 ir period. If the project is delayed or resources are underutilized in an pay for the cloud credits that are utilized during the 12-month perioc 3. After the initial 12-month period (implementation would be comple contract to lock in pricing for a longer period of time. The downside to the funded allocation model is that it's only offered in an anr projects with funded allocation and then transition to the annual flex model in annual flex model allows for multi-year contracts with price-caps but requires project over the course of the contract, regardless of usage. The funded alloca across all Cloud Services. Additionally, Oracle has offered 25% "Support Re come back as a credit on JEA's ongoing Technology Support bill. Oracle off commitment level of each customer. In comparison, the most frequently leve Florida is the OMNIA/US Communities contract. Despite being competitivel Oracle's products/services, Cloud PaaS and IaaS such as this agreement are ne that Oracle is providing direct to JEA is well over this competitively bid contr strengthen the financial proposal significantly. Request approval for a one (1) year single source award to Oracle America, Oracle migration of EBS and ISG applications from the Exa Platform to new $681,372.00, subject to the availability of lawfully appropriated funds.
5	Renewal	Dutton	$500,00.00	$455,175.00	Sagewell, Inc.	One (1) Year w/Two (2) – 1 Yr. Renewals	**<u>Sagewell Contract Renewal Award</u>** Competitively bid as an informal in the amount of $298,429.00 in May 2021, and a change order of $23,860.00 was approved by the Awards Committee on 08/12/2021. A copy of the change order award is attached as backup. This request is for $455,175.00 in additional funds for a one (1) year renewal from 05/01/2022 to 04/30/2023 to the existing contract with

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							Sagewell, Inc. to maintain JEA's residential electric vehicle program and for three (3) additional services as described further below. The general administrative fees (monthly program fee) for this renewal shall include a two (2%) percent increase from current monthly program fees to cover upgrades one (1) and two (2) listed below through 05/01/2023. The one (1) year renewal estimate is attached as backup. This renewal also includes the following upgrades: 1. Dealer Inventory Search Tool (DIST) 2. EV Monitoring Fees 3. Additional Incentive for Level 2 Chargers Request approval to award a one (1) year contract renewal to Sagewell, Inc. for On-Road Residential Electrification Program and Strategy in the amount of $455,175.00, for a not-to-exceed amount of $776,990.00 subject to the availability of lawfully appropriated funds.
6	Single Source	Vu	$448,650.00	$448,650.00	Trojan Technologies Group ULC Corporation	Project Completion (Expected: June 2022)	**Nassau Water Reclamation Facility (WRF) Additional Trojan UV System** This project is to have a Trojan UV300Plus disinfection system fabricated and delivered to the Nassau Water Reclamation Facility as a part of a 3 million gallons a day (MGD) expansion. The Trojan UV system is a JEA Standard The Nassau WRF is being expanded to 3 MGD and requires an additional UV disinfection system for this expansion. This facility currently has a Trojan UV system; in order to maintain compatibility, an additional Trojan UV system will be installed. The Trojan UV system is a current JEA Standard. Trojan will provide UV300Plus system that includes a Power Distribution Center, support rack to mount the UV modules, level controller, water level sensor, UV module lifting sling with frame and spare parts. Trojan is also providing shop drawings and O&M manuals. When originally built in 2005, space for two (2) Trojan UV systems were designed and constructed. Due to the plant flows at the time of construction, only one of the Trojan UV systems was installed. With the increased growth in Nassau county, the second UV system is now required. Request approval to award a contract to Trojan Technologies Group ULC Corporation for a Trojan UV300Plus system in the amount of $448,650.00.

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7	Contract Amendment	Vu	$114,157,821.00	$102,771,513.00	Garney Companies Inc.	Project Completion (Expected: December 2025)	**Construction Management-at-Risk (CMAR) Services for the Southwest Water Reclamation Facility (WRF) Expansion** The scope of work for this project is the pre-construction and construction services using the CMAR delivery method for the Southwest WRF Expansion from an effective capacity of 10 million gallons per day (MGD) to 16 MGD project. This project is needed to meet wastewater flow demands in the Southwest services territory. Originally bid and approved by Awards Committee on 12/19/2019 in the amount of $704,232.00 for pre-construction services to Garney Companies Inc. Subsequent contract increases were approved by the Awards Committee on 08/26/2020 and 03/11/2021 and 07/01/2021 for interim GMPs of the purchase and installation of the UV system and major process equipment. A copy of the previous awards are attached as backup. An administrative increase was approved on 12/07/2021 for the early purchase of ductile iron materials due to long lead times and market conditions. Negotiations with Garney Companies Inc. were successfully completed for the final construction of the Southwest WRF expansion. The total price for this contract, inclusive of all costs, is approximately 0.06% above JEA's 100% design estimate and deemed reasonable. A copy of the GMP-4 quote overview is attached as backup. Request approval to award a contract amendment to Garney Companies Inc., for the construction of the Southwest Water Reclamation Facility (WRF) Expansion in the amount of $102,771,513.00, for a new not-to-exceed amount of $114,220,667.00.
8	Request for Proposal (RFP)	Erixton	N/A	$2,094,243.06	PTI Transformers LP	Project Completion (09/30/2023)	**Steelbald Substation Transformer purchase** JEA is soliciting Bids for the equipment design, fabrication, and delivery of one (1) one 230kV to 34.5 kV transformer for the Steelbald Substation (the "Work" or "Services"). The scope of services the company will provide includes, however, is not limited to: • Equipment Design • Equipment Engineering • Materials procurement • Fabrication • Drawings • Delivery - Offload & Set on the pad JEA is requesting pricing for the two options listed in the Bid Workbook. It should be noted that the Award Amount is higher than the base unit price, due to adders to for dynamic clamping, soft costs (training and

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							technical support) and a 3% fixed price increase. Price is fixed through delivery. The award amount is the budget estimate, as this project was developed to support a JEA Key Customer that will reimburse JEA for the cost incurred by JEA for the overall project. JEA has not purchased this size transformer in years (15+), however, considering the size and ratings compared to other similarly sized transformers pricing is deemed reasonable given the current market conditions. For reference, the 2021 PPI for Large Specialty transformers was up approximately 30% in 2021. 1410471846 - Request approval to award Contract to PTI Transformers LP in the amount of $2,094,243.06, subject to the availability of lawfully approved funds.
Total Award				**$106,612,453.56**			

JEA AWARDS COMMITTEE
MARCH 3, 2022 MEETING MINUTES

The JEA procurement Awards Committee met on March 3, 2022, in person with a WebEx option.

WebEx Meeting Number (access code): 160 199 4252
WebEx Password: pxP6CqUSt63

Members in attendance were Jenny McCollum as Chief Procurement Officer, Stephen Datz as Chairperson (on site), Hai Vu as Vice Chairperson (on site), Laure Whitmer as Budget Representative, Rebecca Lavie as Office of General Counsel Representative; with Gabor Acs for Ricky Erixton (on site), Russell Caffey for Joe Orfano (on site), and Jordan Pope for Laura Dutton. Unless otherwise indicated, all attendees were via WebEx.

Chair Datz called the meeting to order at 10:01 a.m., introduced the Awards Committee Members, and confirmed that there was an in-person quorum of the Committee membership present.

Public Comments:
Chair Datz recognized the public comment speaking period and opened the meeting floor to public comments. No public comments were provided by email, phone or videoconference.

Awards:

1. Approval of the minutes from the last meeting (02/24/2022). Chair Datz verbally presented the Committee Members the proposed February 24, 2022 minutes as presented.

   MOTION: Hai Vu made a motion to approve the February 24, 2022 minutes (Award Item 1). The motion was seconded by Russell Caffey and approved unanimously by the Awards Committee (5-0).

   The Committee Members reviewed and discussed the following Awards Items 2 -14:

2. 1410563246– Request approval to award a five (5) year contract to Presidio Network Solutions for Cisco SmartNet Maintenance in the amount of $2,297,150.21, subject to the availability of lawfully appropriated funds.

   MOTION: Hai Vu made a motion to approve Award Item 2 as presented in the committee packet. The motion was seconded by Gabor Acs and approved unanimously by the Awards Committee (5-0).

3. Request approval to award a one year contract renewal and increase to Grainger ($94,000.00), World Electric Supply ($468,000.00) and Jo Kell, Inc. ($676,000.00) to provide Maintenance, Repair and Overhaul (MRO) materials for a total amount of $1,238,000.00, and new not to exceed amount for all three contracts of $10,819,000.00, subject to availability of lawfully appropriated funds.

   MOTION: Russell Caffey made a motion to approve Award Item 3 as presented in the committee packet. The motion was seconded by Gabor Acs and approved unanimously by the Awards Committee (5-0).

4. Request approval to award a contract increase to Warren Asphalt Inc. for Restoration of Disturbed Asphalt Paved Areas in the amount $1,229,593.17, for a new not to exceed amount of $25,326,363.32,

subject to the availability of lawfully appropriated funds.

MOTION: Jordan Pope made a motion to approve Award Item 4 as amended in the committee packet. The motion was seconded by Hai Vu and approved unanimously by the Awards Committee (5-0).

5. 1410512246– Request approval to award a contract to D.B.E. Management, LLC dba DBE Utility Services for construction services for the Construction Services for the SR200 – William Burgess Blvd to Police Lodge Rd - Trans – RW project in the amount of $5,027,563.06, subject to the availability of lawfully appropriated funds.

   MOTION: Hai Vu made a motion to approve Award Item 5 as presented in the committee packet. The motion was seconded by Gabor Acs and approved unanimously by the Awards Committee (5-0).

6. Request approval to award a change order to Hazen and Sawyer for additional engineering for the Lakeshore WTP - Reservoir and Wellhead No. 2 Rehabilitation project in the amount of $91,660.00, for a new not-to-exceed amount of $650,756.00, subject to the availability of lawfully appropriated funds.

   MOTION: Hai Vu made a motion to approve Award Item 6 as presented in the committee packet. The motion was seconded by Jordan Pope and approved unanimously by the Awards Committee (5-0).

7. Request approval to award a contract increase to Perdue, Inc. for furniture procurement, delivery and service for the new JEA headquarters for the third phase for a total amount of $1,272,654.75, for a new not-to-exceed amount of $3,280,577.55, subject to the availability of lawfully appropriated funds.

   MOTION: Jordan Pope made a motion to approve Award Item 7 as presented in the committee packet. The motion was seconded by Russell Caffey and approved unanimously by the Awards Committee (5-0).

8. 1410334650 – Request approval to award a contract to The Haskell Company for the Progressive Design-Build Services for the Commonwealth Service Center (CWSC) Renovation Project in the amount of $527,961.00, subject to the availability of lawfully appropriated funds.

   MOTION: Hai Vu made a motion to approve Award Item 8 as presented in the committee packet. The motion was seconded by Gabor Acs and approved unanimously by the Awards Committee (5-0).

9. 1410460646 – Request approval to award a contract to A Sanctuary House of North Florida Inc. in the amount of $113,448.00, Freedom Landscape and Lawn Maintenance Inc. in the amount of $442,745.70 and J&D Maintenance and Services of North Florida, LLC in the amount of $1,656,919.34 for Facilities Landscaping – Open Market for a total not-to-exceed amount of $2,213,113.04, subject to the availability of lawfully appropriated funds.

   MOTION: Hai Vu made a motion to approve Award Item 9 as presented in the committee packet. The motion was seconded by Russell Caffey and approved unanimously by the Awards Committee (5-0).

10. Request approval to award Phase 2 Progressive Design Build Services to Auld & White Constructors, LLC for the JEA Utility Training Center (JUTC) Renovation Project in the amount of $5,290,700.00, for a new not-to-exceed amount of $5,455,000.00, subject to the availability of lawfully appropriated funds.

    MOTION: Jordan Pope made a motion to approve Award Item 10 as presented in the committee packet. The motion was seconded by Gabor Acs and approved unanimously by the Awards Committee (5-0).

11. Request approval to award an amended contract increase to Vesta modular for Leased Modular Buildings for Technical Training at NGS in the amount of $79,950.00, for a new not-to-exceed amount of $470,620.66, subject to the availability of lawfully appropriated funds.

    MOTION: Hai Vu made a motion to approve Award Item 11 as presented in the committee packet. The motion was seconded by Gabor Acs and approved unanimously by the Awards Committee (5-0).

12. 1410510446-21– Request approval to award contracts to Gresco Supply Inc. for Item CAIRH012 carried in JEA's inventory stock for a total amount of $454,500.00 subject to the availability of lawfully appropriated funds.

    MOTION: Russell Caffey made a motion to approve Award Item 12 as presented in the committee packet. The motion was seconded by Hai Vu and approved unanimously by the Awards Committee (5-0).

13. 1410526846 - Request approval to award a contract to PTI Transformers LP for the supply of the West Jax. T-1 transformer in the amount of $3,310,828.00, subject to the availability of lawfully approved funds.

    MOTION: Hai Vu made a motion to approve Award Item 13 as presented in the committee packet. The motion was seconded by Gabor Acs and approved unanimously by the Awards Committee (5-0).

14. Request approval to award an amendment for increase to the contract with Orlando Freightliner in the amount of $320,548.00 for the purchase vehicles for JEA's FY22 and FY23 heavy duty fleet capital requirements, for a total not-to-exceed amount of $2,592,575.17, subject to the availability of lawfully appropriated funds.

    MOTION: Russell Caffey made a motion to approve Award Item 14 as presented in the committee packet. The motion was seconded by Gabor Acs and approved unanimously by the Awards Committee (5-0).

Informational Item:

No informational items were presented to the Awards Committee.

Ratifications:

No ratifications were presented to the Awards Committee

Public Comments:

No additional public comment speaking period was taken.

Adjournment:

Chair Datz adjourned the meeting at 10:50 a.m.

NOTE: These minutes provide a brief summary only of the Awards Committee meeting. For additional detail regarding the content of these minutes or discussions during the meeting, please review the meeting recording. The recording of this meeting as well as other relevant documents can be found at the link below: https://www.jea.com/About/Procurement/Awards_Meeting_Agendas_and_Minutes/

Formal Bid and Award System

Award #3 March 17, 2022

Type of Award Request: CHANGE ORDER
Requestor Name: McDermet, David S.
Requestor Phone: (904) 437-7197
Project Title: Engineering Services for the Design of the Martin Luther King: Fairfax to Brentwood Water Main Replacement
Project Number: 8006395
Project Location: JEA
Funds: Capital
Budget Estimate: $160,00000

Scope of Work:

The scope of work performed under this task consists of final detailed design, permitting, bid phase assistance, and engineering support services during construction of a 20-inch ductile iron (DI) water main to replace approximately 5,435 linear feet (LF) of existing cast iron (CI) water main which starts at the Fairfax Water Treatment Plant on West 21st Street, and ends east of the I-95 interchange at the intersection of Brentwood Boulevard and West 21st Street (this does not include approximately 2,000 LF being replaced as part of the FDOT interchange project). In addition, this request includes design of a 16-inch DI water main replacement for approximately 1,875 LF of existing 16-inch CI water main along Myrtle Avenue North from West 15th Street to West 22nd street.

JEA IFB/RFP/State/City/GSA#: 004-21
Purchasing Agent: Kruck, Dan
Is this a Ratification?: NO

RECOMMENDED AWARDEE(S):

Name	Contact Name	Email	Address	Phone	Amount
FOUR WATERS ENGINEERING, INC.	Angela Bryan	abryan@4weng.com	3773 Luth Drive East, Jacksonville Beach, FL 32250	(904) 414-2400	$161,500.50

Amount of Original Award: $532,026.00
Date of Original Award: 05/06/2021
Change Order Amount: $161,500.50
New Not-To-Exceed Amount: $693,526.50
Length of Contract/PO Term: Project Completion
Begin Date: 07/01/2021
End Date: Project Completion (Expected: July 2024)
JSEB Requirement: Five Percent (5%) Evaluation Criteria
Notes on JSEB Requirement:

Four Waters Engineering Inc. is a certified JSEB

Background/Recommendations:

Originally approved by Awards Committee on 05/06/2021 in the amount of $532,026.00 to Four Waters Engineering, Inc. A copy of the original award is attached as backup.

This award request is for a change order to the design contract with Four Waters Engineering for the Fairfax to Brentwood water main replacement project. During the 30% design review meeting for the project, the O&M department noted a preference to install a new 4-in distribution water line in parallel with the proposed 20-in transmission water main along the route on W. 21st St. for the water services to minimize the number of connections/taps in the new 20-in water main. The hourly rates used to develop the change order quote are the same as originally agreed upon. The quote for this additional design was reviewed by JEA project staff and deemed reasonable compared to past projects. A copy of the fee table is attached for reference.

Request approval to award a change order to Four Waters Engineering Inc. for additional engineering services for the Engineering Services for the Design of the Martin Luther King: Fairfax to Brentwood Water Main Replacement project in the amount of $161,500.50, for a new not-to-exceed amount of $693,526.50, subject to the availability of lawfully appropriated funds.

Manager:	DiMeo, Elizabeth A. - Mgr W/WW Project Management
Director:	Conner, Sean M. - Dir W/WW Project Engineering & Construction
VP:	Vu, Hai X. - VP Water Wastewater Systems

APPROVALS:

_____

Chairman, Awards Committee **Date**

_____

Budget Representative **Date**

Approved by the JEA Awards Committee

Date: 05/06/2021 Item# 3

Formal Bid and Award System

Award #3 May 6, 2021

Type of Award Request: PROPOSAL (RFP)
Requestor Name: McDermet, David S
Requestor Phone: (904) 437-7197
Project Title: Engineering Services for the Design of the Martin Luther King: Fairfax to Brentwood Water Main Replacement
Project Number: 8006395
Project Location: JEA
Funds: Capital
Budget Estimate: $831,089.00

Scope of Work:

The Scope of Work performed under this task consists of final detailed design, permitting, bid phase assistance, and engineering support services during construction of a 20-inch Ductile Iron (DI) water main to replace approximately 5,435 Linear Feet (LF) of existing Cast Iron (CI) water main. This will start at the Fairfax Water Treatment Plant on West 21st Street, and ends east of the I-95 interchange at the intersection of Brentwood Boulevard and West 21st Street (this does not include approximately 2,000 LF being replaced as part of the FDOT interchange project). In addition, this request includes design of a 16-inch DI water main replacement for approximately 1,875 LF of existing 16-inch CI water main along Myrtle Avenue North from West 15th Street to West 22nd Street.

JEA IFB/RFP/State/City/GSA#: 004-21
Purchasing Agent: Kruck, Dan R.
Is this a Ratification?: NO

RECOMMENDED AWARDEE(S):

Name	Contact Name	Email	Address	Phone	Amount
FOUR WATERS ENGINEERING, INC.	Angela Bryan	abryan@4weng.com	3773 Luth Drive East, Jacksonville Beach, FL 32250	(904) 414-2400	$532,026.00

Amount for entire term of Contract/PO: $532,026.00
Award Amount for remainder of this FY: $80,246.00
Length of Contract/PO Term: Project Completion
Begin Date: 07/01/2021
End Date: Project Completion (Expected: June 2024)
JSEB Requirement: Five Percent (5%) Evaluation Criteria

Comments on JSEB Requirements:

Four Waters Engineering is a certified JSEB company.

PROPOSERS:

Name	Amount	Rank
FOUR WATERS ENGINEERING, INC.	$532,026.00	1
JONES EDMUNDS & ASSOCIATES, INC.	N/A	2
WRIGHT-PIERCE, INC.	N/A	3
BLACK & VEATCH CORPORATION	N/A	4
CMTS CONSTRUCTION MANAGEMENT SERVICES, LLC DBA: CMTS LLC	N/A	5
MCKIM & CREED, INC.	N/A	5
CPH, INC.	N/A	7

Background/Recommendations:

Advertised on 12/01/2020. Eighteen (18) prime companies attended the mandatory pre-proposal meeting held on 12/11/2020. At proposal opening on 01/26/2021, JEA received seven (7) proposals. The public evaluation meeting was held on 03/10/2021 and JEA deemed Four Waters Engineering, Inc. most qualified to perform the work. A copy of the evaluation matrix and negotiated schedule and fees are attached as backup.

The proposed fees are approximately 36% lower than estimated due to lower than expected design costs through negotiations with the engineer, and deemed reasonable.

004-21 – Request approval to award a contract to Four Waters Engineering, Inc. for engineering services for the Martin Luther King: Fairfax to Brentwood Water Main Replacement project in the amount of $532,026.00, subject to the availability of lawfully appropriated funds.

Manager: DiMeo, Elizabeth A. - Mgr W/WW Project Management
Director: Conner, Sean M. - Dir W/WW Project Engineering & Construction
VP: Vu, Hai X. – VP Water/Wastewater Systems

APPROVALS:

05/06/2021

Chairman, Awards Committee **Date**

Stephanie M. Nealy 05/06/2021

Budget Representative **Date**

004-21 Engineering Services for the Design of the Martin Luther King: Fairfax to Brentwood Water Main Replacement

Vendor Rankings	Justin Sencer	Arthur Bides	Josh Brown	Σ Rank	Rank
Four Waters Engineering, Inc.	1	2	3	6	1
Jones Edmunds & Associates, Inc.	3	3	1	7	2
Wright-Pierce, Inc.	2	1	5	8	3
Black & Veatch Corporation	5	3	4	12	4
CMTS Construction Management Services, LLC dba: CMTS LLC	7	6	2	15	5
McKim & Creed, Inc.	4	5	6	15	5
CPH, Inc.	6	7	7	20	7

Justin Sencer	Professional Staff Experience (40 Points)	Design Approach and Work Plan (40 Points)	Company Experience (15 Points)	JSEB (5 Points)	Total	Rank
Black & Veatch Corporation	32.8	27	12	4	75.80	5
CMTS Construction Management Services, LLC dba: CMTS LLC	26.25	14	12	4	56.25	7
CPH, Inc.	33.25	13	12	4	62.25	6
Four Waters Engineering, Inc.	35	33	12	5	85.00	1
Jones Edmunds & Associates, Inc.	34	29	12	4	79.00	3
McKim & Creed, Inc.	31.05	31	10	4	76.05	4
Wright-Pierce, Inc.	32.2	33	12	4	81.20	2

Arthur Bides	Professional Staff Experience (40 Points)	Design Approach and Work Plan (40 Points)	Company Experience (15 Points)	JSEB (5 Points)	Total	Rank
Black & Veatch Corporation	36.5	35	15	4	90.50	3
CMTS Construction Management Services, LLC dba: CMTS LLC	34.95	34	15	4	87.95	6
CPH, Inc.	33	29	7	4	73.00	7
Four Waters Engineering, Inc.	37.5	36	15	5	93.50	2
Jones Edmunds & Associates, Inc.	36.5	35	15	4	90.50	3
McKim & Creed, Inc.	37.95	35	12	4	88.95	5
Wright-Pierce, Inc.	35.95	39	15	4	93.95	1

Josh Brown	Professional Staff Experience (40 Points)	Design Approach and Work Plan (40 Points)	Company Experience (15 Points)	JSEB (5 Points)	Total	Rank
Black & Veatch Corporation	33.1	28	15	4	80.10	4
CMTS Construction Management Services, LLC dba: CMTS LLC	34.85	29	15	4	82.85	2
CPH, Inc.	29.2	25	15	4	73.20	7
Four Waters Engineering, Inc.	33.3	28	15	5	81.30	3
Jones Edmunds & Associates, Inc.	33.05	35	15	4	87.05	1
McKim & Creed, Inc.	31.45	27	15	4	77.45	6
Wright-Pierce, Inc.	30.15	30	15	4	79.15	5

Overall Averages	Professional Staff Experience (40 Points)	Design Approach and Work Plan (40 Points)	Company Experience (15 Points)	JSEB (5 Points)	Total
Black & Veatch Corporation	34.13	30.00	14.00	4.00	82.13
CMTS Construction Management Services, LLC dba: CMTS LLC	32.02	25.67	14.00	4.00	75.68
CPH, Inc.	31.82	22.33	11.33	4.00	69.48
Four Waters Engineering, Inc.	35.27	32.33	14.00	5.00	86.60
Jones Edmunds & Associates, Inc.	34.52	33.00	14.00	4.00	85.52
McKim & Creed, Inc.	33.48	31.00	12.33	4.00	80.82
Wright-Pierce, Inc.	32.77	34.00	14.00	4.00	84.77

JEA Engineering Services for MLK Fairfax to Brentwood Water Main Replacement (Solicitation 004-21) Comprehensive Resource Plan and Schedule

Task List	2021 AUG	SEP	OCT	NOV	DEC	2022 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Task 1 - Project Definition, Project Kickoff and Project Management																	
Task 2 - Conceptual Design (30% Design)																	
Task 3 - Permitting Assistance																	
Task 4 - Project Design Development Stage (60% and 90% Design)																	
Task 5 - Final Design (100% Design)																	
Task 6 - Bidding Services and Support																	
Task 7 - Construction Services																	

Task Description	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Task 1 - Project Initiation and Project Management																	

Staff	Name	Rate	Task 1 Hours															Total Hours	Total Cost	Subtotal
Project Manager - EOR	Angela Morgan	$ 165.00	40	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4							80	$ 13,200.00	
Staff Engineer	Michael Slink	$ 140.00	14															14	$ 1,960.00	
Associate Engineer	Laura Constantino	$ 120.00																-	$ -	
Engineer Intern	Christian Lamit	$ 95.50																-	$ -	
Intern	Carole Lapuan	$ 95.00																-	$ -	
CAD Designer	Stefe Lucharme	$ 105.50																-	$ -	
CAD Tech	Jessica Grissman	$ 95.00																-	$ -	
Administrative	Christina Popoli	$ 66.50	4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5							16	$ 1,064.00	
																		-	$ -	
		Expenses																	$ 225.00	
		Task 1 Subtotal																110		$ 16,449.00

Task 2 - Conceptual Design (30% Design)																				
Staff	Name	Rate	Task 2 Hours																	
Project Manager - EOR	Angela Morgan	$ 165.00	20		10	16												54	$ 8,910.00	
Staff Engineer	Michael Slink	$ 140.00	54		100	10												164	$ 24,220.00	
Associate Engineer	Laura Constantino	$ 120.00	16		6													22	$ 2,640.00	
Engineer Intern	Christian Lamit	$ 95.50																-	$ -	
Intern	Carole Lapuan	$ 95.00																-	$ -	
CAD Designer	Stefe Lucharme	$ 105.50			40													63	$ 6,646.50	
CAD Tech	Jessica Grissman	$ 95.00																-	$ -	
Administrative	Christina Popoli	$ 66.50	5	5														10	$ 665.00	
		Expenses																	$ 35.00	
		Task 2 Subtotal																312		$ 43,456.50

Task 3 - Permitting Assistance																				
Staff	Name	Rate	Task 3 Hours																	
Project Manager - EOR	Angela Morgan	$ 165.00			8			4										28	$ 4,620.00	
Staff Engineer	Michael Slink	$ 140.00			20		24	64	52	16								176	$ 24,640.00	
Associate Engineer	Laura Constantino	$ 120.00																-	$ -	
Engineer Intern	Christian Lamit	$ 95.50																-	$ -	
Intern	Carole Lapuan	$ 95.00																-	$ -	
CAD Designer	Stefe Lucharme	$ 105.50			8		8	16	22	16								70	$ 7,385.00	
CAD Tech	Jessica Grissman	$ 95.00																-	$ -	
Administrative	Christina Popoli	$ 66.50						4	8	5								17	$ 1,130.50	
		Expenses																	$ 500.00	
		Task 3 Subtotal																276		$ 38,555.50

Task 4 - Project Design Development Stage (60% and 90% Design)																				
Staff	Name	Rate	Task 4 Hours																	
Project Manager - EOR	Angela Morgan	$ 165.00					10	6	16	6								46	$ 7,590.00	
Staff Engineer	Michael Slink	$ 140.00					8	16	56	16								96	$ 24,640.00	
Associate Engineer	Laura Constantino	$ 120.00					16		16									32	$ 3,840.00	
Engineer Intern	Christian Lamit	$ 95.50																-	$ -	
Intern	Carole Lapuan	$ 95.00																-	$ -	
CAD Designer	Stefe Lucharme	$ 105.50					6	16	40	12								152	$ 16,036.00	
CAD Tech	Jessica Grissman	$ 95.00																-	$ -	
Administrative	Christina Popoli	$ 66.50					4	2	4	2								12	$ 798.00	
		Expenses																	$ 650.00	
		Task 4 Subtotal																406		$ 53,554.00

Task 5 - Final Design (100% Design)																				
Staff	Name	Rate	Task 5 Hours																	
Project Manager - EOR	Angela Morgan	$ 165.00									10	4						14	$ 2,310.00	
Staff Engineer	Michael Slink	$ 140.00									42	12						54	$ 7,560.00	
Associate Engineer	Laura Constantino	$ 120.00																	$ 480.00	
Engineer Intern	Christian Lamit	$ 95.50																-	$ -	
Intern	Carole Lapuan	$ 95.00																-	$ -	
CAD Designer	Stefe Lucharme	$ 105.50									32							40	$ 4,220.00	
CAD Tech	Jessica Grissman	$ 95.00																-	$ -	
Administrative	Christina Popoli	$ 66.50									4	6						10	$ 665.00	
		Expenses																	$ 35.00	
		Task 5 Subtotal																116		$ 16,090.00

Time & Materials Tasks

Task 6 - Bidding Services and Support																				
Staff	Name	Rate	Task 6 Hours																	
Project Manager - EOR	Angela Morgan	$ 165.00											2					10	$ 1,650.00	
Staff Engineer	Michael Slink	$ 140.00																16	$ 2,240.00	
Associate Engineer	Laura Constantino	$ 120.00																-	$ -	
Engineer Intern	Christian Lamit	$ 95.50																-	$ -	
Intern	Carole Lapuan	$ 95.00																-	$ -	
CAD Designer	Stefe Lucharme	$ 105.50										4						12	$ 1,266.00	
CAD Tech	Jessica Grissman	$ 95.00											2					2	$ 190.00	
Administrative	Christina Popoli	$ 66.50																-	$ -	
		Expenses																	$ 100.00	
		Task 6 Subtotal																40		$ 5,426.00

Task 7 - Construction Services																				
Staff	Name	Rate	Task 7 Hours																	
Project Manager - EOR	Angela Morgan	$ 165.00															142	142	$ 23,430.00	
Staff Engineer	Michael Slink	$ 140.00															230	230	$ 32,200.00	
Associate Engineer	Laura Constantino	$ 120.00																-	$ -	
Engineer Intern	Christian Lamit	$ 95.50																-	$ -	
Intern	Carole Lapuan	$ 95.00																-	$ -	
CAD Designer	Stefe Lucharme	$ 105.50																-	$ -	
CAD Tech	Jessica Grissman	$ 95.00																-	$ -	
Administrative	Christina Popoli	$ 66.50																-	$ -	
		Expenses																	$ 00.00	
		Task 2.4 Subtotal																372		$ 56,330.00

Not Used																				
Staff	Name	Rate	Task Hours																	
Project Manager - EOR	Angela Morgan	$ 165.00																-	$ -	
Staff Engineer	Michael Slink	$ 140.00																-	$ -	
Associate Engineer	Laura Constantino	$ 120.00																-	$ -	
Engineer Intern	Christian Lamit	$ 95.50																-	$ -	
Intern	Carole Lapuan	$ 95.00																-	$ -	
CAD Designer	Stefe Lucharme	$ 105.50																-	$ -	
CAD Tech	Jessica Grissman	$ 95.00																-	$ -	
Administrative	Christina Popoli	$ 66.50																		
		Expenses																-	$ -	
		Task Subtotal																-		$ -

SUBCONSULTANT EXPENSES																				
Subconsultant Task/Name																				
CAD	Mott MacDonald	$ 2,145.00		$ 5,000.00			$ 5,000.00		$ 6,630.00		$ 2,535.00								$ 21,450.00	
Site Survey/SUE	CME MP		$ 52,131.50	$ 5,531.50		$ 30,150.00													$ 13,713.00	
Geotechnical Subconsultant	SME eo, Inc.				$ 26,150.00	$ 22,450.00		$ 8,910.00											$ 57,044.00	
Environmental Wetlands	CME 2ES		$ 1,600.00			$ 5,400.00													$ 7,000.00	
MOT Engineering	CME &ES			$ 1,421.40			$ 1,421.40	$ 8,543.40	$ 1,421.40										$ 50,000.00	
Structural	Meister Webb				$ 2,450.00		$ 2,450.00		$ 2,450.00		$ 1,250.00		$ 250.00				$ 5,000.00		$ 15,250.00	
Subconsultant Subtotal																				$ 302,165.00
PROJECT TOTAL																				$ 532,026.00
Total Hours by Month		161	11	214	40	240	130	236	105	102	34	20	-	20	-	-	-	372	1,681		
Total Billable Hour Cost (Excluding Expenses/Subconsultants)		$ 22,913	$ 1,155	$ 20,560	$ 6,401	$ 30,540	$ 18,125	$ 30,025	$ 10,602	$ 12,914	$ 4,243	$ 2,162	$ -	$ 2,464	$ -	$ -	$ -	$ 55,630			

Fiscal Year 2021 (Aug-Sept)		Fiscal Year 2022 (Oct - Sept)		Fiscal Year 2023 (Oct - Sept)	
Total Hours =	172	Total Hours =	1,137	Total Hours =	372
Total Cost =	$ 23,957	Total Cost =	$ 147,348.75	Total Cost =	$ 55,630
% of Overall Project Cost =	4.50%	% of Overall Project Cost =	27.70%	% of Overall Project Cost =	10.46%

JEA Engineering Services for MLK Fairfax to Brentwood Water Main Replacement (Solicitation 004-21)
Amendment for 4-Inch Parallel Water Mains
Comprehensive Resource Plan and Schedule

Task List	2021					2022												2023		
	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Task 1 - Project Definition, Project Kickoff and Project Management																				
Task 2 - Conceptual Design (30% Design)																				
Task 3 - Permitting Assistance																				
Task 4 - Project Design Development Stage (60% and 90% Design)																				
Task 5 - Final Design (100% Design)																				
Task 6 - Bidding Services and Support																				
Task 7 - Construction Services																				

Task Description	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Task 1 - Project Initiation and Project Management																				

Staff	Name	Rate	Task 1 Hours																			Total Hours	Total Cost	Subtotal
Project Manager - EOR	Angela Bryan	$165.00											4	4	4	4	4	4				24	$ 3,960.00	
Staff Engineer	Michael Klink	$140.00																				-	$ -	
Associate Engineer	Laura Constantino	$120.00																				-	$ -	
Engineer Intern	Christian Gamit	$85.50																				-	$ -	
Intern	Caryle Capuyan	$75.00																				-	$ -	
CADD Designer	Steve Ducharme	$105.50																				-	$ -	
CADD Tech	Jessica Crissman	$85.00																				-	$ -	
Administrative	Christina Popoli	$66.50											1.5	1.5	1.5	1.5	1.5	1.5				9	$ 598.50	
																						-	$ -	
		Expenses																					$ 75.00	
		Task 1 Subtotal																				33		$ 4,633.50

Task 2 - Conceptual Design (30% Design)																								
Staff	Name	Rate	Task 2 Hours																					
Project Manager - EOR	Angela Bryan	$165.00								2	4											6	$ 990.00	
Staff Engineer	Michael Klink	$140.00								4	4											8	$ 1,120.00	
Associate Engineer	Laura Constantino	$120.00																				-	$ -	
Engineer Intern	Christian Gamit	$85.50																				-	$ -	
Intern	Caryle Capuyan	$75.00																				-	$ -	
CADD Designer	Steve Ducharme	$105.50								4												4	$ 422.00	
CADD Tech	Jessica Crissman	$85.00																				-	$ -	
Administrative	Christina Popoli	$66.50									2											2	$ 133.00	
		Expenses																					$ 50.00	
		Task 2 Subtotal																				18		$ 2,715.00

Task 3 - Permitting Assistance																								
Staff	Name	Rate	Task 3 Hours																					
Project Manager - EOR	Angela Bryan	$165.00										3	2									5	$ 825.00	
Staff Engineer	Michael Klink	$140.00										22	8									30	$ 4,200.00	
Associate Engineer	Laura Constantino	$120.00																				-	$ -	
Engineer Intern	Christian Gamit	$85.50																				-	$ -	
Intern	Caryle Capuyan	$75.00																				-	$ -	
CADD Designer	Steve Ducharme	$105.50										8	4									12	$ 1,266.00	
CADD Tech	Jessica Crissman	$85.00																				-	$ -	
Administrative	Christina Popoli	$66.50										2	0									2	$ 133.00	
		Expenses																					$ 100.00	
		Task 3 Subtotal																				47		$ 6,524.00

Task 4 - Project Design Development Stage (60% and 90% Design)																								
Staff	Name	Rate	Task 4 Hours																					
Project Manager - EOR	Angela Bryan	$165.00								16	8	4	6	2								36	$ 5,940.00	
Staff Engineer	Michael Klink	$140.00								56	38	4	24	12								134	$ 18,760.00	
Associate Engineer	Laura Constantino	$120.00								20			8									28	$ 3,360.00	
Engineer Intern	Christian Gamit	$85.50																				-	$ -	
Intern	Caryle Capuyan	$75.00																				-	$ -	
CADD Designer	Steve Ducharme	$105.50								40	36		22	6								104	$ 10,972.00	
CADD Tech	Jessica Crissman	$85.00																				-	$ -	
Administrative	Christina Popoli	$66.50								2	2		1	1								6	$ 399.00	
		Expenses																					$ 375.00	
		Task 4 Subtotal																				302		$ 39,806.00

Task 5 - Final Design (100% Design)																								
Staff	Name	Rate	Task 5 Hours																					
Project Manager - EOR	Angela Bryan	$165.00												4	2							6	$ 990.00	
Staff Engineer	Michael Klink	$140.00												18	4							22	$ 3,080.00	
Associate Engineer	Laura Constantino	$120.00												4	0							4	$ 480.00	
Engineer Intern	Christian Gamit	$85.50																				-	$ -	
Intern	Caryle Capuyan	$75.00																				-	$ -	
CADD Designer	Steve Ducharme	$105.50												20	4							24	$ 2,532.00	
CADD Tech	Jessica Crissman	$85.00																				-	$ -	
Administrative	Christina Popoli	$66.50												2	4							6	$ 399.00	
		Expenses																					$ 175.00	
		Task 5 Subtotal																				56		$ 7,656.00

Time & Materials Tasks

Task 6 - Bidding Services and Support																								
Staff	Name	Rate	Task 6 Hours																					
Project Manager - EOR	Angela Bryan	$165.00																				-	$ -	
Staff Engineer	Michael Klink	$140.00																				-	$ -	
Associate Engineer	Laura Constantino	$120.00																				-	$ -	
Engineer Intern	Christian Gamit	$85.50																				-	$ -	
Intern	Caryle Capuyan	$75.00																				-	$ -	
CADD Designer	Steve Ducharme	$105.50																				-	$ -	
CADD Tech	Jessica Crissman	$85.00																				-	$ -	
Administrative	Christina Popoli	$66.50																				-	$ -	
		Expenses																						
		Task 6 Subtotal																				-		$ -

Task 7 - Construction Services																								
Staff	Name	Rate	Task 7 Hours																					
Project Manager - EOR	Angela Bryan	$165.00																				-	$ -	
Staff Engineer	Michael Klink	$140.00																				-	$ -	
Associate Engineer	Laura Constantino	$120.00																				-	$ -	
Engineer Intern	Christian Gamit	$85.50																				-	$ -	
Intern	Caryle Capuyan	$75.00																				-	$ -	
CADD Designer	Steve Ducharme	$105.50																				-	$ -	
CADD Tech	Jessica Crissman	$85.00																				-	$ -	
Administrative	Christina Popoli	$66.50																				-	$ -	
		Expenses																						
		Task 7 Subtotal																				-		$ -

Not Used																								
Staff	Name	Rate	Task Hours																					
Project Manager - EOR	Angela Bryan	$165.00																				-	$ -	
Staff Engineer	Michael Klink	$140.00																				-	$ -	
Associate Engineer	Laura Constantino	$120.00																				-	$ -	
Engineer Intern	Christian Gamit	$85.50																				-	$ -	
Intern	Caryle Capuyan	$75.00																				-	$ -	
CADD Designer	Steve Ducharme	$105.50																				-	$ -	
CADD Tech	Jessica Crissman	$85.00																				-	$ -	
Administrative	Christina Popoli	$66.50																				-		
		Expenses																				-	$ -	
		Task Subtotal																				-		$ -

SUBCONSULTANT EXPENSES																								
Subconsultant Task/Name																								
QA/QC	Mott MacDonald									$ 3,095.40			$ 1,547.70	$ 515.90									$ 5,159.00	
Site Survey/SUE	DRMP								$ 56,462.50	$ 30,012.50													$ 86,475.00	
Geotechnical Subconsultant	CSI Geo, Inc.																						$ -	
Environmental (Wetlands)	LG2ES																						$ -	
MOT Engineering	C&ES									$ 5,119.20		$ 2,559.60		$ 853.20									$ 8,532.00	
Structural	Keister Webb																						$ -	
Subconsultant Subtotal																								$ 100,166.00
PROJECT TOTAL																								$ 161,500.50
Total Hours by Month		-	-	-	-	-	-	-	144	94	43	75	27	54	20	6	6	6	-	-	-	472		
Total Billable Hour Cost (Excluding Expenses/Subconsultants)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 18,545	$ 11,924	$ 5,772	$ 9,570	$ 3,469	$ 6,663	$ 2,338	$ 760	$ 760	$ 760	$ -	$ -	$ -			

Fiscal Year 2021 (Aug-Sept)		Fiscal Year 2022 (Oct - Sept)		Fiscal Year 2023 (Oct - Sept)	
Total Hours =	-	Total Hours =	456	Total Hours =	17
Total Cost =	$ -	Total Cost =	$ 58,280.25	Total Cost =	$ 2,279
% of Overall Project Cost =	0.00%	% of Overall Project Cost =	36.09%	% of Overall Project Cost =	1.41%

Formal Bid and Award System

Award #4 March 17, 2022

Type of Award Request: SINGLE SOURCE
Requestor Name: Owens, Katura E. - Mgr Technology Project Mgmt
Requestor Phone: 904-665-4215
Project Title: Oracle Migration of EBS and ISG application from Exa Platform to new Oracle IaaS OCI Cloud Solution
Project Number: 8007812
Project Location: Capital
Budget Estimate: $681,372.00
Scope of Work:
JEA needs to migrate the ebusinsess suite (EBS) and Integrated SOA Gateway (ISG) application from Exa platform to Oracle Cloud Infrastructure (OCI) Infrastructure as a Service (IaaS) to comply with regulatory compliance. JEA's existing Exadata and Exalogic environment includes hardware and software for QA/test, production, and disaster recovery environments. This infrastructure houses Oracle EBS. This purchase is for the new annual Oracle IaaS cloud solution annual subscription.

JEA IFB/RFP/State/City/GSA#: US-OMA-271987 (JEA & Oracle master agreement)
Purchasing Agent: Woyak, Nathan J
Is this a Ratification?: NO

RECOMMENDED AWARDEE(S):

Name	Contact Name	Email	Address	Phone	Amount
ORACLE AMERICA, INC.	Zach Bender	zach.bender@oracle.com	500 Oracle Parkway Redwood Shores, CA 94065	(630)390-8155	$681,372.00

Amount for entire term of Contract/PO: $681,372.00
Award Amount for remainder of this FY: $300,000.00
Length of Contract/PO Term: One (1) Year w/ Two - 1 Yr. Renewals
Begin Date (mm/dd/yyyy): 03/21/2022
End Date (mm/dd/yyyy): 03/20/2023
Renewal Options: Two- 1 Yr. Renewals
JSEB Requirement: No JSEB opportunities are available

Background/Recommendations:
JEA originally awarded the Oracle engineered hardware and softwre for Oracle Exadata and Exalogic Hardware for support of Oracle applications in 2015 on a proprietary basis. Oracle Exadata and Exalogic have since become a JEA standard. This request was approved at JEA ERP steering committee in January of 2022. The previous awards and single source form are attached as backup.

This request is for $681,372.00 for the first year of annual allocated universal credits from 03/21/2022 to 03/20/2023 for Oracle migration of EBS and ISG applications from the Oracle Exa Platform to new Oracle IaaS OCI cloud solution. These universal credits and this purchase is primarily for JEA data compute and storage usage. The order document and bill of materials includes all the specific products and services being purchased and are attached as backup. This request does not include the third party implementation or post implementation services which will be awarded separately within the next month and will include the below project objectives for reference.

- Modernize the current JEA EBS platform to maintain Oracle support
- Move EBS and ISG applications to OCI
- Upgrade database from 12c to 19c as part of this migration – required due to the upcoming 7/31/22 desupport date of the current 12c database
- Virtualized instances for deployment application & Database tier
- Partner will drive effort and execution with minimal input from JEA infrastructure team.
- EBS upgrade not in scope

This award is only for one year using Oracle's funded allocation model as opposed to a multiyear annual flex model. The Oracle funded allocation pricing model allows JEA more flexibility in the first year of implementation and is the preferred method by JEA for the following reasons:

1. JEA can "ramp up" to the costs associated in the bill of materials. (i.e. JEA will only be responsible for what is utilized as the implementation progressed/completed in the first 12 months).
2. JEA has no liability or requirement to spend the total $681,372.00 in allocated universal credits over the 12-month period. If the project is delayed or resources are underutilized in any way, for any reason, JEA will only be required to pay for the cloud credits that are utilized during the 12-month period.
3. After the initial 12-month period (implementation would be complete), JEA would potentially switch to an annual flex contract to lock in pricing for a longer period of time.

The downside to the funded allocation model is that it's only offered in an annual contract. Many of Oracle's clients begin their projects with funded allocation and then transition to the annual flex model in the second year after their project goes "live." The annual flex model allows for multi-year contracts with price-caps but requires the client to pay for the entire footprint of the project over the course of the contract, regardless of usage. The funded allocation model includes 10% rate card wide discounts, across all Cloud Services. Additionally, Oracle has offered 25% "Support Rewards" in which 25% of the Cloud usage cost will come back as a credit on JEA's ongoing Technology Support bill. Oracle offers rate card discounts based on the annual commitment level of each customer. In comparison, the most frequently leveraged, competitively bid master agreement in Florida is the OMNIA/US Communities contract. Despite being competitively bid, and offering sizable discounts for many of Oracle's products/services, Cloud PaaS and IaaS such as this agreement are negotiated at a 0% discount rate. The 10% discount that Oracle is providing direct to JEA is well over this competitively bid contract, and the additional 25% support rewards strengthen the financial proposal significantly.

Request approval for a one (1) year single source award to Oracle America, Inc. for the first year annual subscription for Oracle migration of EBS and ISG applications from the Exa Platform to new Oracle IaaS OCI cloud solution in the amount of $681,372.00, subject to the availability of lawfully appropriated funds.

Director: Edgar, Cindy L. - Dir Eng Systems & PMO
VP: Datz, Stephen H. - VP Technical Services
Chief: Krol, Bradley D. - Chief Information Officer

APPROVALS:

_____

Chairman, Awards Committee **Date**

_____

Budget Representative **Date**

ORACLE

ORDERING DOCUMENT

Oracle America, Inc.
500 Oracle Parkway
Redwood Shores, CA
94065

Name	JEA	**Contact**	Katura Owens
Address	21 W. Church Street Jacksonville, FL 32221 JACKSONVILLE FL 32202	**Phone Number**	+1 (904) 665-4215
		Email Address	acctpaycustsrv@jea.com

New Subscription

Service Period: 12 months					
Cloud Services	**Data Center Region**	**Period**	**Quantity**	**Term**	**Funded Allocation Value**
B88206 - Oracle PaaS and IaaS Universal Credits	Customer Selected	Annual	681372	12 mo	681,372.00
				Subtotal	681,372.00

Fee Description	**Net Fee**
Cloud Services Fees	681,372.00
Net Fees	0.00
Total Fees	0.00

Rate Card Pricing for IaaS/PaaS Public Cloud Services

B88206 - Oracle PaaS and IaaS Universal Credits

Cloud Service Category Discounts

Cloud Service Category	Discount %
Application Development Cloud Service	10
Management Cloud Service	10
Security and Identity Management Cloud Service	10
Content Management Cloud Service	10
Data Integration Cloud Service	10
Compute Cloud Service	10
Storage Cloud Service	10
Network Cloud Service	10
Analytics Cloud Service	10
Big Data Cloud Service	10
Enterprise Integration Cloud Service	10
Data Management Cloud Service	10
Not Discount Eligible	0.0

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
Application Development Cloud Service			
B88287 - Oracle Java Cloud Service-Enterprise	OCPU Per Hour	0.2787	0.2787
B88288 - Oracle Java Cloud Service-Standard	OCPU Per Hour	0.2787	0.2787
B88289 - Oracle Java Cloud Service-High Performance	OCPU Per Hour	0.6968	0.6968
B88399 - Oracle Java Cloud Service-Enterprise-BYOL	OCPU Per Hour	0.1742	0.1742
B88400 - Oracle Java Cloud Service-High Performance-BYOL	OCPU Per Hour	0.1742	0.1742
B88844 - Oracle Java Cloud Service-Standard-BYOL	OCPU Per Hour	0.1742	0.1742
B89646 - Oracle Visual Builder	OCPU Per Hour	1.1128	1.1128
B90203 - Oracle Visual Builder Studio-Additional Storage	Gigabyte Storage Capacity Per Month	1.44	1.44
B90260 - Oracle Digital Assistant Cloud Service	Request	0.0209	0.0209
B90304 - Oracle Mobile Hub Cloud Service	Request	0.0025	0.0025
B91346 - Oracle WebLogic Server Enterprise Edition for Oracle Cloud Infrastructure	OCPU Per Hour	0.2323	0.2323
B91347 - Oracle WebLogic Suite for Oracle Cloud Infrastructure			

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
	OCPU Per Hour	0.6504	0.6504
B92302 - Oracle Cloud Infrastructure-Blockchain Platform Cloud Service-Standard			
	OCPU Per Hour	0.1935	0.1935
B92303 - Oracle Cloud Infrastructure-Blockchain Platform Cloud Service-Enterprise			
	OCPU Per Hour	0.3871	0.3871
B92304 - Oracle Cloud Infrastructure-Blockchain Platform Cloud Service-Storage			
	Terabyte Storage Capacity Per Month	63.36	63.36
B92305 - Oracle Cloud Infrastructure-Blockchain Platform Cloud Service-Enterprise-BYOL			
	OCPU Per Hour	0.2903	0.2903
B92913 - Oracle WebLogic Server Enterprise Edition for Oracle Cloud Infrastructure Container Engine for Kubernetes			
	OCPU Per Hour	0.2323	0.2323
B92914 - Oracle WebLogic Server Suite for Oracle Cloud Infrastructure Container Engine for Kubernetes			
	OCPU Per Hour	0.6504	0.6504
Management Cloud Service			
B89161 - Oracle Management Cloud-Standard Edition			
	100 Entities Per Hour	0.6049	0.6049
B89162 - Oracle Management Cloud-Enterprise Edition			
	100 Entities Per Hour	1.2097	1.2097
B89163 - Oracle Management Cloud-Log Analytics Edition			
	300 Gigabytes Per Hour	0.2903	0.2903
B92809 - Oracle Cloud Infrastructure Logging Analytics-Archival Storage			
	Logging Analytics Storage Unit Per Hour	0.018	0.018
B92888 - Oracle Cloud Infrastructure Operations Insights for Oracle Autonomous Databases			
	OCPU Per Hour	0.00	0.00
B92890 - Oracle Cloud Infrastructure Operations Insights for External Oracle Databases and Host			
	Host CPU Core Per Hour	0.0135	0.0135
B92939 - Oracle Cloud Infrastructure Logging Analytics-Active Storage			
	Logging Analytics Storage Unit Per Hour	0.45	0.45
B92940 - Oracle Cloud Infrastructure Application Performance Monitoring Service-Tracing Data-Free			
	1,000 Events Per Hour	0.00	0.00
B92941 - Oracle Cloud Infrastructure Application Performance Monitoring Service-Tracing Data			
	100,000 Events Per Hour	0.585	0.585

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
B92942 - Oracle Cloud Infrastructure Application Performance Monitoring Service-Synthetic Usage			
	10 Monitor Runs Per Hour	0.018	0.018
B93082 - Oracle Cloud Infrastructure-Database Management-External DB BYOL			
	Host CPU Core Per Hour	0.018	0.018
B93083 - Oracle Cloud Infrastructure-Database Management-External DB			
	Host CPU Core Per Hour	0.036	0.036
B93426 - Oracle Cloud Infrastructure-Database Management-Cloud Databases			
	OCPU Per Hour	0.036	0.036
B93705 - Oracle Cloud Infrastructure Operations Insights for Warehouse-Extract			
	Gigabyte Per Month	1.8	1.8
B93706 - Oracle Cloud Infrastructure Operations Insights for Warehouse-Instance			
	OCPU Per Hour	0.4839	0.4839
Security and Identity Management Cloud Service			
B90328 - Oracle Cloud Infrastructure-Key Management			
	Virtual Private Vault Per Hour	3.3516	3.3516
B90555 - Oracle Identity Cloud Service-Enterprise User			
	User Per Month	2.88	2.88
B90556 - Oracle Identity Cloud Service-Consumer User			
	User Per Month	0.0144	0.0144
B90557 - Oracle Identity Cloud Service-Enterprise User-BYOL			
	User Per Month	0.72	0.72
B90558 - Oracle Identity Cloud Service-Consumer User-BYOL			
	User Per Month	0.0036	0.0036
B90936 - Oracle Identity Foundation Cloud Service			
	Each	0.00	0.00
B92092 - Oracle Cloud Infrastructure-KMS Vault-Key Versions			
	Key Version per Month 0 - 20	0.00	0.00
	Key Version per Month 20 - 999999999	0.4801	0.4801
B93493 - Oracle Cloud Infrastructure Identity and Access Management-External User			
	User Per Month	0.0144	0.0144
B93494 - Oracle Cloud Infrastructure Identity and Access Management-Oracle Apps Premium			
	User Per Month	0.225	0.225
B93495 - Oracle Cloud Infrastructure Identity and Access Management-Premium			
	User Per Month	2.88	2.88

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
B93496 - Oracle Cloud Infrastructure Identity and Access Management-SMS			
	1 SMS Message Sent 0 - 1000	0.00	0.00
	1 SMS Message Sent 1000 - 999999999999999	0.027	0.027
B93497 - Oracle Cloud Infrastructure Identity and Access Management-Token			
	Token 0 - 10000	0.00	0.00
	Token 10000 - 999999999999999	0.0036	0.0036
B93498 - Oracle Cloud Infrastructure Identity and Access Management-Replication			
	User Per Month	0.0036	0.0036
B94173 - Oracle Threat Intelligence Service			
	API Calls.	0.00	0.00
B94277 - Oracle Cloud Infrastructure-Web Application Firewall-Requests			
	1,000,000 Incoming Requests Per Month 0 - 10	0.00	0.00
	1,000,000 Incoming Requests Per Month 10 - 999999999999999	0.54	0.54
B94579 - Oracle Cloud Infrastructure-Web Application Firewall-Instance			
	Instance Per Month 0 - 1	0.00	0.00
	Instance Per Month 1 - 999999999999999	4.5	4.5
Content Management Cloud Service			
B88298 - Oracle WebCenter Portal Cloud Service			
	OCPU Per Hour	0.6968	0.6968
B88405 - Oracle WebCenter Portal Cloud Service-BYOL			
	OCPU Per Hour	0.1742	0.1742
B89969 - Oracle Content and Experience Cloud Service-Standard			
	Active User Per Hour	0.135	0.135
B89970 - Oracle Content and Experience Cloud Service-Enterprise			
	Active User Per Hour	0.405	0.405
B89971 - Oracle Content and Experience Cloud Service-Visitor			
	Active User Per Hour	0.0091	0.0091
B91210 - Oracle Content Management			
	5,000 Assets Per Month 0 - 1	95.994	95.994
	5,000 Assets Per Month 1 - 10	432.00	432.00
	5,000 Assets Per Month 10 - 200	216.00	216.00

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
	5,000 Assets Per Month 200 - 10000	108.00	108.00
	5,000 Assets Per Month 10000 - 999999999	12.96	12.96
B91211 - Oracle Content Management-Outbound Data Transfer			
	Gigabyte Outbound Data Transfer Per Month	0.036	0.036
B92217 - Oracle Content Management-Advanced Video Management			
	250 Video Assets Per Month	216.00	216.00
B92637 - Oracle Content Management-BYOL			
	5000 Assets Per Month 0 - 10	108.00	108.00
	5000 Assets Per Month 10 - 200	54.00	54.00
	5000 Assets Per Month 200 - 10000	27.00	27.00
	5000 Assets Per Month 10000 - 999999999	3.24	3.24
B93411 - Oracle Content Management-Starter Edition			
	5000 Assets Per Month 0 - 1	0.00	0.00
	5000 Assets Per Month 1 - 3	67.5	67.5
	5000 Assets Per Month 3 - 999999999999999	360.00	360.00
Data Integration Cloud Service			
B88299 - Oracle Data Integrator Cloud Service			
	OCPU Per Hour	0.6968	0.6968
B88310 - Oracle GoldenGate Cloud Service-Enterprise			
	OCPU Per Hour	0.6968	0.6968
B88398 - Oracle GoldenGate Cloud Service-Enterprise-BYOL			
	OCPU Per Hour	0.1742	0.1742
B88406 - Oracle Data Integrator Cloud Service-BYOL			
	OCPU Per Hour	0.1742	0.1742
B92598 - Oracle Cloud Infrastructure-Data Integration-Workspace			
	Workspace Usage per Hour	0.144	0.144
B92599 - Oracle Cloud Infrastructure-Data Integration			
	Gigabyte of Data Processed per Hour	0.036	0.036
B92695 - Oracle Stream Analytics for Oracle Cloud Infrastructure			
	OCPU Per Hour	0.8548	0.8548
B92992 - Oracle Cloud Infrastructure-GoldenGate			

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
	OCPU Per Hour	1.2097	1.2097
B92993 - Oracle Cloud Infrastructure-GoldenGate-BYOL			
	OCPU Per Hour	0.2903	0.2903
B93306 - Oracle Cloud Infrastructure-Data Integration-Pipeline Operator Execution			
	Execution Hour 0 - 30	0.00	0.00
	Execution Hour 30 - 999999999999999	0.27	0.27
Compute Cloud Service			
B88315 - Oracle Cloud Infrastructure-Compute-Bare Metal Standard-X5			
	OCPU Per Hour	0.0574	0.0574
B88317 - Oracle Cloud Infrastructure-Compute-Virtual Machine Standard-X5			
	OCPU Per Hour	0.0574	0.0574
B88513 - Oracle Cloud Infrastructure-Compute-Bare Metal Standard-X7			
	OCPU Per Hour	0.0574	0.0574
B88514 - Oracle Cloud Infrastructure-Compute-Virtual Machine Standard-X7			
	OCPU Per Hour	0.0574	0.0574
B88515 - Oracle Cloud Infrastructure-Compute-Bare Metal Dense I/O-X7			
	OCPU Per Hour	0.1148	0.1148
B88516 - Oracle Cloud Infrastructure-Compute-Virtual Machine Dense I/O-X7			
	OCPU Per Hour	0.1148	0.1148
B88517 - Oracle Cloud Infrastructure-Compute-Bare Metal GPU Standard-X7			
	GPU Per Hour	1.1475	1.1475
B88518 - Oracle Cloud Infrastructure-Compute-Virtual Machine GPU Standard-X7			
	GPU Per Hour	1.1475	1.1475
B89734 - Oracle Cloud Infrastructure-Compute-GPU Standard-V2			
	GPU Per Hour	2.655	2.655
B90398 - Oracle Cloud Infrastructure-Compute-HPC-X7			
	OCPU Per Hour	0.0675	0.0675
B90425 - Oracle Cloud Infrastructure-Compute-Standard-E2			
	OCPU Per Hour	0.027	0.027
B90617 - Oracle Functions-Execution Time-10,000 Gigabyte Memory			
	Seconds 0 - 40	0.00	0.00
	Seconds 40 - 999999999	0.1275	0.1275
B90618 - Oracle Functions-Invocations			
	1,000,000 Function Invocations 0 - 2	0.00	0.00
	1,000,000 Function Invocations 2 - 999999999	0.18	0.18

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
B91119 - Oracle Cloud Infrastructure-Compute-Bare Metal Standard-B1			
	OCPU Per Hour	0.0574	0.0574
B91120 - Oracle Cloud Infrastructure-Compute-Virtual Machine Standard-B1			
	OCPU Per Hour	0.0574	0.0574
B91372 - Oracle Cloud Infrastructure-Compute-Microsoft SQL Enterprise			
	OCPU Per Hour	1.323	1.323
B91373 - Oracle Cloud Infrastructure-Compute-Microsoft SQL Standard			
	OCPU Per Hour	0.333	0.333
B91444 - Oracle Cloud Infrastructure-Compute-Virtual Machine Standard-E2 Micro-Free			
	OCPU Per Hour	0.00	0.00
B92072 - Oracle Cloud Infrastructure-API Gateway-1,000,000 API Calls			
	1,000,000 API Calls Per Month	2.7	2.7
B92306 - Oracle Cloud Infrastructure-Compute-Standard-E3-OCPU			
	OCPU Per Hour	0.0225	0.0225
B92307 - Oracle Cloud Infrastructure-Compute-Standard-E3-Memory			
	Gigabyte Per Hour	0.0014	0.0014
B92740 - Oracle Cloud Infrastructure-Compute-GPU-E3			
	GPU Per Hour	2.745	2.745
B93113 - Oracle Cloud Infrastructure-Compute-Standard-E4			
	OCPU Per Hour	0.0225	0.0225
B93114 - Oracle Cloud Infrastructure-Compute-Standard-E4-Memory			
	Gigabyte Per Hour	0.0014	0.0014
B93297 - Oracle Cloud Infrastructure-Compute-Standard-A1			
	OCPU Per Hour 0 - 3000	0.00	0.00
	OCPU Per Hour 3000 - 999999999999999	0.009	0.009
B93298 - Oracle Cloud Infrastructure-Compute-Standard-A1-Memory			
	Gigabyte Per Hour 0 - 18000	0.00	0.00
	Gigabyte Per Hour 18000 - 999999999999999	0.0014	0.0014
B93311 - Oracle Cloud Infrastructure-Compute-Optimized-X9			
	OCPU Per Hour	0.0486	0.0486
B93312 - Oracle Cloud Infrastructure-Compute-Optimized-X9-Memory			
	Gigabyte Per Hour	0.0014	0.0014
B94176 - Oracle Cloud Infrastructure-Compute-Standard-X9			
	OCPU Per Hour	0.036	0.036

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
B94177 - Oracle Cloud Infrastructure-Compute-Standard-X9-Memory			
	Gigabyte Per Hour	0.0014	0.0014
Storage Cloud Service			
B89057 - Oracle Cloud Infrastructure-File Storage			
	Gigabyte Storage Capacity per Month	0.27	0.27
B90938 - Oracle Cloud Infrastructure-Streaming-PUT or GET			
	Gigabytes of Data Transferred	0.0225	0.0225
B90939 - Oracle Cloud Infrastructure-Streaming-Storage			
	Gigabyte Per Hour	0.0002	0.0002
B91445 - Oracle Cloud Infrastructure-Block Volume-Free			
	Gigabyte Storage Capacity per Month	0.00	0.00
B91627 - Oracle Cloud Infrastructure-Object Storage-Requests			
	10,000 Requests per Month 0 - 5	0.00	0.00
	10,000 Requests per Month 5 - 999999999	0.0031	0.0031
B91628 - Oracle Cloud Infrastructure-Object Storage-Storage			
	Gigabyte Storage Capacity per Month 0 - 10	0.00	0.00
	Gigabyte Storage Capacity per Month 10 - 999999999	0.0229	0.0229
B91633 - Oracle Cloud Infrastructure-Archive Storage-Free			
	Gigabyte Storage Capacity per Month 0 - 10	0.00	0.00
	Gigabyte Storage Capacity per Month 10 - 999999999	0.0023	0.0023
B91961 - Oracle Cloud Infrastructure-Block Volume Storage			
	Gigabyte Storage Capacity Per Month	0.0229	0.0229
B91962 - Oracle Cloud Infrastructure-Block Volume Performance			
	Performance Units Per Gigabyte Per Month	0.0015	0.0015
B93000 - Oracle Cloud Infrastructure-Infrequent Access Storage-Storage			
	Gigabyte Storage Capacity Per Month 0 - 10	0.00	0.00
	Gigabyte Storage Capacity Per Month 10 - 999999999999999	0.009	0.009

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
B93001 - Oracle Cloud Infrastructure-Data Retrieval-Storage			
	Gigabyte Storage Retrieved Per Month 0 - 10	0.00	0.00
	Gigabyte Storage Retrieved Per Month 10 - 999999999999999	0.009	0.009
Network Cloud Service			
B88325 - Oracle Cloud Infrastructure-FastConnect 1 Gbps			
	Port Hour	0.1913	0.1913
B88326 - Oracle Cloud Infrastructure-FastConnect 10 Gbps			
	Port Hour	1.1475	1.1475
B88327 - Oracle Cloud Infrastructure-Outbound Data Transfer-Originating in North America, Europe, and UK			
	Gigabyte Outbound Data Transfer Per Month 0 - 10240	0.00	0.00
	Gigabyte Outbound Data Transfer Per Month 10240 - 999999999999999	0.0077	0.0077
B88523 - Oracle Cloud Infrastructure-Email Delivery			
	1,000 Emails Sent	0.0765	0.0765
B88525 - Oracle Cloud Infrastructure-DNS			
	1,000,000 Queries	0.765	0.765
B90323 - Oracle Cloud Infrastructure-Health Checks-Basic			
	Endpoints Per Month	0.27	0.27
B90325 - Oracle Cloud Infrastructure-Health Checks-Premium			
	Endpoints Per Month	1.17	1.17
B90327 - Oracle Cloud Infrastructure-DNS Traffic Management			
	1,000,000 DNS Traffic Management Queries	3.6	3.6
B90925 - Oracle Cloud Infrastructure-Monitoring-Ingestion			
	Million Datapoints 0 - 500	0.00	0.00
	Million Datapoints 500 - 999999999	0.0023	0.0023
B90926 - Oracle Cloud Infrastructure-Monitoring-Retrieval			
	Million Datapoints 0 - 1000	0.00	0.00
	Million Datapoints 1000 - 999999999	0.0014	0.0014
B90940 - Oracle Cloud Infrastructure-Notifications-HTTPS Delivery			
	Million Delivery Operations 0 - 1	0.00	0.00
	Million Delivery Operations 1 - 999999999	0.54	0.54

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
B90941 - Oracle Cloud Infrastructure-Notifications-Email Delivery			
	1,000 Emails Sent 0 - 1	0.00	0.00
	1,000 Emails Sent 1 - 999999999	0.018	0.018
B92593 - Oracle Cloud Infrastructure-Logging-Storage			
	Gigabyte Log Storage Per Month 0 - 10	0.00	0.00
	Gigabyte Log Storage Per Month 10 - 999999999	0.045	0.045
B93004 - Oracle Cloud Infrastructure-Notifications-SMS Outbound to Country Zone 1			
	1 SMS Message Sent 0 - 100	0.00	0.00
	1 SMS Message Sent 100 - 999999999999999	0.0135	0.0135
B93005 - Oracle Cloud Infrastructure-Notifications-SMS Outbound to Country Zone 2			
	1 SMS Message Sent 0 - 100	0.00	0.00
	1 SMS Message Sent 100 - 999999999999999	0.0405	0.0405
B93006 - Oracle Cloud Infrastructure-Notifications-SMS Outbound to Country Zone 3			
	1 SMS Message Sent 0 - 100	0.00	0.00
	1 SMS Message Sent 100 - 999999999999999	0.0774	0.0774
B93007 - Oracle Cloud Infrastructure-Notifications-SMS Outbound to Country Zone 4			
	1 SMS Message Sent 0 - 100	0.00	0.00
	1 SMS Message Sent 100 - 999999999999999	0.108	0.108
B93008 - Oracle Cloud Infrastructure-Notifications-SMS Outbound to Country Zone 5			
	1 SMS Message Sent 0 - 100	0.00	0.00
	1 SMS Message Sent 100 - 999999999999999	0.216	0.216
B93030 - Oracle Cloud Infrastructure-Load Balancer Base			
	Load Balancer Hour 0 - 744	0.00	0.00
	Load Balancer Hour 744 - 999999999	0.0102	0.0102
B93031 - Oracle Cloud Infrastructure-Load Balancer Bandwidth			

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
	Mbps Per Hour 0 - 7440	0.00	0.00
	Mbps Per Hour 7440 - 999999999	0.0001	0.0001
B93126 - Oracle Cloud Infrastructure-FastConnect 100Gbps			
	Port Hour	9.675	9.675
B93455 - Oracle Cloud Infrastructure-Outbound Data Transfer-Originating in APAC, Japan, and South America			
	Gigabyte Outbound Data Transfer Per Month 0 - 10240	0.00	0.00
	Gigabyte Outbound Data Transfer Per Month 10240 - 999999999999999	0.0225	0.0225
B93456 - Oracle Cloud Infrastructure-Outbound Data Transfer-Originating in Middle East and Africa			
	Gigabyte Outbound Data Transfer Per Month 0 - 10240	0.00	0.00
	Gigabyte Outbound Data Transfer Per Month 10240 - 999999999999999	0.045	0.045
Analytics Cloud Service			
B89630 - Oracle Analytics Cloud-Professional			
	OCPU Per Hour	0.9678	0.9678
B89631 - Oracle Analytics Cloud-Enterprise			
	OCPU Per Hour	1.9355	1.9355
B89636 - Oracle Analytics Cloud-Professional-BYOL			
	OCPU Per Hour	0.2903	0.2903
B89637 - Oracle Analytics Cloud-Enterprise-BYOL			
	OCPU Per Hour	0.2903	0.2903
B92335 - Essbase for Oracle Cloud Infrastructure			
	OCPU Per Hour	1.1816	1.1816
B92682 - Oracle Analytics-Professional			
	User Per Month	14.4	14.4
B92683 - Oracle Analytics-Enterprise			
	User Per Month	72.00	72.00
B94568 - Oracle Analytics Server for Oracle Cloud Infrastructure			
	OCPU Per Hour	1.575	1.575
Big Data Cloud Service			
B93423 - Oracle Cloud Infrastructure-AI Services-Language			
	1000 Transactions 0 - 5	0.00	0.00
	1000 Transactions 5 - 999999999999999	0.225	0.225
B93545 - Oracle Cloud Infrastructure AI Services-Anomaly Detection			
	1000 Transactions 0 - 1	0.00	0.00
	1000 Transactions 1 - 999999999999999	0.225	0.225

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
B93555 - Oracle Big Data Service			
	OCPU Per Hour	0.0135	0.0135
B94282 - Oracle Cloud Infrastructure-Data Labeling			
	Annotated Data Record 0 - 1000	0.00	0.00
	Annotated Data Record 1000 - 999999999999999	0.0002	0.0002
B94896 - Oracle Cloud Infrastructure-Speech			
	Transcription Hour 0 - 5	0.00	0.00
	Transcription Hour 5 - 999999999999999	0.45	0.45
B94973 - Oracle Cloud Infrastructure-Vision-Image Analysis			
	1,000 Transactions 0 - 5	0.00	0.00
	1,000 Transactions 5 - 999999999999999	0.225	0.225
B94974 - Oracle Cloud Infrastructure-Vision-OCR			
	1,000 Transactions 0 - 5	0.00	0.00
	1,000 Transactions 5 - 10000000000000000	0.9	0.9
B94975 - Oracle Cloud Infrastructure-Vision-Document Properties			
	1,000 Transactions 0 - 5	0.00	0.00
	1,000 Transactions 5 - 10000000000000000	0.225	0.225
B94976 - Oracle Cloud Infrastructure-Vision-Document Extraction			
	1,000 Transactions 0 - 5	0.00	0.00
	1,000 Transactions 5 - 999999999999999	9.00	9.00
B94977 - Oracle Cloud Infrastructure-Vision-Custom Training			
	Training Hour 0 - 15	0.00	0.00
	Training Hour 15 - 999999999999999	1.35	1.35
Enterprise Integration Cloud Service			
B88461 - Oracle Messaging Cloud Service			
	1,000,000 API Calls per Month	0.18	0.18
B89639 - Oracle Integration Cloud Service-Standard			
	5K Messages Per Hour	0.5807	0.5807
B89640 - Oracle Integration Cloud Service-Enterprise			
	5K Messages Per Hour	1.1613	1.1613
B89643 - Oracle Integration Cloud Service-Standard-BYOL			
	20K Messages Per Hour	0.2903	0.2903
B89644 - Oracle Integration Cloud Service-Enterprise-BYOL			

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
	20K Messages Per Hour	0.2903	0.2903
B92450 - Oracle SOA Suite for Oracle Cloud Infrastructure			
	OCPU Per Hour	0.6508	0.6508
B92451 - Oracle SOA Suite for Oracle Cloud Infrastructure-with B2B Adapter for EDI			
	OCPU Per Hour	1.0864	1.0864
Data Management Cloud Service			
B88290 - Oracle Database Cloud Service-Enterprise Edition-General Purpose			
	OCPU Per Hour	0.3871	0.3871
B88291 - Oracle Database Cloud Service-Enterprise Edition Extreme Performance-General Purpose			
	OCPU Per Hour	1.2097	1.2097
B88292 - Oracle Database Cloud Service-Enterprise Edition High Performance-General Purpose			
	OCPU Per Hour	0.7984	0.7984
B88293 - Oracle Database Cloud Service-Standard Edition-General Purpose			
	OCPU Per Hour	0.1935	0.1935
B88294 - Oracle Database Backup Service-Outbound Data Transfer			
	Gigabyte Outbound Data Transfer per Month 0 - 1	0.00	0.00
	Gigabyte Outbound Data Transfer per Month 1 - 10240	0.0864	0.0864
	Gigabyte Outbound Data Transfer per Month 10240 - 51200	0.0648	0.0648
	Gigabyte Outbound Data Transfer per Month 51200 - 153600	0.0504	0.0504
	Gigabyte Outbound Data Transfer per Month 153600 - 512000	0.036	0.036
	Gigabyte Outbound Data Transfer per Month 512000 - 999999999	0.036	0.036
B88295 - Oracle Database Backup Service-GET and all other Requests			
	10000 Requests Per Month	0.0029	0.0029
B88296 - Oracle Database Backup Service-PUT, COPY, POST or LIST Requests			
	1000 Requests Per Month	0.0036	0.0036
B88297 - Oracle Database Backup Service-Storage Capacity			

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
	Gigabyte Storage Capacity per Month 0 - 1024	0.019	0.019
	Gigabyte Storage Capacity per Month 1024 - 51200	0.0187	0.0187
	Gigabyte Storage Capacity per Month 51200 - 512000	0.0184	0.0184
	Gigabyte Storage Capacity per Month 512000 - 1024000	0.0181	0.0181
	Gigabyte Storage Capacity per Month 1024000 - 5120000	0.0177	0.0177
	Gigabyte Storage Capacity per Month 5120000 - 999999999	0.0175	0.0175
B88402 - Oracle Database Cloud Service-Enterprise Edition Extreme Performance RAC-BYOL			
	OCPU Per Hour	0.1742	0.1742
B88404 - Oracle Database Cloud Service-All Editions-BYOL			
	OCPU Per Hour	0.1742	0.1742
B88592 - Oracle Cloud Infrastructure-Database Exadata OCPU			
	OCPU Per Hour	1.2097	1.2097
B88593 - Oracle Cloud Infrastructure-Database Exadata Quarter Rack-X6			
	Hosted Environment Per Hour	45.9678	45.9678
B88594 - Oracle Cloud Infrastructure-Database Exadata Half Rack-X6			
	Hosted Environment Per Hour	91.9355	91.9355
B88595 - Oracle Cloud Infrastructure-Database Exadata Full Rack-X6			
	Hosted Environment Per Hour	183.871	183.871
B88847 - Oracle Cloud Infrastructure-Database Exadata OCPU-BYOL			
	OCPU Per Hour	0.2903	0.2903
B88854 - Oracle Cloud Infrastructure-Database Exadata Full Rack-X6-BYOL			
	Hosted Environment Per Hour	122.3226	122.3226
B88855 - Oracle Cloud Infrastructure-Database Exadata Half Rack-X6-BYOL			
	Hosted Environment Per Hour	61.1613	61.1613
B88856 - Oracle Cloud Infrastructure-Database Exadata Quarter Rack-X6-BYOL			
	Hosted Environment Per Hour	30.5807	30.5807

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
B89039 - Oracle Autonomous Data Warehouse-BYOL			
	OCPU Per Hour	0.2903	0.2903
B89040 - Oracle Autonomous Data Warehouse			
	OCPU Per Hour	1.2097	1.2097
B89041 - Oracle Autonomous Data Warehouse-Exadata Storage			
	Terabyte Storage Capacity Per Month	106.56	106.56
B89737 - Oracle NoSQL Database Cloud Service-Write			
	Write Unit Per Month	0.1129	0.1129
B89738 - Oracle NoSQL Database Cloud Service-Read			
	Read Unit Per Month	0.0058	0.0058
B89739 - Oracle NoSQL Database Cloud Service-Storage			
	Gigabyte Storage Capacity Per Month	0.0594	0.0594
B89980 - Oracle Database Exadata Cloud at Customer-Database OCPU			
	OCPU Per Hour	1.2097	1.2097
B89981 - Oracle Database Exadata Cloud at Customer-Database OCPU-BYOL			
	OCPU Per Hour	0.2903	0.2903
B89999 - Oracle Cloud Infrastructure-Database Exadata Infrastructure-Quarter Rack-X7			
	Hosted Environment Per Hour	19.3549	19.3549
B90000 - Oracle Cloud Infrastructure-Database Exadata Infrastructure-Half Rack-X7			
	Hosted Environment Per Hour	38.7096	38.7096
B90001 - Oracle Cloud Infrastructure-Database Exadata Infrastructure-Full Rack-X7			
	Hosted Environment Per Hour	77.4194	77.4194
B90230 - Oracle Database Backup Cloud-Object Storage			
	Gigabyte Storage Capacity Per Month	0.0046	0.0046
B90231 - Oracle Database Backup Cloud-Archive Storage			
	Gigabyte Storage Capacity Per Month	0.0005	0.0005
B90453 - Oracle Autonomous Transaction Processing			
	OCPU Per Hour	1.2097	1.2097
B90454 - Oracle Autonomous Transaction Processing-BYOL			
	OCPU Per Hour	0.2903	0.2903
B90455 - Oracle Autonomous Transaction Processing-Exadata Storage			
	Terabyte Storage Capacity Per Month	106.56	106.56
B90569 - Oracle Cloud Infrastructure-Database Cloud Service-Standard Edition			
	OCPU Per Hour	0.1935	0.1935
B90570 - Oracle Cloud Infrastructure-Database Cloud Service-Enterprise Edition			

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
	OCPU Per Hour	0.3871	0.3871
B90571 - Oracle Cloud Infrastructure-Database Cloud Service-Enterprise Edition High Performance			
	OCPU Per Hour	0.7984	0.7984
B90572 - Oracle Cloud Infrastructure-Database Cloud Service-Enterprise Edition Extreme Performance			
	OCPU Per Hour	1.2097	1.2097
B90573 - Oracle Cloud Infrastructure-Database Cloud Service-All Editions-BYOL			
	OCPU Per Hour	0.1742	0.1742
B90777 - Oracle Cloud Infrastructure-Database Exadata Infrastructure-Base System			
	Hosted Environment Per Hour	9.6774	9.6774
B91121 - Oracle Cloud SQL-Compute Capacity			
	OCPU Per Hour	0.0968	0.0968
B91128 - Oracle Big Data Service-Compute-Standard			
	OCPU Per Hour	0.121	0.121
B91129 - Oracle Big Data Service-Compute-Dense I/O			
	OCPU Per Hour	0.1926	0.1926
B91130 - Oracle Big Data Service-Compute-HPC			
	OCPU Per Hour	0.1382	0.1382
B91363 - Gen 2 Exadata Cloud at Customer-Database OCPU			
	OCPU Per Hour	1.2097	1.2097
B91364 - Gen 2 Exadata Cloud at Customer-Database OCPU-BYOL			
	OCPU Per Hour	0.2903	0.2903
B91391 - Oracle Autonomous Data Warehouse-Free			
	OCPU Per Hour	0.00	0.00
B91392 - Oracle Autonomous Data Warehouse-Exadata Storage-Free			
	Terabyte Storage Capacity Per Month	0.00	0.00
B91393 - Oracle Autonomous Transaction Processing-Free			
	OCPU Per Hour	0.00	0.00
B91394 - Oracle Autonomous Transaction Processing-Exadata Storage-Free			
	Terabyte Storage Capacity Per Month	0.00	0.00
B91535 - Oracle Cloud Infrastructure-Database Exadata Infrastructure-Quarter Rack-X8			
	Hosted Environment Per Hour	13.0646	13.0646
B91536 - Oracle Cloud Infrastructure-Database Exadata Infrastructure-Half Rack-X8			
	Hosted Environment Per Hour	26.1291	26.1291
B91537 - Oracle Cloud Infrastructure-Database Exadata Infrastructure-Full Rack-X8			
	Hosted Environment Per Hour	52.2581	52.2581

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
B91631 - Oracle Cloud Infrastructure-Data Safe for Database Cloud Service-Audit Record Collection Over 1 Million Records			
	10,000 Audit Records Per Target Per Month	0.09	0.09
B91632 - Oracle Cloud Infrastructure-Data Safe for Database Cloud Service			
	Each	0.00	0.00
B92023 - MySQL HeatWave-Standard-E3			
	Node Per Hour	0.3182	0.3182
B92024 - MySQL Database for HeatWave-Standard-E3			
	Node Per Hour	0.3182	0.3182
B92181 - Oracle Autonomous Transaction Processing-Dedicated			
	OCPU Per Hour	1.2097	1.2097
B92182 - Oracle Autonomous Data Warehouse-Dedicated			
	OCPU Per Hour	1.2097	1.2097
B92183 - Oracle Autonomous Transaction Processing-Dedicated-BYOL			
	OCPU Per Hour	0.2903	0.2903
B92184 - Oracle Autonomous Data Warehouse-Dedicated-BYOL			
	OCPU Per Hour	0.2903	0.2903
B92212 - Oracle Autonomous JSON Database			
	OCPU Per Hour	0.2903	0.2903
B92380 - Oracle Cloud Infrastructure-Database Exadata Infrastructure-Quarter Rack-X8M			
	Hosted Environment Per Hour	13.0646	13.0646
B92381 - Oracle Cloud Infrastructure-Database Exadata Infrastructure-Database Server-X8M			
	Hosted Environment Per Hour	2.6129	2.6129
B92382 - Oracle Cloud Infrastructure-Database Exadata Infrastructure-Storage Server-X8M			
	Hosted Environment Per Hour	2.6129	2.6129
B92418 - Exadata Cloud at Customer-Autonomous Transaction Processing			
	Database OCPU Per Hour	1.2097	1.2097
B92419 - Exadata Cloud at Customer-Autonomous Data Warehouse			
	Database OCPU Per Hour	1.2097	1.2097
B92420 - Exadata Cloud at Customer-Autonomous Transaction Processing-Database OCPU-BYOL			
	OCPU Per Hour	0.2903	0.2903
B92421 - Exadata Cloud at Customer-Autonomous Data Warehouse-Database OCPU-BYOL			
	OCPU Per Hour	0.2903	0.2903
B92425 - MySQL Database-Standard-E2			

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
	OCPU Per Hour	0.042	0.042
B92426 - MySQL Database-Storage			
	Gigabyte Storage Capacity per Month	0.036	0.036
B92483 - MySQL Database-Backup Storage			
	Gigabyte Storage Capacity per Month	0.036	0.036
B92627 - Oracle NoSQL Database Cloud-Write-Free			
	Write Unit Per Month	0.00	0.00
B92628 - Oracle NoSQL Database Cloud-Read-Free			
	Read Unit Per Month	0.00	0.00
B92629 - Oracle NoSQL Database Cloud-Storage-Free			
	Gigabyte Storage Capacity Per Month	0.00	0.00
B92733 - Oracle Cloud Infrastructure-Data Safe for On-Premises Databases & Databases on Compute			
	Target Database Per Month	180.00	180.00
B92734 - Oracle Cloud Infrastructure-Data Safe for On-Premises Databases & Databases on Compute			
	10,000 Audit Records Per Target Per Month	0.09	0.09
B92759 - MySQL Analytics-Bare Metal Standard-E2			
	Node Per Hour	0.4516	0.4516
B92807 - MySQL Database-Bare Metal Standard-E2			
	Node Per Hour	0.4516	0.4516
B92911 - Oracle APEX Application Development			
	OCPU Per Hour	0.2903	0.2903
B92962 - MySQL Database-Standard-E3			
	OCPU Per Hour	0.0342	0.0342
B92963 - MySQL Database-Standard-E3-Memory			
	Gigabyte Per Hour	0.002	0.002
B93199 - Oracle Cloud Infrastructure Database Migration			
	Migration Hour	0.18	0.18
B93320 - Oracle APEX Application Development-Free			
	OCPU Per Hour	0.00	0.00
B93546 - MySQL Database for HeatWave-Bare Metal Standard-E3			
	Node Per Hour	1.993	1.993
B93710 - Oracle NoSQL Database Cloud-Write-Auto			
	Write Unit Per Month	2.8215	2.8215
B93711 - Oracle NoSQL Database Cloud-Read-Auto			
	Read Unit Per Month	0.144	0.144
B93712 - Oracle NoSQL Database Cloud-Hosted Environment			
	Hosted Environment Per Month	25,916.4	25,916.4
Not Discount Eligible			
B88318 - Oracle Cloud Infrastructure-Compute-Windows OS			
	OCPU Per Hour	0.092	0.092

Usage Item Description	Metric	Unit Net Price	Overage Net Unit Price
B92386 - Oracle Cloud VMware Solution			
	OCPU Per Hour	0.2031	0.2031
B92686 - Oracle Analytics for Fusion Applications-Free			
	Hosted Named User	0.0	0.0
B93288 - Oracle Cloud VMware Solution-BM.DenseIO2.52-Hourly Commit			
	OCPU Per Hour	0.2437	0.2437
B93289 - Oracle Cloud VMware Solution-BM.DenseIO2.52-1 Year Commit			
	OCPU Per Hour	0.1625	0.1625
B93290 - Oracle Cloud VMware Solution-BM.DenseIO2.52-3 Year Commit			
	OCPU Per Hour	0.132	0.132
B93307 - Autonomous JSON Database-Free			
	OCPU Per Hour	0.0	0.0
B93421 - Oracle Cloud VMware Solution-HCX Enterprise-Monthly			
	OCPU Per Hour	0.0126	0.0126
B95178 - Oracle Cloud VMware Solution-BM.DenseIO.E4.64-Hourly Commit			
	OCPU Per Hour	0.2437	0.2437
B95179 - Oracle Cloud VMware Solution-BM.DenseIO.E4.64-Monthly Commit			
	OCPU Per Hour	0.2031	0.2031
B95180 - Oracle Cloud VMware Solution-BM.DenseIO.E4.64-1 year Commit			
	OCPU Per Hour	0.1625	0.1625
B95181 - Oracle Cloud VMware Solution-BM.DenseIO.E4.64-3 year Commit			
	OCPU Per Hour	0.132	0.132

A. Terms of Your Order

1. Applicable Agreement:

a. US-OMA-271987 effective 31-JUL-2014

2. Applicable Schedule:

a. Cloud services are governed by Schedule C -- Cloud Services.

3. Cloud Payment Terms:

a. Net 30 days from invoice date

4. Cloud Payment Frequency:

a. Monthly in Arrears

5. Currency:

a. US Dollars

6. Offer Valid through:

a. 31-Mar-2022

7. Service Specifications

a. The Service Specifications applicable to the Cloud Services and the Consulting/Professional Services ordered may be accessed at http://www.oracle.com/contracts.

8. Services Period

a. The Services Period for the Services commences on the date stated in this order. If no date is specified, then the "Cloud Services Start Date" for each Service will be the date that you are issued access that enables you to activate your Services, and the "Consulting/Professional Services Start Date" is the date that Oracle begins performing such services.

B. Additional Order Terms

1. Funded Allocation Model Additional Terms

Under the "Funded Allocation Model", Oracle allows You the flexibility to fund an annual amount to Oracle as specified in the "Funded Allocation Value" in Your order, which is to be applied towards the future usage of eligible Oracle IaaS and PaaS Cloud Services specified in the rate card attached to Your order or as seen in the Cloud Portal provided such Cloud Services are available in production release when ordered, at the fees specified in the rate card. The total Funded Allocation Value of Your order is reflected in the "Funded Allocation Value" column and the applicable Services Period for that value will be as specified in Your order. Oracle will invoice You monthly in arrears based on Your actual usage for the prior month at the rates for each activated Oracle IaaS and PaaS Cloud Service as defined in Your order.

a. Overage.

As described in the Oracle PaaS and IaaS Universal Credits - Service Descriptions document available at http://www.oracle.com/contracts, You are responsible for monitoring Your use of the Cloud Services, and if You exceed the Funded Allocation Value at the end of any month during the Services Period, You must provide additional funding for Your usage, or You must cease to use the applicable Cloud Services. If You have exceeded the Funded Allocation Value and You have not ended Your use of the Services, You will be subject to overage fees. Oracle will invoice You for the excess usage of the Oracle IaaS and PaaS Cloud Services at the Overage Unit Net Price specified in the rate card of Your order or as seen in the Cloud Portal. You may set quotas, alerts and use other monitoring tools within the Cloud Portal to assist You in managing and tracking Your usage.

b. Additional Services.

If Oracle adds additional service offerings to the list of eligible Oracle IaaS and PaaS Cloud Services within Your Cloud Services Account during the Services Period, You may activate and use those service offerings and the discount will be applied based on the Cloud Service category discount specified in the rate card attached to Your order or as seen in the Cloud Portal. The development, release, and timing of any future features, functionality or service offerings remains at the sole discretion of Oracle Corporation.

c. Replenishment at End of Services Period.

If You are continuing to use Services after the end of the Services Period specified in Your order and You have not extended the Services Period and increased the Funded Allocation Value for use of eligible Oracle IaaS and PaaS Cloud Services, You will be charged for the actual usage of all Cloud Services that You activate and/or have activated within Your Cloud Services Account based on Oracle's then current price list for such Services, which can be found at https://cloud.oracle.com/en_US/ucpricing. Upon extending the term of the Services Period and increasing the amount of the Funded Allocation Value through a new order (or modification of Your existing order), You will receive the Cloud Services category discounts specified in the rate card attached to Your new order (or modification of Your existing order) or as seen in the Cloud Portal.

2. Support Reward for Cloud Consumption

During the Services Period of this order, You will receive a reward of 0.25 US Dollars (the "**Reward**") for every 1 US Dollars of Oracle Cloud Infrastructure Cloud Services ("**OCI Services**") that You consume during the Services Period and that You may apply towards renewals of Software Update License & Support for Oracle Programs provided that:

(a) the Reward will not accrue for (i) OCI Services SKUs that are assigned to a Non-Discount Eligible Cloud Services category in the applicable service description or (ii) Third Party Products available via the Cloud Marketplace;

(b) You may only apply the Reward towards the pre-tax value of future renewals of Software Update License & Support for Oracle Technology Programs and not for any other support offering (e.g., not towards first year Software Update License & Support nor for hardware support nor for premium support) and if you utilize an authorized Support Renewal Partner or Support Provider Partner ("Partner") for Your renewal of Software Update License & Support for Oracle Programs, then You may apply the Reward for up to 75% of the amount of the invoice from that Partner;

(c) the Reward will be issued monthly in arrears and will be valid for 12 months from the date of issuance of the applicable Reward;

(d) You understand that if this order is terminated due to Your breach of the terms of the Agreement or this order, then You will cease earning any Rewards starting from the effective date of termination; furthermore, if termination is due to Your failure to pay any fees owed under this order, any Rewards accrued, and which remain unused as of the effective date of termination, will be deleted from your Reward account; and

(e) You acknowledge and confirm that You are permitted by all applicable laws, regulations, policies and directives to participate in and to accept and apply the Reward and that the Reward does not constitute an unlawful gift, benefit or inducement by Oracle to You to enter into this order or any other agreement for Oracle products and services. You agree that You will not accept or apply the Reward if You are not permitted to accept the Reward (in such event, the Reward is void and is not applicable).

3. No Auto-Renewal

Notwithstanding any statement to the contrary in the Service Specifications, the parties expressly agree that the Services acquired under this order will not Auto-Renew.

4. Terms

The following terms, as used in this order or the Agreement and whether or not capitalized, shall have the same meaning as the applicable defined term: "Agreement" and "Master Agreement"; "Customer", "Client" "Company" and "You"; "Program Documentation" and "Documentation"; "Ordering Document" "order" and "Order Form"; "Services Term" and "Services Period"; "Your Data", "Company Data" and "Your Content".

5. Data Center Region Availability

Platform and data center region availability information for Oracle Platform as a Service (PaaS) Cloud Services and for Oracle Infrastructure as a Service (IaaS) Cloud Services is provided on the Oracle Cloud Portal at https://cloud.oracle.com/data-regions.

JEA	
Signature	_____
Name	_____
Title	_____
Signature Date	_____

BILL TO / SHIP TO INFORMATION

Bill To		Ship To	
Customer Name	JEA	**Customer Name**	JEA
Customer Address	21 W. Church Street Jacksonville, FL 32221 JACKSONVILLE FL 32202	**Customer Address**	21 W. Church Street Jacksonville, FL 32221 JACKSONVILLE FL 32202
Contact Name	Katura Owens	**Contact Name**	Katura Owens
Contact Phone	+1 (904) 665-4215	**Contact Phone**	+1 (904) 665-4215
Contact Email	acctpaycustsrv@jea.com	**Contact Email**	acctpaycustsrv@jea.com

JEA OCI Estimate		
Cloud Service	**Part Number**	**Metric**
Oracle Cloud Infrastructure - Database Exadata OCPU - BYOL	B88847	OCPU Per Hour
Oracle Cloud Infrastructure - Database Exadata OCPU	B88592	OCPU Per Hour
Oracle Cloud Infrastructure - Database Exadata Infrastructure - Quarter Rack - X8M	B92380	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Windows OS	B88318	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Standard - E4	B93113	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Standard - E4 - Memory	B93114	Gigabyte Per Hour
Oracle Cloud Infrastructure - Compute - Standard - X9	B94176	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Standard - X9 - Memory	B94177	Gigabyte Per Hour
Palo Alto VM 2-8	N/A	Image Per Hour
AVIATRIX VM	N/A	Image Per Hour
Oracle Cloud Infrastructure - GoldenGate	B92992	OCPU Per Hour
Oracle Cloud Infrastructure - Load Balancer Base	B93030	Load Balancer Hour
Oracle Cloud Infrastructure - Load Balancer Bandwidth	B93031	Mbps Per Hour
Oracle Cloud Infrastructure - FastConnect 1 Gbps	B88325	Port Hour
Oracle Cloud Infrastructure - Monitoring - Ingestion	B90925	Million Datapoints
Oracle Cloud Infrastructure - Monitoring - Retrieval	B90926	Million Datapoints
Oracle Cloud Infrastructure - Outbound Data Transfer - Originating in North America, Europe, and UK	B88327	Gigabyte Outbound Data Transfer Per Month
Oracle Cloud Infrastructure - Object Storage - Requests	B91627	10,000 Requests per month
Oracle Cloud Infrastructure - File Storage	B89057	Gigabyte Storage Capacity Per Month
Oracle Database Backup Cloud - Object Storage*	B90230	Gigabyte Storage Capacity Per Month
Oracle Cloud Infrastructure - Block Volume Performance	B91962	Performance Units Per Gigabyte Per Month
Oracle Cloud Infrastructure - Block Volume Storage	B91961	Gigabyte Storage Capacity Per Month
Oracle Cloud Infrastructure - Object Storage - Storage	B91628	Gigabyte Storage Capacity Per Month
Total		

			Environment	Environment			
Hourly Cost	**Monthly Cost**	**Minimums**	**Production**	**Non-Prod/DR**	**Quantity**	**Total Monthly Cost**	**Total Yearly Cost (List)**
$ 0.3226	$ 240	None	24	48	**72**	$ 17,281	$ 207,372
$ 1.3441	$ 1,000	None	0	0	**0**	$ -	$ -
$ 14.5162	$ 10,800	None	1	1	**2**	$ 21,600	$ 259,201
$ 0.0920	$ 68	None	16	16	**32**	$ 2,190	$ 26,284
$ 0.0250	$ 19	None	116	160	**276**	$ 5,134	$ 61,603
$ 0.0015	$ 1	None	520	568	**1,088**	$ 1,214	$ 14,570
$ 0.0400	$ 30	None	0	0	**0**	$ -	$ -
$ 0.0015	$ 1	None	0	0	**0**	$ -	$ -
$ 3.4500	$ 2,567	None	1	1	**2**	$ 5,134	$ 61,603
$ 0.8000	$ 595	None	1	1	**2**	$ 1,190	$ 14,285
$ 1.3441	$ 1,000	None	2	2	**4**	$ 4,000	$ 48,000
$ 0.0113	$ 8	None	2	2	**4**	$ 34	$ 404
$ 0.0001	$ 0	None	800	800	**1,600**	$ 119	$ 1,428
$ 0.2125	$ 158	None	1	1	**2**	$ 316	$ 3,794
$ 0.0025	$ 2	None	50	50	**100**	$ 186	$ 2,232
$ 0.0015	$ 1	None	10	10	**20**	$ 22	$ 268
$ 0.0085	$ 6	None	10	10	**20**	$ 126	$ 1,518
Priced Monthly	$ 0.0034	1	10	10	**20**	$ 0	$ 1
Priced Monthly	$ 0.3000		1350	4100	**5,450**	$ 1,635	$ 19,620
Priced Monthly	$ 0.0051	None	4096	5120	**9,216**	$ 47	$ 564
Priced Monthly	$ 0.0017	None	102400	102400	**204,800**	$ 348	$ 4,178
Priced Monthly	$ 0.0255	None	10240	10240	**20,480**	$ 522	$ 6,267
Priced Monthly	$ 0.0255	None	20480	20480	**40,960**	$ 1,044	$ 12,534
						$ 62,144	**$ 745,727**

Discount	Total Yearly Cost (Net)	Notes
10%	$ 186,635	BYOL this Includes Data Masking and Subsetting Pack, Diagnostics and Tuning Packs, and Real Application Testing.
10%	$ -	All Database Options included
10%	$ 233,281	Exadata X8M Infrastructure
0%	$ 26,284	Windows OS - At Cost
10%	$ 55,443	Compute Servers AMD Based - Does not include the EBS Cloud Manager Compute
10%	$ 13,113	Memory for Compute Servers
10%	$ -	Compute Servers Intel Based
10%	$ -	Memory for Compute Servers
0%	$ 61,603	Palo Alto Image - OCI Marketplace
0%	$ 14,285	Aviatrix Image - OCI Marketplace
10%	$ 43,200	GoldenGate Replication Cloud Service
10%	$ 363	Load Balancer Instances
10%	$ 1,286	Load Balancer Bandwidth
10%	$ 3,415	Connectivity for On-Premise network (Dedicated Connection OCI Port)
10%	$ 2,009	Over 500 Million Datapoints
10%	$ 241	Over 1 Billion Datapoints
10%	$ 1,366	First 10TB of Data of Data Free, cost per gig after 10TB limit
10%	$ 1	Over 10K Object Request per month
10%	$ 17,658	Network File Storage - Shared Mounts
10%	$ 508	Database Backup Service to Object Storage
10%	$ 3,760	Storage Performance 32K IOPS
10%	$ 5,640	Block volumes for servers in both regions
10%	$ 11,280	All Object and non-database backup storage(~ 5x block storage)
	$ 681,372	

Jacksonville Energy Authority OCI Estimate		
Cloud Service	**Part Number**	**Metric**
Oracle Cloud Infrastructure - Database Exadata OCPU - BYOL	B88847	OCPU Per Hour
Oracle Cloud Infrastructure - Database Exadata OCPU	B88592	OCPU Per Hour
Oracle Cloud Infrastructure - Database Exadata Infrastructure - Quarter Rack - X8M	B92380	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Windows OS	B88318	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Standard - E4	B93113	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Standard - E4 - Memory	B93114	Gigabyte Per Hour
Oracle Cloud Infrastructure - Compute - Standard - X9	B94176	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Standard - X9 - Memory	B94177	Gigabyte Per Hour
Palo Alto VM 2-8	N/A	Image Per Hour
AVIATRIX VM	N/A	Image Per Hour
Oracle Cloud Infrastructure - GoldenGate	B92992	OCPU Per Hour
Oracle Cloud Infrastructure - Load Balancer Base	B93030	Load Balancer Hour
Oracle Cloud Infrastructure - Load Balancer Bandwidth	B93031	Mbps Per Hour
Oracle Cloud Infrastructure - FastConnect 1 Gbps	B88325	Port Hour
Oracle Cloud Infrastructure - Monitoring - Ingestion	B90925	Million Datapoints
Oracle Cloud Infrastructure - Monitoring - Retrieval	B90926	Million Datapoints
Oracle Cloud Infrastructure - Outbound Data Transfer - Originating in North America, Europe, and UK	B88327	Gigabyte Outbound Data Transfer Per Month
Oracle Cloud Infrastructure - Object Storage - Requests	B91627	10,000 Requests per month
Oracle Cloud Infrastructure - File Storage	B89057	Gigabyte Storage Capacity Per Month
Oracle Database Backup Cloud - Object Storage*	B90230	Gigabyte Storage Capacity Per Month
Oracle Cloud Infrastructure - Block Volume Performance	B91962	Performance Units Per Gigabyte Per Month
Oracle Cloud Infrastructure - Block Volume Storage	B91961	Gigabyte Storage Capacity Per Month
Oracle Cloud Infrastructure - Object Storage - Storage	B91628	Gigabyte Storage Capacity Per Month
Total		

			Environment	Environment			
Hourly Cost	**Monthly Cost**	**Minimums**	**Production**	**Non-Prod/DR**	**Quantity**	**Total Monthly Cost**	**Total Yearly Cost (List)**
$ 0.3226	$ 240	None	24	0	**24**	$ 5,760	$ 69,124
$ 1.3441	$ 1,000	None	0	0	**0**	$ -	$ -
$ 14.5162	$ 10,800	None	1	0	**1**	$ 10,800	$ 129,601
$ 0.0920	$ 68	None	16	0	**16**	$ 1,095	$ 13,142
$ 0.0250	$ 19	None	116	0	**116**	$ 2,158	$ 25,891
$ 0.0015	$ 1	None	520	0	**520**	$ 580	$ 6,964
$ 0.0400	$ 30	None	0	0	**0**	$ -	$ -
$ 0.0015	$ 1	None	0	0	**0**	$ -	$ -
$ 3.4500	$ 2,567	None	1	0	**1**	$ 2,567	$ 30,802
$ 0.8000	$ 595	None	1	0	**1**	$ 595	$ 7,142
$ 1.3441	$ 1,000	None	2	0	**2**	$ 2,000	$ 24,000
$ 0.0113	$ 8	None	2	0	**2**	$ 17	$ 202
$ 0.0001	$ 0	None	800	0	**800**	$ 60	$ 714
$ 0.2125	$ 158	None	1	0	**1**	$ 158	$ 1,897
$ 0.0025	$ 2	None	50	0	**50**	$ 93	$ 1,116
$ 0.0015	$ 1	None	10	0	**10**	$ 11	$ 134
$ 0.0085	$ 6	None	10	0	**10**	$ 63	$ 759
Priced Monthly	$ 0.0034	1	10	0	**10**	$ 0	$ 0
Priced Monthly	$ 0.3000		1350	0	**1,350**	$ 405	$ 4,860
Priced Monthly	$ 0.0051	None	4096	0	**4,096**	$ 21	$ 251
Priced Monthly	$ 0.0017	None	102400	0	**102,400**	$ 174	$ 2,089
Priced Monthly	$ 0.0255	None	10240	0	**10,240**	$ 261	$ 3,133
Priced Monthly	$ 0.0255	None	20480	0	**20,480**	$ 522	$ 6,267
						$ 27,341	**$ 328,088**

Discount	**Total Yearly Cost (Net)**	**Notes**
10%	$ 62,212	BYOL this Includes Data Masking and Subsetting Pack, Diagnostics and Tuning Packs, and Real Application Testing.
10%	$ -	All Database Options included
10%	$ 116,641	Exadata X8M Infrastructure
0%	$ 13,142	Windows OS - At Cost
10%	$ 23,302	Compute Servers AMD Based
10%	$ 6,267	Memory for Compute Servers
10%	$ -	Compute Servers Intel Based
10%	$ -	Memory for Compute Servers
0%	$ 30,802	Palo Alto Image - OCI Marketplace
0%	$ 7,142	Aviatrix Image - OCI Marketplace
10%	$ 21,600	Oracle GoldenGate Cloud Service
10%	$ 182	Load Balance Instances
10%	$ 643	Load Balancer Bandwidth
10%	$ 1,707	Connectivity for On-Premise network (Dedicated Connection OCI Port)
10%	$ 1,004	Over 500 Million Datapoints
10%	$ 121	Over 1 Billion Datapoints
10%	$ 683	First 10TB of Data of Data Free, cost per gig after 10TB limit
10%	$ 0	Over 10K Object Request per month
10%	$ 4,374	Network File Storage - Shared Mounts
10%	$ 226	Database Backup Service to Object Storage
10%	$ 1,880	Storage Performance 32K IOPS
10%	$ 2,820	Block volumes for servers in both regions
10%	$ 5,640	All Object and non-database backup storage(~ 5x block storage)
	$ 300,388	

Jacksonville Energy Authority OCI Estimate		
Cloud Service	**Part Number**	**Metric**
Oracle Cloud Infrastructure - Database Exadata OCPU - BYOL	B88847	OCPU Per Hour
Oracle Cloud Infrastructure - Database Exadata OCPU	B88592	OCPU Per Hour
Oracle Cloud Infrastructure - Database Exadata Infrastructure - Quarter Rack - X8M	B92380	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Windows OS	B88318	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Standard - E4	B93113	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Standard - E4 - Memory	B93114	Gigabyte Per Hour
Oracle Cloud Infrastructure - Compute - Standard - X9	B94176	OCPU Per Hour
Oracle Cloud Infrastructure - Compute - Standard - X9 - Memory	B94177	Gigabyte Per Hour
Palo Alto VM 2-8	N/A	Image Per Hour
AVIATRIX VM	N/A	Image Per Hour
Oracle Cloud Infrastructure - GoldenGate	B92992	OCPU Per Hour
Oracle Cloud Infrastructure - Load Balancer Base	B93030	Load Balancer Hour
Oracle Cloud Infrastructure - Load Balancer Bandwidth	B93031	Mbps Per Hour
Oracle Cloud Infrastructure - FastConnect 1 Gbps	B88325	Port Hour
Oracle Cloud Infrastructure - Monitoring - Ingestion	B90925	Million Datapoints
Oracle Cloud Infrastructure - Monitoring - Retrieval	B90926	Million Datapoints
Oracle Cloud Infrastructure - Outbound Data Transfer - Originating in North America, Europe, and UK	B88327	Gigabyte Outbound Data Transfer Per Month
Oracle Cloud Infrastructure - Object Storage - Requests	B91627	10,000 Requests per month
Oracle Cloud Infrastructure - File Storage	B89057	Gigabyte Storage Capacity Per Month
Oracle Database Backup Cloud - Object Storage*	B90230	Gigabyte Storage Capacity Per Month
Oracle Cloud Infrastructure - Block Volume Performance	B91962	Performance Units Per Gigabyte Per Month
Oracle Cloud Infrastructure - Block Volume Storage	B91961	Gigabyte Storage Capacity Per Month
Oracle Cloud Infrastructure - Object Storage - Storage	B91628	Gigabyte Storage Capacity Per Month
Total		

			Environment	Environment			
Hourly Cost	**Monthly Cost**	**Minimums**	**Production**	**Non-Prod/DR**	**Quantity**	**Total Monthly Cost**	**Total Yearly Cost (List)**
$ 0.3226	$ 240	None	0	48	**48**	$ 11,521	$ 138,248
$ 1.3441	$ 1,000	None	0	0	**0**	$ -	$ -
$ 14.5162	$ 10,800	None	0	1	**1**	$ 10,800	$ 129,601
$ 0.0920	$ 68	None	0	16	**16**	$ 1,095	$ 13,142
$ 0.0250	$ 19	None	0	160	**160**	$ 2,976	$ 35,712
$ 0.0015	$ 1	None	0	568	**568**	$ 634	$ 7,607
$ 0.0400	$ 30	None	0	0	**0**	$ -	$ -
$ 0.0015	$ 1	None	0	0	**0**	$ -	$ -
$ 3.4500	$ 2,567	None	0	1	**1**	$ 2,567	$ 30,802
$ 0.8000	$ 595	None	0	1	**1**	$ 595	$ 7,142
$ 1.3441	$ 1,000	None	0	2	**2**	$ 2,000	$ 24,000
$ 0.0113	$ 8	None	0	2	**2**	$ 17	$ 202
$ 0.0001	$ 0	None	0	800	**800**	$ 60	$ 714
$ 0.2125	$ 158	None	0	1	**1**	$ 158	$ 1,897
$ 0.0025	$ 2	None	0	50	**50**	$ 93	$ 1,116
$ 0.0015	$ 1	None	0	10	**10**	$ 11	$ 134
$ 0.0085	$ 6	None	0	10	**10**	$ 63	$ 759
Priced Monthly	$ 0.0034	1	0	10	**10**	$ 0	$ 0
Priced Monthly	$ 0.3000		0	4100	**4,100**	$ 1,230	$ 14,760
Priced Monthly	$ 0.0051	None	0	5120	**5,120**	$ 26	$ 313
Priced Monthly	$ 0.0017	None	0	102400	**102,400**	$ 174	$ 2,089
Priced Monthly	$ 0.0255	None	0	10240	**10,240**	$ 261	$ 3,133
Priced Monthly	$ 0.0255	None	0	20480	**20,480**	$ 522	$ 6,267
						$ 34,803	**$ 417,639**

Discount	**Total Yearly Cost (Net)**	**Notes**
10%	$ 124,423	BYOL this Includes Data Masking and Subsetting Pack, Diagnostics and Tuning Packs, and Real Application Testing.
10%	$ -	All Database Options included
10%	$ 116,641	Exadata X8M Infrastructure
0%	$ 13,142	Windows OS - At Cost
10%	$ 32,141	Compute Servers AMD Based
10%	$ 6,846	Memory for Compute Servers
10%	$ -	Compute Servers Intel Based
10%	$ -	Memory for Compute Servers
0%	$ 30,802	Palo Alto Image - OCI Marketplace
0%	$ 7,142	Aviatrix Image - OCI Marketplace
10%	$ 21,600	Oracle GoldenGate Cloud Service
10%	$ 182	Load Balance Instances
10%	$ 643	Load Balancer Bandwidth
10%	$ 1,707	Connectivity for On-Premise network (Dedicated Connection OCI Port)
10%	$ 1,004	Over 500 Million Datapoints
10%	$ 121	Over 1 Billion Datapoints
10%	$ 683	First 10TB of Data of Data Free, cost per gig after 10TB limit
10%	$ 0	Over 10K Object Request per month
10%	$ 13,284	Network File Storage - Shared Mounts
10%	$ 282	Database Backup Service to Object Storage
10%	$ 1,880	Storage Performance 32K IOPS
10%	$ 2,820	Block volumes for servers in both regions
10%	$ 5,640	All Object and non-database backup storage(~ 5x block storage)
	$ 380,984	

Approved by the JEA Awards Committee
Date 6/2/16 Item # 5

Formal Bid and Award System

Award #5 June 2, 2016

Type of Award Request: CHANGE ORDER
Request #: 640
Requestor Name: Owens, Katura E. - Mgr Technology Project Mgmt
Requestor Phone: (904) 665-4215
Project Title: Oracle E-Business Suite (EBS) 12.1.3 to 12.2.5 Upgrade, including the implementation of Oracle EAM
Project Number: 8003722 and 8002532
Project Location: JEA
Funds: Capital
Award Estimate:
Description of Request:
This effort is to procure the Oracle engineered hardware infrastructure, software, associated training, and O&M Maintenance for years 2 & 3. It includes Exadata and Exalogic hardware for QA/Test, Production, and Disaster Recovery environments. This infrastructure will house multiple Oracle applications, including Oracle IDM and Oracle eBusiness Suite (planned for FY15). This purchase supports the strategic IT direction of systems consolidation (12 to 6).

Requisition Number:
JEA IFB/RFP/State/City/GSA#: CPA 142971
Purchasing Agent: Woyak, Nathan J
Is this a Ratification?: NO

RECOMMENDED AWARDEE(S): 142971

Name	Contact Name	Email	Address	Phone	Amount
ORACLE AMERICA INC	Anthony Johnson	Anthony.Johnson@oracle.com	500 ORACLE PKWY, PO BOX 659603, REDWOOD SHORES CA 94065	(650) 633-4178	$986,221.24

Amount of Original Award: $4,095,941.30
Date of Original Award: 02/28/2015
Change Order Amount: $986,221.24
List of Previous Change Order/Amendments:

CPA #	Amount	Date
142971	$125,501.88	8/7/2015

142971	$159,739.12	8/21/2015
142971	$308,378.10	11/19/2015

New Not-To-Exceed Amount:	$5,675,781.64
Contract Type:	Term Contract
Length of Contract/PO Term:	Three (3) Years w/No Renewals
Begin Date (mm/dd/yyyy):	02/28/2015
End Date (mm/dd/yyyy):	02/27/2018
Renewal Options:	N/A - Proprietary
JSEB Requirement:	N/A
Comments on JSEB Requirements:	N/A – Specialty Services

Background/Recommendations:

On 1/12/2015 the original Proprietary award was approved by Awards Committee to Oracle America Inc. in the amount of $4,095,941.30 for Oracle EXADATA/EXALOGIC Hardware for support of Oracle Applications in the 12 to 6 initiative.

On 8/7/2015 a less than 5% change order for $125,501.88 in support of professional services to implement and prepare the environment for JEA applications.

On 8/21/2015 a less than 5% change order for $159,739.12 in support of professional services to implement and prepare the environment for JEA applications.

On 11/19/2015 a change order for $308,378.10 was approved by awards committee for Oracle EBS 12.1.3 to 12.2.5 Upgrade including implementation of Oracle EAM.

This change order is a request to increase the contract in the amount of $986,221.24 due to the Oracle Executive Steering Committee approving an extension of the EXADATA/EXALOGIC Hardware build, EBS 12.1.3 upgrade to 12.2.5, including EAM Implementation to Q2 FY17. This requires additional hardware and professional services to continue with the implementation and preparation of the environment for JEA Essential Business System applications.

The costs include additional labor costs of $393,499.90, as well as the procurement of hardware of $265,119.35(ZFS Appliance / Additional RAM) required now to complete the buildout of the EXA engineered system including the EBS Upgrade in the EXADATA/EXALOGIC platform. These costs are to be covered by project 8003722.The change order also includes the appropriation of $327,601.99 funds for initiating Advanced Monitoring & Resolution support in FY17. These costs are to be covered by project 8002532. A summary of costs are shown in the table below.

Oracle ACS EXA EBS Build Changes Professional Services	*$393,499.90 – includes Design Doc / Services thru Feb 2017*
RAM	***$ 25,613.35***
ZFS Appliances	*$239,506.00 - discounted pricing*
AM&R	***$327,601.99 - (Planned FY17 purchase)***
Change Order Amount	*$986,221.24*

JEA previously purchased the Oracle EXADATA / EXALOGIC Engineered solution as a replacement for our existing commodity based infrastructure. This change order specifically addresses services required to construct the Oracle E-Business Suite (EBS) 12.2.5 infrastructure within the EXADATA/EXALOGIC platform. This will be a replacement for the current Oracle EBS 12.1.3 commodity based infrastructure. The implementation of the EXADATA / EXALOGIC Engineered solution provides JEA with the following benefits:

- Database performance improvements;
- Improved failover capabilities with our secondary site (SOCC);
- Reduction of outage schedules due to the online patching capabilities native to Oracle 12.2.5.

This request is a Proprietary award since the Oracle Hardware is specifically designed for the applications it will be used for at JEA, which will provide total cost of ownership savings to JEA's customers. The supporting ordering documents and quotes include a 20% discount provided by Oracle as a direct result of the significant investment JEA has made by the purchase of the Oracle EXADATA / EXALOGIC Engineered System.

JEA may require additional support for subsequent capital projects beyond the Oracle EBS 12.2.5 deployment. For example, the migration of Oracle Service Oriented Architecture (SOA) is planned for FY2017. Pending the success of the FY16/FY17 planned projects, future hardware augmentations of the platform (storage, processors, etc.) may be planned for FY17/FY18.

Request approval to award a contract to Oracle America, Inc., for the Oracle Engineered System in the amount of $986,221.24 for a new not-to-exceed amount of $5,675,781.64, subject to the availability of lawfully appropriated funds.

Manager:

Director: Edgar, Cindy L. - Director, Technology Infrastructure

VP: Cosgrave, Paul J. - Interim Chief Information Officer

APPROVALS:

6-2-16

Chairman, Awards Committee **Date**

6/2/16

Manager, Capital Budget Planning **Date**

Approved by the JEA Awards Committee
Date 11/19/15 Item # 12

Formal Bid and Award System

Award #12 November 19, 2015

Type of Award Request:	CHANGE ORDER
Request #:	472
Requestor Name:	Owens, Katura E. - Mgr Technology Project Mgmt
Requestor Phone:	(904) 665-4215
Project Title:	Oracle EBS 12.1.3 to 12.2.4 Upgrade, including Implementation of Oracle EAM
Project Number:	8002532
Project Location:	JEA
Funds:	Capital
Award Estimate:	$308,378.10

Description of Request:

Oracle EBS 12.1.3 to 12.2.4 Upgrade, including the Implementation of Oracle EAM's, required deployment in the new EXADATA, EXALOGIC Infrastructure.

Requesting increase to the CPA FOR ORACLE ENGINEERED HARDWARE: EXADATA, EXALOGIC HARDWARE FOR SUPPORT OF ORACLE APPS IN THE 12 TO 6 INITIATIVE in the amount of $308,378.10.

Requisition Number:	
JEA IFB/RFP/State/City/GSA#:	142971
Purchasing Agent:	Woyak, Nathan J
Is this a ratification?:	NO
If yes, explain:	

RECOMMENDED AWARDEE(S):

Name	Contact Name	Address	Phone	Fax	Amount
ORACLE AMERICA INC	ANTHONY JOHNSON	500 ORACLE PKWY, PO BOX 659603, REDWOOD SHORES CA 94065	(650) 633-4178	(650) 633-2168	$308,378.10

Amount of Original Award:	$4,095,941.30
Date of Original Award:	02/26/2015
Change Order Amount:	$308,378.10

List of Previous Change Order/Amendments:

Change Order	
8/7/15 Less than 5% Admin Increase	$125,501.88
8/21/15 5%Admin Increase	$159,739.12

New Not-To-Exceed Amount:	$4,689,560.40
Length of Contract/PO Term:	Three (3) Years w/No Renewals
Begin Date (mm/dd/yyyy):	02/28/2015
End Date (mm/dd/yyyy):	02/27/2018
Contract/PO Detail:	
Renewal Options:	N/A - Proprietary
JSEB Requirement:	N/A
Comments on JSEB Requirements:	

Background/Recommendations:

The items in the original award were presented and approved by JEA's Technology Projects Committee on January 12, 2015. This request is for a Proprietary award since the Oracle Hardware is specifically designed for the applications it will be used for at JEA which will provide total cost of ownership savings to JEA's customers.

Two (2) administrative increases have been applied to the original award, both in support of professional services to implement/prepare the environment for JEA applications.

JEA previously purchased the Oracle EXADATA / EXALOGIC engineered solution as a replacement for our existing commodity based infrastructure. This change order specifically addresses services required to construct the Oracle E-Business Suite (EBS) 12.2.4 infrastructure within the EXADATA EXALOGIC platform. This will be a replacement for the current Oracle EBS 12.1.3 commodity based infrastructure. The implementation of the EXADATA / EXALOGIC engineered solution provides JEA with benefits:

- Database performance improvements;
- Improved failover capabilities with our secondary site (SOCC);
- Reduction of outage schedules due to the online patching capabilities native to Oracle 12.2.4

The supporting ordering document for this effort includes a twenty percent (20%) discount provided by Oracle as a direct result of the significant investment JEA has

made by the purchase of the Oracle EXADATA / EXALOGIC engineered system.

The EXADATA EXALOGIC platform is new to JEA; it is new technology and a completely new toolset. JEA may require additional support for subsequent capital projects beyond the Oracle EBS 12.2.4 deployment. For example, the migration of Oracle Service Oriented Architecture (SOA) is planned for summer 2016. Pending the success of the FY16 planned projects, future hardware augmentations of the platform (storage, processors, etc.) may be planned for FY17.

Request approval to award a change order to Oracle America, Inc. for the Oracle engineered hardware infrastructure and support thereof in the amount of $308,378.10, for a new not-to-exceed amount of $4,689,560.40, subject to the availability of lawfully appropriated funds.

Manager:
Director: Selders, Steve G. - Director, IT Project Mgmt Services
VP: Cosgrave, Paul J. - Interim Chief Information Officer

APPROVALS:

11-19-15

Chairman, Awards Committee **Date**

11-19-15

Manager, Capital Budget Planning **Date**

Approved by the JEA Awards Committee
Date 2-26-2015 Item # 2

Formal Bid and Award System

Award #2 February 26, 2015

Award #:	**Award Date:**
Type of Award Request:	PROPRIETARY
Request #:	227
Requestor Name:	Selders, Steve G. - Director, IT Project Mgmt Services
Requestor Phone:	(904) 665-6597
Project Title:	Oracle Engineered Hardware and Software Systems: Oracle Exadata and Exalogic Hardware for Support of Oracle Applications in the 12-to-6 Initiative.
Project Number:	Multiple
Project Location:	JEA
Funds:	Capital and O&M
Award Estimate:	$4,500,000

Description of Request:

This effort is to procure the Oracle engineered hardware infrastructure, software, associated training, and O&M Maintenance for years 2 & 3. It includes Exadata and Exalogic hardware for QA/Test, Production, and Disaster Recovery environments. This infrastructure will house multiple Oracle applications, including Oracle IDM and Oracle eBusiness Suite (planned for FY15). This purchase supports the strategic IT direction of systems consolidation (12-to-6).

Total award is $4,095,941.30 and breaks down as follows:

Description	Capital Amount (FY15)	O&M Amount Year 2	O&M Amount Year 3	Total Award
Software	$1,741,164.48	$313,980.48	$313,980.48	
Engineered Systems-CC3	$939,545.52	$93,646.89	$93,646.89	
Engineered Systems-SOCC	$439,072.38	$43,452.09	$43,452.09	
Oracle University Training	$75,000.00			
TOTAL	**$3,194,782.38**	**$451,079.46**	**$451,079.46**	**$4,096,941.30**

142971

Requisition Number:	
JEA IFB/RFP/State/City/GSA#:	Oracle Master Agreement
Purchasing Agent:	Woyak, Nathan J
Is this a Ratification?:	N/A
If yes, explain:	

RECOMMENDED AWARDEE(S):

Name	Contact Name	Address	Phone	Amount
ORACLE AMERICA INC	DON VOYLES	500 ORACLE PKWY, PO BOX 659603, REDWOOD SHORES CA 94065	(678) 481-6221	$4,095,941.30

Amount for entire term of Contract/PO: $4,095,941.30
Award Amount for remainder of this FY: $3,193,782.38
Length of Contract/PO Term: Three (3) Year Term
Begin Date (mm/dd/yyyy): 02/28/2015
End Date (mm/dd/yyyy): 02/27/2018
Renewal Options: N/A
JSEB Requirement: N/A

Background/Recommendations:

The items in this award were presented and approved by JEA's Technology Projects Committee on January 12, 2015. This request is for a Proprietary award since the Oracle Hardware is specifically designed for the applications it will be used for at JEA which will provide total cost of ownership savings to JEA's customers.

The pricing for these services is supported with the following information. As compared to the Oracle retail prices published on Oracle's web site, JEA is receiving a 25% discount on the hardware and a 70% discount on the software. The ongoing maintenance of the hardware and software is similarly discounted; Oracle's maintenance is 22% of the license cost for software, and 12% of the license cost for software. These maintenance fees will remain flat (0% increases) over the life of this contract. After 3 years, JEA will have an opportunity to renegotiate these fees, in the context of future Oracle purchases. When compared to our past transactions with Oracle, this is the ballpark discount we receive for software. For instance, on two separate purchases for software last year, we received a 65% discount on one deal, and a 72% discount on the other. JEA also had this pricing independently verified by analysts from Gartner who have access to shared knowledge and experiences from their clients in IT services worldwide, and they determined the pricing to be fair and in-line or better than other comparable situations. Additional information supporting the pricing for this award is provided in the attached email.

This award will also provide JEA with the following items negotiated into the purchase price:

- Oracle will absorb freight charges (~$10,000) for delivery of hardware to CC3 and SOCC

- JEA will receive a "price hold" on future software purchases for the Oracle Utilities Suite and Webcenter software at a discount of 68% (typical discounts are ~65%). Both the Utilities Suite and Webcenter softwares are on JEA's technology roadmap.

- Maintenance on JEA's current eBusiness Suite software will "flat line" for the next three (3) years at 0% increases. This saves JEA approximately $65,000 over the current 3-year eBusiness Suite maintenance contract.

- JEA will receive QA/Dev licenses for two (2) products in our OBIEE software suite, for which we were

currently out of compliance. The cost of these licenses will be absorbed by Oracle.

Request approval to award a contract to Oracle America, Inc. for the Oracle engineered hardware infrastructure in the amount of $4,095,941.30, subject to the availability of lawfully appropriated funds.

Manager:

Director:

VP: Cosgrave, Paul J. - Interim Chief Information Officer

APPROVALS:

2-26-15

Chairman, Awards Committee **Date**

2-26-15

Manager, Capital Budget Planning **Date**

Certification of Single Source or Emergency Procurement

Please use this form to certify a Single Source or Emergency Procurement complies with the requirements of the JEA Procurement Code. The JEA Procurement Code defines a Single Source and Emergency Procurement as follows:

3-112 Single Source

A Contract may be awarded for Supplies or Services as a Single Source when, pursuant to the Operational Procedures, the Chief Procurement Officer determines that:

(a) there is only one justifiable source for the required Supplies or Services;

(b) the Supplies or Services must be a certain type, brand, make or manufacturer due to the criticality of the item or compatibility within a JEA utility system, and such Supplies or Services may not be obtained from multiple sources such as distributors;

(c) the Services are a follow-up of Services that may only be done efficiently and effectively by the Vendor that rendered the initial Services to JEA, provided the Procurement of the initial Services was competitive;

(d) at the conclusion of a Pilot Project under Section 3-118 of this Code, the Procurement of Supplies or Services tested during the Pilot Project, provided the Vendor was competitively selected for the Pilot Project.

3-113 Emergency Procurements

In the event of an Emergency, the Chief Procurement Officer may make or authorize an Emergency Procurement, provided that Emergency Procurements shall be made with as much competition as practicable under the circumstances. A written Determination of the basis for the Emergency and for the selection of the particular Vendor shall be included in the Procurement file.

For purposes of this Section 3-113, an "Emergency" means any one of the following:

(a) a reasonably unforeseen breakdown in machinery;

(b) an interruption in the delivery of an essential governmental service or the development of a circumstance causing a threatened curtailment, diminution, or termination of an essential service;

(c) the development of a dangerous condition causing an immediate danger to the public health, safety, or welfare or other substantial loss to JEA;

(d) an immediate danger of loss of public or private property;

(e) the opportunity to secure significant financial gain, to avoid delays to any Governmental Entity or avoid significant financial loss through immediate or timely action; or (f) a valid public emergency certified by the Chief Executive Officer.

Please provide the following information:

1. Vendor Name:

ORACLE AMERICA, INC.

2. Description of Services or Supplies provide by Vendor:

Migrate the ebusinsess suite (EBS) and Integrated SOA Gateway (ISG) application from Oracle Exa platform on premise to Oracle Cloud Infrastructure (OCI) Infrastructure as a Service (IaaS) to comply with regulatory compliance. JEA's existing Exadata and Exalogic environment includes hardware and software for QA/test, production, and disaster recovery environments. This leverages JEA's current Oracle Master Services Agreement (MSA) that provides the lifting and shifting of JEA's current on premise footprint to Oracle's Cloud Infrastructure (OCI).

3. Certification:

I the undersigned certify that to the best of my knowledge, no JEA employee has, either directly or indirectly, a financial interest in this Single Source Emergency Procurement, and

I the undersigned certify that this procurement meets the requirements of a (choose one of the following):

_X_ **Single Source Procurement**. Please state which subsection of Section 3-112 above applies to this Single (a) Source Procurement: (a) there is only one justifiable source for the required Supplies or Services;

OR

_____**Emergency Procurement** - Please state which subsection of Section 3-113 above applies to this Emergency Procurement:_____

Katura E. Owens 10 Mar 22

_____ _____

Signature of JEA Business Unit Manager **Date**

This certification shall be attached to the Purchase Order when it is routed for approval. A Single Source or Emergency Procurement shall be reported to the JEA Board in accordance with Section 1-110 of the JEA Procurement Code.

Formal Bid and Award System

Award #5 March 17, 2022

Type of Award Request: RENEWAL
Requestor Name: Reynolds, Anthony R. – Strategic Segment Manager
Requestor Phone: (904) 772-5796
Project Title: On-Road Residential Electrification Program and Strategy
Project Number: HE10000 ($23,386) 8007101 Original Budget
Project Location: JEA
Funds: O&M
Budget Estimate: $500,00.00 (FY'22 250,000.00 from BL01), (FY'23 $250,000.00 from BL01)

Scope of Work:

This request is for on-road residential electrification program and strategy for JEA's electrification efforts with the primary purpose of increasing JEA's net revenue. JEA has implemented a residential electric vehicle program that yields a positive return on investment to the utility. This award authorizes a turnkey residential electric vehicle off-peak charging program that is consistent with JEA customer service standards. The budget for this award includes any customer rebates.

JEA IFB/RFP/State/City/GSA#: 1410196646
Purchasing Agent: Dambrose, Nickolas C.
Is this a Ratification?: No.

RECOMMENDED AWARDEE(S):

Name	Contact Name	Email	Address	Amount
SAGEWELL, INC.	Gary Smith	gary.smith@sagewell.com	1000 Massachusetts Ave, #59 Cambridge, MA 02138	$455,175.00

Amount of Original Award: $298,429.00
Date of Original Award: 05/05/2021
Renewal Amount: $455,175.00

List of Previous Change Orders / Amendments:

CPA #	Amount	Date
197792	$23,386.00	08/12/2021

Length of Contract / PO Term: One (1) Year w/Two (2) – 1 Yr. Renewals
New Not-To-Exceed Amount: $776,990.00
Begin Date (mm/dd/yyyy): 05/01/2022
End Date (mm/dd/yyyy): 04/30/2023
Renewal Options: One (1) – 1 Yr. Renewal Remaining
JSEB Requirement: JSEBs were reviewed and no opportunities available.

Background/Recommendations:

Competitively bid as an informal in the amount of $298,429.00 in May 2021, and a change order of $23,860.00 was approved by the Awards Committee on 08/12/2021. A copy of the change order award is attached as backup.

This request is for $455,175.00 in additional funds for a one (1) year renewal from 05/01/2022 to 04/30/2023 to the existing contract with Sagewell, Inc. to maintain JEA's residential electric vehicle program and for three (3) additional services as described further below. The general administrative fees (monthly program fee) for this renewal shall include a two (2%) percent increase from current monthly program fees to cover upgrades one (1) and two (2) listed below through 05/01/2023. The one (1) year renewal estimate is attached as backup. All other costs remain constant as seen below.

	Term		Administrative Fees		(+)	Incentives	(=)	Total
	Beginning	Ending	per month	ext	(+)	ext	(=)	Total ext
Existing Scope*	5/1/2022	4/30/2023	$15,000	$180,000	(+)	$100,100	(=)	$280,100
Annual IT Support***	5/1/2022	4/30/2023		$30,000				$30,000
Incentive Processing ****	5/1/2022	4/30/2022		$16,200				$16,200
EV Monitoring >1500****	5/1/2022	4/30/2022		$8,000				$8,000
DIST	5/1/2022	4/30/2023		$20,540				$20,540
Electrical Upgrades**	10/1/2022	4/30/2023	$750	$5,250	(+)	$95,085	(=)	$100,335

** (x) 12 months, ** (x) 7 months, ***Paid annually, **** Estimated costs*

Total Award Request **$455,175.00**

This renewal also includes the following upgrades:

1. **Dealer Inventory Search Tool (DIST)**
   The DIST is an enhancement for the Drive Electric website that will enable customers to actively search dealer inventory within 100 miles of Jacksonville in real time. Currently, Sagewell receives periodic updates on inventory and manually updates the Drive Electric website to show customers what is available. The search tool bypasses the manual update process allowing JEA customers to dynamically query dealership stock with one search and the ability to see multiple makes and models at the same time.
2. **EV Monitoring Fees**
   In anticipation of program growth, upon enrollment of 1,500 electric vehicles (EVs), a monthly fee of $8.00 per vehicle will become effective for each vehicle in excess of 1,500 EVs to offset the existing charging rebate labor and server cycles. Current enrollment is 500 EVs.
3. **Additional Incentive for Level 2 Chargers**
   Effective Oct 1, 2022 this award provides a new incentive to customers to cover up to 15% of the costs to upgrade their electrical system to enable the installation of level 2 chargers. The incentive will be capped at $300. Level 2 chargers enhance the customer's EV experience through dramatically shorter charge times, increasing the chance for further adoption. Many new EV owners do not install Level 2 chargers due to the cost of the required electrical upgrades, which limits JEA's ability to detect the location of Level 2 chargers within its territory using AMI data and limits the pool of eligible customers for participation in the Bring Your Own Charger program. Other customers who are educated on EVs know they will need to perform the upgrades which precludes them from purchasing EVs in the first place. In the future, more level 2 chargers in market would enhance JEA's ability to implement a manager charging program for customers to optimize charging while minimizing impacts of charging on the distribution system.

Request approval to award a one (1) year contract renewal to Sagewell, Inc. for On-Road Residential Electrification Program and Strategy in the amount of $455,175.00, for a not-to-exceed amount of $776,990.00 subject to the availability of lawfully appropriated funds.

Director:	Pope, Jordan A - VP Corporate Strategy
Chief:	Dutton, Laura M. - Chief Strategy Officer

APPROVALS:

_____

Chairman, Awards Committee **Date**

_____

Budget Representative **Date**

January 26, 2022

Dear JEA EV Team,

Sagewell is pleased to present the following proposal to extend services provided by Sagewell through the end of Fiscal Year 25/26, ending on September 30, 2026.

Below are the program rates per the current contract:

- Monthly fee, $14,667
- Yearly Maintenance and Support, $30,000
- Incentive Processing cost, per payment, $3

We propose future contracts include a per vehicle monitoring fee, after 1,500 vehicles are enrolled. This cost of $8 per month covers the added costs to operate the Charging Rebate as enrollment grows.

We also propose the following cost increases per year, applied to the monthly program fee.

Remainder of FY 21/22 and FY 22/23 - 2.27%
FY 23/24 - 4%
FY 24/25 - 4%
FY 25/26 - 4%

This change would result in the following monthly program fees (rounded to nearest dollar):
Remainder of FY 21/22 and FY 22/23 - $15,000
FY 23/24 - $15,600
FY 24/25 - $16,224
FY 25/26 - $16,873

Thank you for your continued support.

Gary Smith
Vice President of Programs
Sagewell, Inc.

Formal Bid and Award System

Award #6 March 17, 2022

Type of Award Request: SINGLE SOURCE
Requestor Name: Ramirez, Samuel
Requestor Phone: (904) 665-6960
Project Title: Nassau Water Reclamation Facility (WRF) Additional Trojan UV System
Project Number: 8004271
Project Location: JEA
Funds: Capital
Budget Estimate: $448,650.00
Scope of Work:

This project is to have a Trojan UV300Plus disinfection system fabricated and delivered to the Nassau Water Reclamation Facility as a part of a 3 million gallons a day (MGD) expansion. The Trojan UV system is a JEA Standard.

JEA IFB/RFP/State/City/GSA#: N/A
Purchasing Agent: King, David
Is this a Ratification?: Yes, partial
Ratification amount: $44,865.00 (for shop drawings)

RECOMMENDED AWARDEE(S):

Name	Contact Name	Email	Address	Phone	Amount
TROJAN TECHNOLOGIES GROUP ULC CORPORATION	Mike Shortt	mshortt@trojanuv.com	3020 Gore Rd, London, Ontario, N5V 4T7, Canada	(519) 457-2701	$448,650.00

Amount for entire term of Contract/PO: $448,650.00
Award Amount for remainder of this FY: $448,650.00
Length of Contract/PO Term: Project Completion
Begin Date: 04/01/2022
End Date: Project Completion (Expected: June 2022)
JSEB Requirement: N/A – Single Source

Background/Recommendations:

The Nassau WRF is being expanded to 3 MGD and requires an additional UV disinfection system for this expansion. This facility currently has a Trojan UV system; in order to maintain compatibility, an additional Trojan UV system will be installed. The Trojan UV system is a current JEA Standard.

Trojan will provide UV300Plus system that includes a Power Distribution Center, support rack to mount the UV modules, level controller, water level sensor, UV module lifting sling with frame and spare parts. Trojan is also providing shop drawings and O&M manuals. When originally built in 2005, space for two (2) Trojan UV systems were designed and constructed. Due to the plant flows at the time of construction, only one of the

Trojan UV systems was installed. With the increased growth in Nassau county, the second UV system is now required.

Request approval to award a contract to Trojan Technologies Group ULC Corporation for a Trojan UV300Plus system in the amount of $448,650.00, subject to the availability of lawfully appropriated funds.

Manager:	Doherty, Peter F. - W/WW Project Management
Director:	Conner, Sean M. - Dir W/WW Project Engineering & Construction
VP:	Vu, Hai X. - VP Water Wastewater Systems

APPROVALS:

_____

Chairman, Awards Committee **Date**

_____

Budget Representative **Date**

SCOPE OF SUPPLY FOR NASSAU WRF WASTEWATER TREATMENT PLANT

ULTRAVIOLET DISINFECTION EQUIPMENT – TROJAN SYSTEM UV3000Plus™

Prepared for: JEA

Project Name: Nassau WRF

Trojan Quote: 218976 (Nov 3, 2021)

Design Criteria:

Current Peak Design Flow:	2.84 MGD
Minimum Flow:	0.50 MGD
UV Transmission:	65**%** minimum
Total Suspended Solids:	5 mg/L (Maximum, grab sample)
Minimum Dose:	100 mJ/cm^2, MS2 RED
Discharge Limit:	25 Fecal Coliform/100 mL (1 Day Maximum)

We are pleased to submit the following scope of equipment based on the above criteria.

The purchaser is responsible for reading all information contained in this Supply Contract. Trojan will not be held accountable for the supply of equipment not specifically detailed in this document. Supplemental Terms and Conditions are attached to this document. Detailed installation instructions are provided with the shop drawings and are available earlier upon request. Changes to this Scope of Supply that affect selling price will be handled through a change order.

Please refer all inquiries to Trojan Manufacturer's Representative:

Paul Wachter
TSC Jacobs North
Phone: 813-242-2660

This proposal has been respectfully submitted by,
Trojan Technologies

Mike Shortt
Regional Manager
Trojan Technologies

Unless otherwise indicated in this proposal all anchor bolts, conduit, conductors, local disconnects and transformers (if required) are the responsibility of the Installation Contractor and are not included in Trojan's Scope of Supply. Specific cable types listed below are for reference only. Selecting cables that are appropriate for the installation environmental conditions and in compliance with local code is the responsibility of the Installation Contractor.

ULTRAVIOLET MODULES

Trojan's Responsibility:
Each module supplied shall be completely assembled containing lamps, quartz sleeves and be electrically wired to each electronic ballast. Modules are shipped in a support rack and crated.

Model and Make:	Standard System UV3000Plus™
Quantity:	Twenty-Seven (27) UV modules each containing 8 Lamps
Material of Construction:	316 stainless steel frame
Approximate Weight:	112 lbs per UV module

SYSTEM CONTROL CENTER

Trojan's Responsibility:
One (1) System Control Center (SCC) shall be supplied to monitor and control the UV System. Trojan will provide a PLC I/O and soft address map to aid the Contractor with integration of the UV PLC and WWTP SCADA system. The UV SCC shall consist of the following:

Quantity Supplied	One (1) SCC
Location:	Wall Mounted (by Installation Contractor)
Controller Type:	AB CompactLogix
Operator Interface:	15" Beijer HMI (Type 4X – Outdoor Rated)
Panel UPS:	15 Minutes on 24VDC
Material / Rating:	316 Stainless Steel - Type 4X (IP66)
Approximate Weight:	200 lbs
SCADA Protocol:	Modbus Ethernet
Surge Protection:	TVSS

Installation Contractor's Responsibility:
The Installation Contractor is responsible for mounting the SCC as indicated on the drawings. The Installation Contractor is responsible for the supply, installation and connection of the following at the SCC:

1. One (1) 120V, 60Hz, 1 phase, 2 Wire + GND, 1.8 kVA (minimum) power supply
2. One (1) 4 – 20 mA DC analog signal from plant flow meter
3. One (1) Ground Link, 14 gauge minimum type TWH stranded, daisy chained to the PDCs.
4. One (1) serial communication link consisting of one (1) shielded twisted pair, 18 gauge maximum to the PDCs (daisy chained).
5. One (1) Fiber Optic communication link to SCADA

POWER DISTRIBUTION CENTERS

Trojan's Responsibility:
The Power Distribution Center (PDC) distributes power to the UV Modules and shall consist of the following:

Quantity Supplied:	Three (3) PDCs
Material / Rating:	316 Stainless Steel - Type 4X (IP66)
Approximate Weight:	220 lbs

Installation Contractor's Responsibility:
The Installation Contractor is responsible for setting in place and bolting the Power Distribution Centers to the top of channel. The Installation Contractor is responsible for the supply, installation and connection of the following at each of the Power Distribution Centers:

1. One (1) 480/277V, 60Hz, 3 phase, 4 Wire + GND, 18.40 kVA power feed with local disconnect
2. One (1) communication link consisting of one (1) shielded twisted pair from the SCC and daisy chained to other PDCs.
3. One (1) pair of 12Volt DC, 18 gauge minimum discrete signal to the Water Level Sensor from PDC closest to the sensor.
4. Connection of communication and power cables from the UV Modules

SUPPORT RACKS

Trojan's Responsibility:
Support racks are provided to support UV modules in the effluent channel.

Quantity Supplied:	Three (3) Module Support Racks
Material of Construction:	304 Stainless Steel
Approximate Weight:	< 100 lbs each

Installation Contractor's Responsibility:
The Installation Contractor is responsible for setting in place and bolting the support racks to the channel walls. The Contractor will be required to supply eight (8) 1/2" Diameter x 5 1/2"Long expansion anchor bolts per rack. Install approved (engineered) anchor points for personnel to use as part of their fall restraint system around the open channels. The anchor points must be positioned so that the preferred retractable lifeline of 8 feet is of sufficient length to access the work at the channel. Refer to local safety regulation.

LEVEL CONTROLLER

Trojan's Responsibility
A level control device is required per channel to maintain and control the effluent level, regardless of flow rate.

Description:	Automatic Level Controller (ALC)
Quantity Supplied:	One (1)
Material of Construction:	304 Stainless Steel with galvanized steel weights

Installation Contractor's Responsibility:
The Installation Contractor is responsible for setting in place, grouting and sealing the level control device.

WATER LEVEL SENSOR KIT

Trojan's Responsibility:
The water level sensor is located downstream of the UV System and provides a digital signal to shut down & protect the UV System if the water level is too low.

Quantity Supplied:	One (1) electrode type water level sensor
Enclosure Rating:	Type 4X
Approximate Weight:	10 lbs (panel)

Installation Contractor's Responsibility:
The Installation Contractor is responsible for setting in place and bolting the water level sensor panel to the effluent channel wall. The Installation Contractor shall also be responsible for the supply of mounting hardware, watertight conduit and supply and connection of one discrete signal (pair of 12V DC, 14 gauge) from the water level sensor probe to each PDC.

INDIVIDUAL UV MODULE LIFTING SLING WITH FRAME

Trojan's Responsibility:
In order to remove individual modules, by mechanical means, a 2 rope sling with frame shall be supplied to interface with the existing overhead crane.

Quantity:	One (1) Sling Kit
Materials of Construction:	304 Stainless Steel
Approximate Weight:	5 lbs

SPARE PARTS AND SAFETY EQUIPMENT

Trojan's Responsibility:
The following spare parts and safety equipment will be supplied with the UV system:

Eight (8)	UV Lamps
Eight (8)	Quartz Sleeves
Eight (8)	Wiper Seal Kits
One (1)	Operators Kit (including face shield, gloves and cleaning solution)

NOTES AND CLARIFICATIONS TO SPECIFICATION

- Please note that Trojan SCC enclosure will be provided with 3-point latch. Moreover, all Trojan enclosures will be fabricated of Stainless Steel and will not be powder coated. They will be NEMA 4X rated and hoods will not carry separate NEMA rating.

DOCUMENTATION (SHOP DRAWINGS AND O & M MANUALS)

Trojan's Responsibility:
The following documentation will be supplied to the contractor by Trojan per the following schedule:

- UV Submittal package in **5 – 6** weeks after acceptance of written purchase order.
- Trojan Standard O&M manuals at time of equipment delivery.

DELIVERY, START-UP AND TRAINING

Equipment shipped **10 – 12** weeks after approval of Shop Drawings. Note: PLC suppliers are signaling increased leadtimes globally, which may impact equipment delivery of the controls package.

Installation Contractor's Responsibility:
The Contractor is responsible for:

- Un loading of the components supplied by Trojan, storage of all components, if required in a clean dry environment
- Installing the equipment outlined in the scope of Supply in accordance with contract drawings, Trojan's shop drawings, instructions and installation checklist.
- Supplying all conduits and conductors and components per the sites state regulations and components indicated as supplied by others,
- Completing the Checklist and returned at least two (2) weeks prior to date requested for commissioning.

Trojan's Responsibility:
The following start-up services will be provided by Trojan-certified technicians:

- Installation assistance as required by phone or fax. Technical Assistance Center 1-866-388-0488 or tac@trojanuv.com
- Start-up and testing of the installed UV equipment.
    - If the Trojan's Certified Service Technician determines the Contractor work is not complete and the start-up cannot be completed in the allotted time a return visit will be scheduled at the Contractors expense.
- Classroom and/or jobsite training for operations staff
    - If trainees are not available a return visit will be scheduled at the Contractors expense.

WARRANTY

Trojan's Responsibility:
Trojan Technologies will warrant the equipment and parts for 12 months after start-up or 18 months after shipment, whichever comes first. Warranty does not cover consumables or labour.
Refer to attached Terms and Conditions for additional details.

- UV lamps shall be warranted for 12,000 hours, prorated after 9,000 hours.
- Ballasts shall be warranted for 5 years, prorated after 1 year.

SELLING PRICE

$ 448,650 USD

- If UV System Start-up is required within 30 days of shipment, Trojan requires 95% payment unless agreed upon in writing before authorizing system Start-up.
- Freight included for all North American projects. Incoterms 2002, ExWorks (EXW) or Cost, Insurance & Freight (CIF) to destination or port for all others
- Selling price does not include any applicable duties or taxes.

PAYMENT TERMS & INVOICING MILESTONES

- 15% after Submittal Approval
- 80% upon Equipment Delivery to site
- 5% upon Substantial Completion
- Net 30 Days

TERMS AND CONDITIONS

Trojan Technologies appreciates the opportunity to submit this proposal. Our proposal is submitted subject to and based on Trojan Technologies' standard terms and conditions, which we have attached as part of our proposal. We believe these terms and conditions are customary in the trade and respectfully reserve the opportunity to negotiate, fair and reasonable contract terms acceptable to both parties, if Trojan Technologies is selected for this project

Terms and Conditions of Sale

This document sets forth the Terms & Conditions of Sale for goods manufactured and/or supplied, and services provided, by the seller entity identified on the purchase order ("SELLER") and sold to the original purchaser thereof ("BUYER"). The term "SELLER" includes only SELLER, and none of its affiliates. Unless otherwise specifically stated in a previously-executed written purchase agreement signed by authorized representatives of SELLER and BUYER, these Terms & Conditions of Sale establish the rights, obligations and remedies of SELLER and BUYER which apply to this offer and any resulting order or contract for the sale of SELLER's goods and/or services ("Products").

1. APPLICABLE TERMS & CONDITIONS: These Terms & Conditions of Sale are contained directly and/or by reference in SELLER's proposal, offer, order acknowledgment, packing slip, and/or invoice documents. The first of the following acts constitutes an acceptance of SELLER's offer and not a counteroffer and creates a contract of sale ("Contract") in accordance with these Terms & Conditions of Sale: (i) BUYER's issuance of a purchase order document against SELLER's offer; (ii) acknowledgement of BUYER's order by SELLER; or (iii) commencement of any performance by SELLER pursuant to BUYER's order. Provisions contained in BUYER's purchase documents (including electronic commerce interfaces) that materially alter, add to, or subtract from the provisions of these Terms & Conditions of Sale are not a part of the Contract.

2. CANCELLATION AND RETURN: The whole or any part of this order may be cancelled only with the prior written consent of SELLER. If SELLER does consent to a cancellation, such consent will be given only upon payment of reasonable cancellation charges in an amount determined by SELLER. In addition, with respect to any Products returned on cancellation, BUYER will pay SELLER's cost of placing the returned Products in a saleable condition, sales expenses incurred by SELLER in connection with such returned Products, a reasonable restocking charge and freight costs incurred in connection with the original shipment and in connection with returning such Products to SELLER, all in such amounts as are advised to the BUYER by SELLER.

3. DELIVERY: Delivery will be accomplished EXW or CIP at the point of shipment (Incoterms 2020), unless otherwise expressly agreed between the parties. Legal title and risk of loss or damage pass to BUYER upon transfer to the first carrier, regardless of final destination and mode of transit. SELLER will use commercially reasonable efforts to deliver the Products ordered herein within SELLER's normal lead-time necessary for SELLER to deliver the Products sold hereunder. Products will be boxed or crated as determined appropriate by SELLER for protection against normal handling and there will be an extra charge to the BUYER for additional packaging required by the BUYER with respect to waterproofing or other added protection. BUYER has sole responsibility for off-loading, storage and handling of the Products at the site. Where Buyer is responsible for any delay in the delivery date or installation date, the earlier of the date of delivery or the date on which the Products are ready for shipment by SELLER may be treated as the delivery date for purposes of determining the time of payment of the purchase price. Moreover, BUYER will be responsible for reasonable storage and insurance expenses with respect to such Products. Should BUYER fail to effect pick-up of Product as previously agreed in a timely manner, SELLER may, at its discretion, assess reasonable storage charges to the account of BUYER.

4. INSPECTION: BUYER will promptly inspect and accept any Products delivered pursuant to this Contract after receipt of such Products. In the event the Products do not conform to any applicable specifications, BUYER will promptly notify SELLER of such nonconformance in writing. SELLER will have a reasonable opportunity to repair or replace the nonconforming Product at its option. BUYER will be deemed to have accepted any Products delivered hereunder and to have waived any such nonconformance for such Products unless a written notification pursuant to this paragraph is received by SELLER within thirty (30) days of delivery to BUYER destination on order.

5. PRICES & ORDER SIZES: Prices do not include any charges for services such as insurance; brokerage fees; sales, use, inventory, or excise taxes; import or export duties; special financing fees; value added tax, income, or royalty taxes imposed outside the U.S. or Canada; consular fees; special permits or licenses; or other charges imposed upon the production, sale, distribution, or delivery of Products. BUYER will either pay any and all such charges or provide SELLER with acceptable exemption certificates, which obligation survives performance under this Contract. Installation, maintenance and any other services which relate to the Products are not included unless specifically set forth in the quotation. SELLER reserves the right to establish minimum order sizes and will advise BUYER accordingly. Any orders below the minimum order size are subject to a fee as set out by SELLER. If SELLER's delivery of Products surpasses one (1) year in length, then at least on an annual basis, or if changes to the Products are requested or needed, the parties shall conduct good faith discussions regarding changes to the prices for the Products, to reflect SELLER's increased costs for which SELLER shall be entitled to additional fair and appropriate compensation.

6. PAYMENTS: All payments must be made in agreed-to currency, normally Canadian or U.S. Dollars. Unless other payment terms are expressly set forth in the purchase order or otherwise required by the Seller, invoices are due and payable NET 30 DAYS from date of the invoice, without regard to delays for inspection or transportation, with payments to be made by check to SELLER at the address listed in the purchase order or by bank transfer to the account obtainable from SELLER's Accounts Receivable Manager. In the event payments are not made or not made in a timely manner, SELLER may, in addition to all other remedies provided at law, either: (a) declare BUYER's performance in breach and terminate this Contract for default; (b) withhold future shipments until delinquent payments are made; (c) deliver future shipments on a cash-with-order or cash-in-advance basis even after the delinquency is cured; (d) charge interest on the outstanding balance at a rate of 1.5% per month or the maximum rate permitted by law, if lower, for each month or part thereof that there is an outstanding balance plus applicable storage charges and/or inventory carrying charges; (e) repossess the Products for which payment has not been made; (f) pursue other collection efforts and recover all associated costs including reasonable attorney's fees; or (g) combine any of the above rights and remedies as is practicable and permitted by law. BUYER is prohibited from setting off any and all monies owed under this Contract from any other sums, whether liquidated or not, that are or may be due to the BUYER, which arise out of a different transaction with SELLER or any of its affiliates. Should BUYER's financial condition become unsatisfactory to SELLER in its discretion, SELLER may require payment in advance or other security. If BUYER fails to meet these requirements, SELLER may treat such failure as reasonable grounds for repudiation of this Contract, in which case reasonable cancellation charges shall be due to SELLER. BUYER hereby grants SELLER a security interest in the Products, wherever located, and whether now existing or hereafter arising or acquired from time to time, and in all accessions thereto and replacements or modifications thereof, as well as all proceeds of the foregoing, to secure payment in full of all amounts to Seller, which payment releases the security interest but only if such payment could not be considered an avoidable transfer under applicable laws. The security interest granted hereby constitutes a purchase money security interest under the applicable Uniform Commercial Code or Personal Property Security Act or other applicable law, and SELLER is authorized to make whatever registration or notification or take such other action as SELLER deems necessary or desirable to perfect such security interest. BUYER's insolvency, bankruptcy, assignment for the benefit of creditors, or dissolution or termination of the existence of BUYER, constitutes a default under this Contract and affords SELLER all of the remedies of a secured creditor under applicable law, as well as the remedies stated above for late payment or non-payment.

7. LIMITED WARRANTY: Unless specifically provided otherwise in SELLER's quotation, SELLER provides the following Limited Warranty. SELLER warrants that Products sold hereunder will be free from defects in material and workmanship and will, when used in accordance with the manufacturer's operating and maintenance instructions, conform to any express written warranty pertaining to the specific goods purchased, which for Products is for a period of twelve (12) months from delivery. SELLER warrants that services furnished hereunder will be free from defects in workmanship for a period of ninety (90) days from the completion of the services. Products repaired or replaced are not covered by any warranty except to the extent repaired or replaced by SELLER, an authorized representative of SELLER, or under specific instructions by SELLER, in which cases, the Products will be covered under warranty up to the end of the warranty period applicable to the original Products. The above warranties do not include the cost of shipping and handling of returned items. Parts provided by SELLER in the performance of services may be new or refurbished parts functioning equivalent to new parts. Any non-functioning parts that are repaired by SELLER shall become the property of SELLER. No warranties are extended to consumable items such as, without limitation, light bulbs, and for normal wear and tear. All other guarantees, warranties, conditions and representations, either express or implied, whether arising under any statute, law, commercial usage or otherwise, including implied warranties of merchantability and fitness for a particular purpose, are hereby excluded. The sole remedy for Products not meeting this Limited Warranty is replacement, credit or refund of the purchase price, as determined by SELLER in its sole discretion. This remedy will not be deemed to have failed of its essential purpose so long as SELLER is willing to provide such replacement, credit or refund. To make a warranty claim, BUYER must notify SELLER in writing within 5 days of discovery of the defect in question. This notification must include a description of the problem, a copy of the applicable operator's log, a copy of BUYER's maintenance record and any analytical results detailing the problem. Any warranty hereunder or performance guarantees shall only be enforceable if (a) all equipment is properly installed, inspected regularly, and is in good working order, (b) all operations are consistent with SELLER recommendations, (c) operating conditions at the installation site have not materially changed and remain within anticipated specifications, and (d) no reasonably unforeseeable circumstances exist or arise.

8. INDEMNIFICATION: Indemnification applies to a party and to such party's successors-in-interest, assignees, affiliates, directors, officers, and employees ("Indemnified Parties"). SELLER is responsible for and will defend, indemnify and hold harmless the BUYER Indemnified Parties against all losses, claims, expenses or damages which may result from accident, injury, damage, or death due to SELLER's breach of the Limited Warranty. BUYER is responsible for and will defend, indemnify and hold harmless SELLER Indemnified Parties against all losses, claims, expenses, or damages which may result from accident, injury, damage, or death due to the negligence or misuse or misapplication of any Products or the breach of any provision of this Contract by the BUYER or any third party affiliated or in privity with BUYER.

9. PATENT PROTECTION: Subject to all limitations of liability provided herein, SELLER will, with respect to any Products of SELLER's design or manufacture, indemnify BUYER from any and all damages and costs as finally determined by a court of competent jurisdiction in any suit for infringement of any U.S. or Canadian patent (or European patent for Products that SELLER sells to BUYER for end use in a member state of the E.U.) that has issued as of the delivery date, solely by reason of the sale or normal use of any Products sold to BUYER hereunder and from reasonable expenses incurred by BUYER in defense of such suit if SELLER does not undertake the defense thereof, provided that BUYER promptly notifies SELLER of such suit and offers SELLER either (i) full and exclusive control of the defense of such suit when Products of SELLER only are involved, or (ii) the right to participate in the defense of such suit when products other than those of SELLER are also involved. SELLER's warranty as to use patents only applies to infringement arising solely out of the inherent operation of the Products according to their applications as envisioned by SELLER's specifications. In case the Products are in such suit held to constitute infringement and the use of the Products is enjoined, SELLER will, at its own expense and at its option, either procure for BUYER the right to continue using such Products or replace them with non-infringing products, or modify them so they become non-infringing, or remove the Products and refund the purchase price (prorated for depreciation) and the transportation costs thereof. The foregoing states the entire liability of SELLER for patent

infringement by the Products. Further, to the same extent as set forth in SELLER's above obligation to BUYER, BUYER agrees to defend, indemnify and hold harmless SELLER for patent infringement related to (x) any goods manufactured to the BUYER's design, (y) services provided in accordance with the BUYER's instructions, or (z) SELLER's Products when used in combination with any other devices, parts or software not provided by SELLER hereunder.

10. TRADEMARKS AND OTHER LABELS: BUYER agrees not to remove or alter any indicia of manufacturing origin or patent numbers contained on or within the Products, including without limitation the serial numbers or trademarks on nameplates or cast, molded or machined components.

11. SOFTWARE AND INTELLECTUAL PROPERTY: All licenses to SELLER's separately provided software products are subject to the separate software license agreement(s) accompanying the software media. In the absence of such express licenses and for all other software, SELLER grants BUYER only a personal, non-exclusive license to access and use the software provided by SELLER with Products purchased hereunder solely as necessary for BUYER to enjoy the benefit of the Products. A portion of the software may contain or consist of open source software, which BUYER may use under the terms and conditions of the specific license under which the open source software is distributed. BUYER agrees that it will be bound by all such license agreements. Title to software remains with the applicable licensor(s). All SELLER contributions to the Products, the results of the services, and any other work designed or provided by SELLER hereunder may contain or result in statutory and non-statutory Intellectual Property, including but not limited to patentable subject matter or trade secrets; and all such Intellectual Property remains the sole property of SELLER; and BUYER shall not disclose (except to the extent inherently necessary during any resale of Product sold hereunder), disassemble, decompile, or any results of the Services, or any Products, or otherwise attempt to learn the underlying processes, source code, structure, algorithms, or ideas.

12. PROPRIETARY INFORMATION AND PRIVACY: "Proprietary Information" means any information, technical data, or know-how in whatever form, whether documented, contained in machine readable or physical components, mask works or artwork, or otherwise, which SELLER considers proprietary, including but not limited to service and maintenance manuals. BUYER and its customers, employees, and agents will keep confidential all such Proprietary Information obtained directly or indirectly from SELLER and will not transfer or disclose it without SELLER's prior written consent, or use it for the manufacture, procurement, servicing, or calibration of Products or any similar products, or cause such products to be manufactured, serviced, or calibrated by or procured from any other source, or reproduce or otherwise appropriate it. All such Proprietary Information remains SELLER's property. No right or license is granted to BUYER or its customers, employees or agents, expressly or by implication, with respect to the Proprietary Information or any patent right or other proprietary right of SELLER, except for the limited use licenses implied by law. In respect of personal data supplied by BUYER to SELLER, BUYER warrants that is duly authorized to submit and disclose these data, including but not limited to obtaining data subjects´ informed consent. SELLER will manage BUYER's information and personal data in accordance with its Privacy Policy, a copy of which is available to Buyer upon request. In respect of other data and information that SELLER may receive in connection with BUYER´s use of the Products including without limitation data that are captured by the Products and transmitted to SELLER, BUYER hereby grants SELLER a non-exclusive, worldwide, royalty-free, perpetual, non-revocable license to use, compile, distribute, display, store, process, reproduce, or create derivative works of such data as needed for Product operation and maintenance, and to aggregate such data for use in an anonymous manner, solely to facilitate marketing, sales and R&D activities of SELLER and its affiliates.

13. SPECIAL TOOLS, DIES, JIGS, FIXTURES AND PATTERNS: Any tools, dies, jigs, fixtures, patterns and similar items which are included or required in connection with the manufacture and/or supply of the Products will remain the property of SELLER without credit to the BUYER. SELLER assumes the cost for maintenance and replacement of such items and shall have the right to discard and scrap any such item after it has been inactive for a minimum of one year, without credit to the BUYER.

14. CHANGES AND ADDITIONAL CHARGES: SELLER reserves the right to make design changes or improvements to any products of the same general class as Products being delivered hereunder without liability or obligation to incorporate such changes or improvements to Products ordered by BUYER unless agreed upon in writing before the Products' delivery date.

15. SITE ACCESS / PREPARATION / WORKER SAFETY / ENVIRONMENTAL COMPLIANCE: In connection with services provided by SELLER, BUYER agrees to permit prompt access to equipment. BUYER assumes full responsibility to back-up or otherwise protect its data against loss, damage or destruction before services are performed. BUYER is the operator and in full control of its premises, including those areas where SELLER employees or contractors are performing service, repair, and maintenance activities. BUYER will ensure that all necessary measures are taken for safety and security of working conditions, sites, and installations during the performance of any services. BUYER is the generator of any resulting wastes, including without limitation hazardous wastes. BUYER is solely responsible to arrange for the disposal of any wastes at its own expense. BUYER will, at its own expense, provide SELLER employees and contractors working on BUYER's premises with all information and training required under applicable safety compliance regulations and BUYER's policies. SELLER has no responsibility for the supervision or actions of BUYER's employees or contractors or for non-SELLER items (e.g., chemicals, equipment) and disclaims all liability and responsibility for any loss or damage that may be suffered as a result of such actions or items, or any other actions or items not under SELLER's control.

16. LIMITATIONS ON USE: BUYER will not use any Products for any purpose other than those identified in SELLER's catalogs and literature as intended uses. Unless SELLER has advised the BUYER in writing, in no event will BUYER use any Products in drugs, food additives, food, or cosmetics, or medical applications for humans or animals. In no event will BUYER use in any application any Product that requires FDA 510(k) clearance unless and only to the extent the Product has such clearance. BUYER will not sell, transfer, export, or re-export any SELLER Products or technology for use in activities which involve the design, development, production, use, or stockpiling of nuclear, chemical, or biological weapons or missiles, nor use SELLER Products or technology in any facility which engages in activities relating to such weapons. Unless the "ship-to" address is in California, U.S.A., the Products are not intended for sale in California and may lack markings required by California Proposition 65; accordingly, unless BUYER has ordered Products specifying a California ship-to address, BUYER will not sell or deliver any SELLER Products for use in California. Any warranty granted by SELLER is void if any goods covered by such warranty are used for any purpose not permitted hereunder.

17. EXPORT AND IMPORT LICENSES AND COMPLIANCE WITH LAWS: Unless otherwise expressly agreed, BUYER is responsible for obtaining any required export or import licenses necessary for Product delivery. BUYER will comply with all laws and regulations applicable to the installation or use of all Product, including applicable import and export control laws and regulations of the U.S., E.U., and any other country having proper jurisdiction, and will obtain all necessary export or import licenses in connection with any subsequent export, re-export, transfer, and use of all Product and technology delivered hereunder. BUYER will not sell, transfer, export, or re-export any SELLER Product or technology for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical, or biological weapons or missiles, nor use SELLER Product or technology in any facility which engages in activities relating to such weapons. BUYER will comply with all local, national, and other laws of all jurisdictions globally relating to anti-corruption, bribery, extortion, kickbacks, or similar matters which are applicable to BUYER's business activities in connection with this Contract, including but not limited to the U.S. Foreign Corrupt Practices Act of 1977, as amended (the "FCPA"). BUYER agrees that no payment of money or provision of anything of value will be offered, promised, paid, or transferred, directly or indirectly, by any person or entity, to any government official, government employee, or employee of any company owned in part by a government, political party, political party official, or candidate for any government office or political party office to induce such organizations or persons to use their authority or influence to obtain or retain an improper business advantage for BUYER or for SELLER, or which otherwise constitute or have the purpose or effect of public or commercial bribery, acceptance of or acquiescence in extortion, kickbacks, or other unlawful or improper means of

obtaining business or any improper advantage, with respect to any of BUYER's activities related to this Contract. SELLER asks BUYER to "Speak Up!" if aware of any violation of law, regulation, or our Code of Conduct ("CoC") in relation to this Contract. See www.danaherintegrity.com and www.danaher.com/how-we-work/integrity-and-compliance for a copy of the CoC and for access to our Helpline portal.

18. RELATIONSHIP OF PARTIES: BUYER is not an agent or representative of SELLER and will not present itself as such under any circumstances, unless and to the extent it has been formally screened by SELLER's compliance department and received a separate duly-authorized letter from SELLER setting forth the scope and limitations of such authorization.

19. FORCE MAJEURE: SELLER is excused from performance of its obligations under this Contract to the extent caused by acts or omissions that are beyond its control, including but not limited to Government embargoes, blockages, seizures or freezing of assets, delays, or refusals to grant an export or import license, or the suspension or revocation thereof, or any other acts of any Government; fires, floods, severe weather conditions, or any other acts of God; quarantines; labor strikes or lockouts; riots; strife; insurrections; civil disobedience or acts of criminals or terrorists; war; material shortages or delays in deliveries to SELLER by third parties. In the event of the existence of any force majeure circumstances, the period of time for delivery, payment terms, and payments under any letters of credit will be extended for a period of time equal to the period of delay. If the force majeure circumstances extend for six months, SELLER may, at its option, terminate this Contract without penalty and without being deemed in default or in breach thereof.

20. NON-ASSIGNMENT AND WAIVER: BUYER will not transfer or assign this Contract or any rights or interests hereunder without SELLER's prior written consent. Failure of either party to insist upon strict performance of any provision of this Contract, or to exercise any right or privilege contained herein, or the waiver of any breach of the terms or conditions of this Contract, will not be construed as thereafter waiving any such terms, conditions, rights, or privileges, and the same will continue and remain in force and effect as if no waiver had occurred.

21. FUNDS TRANSFERS: BUYER and SELLER both recognize that there is a risk of banking fraud when individuals impersonating a business demand payment under new mailing or banking transfer instructions. To avoid this risk, BUYER must verbally confirm any new or changed mailing or banking transfer instructions by calling SELLER and speaking with SELLER's Accounts Receivable Manager before transferring any monies using the new instructions. Both parties agree that they will not institute mailing or banking transfer instruction changes and require immediate payment under the new instructions, but will instead provide a ten (10) day grace period to verify any mailing or banking transfer instruction changes before any new or outstanding payments are due using the new instructions.

22. LIMITATION OF LIABILITY: None of SELLER, its successors-in-interest, assignees, affiliates, directors, officers, and employees will be liable to BUYER under any circumstances for any special, treble, incidental, or consequential damages, including without limitation, damage to or loss of property other than for the Products purchased hereunder; damages incurred in installation, repair, or replacement; lost profits, revenue, or opportunity; loss of use; losses resulting from or related to downtime of the Products or inaccurate measurements or reporting; the cost of substitute products; or claims of BUYER's customers for such damages, howsoever caused, and whether based on warranty, contract, and/or tort (including negligence, strict liability or otherwise). The total liability of SELLER, its successors-in-interest, assignees, affiliates, directors, officers, and employees arising out of the performance or nonperformance hereunder, or SELLER's obligations in connection with the design, manufacture, sale, delivery, and/or use of Products, will in no circumstance exceed the amount actually paid to SELLER for Products delivered hereunder.

23. APPLICABLE LAW AND DISPUTE RESOLUTION: All issues relating to the construction, validity, interpretation, enforcement, and performance of this agreement and the rights and obligations of SELLER and the BUYER hereunder shall be governed by the laws of the Province of Ontario and the federal laws of Canada applicable therein. Any provisions of the International Sale of Goods Act or any convention on contracts for the international sale of goods shall not be applicable to this agreement. The parties submit to and consent to the non-exclusive jurisdiction of courts located in the Province of Ontario.

24. ENTIRE AGREEMENT & MODIFICATION: These Terms & Conditions of Sale constitute the entire agreement between the parties and supersede any prior agreements or representations, whether oral or written. No change to or modification of these Terms & Conditions shall be binding upon SELLER unless in a written instrument specifically referencing that it is amending these Terms & Conditions of Sale and signed by an authorized representative of SELLER. SELLER rejects any additional or inconsistent Terms & Conditions of Sale offered by BUYER at any time, whether or not such terms or conditions materially alter the Terms & Conditions herein and irrespective of SELLER's acceptance of BUYER's order for the described goods and services.

Terms and Conditions Covering Sales of Configured-to-Order Projects and Systems

In addition to all terms and conditions above, the following sections apply to sales of Configured-to-Order Projects, Systems, and the like:

101. PAYMENT.

101.1 Payments will be made per the schedule of payment events set forth in Seller's Quotation; provided that if the Start-Up Date (as defined below) is less than 30 days after the Acceptance Date, 90% of the purchase price is due on or before the Start-Up Date.

101.2. In the event that achievement of a scheduled payment event is delayed or suspended due to the Buyer's convenience or other reasons for which the Buyer or its representatives is responsible, such payment event will be deemed to have occurred and Seller shall be entitled to invoice Buyer as if achievement of such payment event had been achieved. In such circumstances, Buyer must notify Seller in writing of the reasons for the delay and anticipated duration of the delay. Seller will mark the Products (or parts thereof) as the Buyer's property and shall store the Products (or parts thereof) in a segregated area until actual delivery.

102. DELIVERY

102.1 SELLER will request the BUYER to provide a firm date for delivery of the Products to the project site (the "Delivery Date") which SELLER will then use to establish the production schedule for the Products. The Delivery Date will then be binding on the BUYER except for any changes made in accordance with the provisions below.

102.2 The BUYER can request a rescheduling of the Delivery Date on one occasion only by notifying SELLER in writing not less than four weeks prior to the scheduled Delivery Date. The BUYER may request that the Delivery Date be extended by a period up to six weeks, without penalty, but may not request that the Delivery Date be moved forward. The BUYER may also request that the Delivery Date be extended beyond a six-week period but, SELLER may not agree to such extension, beyond the maximum six-week extension period

102.3 SELLER may, in its sole discretion, agree to change the Delivery Date on more than one occasion or if less than four weeks' prior notice is provided of a requested change, but is under no obligation to do so.

102.4 SELLER reserves the right to reschedule the Delivery Date to a date prior to or subsequent to the scheduled Delivery Date in order to accommodate its shipping, production or other requirements. This right to reschedule will be applicable unless otherwise agreed in writing by an authorized officer of SELLER. SELLER will provide the BUYER or its representative with a minimum of 24 hours' notice of any such rescheduling.

102.5 Where any change to the Delivery Date is made at BUYER's request, for all purposes with respect to the warranty and payment provided by SELLER in connection with the Products, the initial Delivery Date will be considered to be the Delivery Date regardless of any change later made to the Delivery Date.

103. ACCEPTANCE

103.1 During the period between the Delivery Date and the Start-up Date, the BUYER shall prepare the Products and the project site for installation and start-up and, unless otherwise agreed in writing by an authorized representative of SELLER, shall complete acceptance testing with respect to the Products. The Products shall be deemed to be accepted on the earliest to occur of the following dates (the "Acceptance Date"): (a) that date on which the Products can function in either manual or automatic operation and provide disinfection in accordance with criteria specified in the Quotation, or (b) 60 days after the Delivery Date.

103.2 All amounts which remain owing by the BUYER for the Products, including any amount which is specified to be payable on the Acceptance Date, will be paid by the BUYER to SELLER within 30 days after the Acceptance Date, unless otherwise agreed in writing by an authorized representative of SELLER.

103.3 Written notification must be given by the BUYER to SELLER within seven days after the Acceptance Date listing any outstanding deficiencies with respect to the Products and SELLER will use all reasonable efforts to correct such deficiencies promptly.

104. START-UP

104.1 SELLER will request a firm date for start-up of the Equipment (the "Start-Up Date"). Trojan will then schedule its technician to be on-site for the Start-up Date. The Start-up Date is binding except for any changes made in accordance with the provisions below.

104.2 On the Start-up Date, BUYER must have the Equipment and site ready as provided in the Installation Preparation Checklist contained in the Contractor Installation Package sent to BUYER and must have paid all amounts then due and payable to SELLER.

104.3 BUYER can request a rescheduling of the Start-up Date by notifying SELLER in writing not less than three weeks prior to the Start-up Date. BUYER may request that the Start-up Date be extended but may not request that the Start-up Date be moved forward. SELLER requires a minimum extension period of two weeks between the existing Start-up Date and the requested new Start-up Date in order to reschedule its technician.

104.4 SELLER may, in its sole discretion, agree to reschedule the Start-up Date where a BUYER requests less than a two-week extension but is under no obligation to do so. In the event that SELLER does agree to less than a two-week extension or that BUYER requests more than two changes to the Start-up Date, BUYER will be charged an administration fee in an amount determined by SELLER.

104.5 SELLER reserves the right to reschedule the Start-up Date to a date which is prior to or subsequent to the scheduled Start-up Date in order to accommodate its resource availability. This right to reschedule will be applicable unless otherwise agreed in writing by an authorized officer of SELLER. SELLER will provide BUYER or its representative with a minimum of 72 hours' notice of any such change to the Start-up Date.

104.6 In the event that SELLER'S technician arrives at the project site and finds that the Equipment or the project site is not ready for start-up as defined in the Contractor Installation Package, or any amounts then due and payable to SELLER remain unpaid, BUYER may either:

(a) provided all amounts then due and payable to SELLER have been paid, issue a purchase order for all costs involved in having SELLER correct the deficiencies, or

(b) have SELLER'S technician leave the site and then reschedule the Start-up Date to a date when all deficiencies will be corrected, and the Equipment will be ready for start-up as defined in the Contractor Installation Package. If BUYER selects this option, the cost of rescheduling will be not less than a minimum amount specified by SELLER, with the final cost being determined by SELLER based on its costs and expenses incurred in connection with the rescheduling.

Certification of Single Source or Emergency Procurement

Please use this form to certify a Single Source or Emergency Procurement complies with the requirements of the JEA Procurement Code. The JEA Procurement Code defines a Single Source and Emergency Procurement as follows:

3-112 Single Source

A Contract may be awarded for Supplies or Services as a Single Source when, pursuant to the Operational Procedures, the Chief Procurement Officer determines that:

(a) there is only one justifiable source for the required Supplies or Services;

(b) the Supplies or Services must be a certain type, brand, make or manufacturer due to the criticality of the item or compatibility within a JEA utility system, and such Supplies or Services may not be obtained from multiple sources such as distributors;

(c) the Services are a follow-up of Services that may only be done efficiently and effectively by the Vendor that rendered the initial Services to JEA, provided the Procurement of the initial Services was competitive;

(d) at the conclusion of a Pilot Project under Section 3-118 of this Code, the Procurement of Supplies or Services tested during the Pilot Project, provided the Vendor was competitively selected for the Pilot Project.

3-113 Emergency Procurements

In the event of an Emergency, the Chief Procurement Officer may make or authorize an Emergency Procurement, provided that Emergency Procurements shall be made with as much competition as practicable under the circumstances. A written Determination of the basis for the Emergency and for the selection of the particular Vendor shall be included in the Procurement file.

For purposes of this Section 3-113, an "Emergency" means any one of the following:

(a) a reasonably unforeseen breakdown in machinery;

(b) an interruption in the delivery of an essential governmental service or the development of a circumstance causing a threatened curtailment, diminution, or termination of an essential service;

(c) the development of a dangerous condition causing an immediate danger to the public health, safety, or welfare or other substantial loss to JEA;

(d) an immediate danger of loss of public or private property;

(e) the opportunity to secure significant financial gain, to avoid delays to any Governmental Entity or avoid significant financial loss through immediate or timely action; or (f) a valid public emergency certified by the Chief Executive Officer.

Please provide the following information:

1. Vendor Name:

Trojan Technologies

2. Description of Services or Supplies provided by Vendor:

Trojan will provide UV300Plus system that includes a Power Distribution Center (PDC), support rack to mount the UV modules, level controller, water level sensor, UV module lifting sling with frame and spare parts. Trojan will also provide shop drawings and O&M manuals.

3. Certification:

I the undersigned certify that to the best of my knowledge, no JEA employee has, either directly or indirectly, a financial interest in this Single Source Emergency Procurement, and

I the undersigned certify that this procurement meets the requirements of a (choose one of the following):

☑ **Single Source Procurement**. Please state which subsection of Section 3-112 above applies to this Single Source Procurement: (b)the Supplies or Services must be a certain type, brand, make or manufacturer due to the criticality of the item orcompatibility within a JEA utility system, and such Supplies or Services may not be obtaine

OR

☐ **Emergency Procurement** - Please state which subsection of Section 3-113 above applies to this Emergency Procurement:_____

Peter Doherty Digitally signed by Peter Doherty Date: 2021.12.03 14:40:40 -05'00' 3-Dec-2021

Signature of JEA Business Unit Manager **Date**

Peter Doherty

Name of JEA Business Unit Manager

This certification shall be attached to the Purchase Order when it is routed for approval. A Single Source or Emergency Procurement shall be reported to the JEA Board in accordance with Section 1-110 of the JEA Procurement Code.

Formal Bid and Award System

Award #7 March 17, 2022

Type of Award Request: CONTRACT AMENDMENT
Requestor Name: May, Andy R.
Requestor Phone: (904) 665-4510
Project Title: Construction Management-at-Risk (CMAR) Services for the Southwest Water Reclamation Facility (WRF) Expansion
Project Number: 8005555 (150-11)
Project Location: JEA
Funds: Capital
Budget Estimate: $114,157,821.00 (100% design, full construction estimate)
Scope of Work:

The scope of work for this project is the pre-construction and construction services using the CMAR delivery method for the Southwest WRF Expansion from an effective capacity of 10 million gallons per day (MGD) to 16 MGD. This project is needed to meet wastewater flow demands in the Southwest services territory.

JEA IFB/RFP/State/City/GSA#: 125-19
CPA# 187260
Purchasing Agent: Kruck, Daniel R.
Is this a Ratification?: NO

RECOMMENDED AWARDEE(S):

Name	Contact Name	Email	Address	Phone	Amount
GARNEY COMPANIES INC.	Scott Reuter	sreuter@garney.com	1700 Swift Street North Kansas City, MO 64116	(407) 395-7616	$102,771,513.00

Amount of Original Award: $704,232.00
Date of Original Award: 12/19/2019
Contract Increase Amount: $102,771,513.00

List of Previous Change Order/Amendments:

CPA #	Amount	Date	Reason
187260	$2,789,909.00	08/26/2020	Purchase of ultra-violet (UV) Equipment
187260	$3,206,159.00	03/11/2021	Installation of UV Equipment
187260	$4,000,365.00	07/01/2021	Early purchase of major process equipment
187260	$748,489.00	12/07/2021	Early purchase of ductile iron materials

New Not-To-Exceed Amount: $114,220,667.00
Length of Contract/PO Term: Project Completion
Begin Date: 01/03/2020
End Date: Project Completion (Expected: December 2025)
JSEB Requirement: Optional at time of Proposal

Comments on JSEB Requirements:

Original Award
N/A

This Contract Increase
JSEB Allowances - $1,439,476.00
*Note: The CMAR received extremely limited JSEB participation when bidding out the major construction packages. Through working with the JEA JSEB manager, the CMAR identified portions of the work to direct sub to JSEB firms during construction. The number above reflects those allowances.

Background/Recommendations:

Originally bid and approved by Awards Committee on 12/19/2019 in the amount of $704,232.00 for pre-construction services to Garney Companies Inc. Subsequent contract increases were approved by the Awards Committee on 08/26/2020 and 03/11/2021 and 07/01/2021 for interim GMPs of the purchase and installation of the UV system and major process equipment. A copy of the previous awards are attached as backup. An administrative increase was approved on 12/07/2021 for the early purchase of ductile iron materials due to long lead times and market conditions.

Negotiations with Garney Companies Inc. were successfully completed for the final construction of the Southwest WRF expansion. The total price for this contract, inclusive of all costs, is approximately 0.06% above JEA's 100% design estimate and deemed reasonable. A copy of the GMP-4 quote overview is attached as backup.

Summary of increases and GMPs to date:

Date	Description	Amount
12/19/2019	Initial award for pre-construction services	$704,232.00
08/26/2020	Interim GMP-1 for purchase of the UV equipment	$2,789,909.00
03/11/2021	Interim GMP-2 for installation of the UV equipment	$3,141,330.00
03/11/2021	Additional three months of pre-construction services	$64,829.00
07/01/2021	Interim GMP-3 for purchase of major process equipment	$4,000,365.00
12/07/2021	Early purchase of ductile iron materials	$748,489.00
03/17/2022	Final GMP for full construction services	$102,771,513.00
	Total Proposed NTE	$114,220,667.00

Request approval to award a contract amendment to Garney Companies Inc., for the construction of the Southwest Water Reclamation Facility (WRF) Expansion in the amount of $102,771,513.00, for a new not-to-exceed amount of $114,220,667.00, subject to the availability of lawfully appropriated funds.

Manager: Doherty, Peter F. - Mgr Project Management
Director: Conner, Sean M. - W/WW Project Engineering & Construction
VP: Vu, Hai X. - VP Water Wastewater Systems

APPROVALS:

_____

Chairman, Awards Committee **Date**

_____

Budget Representative **Date**

Approved by the JEA Awards Committee

Date: 07/1/2021 Item# 4

Formal Bid and Award System

Award #4 July 1, 2021

Type of Award Request: CONTRACT AMENDMENT
Requestor Name: May, Andy R.
Requestor Phone: (904) 665-4510
Project Title: Construction Management-at-Risk (CMAR) Services for the Southwest Water Reclamation Facility (WRF) Expansion
Project Number: 8005555
Project Location: JEA
Funds: Capital
Budget Estimate: $3,980,141.00
Scope of Work:

JEA requests Proposals from interested and qualified Proposers to provide CMAR pre-construction services during design, and construction services for the Southwest WRF Expansion to 16 millions of gallons per day (MGD) project. This project is needed to meet wastewater flow demands in the Southwest services territory.

JEA IFB/RFP/State/City/GSA#: 125-19
CPA# 187261
Purchasing Agent: Kruck, Daniel R.
Is this a Ratification?: NO

RECOMMENDED AWARDEE(S):

Name	Contact Name	Email	Address	Phone	Amount
GARNEY COMPANIES INC.	Dave Hall	dhall@garney.com	133 NW Vivion Road, Kansas City, MO 64118-4554	(407) 877-5912	$4,000,365.00

Amount of Original Award: $704,232.00
Date of Original Award: 12/19/2019
Contract Increase Amount: $4,000,365.00

List of Previous Change Order/Amendments:

CPA #	Amount	Date	Reason
187260	$2,789,909.00	08/26/2020	Purchase of ultra-violet (UV) Equipment
187260	$3,206,159.00	03/11/2021	Installation of UV Equipment

New Not-To-Exceed Amount: $10,700,665.00
Length of Contract/PO Term: Project Completion
Begin Date: 01/03/2020
End Date: Project Completion (Expected: January 2024)
JSEB Requirement: Optional at time of Proposal
Comments on JSEB Requirements:

Most of the JSEB opportunities in the projects scope of work will happen during the final Guaranteed Maximum Price (GMP). Each GMP is reviewed to determine an appropriate JSEB goal.

Original Award
N/A

This Contract Increase
N/A

Background/Recommendations:

Originally bid and approved by Awards Committee on 12/19/2019 in the amount of $704,232.00 for pre-construction services to Garney Companies Inc. Subsequent contract increases were approved by the Awards Committee on 08/26/2020 and 03/11/2021 for interim GMPs of the purchase and installation of the UV system. A copy of the previous awards are attached as backup.

Negotiations with Garney Companies Inc. were successfully completed for the purchase of major process treatment equipment due to long delivery lead times. A copy of the GMP-3 quote overview is attached as backup. This GMP is approximately 0.5% above JEA's estimate and deemed reasonable. This interim GMP includes the purchase of the items listed below:

- Blowers
- Vortex grit removal units
- Grit pumps
- Influent plate screens
- Secondary clarifier rakes and drives
- Coarse and fine bubble disc diffusers
- Large bubble compressed air mixing system

As design progresses for the other aspects of the overall Southwest WRF expansion, additional GMPs will be brought before the Awards Committee.

Summary of increases and GMPs to date:

Date	Description	Amount
12/19/2019	Initial award for pre-construction services	$704,232.00
08/26/2020	Interim GMP-1 for purchase of the UV equipment	$2,789,909.00
03/11/2021	Interim GMP-2 for installation of the UV equipment	$3,141,330.00
03/11/2021	Additional three months of pre-construction services	$64,829.00
07/01/2021	Interim GMP-3 for purchase of major process equipment	$4,000,365.00
	Total Proposed NTE	$10,700,665.00

Request approval to award a change order to Garney Companies Inc., for the purchase of major process equipment as part of the Southwest Water Reclamation Facility (WRF) Expansion in the amount of $4,000,365.00, for a new not-to-exceed amount of $10,700,665.00, subject to the availability of lawfully appropriated funds.

Manager: Collier, Bradley W. - Mgr Project Management
Director: Conner, Sean M. - W/WW Project Engineering & Construction
VP: Vu, Hai X. - VP Water/Wastewater Systems

APPROVALS:

07/01/2021

Chairman, Awards Committee **Date**

7/2/21

Budget Representative **Date**

Approved by the JEA Awards Committee

Date: 12/19/2019 Item# 3

Formal Bid and Award System

Award #3 December 19, 2019

Type of Award Request:	PROPOSAL (RFP)
Request #:	6669
Requestor Name:	Hawk, Thomas C.
Requestor Phone:	(904) 665-8829
Project Title:	Construction Management-at-Risk (CMAR) Services for the Southwest Water Reclamation Facility (WRF) Expansion - Phase 1
Project Number:	8005555
Project Location:	JEA
Funds:	Capital
Budget Estimate:	$846,990.00 (Phase 1 Estimate)

Scope of Work:

JEA requests Proposals from interested and qualified Proposers to provide CMAR pre-construction services during design, and construction services for the Southwest WRF Expansion to 18 millions of gallons per day (MGD) project. This project is needed to meet wastewater flow demands in the Southwest services territory.

This award positively impacts all of JEA's Measures of Value:

- Customer Value: Improve customer's service by providing additional capacity and reliable operation
- Community Value: Provide additional capacity and redundancy to meet existing and future growth in the service area
- Environmental Value: Provide high level treatment of wastewater to produce a high quality and consistent effluent for discharge to the St. Johns River while meeting the most current resiliency requirements
- Financial Value: Will provide the most energy efficient process equipment and upgrades to improve operations and reduce energy requirements

JEA IFB/RFP/State/City/GSA#:	125-19
Purchasing Agent:	Kruck, Daniel R.
Is this a Ratification?:	NO

RECOMMENDED AWARDEE(S):

Name	Contact Name	Email	Address	Phone	Amount
GARNEY COMPANIES INC.	Dave Hall	dhall @garney.com	133 NW Vivion Road, Kansas City, MO 64118-4554	(407) 877-5912	$704,232.00

Amount for entire term of Contract/PO:	$704,232.00
Award Amount for remainder of this FY:	$704,232.00
Length of Contract/PO Term:	Project Completion
Begin Date (mm/dd/yyyy):	01/03/2020
End Date (mm/dd/yyyy):	Project Completion (Expected: March 2023)
JSEB Requirement:	Optional for Phase 1
Comments on JSEB Requirements:	

No JSEB participation in Phase 1. Contractor will meet JSEB goals during Phase 2.

PROPOSERS:

Name	Amount	Rank
GARNEY COMPANIES INC.	$704,232.00	1
WHARTON-SMITH, INC.	N/A	2
BRASFIELD & GORRIE, LLC	N/A	3
THE HASKELL COMPANY	N/A	4
CLARK CONSTRUCTION GROUP, LLC	N/A	5
PC CONSTRUCTION COMPANY	N/A	6
ULLIMAN SCHUTTE CONSTRUCTION LLC	N/A	7

Background/Recommendations:

Advertised on 07/25/2019. Nine (9) prime companies attended the mandatory pre-proposal meeting held on 05/30/2019. At proposal opening on 08/27/2019, JEA received seven (7) Proposals. The public evaluation meeting was held on 09/25/2019 and JEA deemed Garney Companies Inc. most qualified to perform the work. A copy of the evaluation matrix and negotiated fees are attached as backup.

Negotiations with Garney Companies Inc. were successfully completed for Phase 1 of this project. Phase 1 consists of developing the project schedule, design and constructability reviews, developing work packages, value engineering and developing the Guaranteed Maximum Price (GMP). These preconstruction costs are 1% of the estimated total construction costs and deemed reasonable (typically 0.5% - 3% of total construction costs). If negotiations for the final GMP are not successful, JEA reserves the right not to proceed with construction with this contractor. The contractor reviewed the 10% design estimate and deemed it reasonable for this project.

The project details are below:

- Planning Project Budget: $65,501,000.00
  - Engineering Budget: $5,647,000.00
  - Construction Budget: $56,466,000.00
  - Internal JEA Costs: $3,388,000.00
- Revised Project Budget (10% Design): $77,035,660.00
  - Engineering Budget (CDM Smith): $8,321,810.00
    - Phase 1: $732,210.00
    - Phase 2: $7,589,600.00
  - Construction Budget (Garney Companies): $65,586,178.00
    - **Phase 1: $704,232.00 (this award)**
    - Phase 2: $64,881,946.00
  - Internal JEA Costs: $3,127,672
- Original Project Schedule:
  - Engineering Completion: August 2020
  - Construction Completion: May 2023
- Revised Schedule:
  - Engineering Completion: December 2020
  - Construction Completion: October 2023

Major Changes/Issues

The original construction estimate of $65.5M was derived from the project definition that only accounted for treatment process expansion. Upon project steering committee review, additional scope was added to the project (listed below). The scope addition and subsequent engineering and indirect costs were the cause for the budget increase to $77M. This estimate is the engineer's opinion of probable construction cost at 10% design. Once the CMAR contract is awarded, they will be responsible for providing construction estimates at 30% and 60% design leading up to a GMP.

Additional Southwest WRF Projects

1. New Electrical Building #1 - $588,804: Preliminary design indicated that a new electrical building would be more economical than replacing/upgrading current electrical system
2. Additional Instrumentation and Control - $1,855,922: Preliminary design indicated that it is more economical to replace existing plant controls using a fiber optic loop rather than patch together new controls with existing
3. New Administration Building - $4,867,028: Originally planned for rehabilitation by facilities and transferred to this project per facilities request. It was determined that it would be a larger added value to build new buildings rather than rehab the existing due to space limitations.
4. New Workshop Building - $1,740,478: Originally planned for rehabilitation by facilities and transferred to this project per facilities request. It was determined that it would be a larger added value to build new buildings rather than rehab the existing due to space limitations.

A breakdown of the increases in costs is shown below.

Construction Costs:	$9,052,232
Engineering Costs:	$1,457,409
Total Increases:	$10,509,641

125-19 – Request approval to award a contract to Garney Companies Inc., for pre-construction services for the Southwest Water Reclamation Facility Expansion to 18 MGD project in the amount of $704,232.00, subject to the availability of lawfully appropriated funds.

Manager: Collier, Bradley W. - Mgr Project Management
Director: Conner, Sean M. – Dir W/WW Project Engineering & Construction
VP: Calhoun, Deryle I. - VP/GM Water Wastewater Systems

APPROVALS:

J Beard 12/19/19

Chairman, Awards Committee **Date**

Kristina Quast 12/19/19

Manager, Operating Budgets **Date**

Approved by the JEA Awards Committee

Date: 08/12/2020 Item# 6

Formal Bid and Award System

Award #6 August 13, 2020

Type of Award Request: CONTRACT INCREASE
Requestor Name: Hawk, Thomas C.
Requestor Phone: (904) 665-8829
Project Title: Construction Management-at-Risk (CMAR) Services for the Southwest Water Reclamation Facility (WRF) Expansion
Project Number: 8005555
Project Location: JEA
Funds: Capital
Budget Estimate: $3,166,057.00
Scope of Work:

JEA requests Proposals from interested and qualified Proposers to provide CMAR pre-construction services during design, and construction services for the Southwest WRF Expansion to 16 millions of gallons per day (MGD) project. This project is needed to meet wastewater flow demands in the Southwest services territory.

JEA IFB/RFP/State/City/GSA#: 125-19
CPA# 187260
Purchasing Agent: Kruck, Daniel R.
Is this a Ratification?: NO

RECOMMENDED AWARDEE(S):

Name	Contact Name	Email	Address	Phone	Amount
GARNEY COMPANIES INC.	Dave Hall	dhall@garney.com	133 NW Vivion Road, Kansas City, MO 64118-4554	(407) 877-5912	$2,789,909.00

Amount of Original Award: $704,232.00
Date of Original Award: 12/19/2019
Contract Increase Amount: $2,789,909.00
New Not-To-Exceed Amount: $3,494,141.00
Length of Contract/PO Term: Project Completion
Begin Date (mm/dd/yyyy): 01/03/2020
End Date (mm/dd/yyyy): Project Completion (Expected: January 2024)
JSEB Requirement: Optional
Comments on JSEB Requirements:

Original Award
N/A

This Contract Increase
N/A

Background/Recommendations:

Originally bid and approved by Awards Committee on 12/19/2019 in the amount of $704,232.00 for pre-construction services to Garney Companies Inc. A copy of the original award is attached as backup.

Negotiations with Garney Companies Inc. were successfully completed for the ultra-violet (UV) disinfection equipment procurement. Design for the UV system is not yet at the 60% design stage, however, due to the long lead time for UV disinfection equipment JEA requested an early guaranteed maximum price (GMP) for the equipment once the equipment was selected. The installation of the UV equipment will be included in a future GMP amendment once the design has progressed. The negotiated price of $2,789,909.00 is approximately 11.9% below the estimate due to negotiations between Garney Companies Inc. and the equipment supplier and deemed reasonable. A copy of the quote is attached as backup. As design progresses for the other aspects of the overall Southwest WRF expansion, additional GMPs will be brought before the Awards Committee.

The contract increase spend details are below:

- FY21: $2,789,909.00

Request approval to award a change order to Garney Companies Inc., for the purchase of the UV equipment as part of the Southwest Water Reclamation Facility (WRF) Expansion in the amount of $2,789,909.00, for a new not-to-exceed amount of $3,494,141.00, subject to the availability of lawfully appropriated funds.

Manager:	Collier, Bradley W. - Mgr Project Management
Director:	Conner, Sean – W/WW Project Engineering & Construction
Chief:	Vu, Hai – Interim GM Water/Wastewater Systems

APPROVALS:

08/13/2020

Chairman, Awards Committee **Date**

8/17/2020

Budget Representative **Date**

Approved by the JEA Awards Committee

Date: 03/11/2021 Item# 3

Formal Bid and Award System

Award #3 March 11, 2021

Type of Award Request: CONTRACT AMENDMENT
Requestor Name: Hawk, Thomas C.
Requestor Phone: (904) 665-8829
Project Title: Construction Management-at-Risk (CMAR) Services for the Southwest Water Reclamation Facility (WRF) Expansion
Project Number: 8005555
Project Location: JEA
Funds: Capital
Budget Estimate: $3,350,000.00
Scope of Work:

JEA requests Proposals from interested and qualified Proposers to provide CMAR pre-construction services during design, and construction services for the Southwest WRF Expansion to 16 millions of gallons per day (MGD) project. This project is needed to meet wastewater flow demands in the Southwest services territory.

JEA IFB/RFP/State/City/GSA#: 125-19
CPA# 187260
Purchasing Agent: Kruck, Daniel R.
Is this a Ratification?: NO

RECOMMENDED AWARDEE(S):

Name	Contact Name	Email	Address	Phone	Amount
GARNEY COMPANIES INC.	Dave Hall	dhall@garney.com	133 NW Vivion Road, Kansas City, MO 64118-4554	(407) 877-5912	$3,206,159.00

Amount of Original Award: $704,232.00
Date of Original Award: 12/19/2019
Contract Increase Amount: $3,206,159.00

List of Previous Change Order/Amendments:

CPA #	Amount	Date
187260	$2,789,909.00	08/13/2020

New Not-To-Exceed Amount: $6,700,300.00
Length of Contract/PO Term: Project Completion
Begin Date: 01/03/2020
End Date: Project Completion (Expected: January 2024)
JSEB Requirement: Optional at time of Proposal
Comments on JSEB Requirements:

Most of the JSEB opportunities in the projects scope of work will happen during the final GMP. Each GMP is reviewed to determine an appropriate JSEB goal.

Original Award
N/A

This Contract Increase
N/A

Background/Recommendations:

Originally bid and approved by Awards Committee on 12/19/2019 in the amount of $704,232.00 for pre-construction services to Garney Companies Inc. A contract increase was approved by the Awards Committee on 08/26/2020 for an interim Guaranteed Maximum Price (GMP) of the purchase of the ultra-violet (UV) system. A copy of the previous awards are attached as backup.

Negotiations with Garney Companies Inc. were successfully completed for the installation of the UV disinfection equipment. The negotiated installation cost for the UV equipment of $3,141,330.00 is $133,699.00 less than originally proposed and deemed reasonable. A copy of the installation quote is attached as backup. JEA also requested Garney provide an additional three months of pre-construction services beyond what was agreed upon in the initial award. Attached is the quote for $64,829.00 for the additional pre-construction services, which is deemed reasonable.

JEA negotiated updated hourly rates with Garney, and those updated rates are attached as backup. The updated rates are, on average, 16% less than originally negotiated. This results in a savings of $3,837.60 for the additional pre-construction services. As design progresses for the other aspects of the overall Southwest WRF expansion, additional GMPs will be brought before the Awards Committee.

Date	Description	Amount
12/19/2019	Initial award for pre-construction services	$704,232.00
08/26/2020	Interim GMP for purchase of the UV equipment	$2,789,909.00
03/11/2021	Interim GMP for installation of the UV equipment	$3,141,330.00
03/11/2021	Additional three months of pre-construction services	$64,829.00
	Total Proposed NTE	$6,700,300.00

Request approval to award a change order to Garney Companies Inc., for the installation of the UV equipment and additional pre-construction services as part of the Southwest Water Reclamation Facility (WRF) Expansion in the amount of $3,206,159.00, for a new not-to-exceed amount of $6,700,300.00, subject to the availability of lawfully appropriated funds.

Manager: Collier, Bradley W. - Mgr Project Management
Director: Conner, Sean M. - W/WW Project Engineering & Construction
VP: Vu, Hai X. - VP Water/Wastewater Systems

APPROVALS:

03/11/2021

Chairman, Awards Committee **Date**

3/12/21

Budget Representative **Date**

PROJECT NAME: JEA SOUTHWEST EXPANSION

GMP.1 - PURCHASE UV EQUIPMENT		GMP.1 VALUES
1.1	PURCHASE UV EQUIPMENT (PACKAGE 1)	2,439,600
	$2,280,000 plus 7% Sales Tax	
	SUBTOTAL DIRECT COSTS	**2,439,600**
	CONTINGENCY ON SUBTOTAL DIRECT COSTS	N/A
	SUBTOTAL DIRECT COSTS w/ CONTINGENCY	**2,439,600**
	INDIRECT COSTS	
	CMAR BONDS & INSURANCE	31,745
	CONSTRUCTION FEE	218,564
GMP.1 TOTAL		
	ELECTRICAL ALLOWANCE	100,000
TOTAL PURCHASE UV SYSTEM EQUIPMENT		**2,789,909**

GMP.2 - UV SYSTEM INSTALLATION		GMP.2 VALUES
2.1	MOBILIZATION & UV GCS (12 MOS)	880,879
2.2	UV DEMO, CONC, INSTALLATION	1,169,597
2.3	UV ELECTRICAL BID PACKAGE	379,200
2.4	UV I&C / SCADA BID PACKAGE	93,878
	SUBTOTAL DIRECT COSTS	**2,523,554**
	CMAR CONTINGENCY (SEE RISK REGISTER)	15,000
	SUBTOTAL DIRECT COSTS w/ CONTINGENCY	**2,538,554**
	INDIRECT COSTS	
1.25%	CMAR BONDS & INSURANCE	31,732
8.50%	CONSTRUCTION FEE	215,777
GMP.2 TOTAL		**2,786,064**
	UV PERMIT ALLOWANCE	NOT REQ'D PER COJ
	UV TESTING ALLOWANCE	5,000
	UV CONCRETE REPAIR ALLOWANCE	50,000
	JEA RISK ALLOCATION	300,266
TOTAL UV SYSTEM INSTALLATION		**3,141,330**

GMP.3 - EQUIPMENT PRE-PURCHASE		GMP.3 VALUES
3.1	CMAR GCs FOR GMP.3 (Revised 5/21/21 to Include 2 Months of PM)	43,219
3.2	EQUIPMENT PRE-PURCAHSE VALUE w/ SALES TAX	2,679,218
	SUBTOTAL DIRECT COSTS	**2,722,437**
	CMAR CONTINGENCY (SEE RISK REGISTER)	0
	SUBTOTAL DIRECT COSTS w/ CONTINGENCY	**2,722,437**
	INDIRECT COSTS	
1.25%	CMAR BONDS & INSURANCE ON GMP-3 TOTAL	50,005
8.50%	CONSTRUCTION FEE	235,658
GMP.3 TOTAL		**3,008,099**
	JEA Allowance	200,000
	Blower Allowance	792,266
		0
		0
TOTAL EQUIPMENT PRE-PURCHASE		**4,000,365**

GMP 2 UV SYSTEM INSTALLATION

	TOTALS			**347**			**40,219**		**-**		**-**		**900**		**2,100**	**43,219**	**43,219**	
Comments				**Total**			**Labor**		**Materials**		**Subcontract**		**Equipment**		**Other**		**w/ Sales Tax**	
(Spec/Dwg)	**Description**	**Quantity**	**Unit**	**MH**	**MH/U**	**Labor Unit**	**Labor Total**	**Matl Unit**	**Matl Total**	**Sub Unit**	**Sub Total**	**Equip Unit**	**Equip Total**	**Oth Unit**	**Oth Total**	**Subtotal**	**Total**	**Division**
	3.1 EQUIPMENT PRE-PURCHASE (GMP #3) CMAR GGs																0	GC
																	0	GC
	GARNEY INDIRECTS - PURE CM OVHDS												FUEL		ALLOWANCE		0	GC
	SR. PROJECT MANAGER		MOS	0.0	173.3		0		0		0	450	0	1,260	0	0	0	GC
	PROJECT MANAGER	2.0	MOS	346.7	173.3	20,109.75	40,219		0		0	450	900	1,050	2,100	43,219	43,219	GC
	ASS'T PROJECT MANAGER		MOS	0.0	173.3		0		0		0	450	0	840	0	0	0	GC
	SR / GENERAL SUPEINTENDENT		MOS	0.0	173.3		0		0		0	600	0	1,260	0	0	0	GC
	SUPERINTENDENT		MOS	0.0	173.3		0		0		0	450	0	1,050	0	0	0	GC
	ASS'T SUPERINTENDENT		MOS	0.0	173.3		0		0		0	450	0	1,050	0	0	0	GC
	CLERK / JOBSITE SECRETARY		MOS	0.0	173.3		0		0		0		0		0	0	0	GC
	FIELD ENGINEER		MOS	0.0	173.3		0		0		0	450	0	420	0	0	0	GC
	PROJECT ENGINEER		MOS	0.0	173.3		0		0		0	450	0	420	0	0	0	GC
	SAFETY OR QA/QC ENGINEER		MOS	0.0	173.3		0		0		0	450	0	840	0	0	0	GC
	FOREMAN VEHICLE ALLOWANCE		MOS	0.0			0		0		0	450	0	420	0	0	0	GC
																	0	GC

PROJECT NAME: JEA SOUTHWEST EXPANSION

GMP.1 - PURCHASE UV EQUIPMENT		GMP.1 VALUES
1.1	PURCHASE UV EQUIPMENT (PACKAGE 1)	2,439,600
	$2,280,000 plus 7% Sales Tax	
	SUBTOTAL DIRECT COSTS	**2,439,600**
	CONTINGENCY ON SUBTOTAL DIRECT COSTS	N/A
	SUBTOTAL DIRECT COSTS w/ CONTINGENCY	**2,439,600**
	INDIRECT COSTS	
	CMAR BONDS & INSURANCE	31,745
	CONSTRUCTION FEE	218,564
GMP.1 TOTAL		
	ELECTRICAL ALLOWANCE	100,000
TOTAL PURCHASE UV SYSTEM EQUIPMENT		**2,789,909**

GMP.2 - UV SYSTEM INSTALLATION		GMP.2 VALUES
2.1	MOBILIZATION & UV GCS (12 MOS)	880,879
2.2	UV DEMO, CONC, INSTALLATION	1,169,597
2.3	UV ELECTRICAL BID PACKAGE	379,200
2.4	UV I&C / SCADA BID PACKAGE	93,878
	SUBTOTAL DIRECT COSTS	**2,523,554**
	CMAR CONTINGENCY (SEE RISK REGISTER)	15,000
	SUBTOTAL DIRECT COSTS w/ CONTINGENCY	**2,538,554**
	INDIRECT COSTS	
1.25%	CMAR BONDS & INSURANCE	31,732
8.50%	CONSTRUCTION FEE	215,777
GMP.2 TOTAL		**2,786,064**
	UV PERMIT ALLOWANCE	NOT REQ'D PER COJ
	UV TESTING ALLOWANCE	5,000
	UV CONCRETE REPAIR ALLOWANCE	50,000
	JEA RISK ALLOCATION	300,266
TOTAL UV SYSTEM INSTALLATION		**3,141,330**

GMP.3 - EQUIPMENT PRE-PURCHASE		GMP.3 VALUES
3.1	CMAR GCs FOR EQUIPMENT PRE-PURCHASE GMP.3	43,219
3.2	EQUIPMENT PRE-PURCAHSE VALUE w/ SALES TAX	2,679,218
	GMP3 Amendment 3 for Early DIP PROCUREMENT	
	SUBTOTAL DIRECT COSTS	**2,722,437**
	CMAR CONTINGENCY (SEE RISK REGISTER)	
	SUBTOTAL DIRECT COSTS w/ CONTINGENCY	**2,722,437**
	INDIRECT COSTS	
1.25%	CMAR BONDS & INSURANCE	50,005
8.50%	CONSTRUCTION FEE	235,657
GMP.3 TOTAL		**3,008,099**
	JEA ALLOWANCE	200,000
	BLOWER ALLOWANCE	792,266
	JEA CONTRACT AMENDMENT FOR EARLY DIP PROCUREMENT	640,440
TOTAL EQUIPMENT PRE-PURCHASE		**4,640,805**

GMP.4 - BALANCE OF PROJECT SCOPE		GMP.4 VALUES
4	CMAR GCs (FOR GMP4 SCOPE)	5,209,060
4.1	ODOR CONTROL EQUIPMENT	649,700
4.2	PROCESS EQUIP / PROCESS MECH / METALS	12,194,000
4.3	FOUNDATION IMPROVEMENTS	1,366,200
4.4A	DEWATERING	1,285,140
4.4B	SITEWORK	5,033,325
4.5	YARD PIPING	15,665,000
4.6	BNR & CLARIFIER CONCRETE	7,799,988
4.7	HEADWORKS	6,222,000
4.8	DEMO & ABATEMENT	335,946
4.9	ELECTRICAL	16,509,000
4.1	INSTRUMENTATION & CONTROLS	2,690,000
4.11	WWTP COATINGS	JEA ALLOWANCE
4.13	BUILDING CONSTRUCTION	8,161,495
4.14	BRIDGE CRANE	85,805
4.15	GENSET, FUEL TANK & PIPING	1,747,282
	SUBTOTAL DIRECT COSTS	**84,953,941**
	CMAR CONTINGENCY	2,200,000
	SUBTOTAL DIRECT COSTS w/ CONTINGENCY	**87,153,941**
	INDIRECT COSTS	
	CMAR BONDS & INSURANCE	2,000,000
8.50%	CONSTRUCTION FEE	7,578,085
GMP.4 TOTAL		**96,732,026**
	JEA ALLOWANCE	6,039,487
TOTAL BALANCE OF PROJECT SCOPE		**102,771,513**

TOTAL COST - GMP 1 THRU 4	**113,343,557**

Formal Bid and Award System

Award #8 March 17, 2022

Type of Award Request: REQUEST FOR PROPOSAL (RFP)
Requestor Name: Roh, Mir
Requestor Phone: (904) 665-6132
Project Title: 230kV to 34.5kV Transformer for Steelbald Substation
Project Location: JEA
Project Number: 8007815
Funds: Capital
Award Estimate: $2,094,243.06

Scope of Work:

JEA is soliciting Bids for the equipment design, fabrication, and delivery of one (1) one 230kV to 34.5 kV transformer for the Steelbald Substation (the "Work" or "Services").

The scope of services the company will provide includes, however, is not limited to:

- Equipment Design
- Equipment Engineering
- Materials procurement
- Fabrication
- Drawings
- Delivery - Offload & Set on the pad

JEA is requesting pricing for the two options listed in the Bid Workbook.

JEA IFB/RFP/State/City/GSA#: 1410471846
Purchasing Agent: Lovgren, Rodney D.
Is this a Ratification?: NO

RECOMMENDED AWARDEE(S):

Name	Contact Name	Address	Phone	Amount
PTI TRANSFORMERS LP	Mick Cleveland	101 Rockman Street, Winnipeg, Manitoba, CA R3T OL7	204-452-7446	$2,094,243.06

Amount for entire term of Contract/PO: $2,094,243.06
Award Amount for remainder of this FY: $613,272.92
Length of Contract/PO Term: Project Completion
Begin Date (mm/dd/yyyy): 03/20/2022
End Date (mm/dd/yyyy): Project Completion (Estimate 09/30/2023)
JSEB Requirement: N/A - Specialty Services

BIDDER:

Name	Unit Price	Evaluated Price
PTI TRANSFORMERS LP	$1,964,702.00	$2,602,702.00
HYUNDIA ELECTRIC AMERICA CORPORATION	$2,128,405.00	$2,791,905.00
SPX TRANSFORMER SOLUTIONS INC.	$2,308,035.00	$2,858,985.00

Background/Recommendations:

Advertised on 11/01/2021. Three (3) companies attended the optional pre-response meeting on 11/05/2021. At response opening on 12/14/2021, JEA received three (3) Proposals. The evaluation is based 100% on the evaluated price (which takes into account load losses) and PTI Transformers LP was deemed the lowest priced responsible and responsive Proposer. A copy of the Bid Form and Bid Workbook is attached as backup.

The Bidders submit their unit price (actual equipment price) and are evaluated on an evaluated price, which takes into account load losses to determine the Awardee. The load losses are determined by the equipment designer and input into a cost of ownership calculation to arrive at the evaluated price.

It should be noted that the Award Amount is higher than the base unit price, due to adders to for dynamic clamping, soft costs (training and technical support) and a 3% fixed price increase. Price is fixed through delivery.

The award amount is the budget estimate, as this project was developed to support a JEA Key Customer that will reimburse JEA for the cost incurred by JEA for the overall project. JEA has not purchased this size transformer in years (15+), however, considering the size and ratings compared to other similarly sized transformers pricing is deemed reasonable given the current market conditions. For reference, the 2021 PPI for Large Specialty transformers was up approximately 30% in 2021.

1410471846 - Request approval to award a contract to PTI Transformers LP in the amount of $2,094,243.06, subject to the availability of lawfully approved funds.

Manager: Hamilton, Darrell D. - Mgr Transmission and Substation Projects
Director: Acs, Gabor – Sr. Dir. Engineering & Projects
VP: Erixton, Ricky D. - VP Electric Systems

APPROVALS:

_____

Chairman, Awards Committee **Date**

_____

Budget Representative **Date**

1410471846 Bid Workbook - Baldsteel Substation Transformer (BIDDER SHALL FILL IN YELLOW CELLS)

Only 1 Option may be selected	Transformer	Transformer Description	Unit Price (Base Price)	Guaranteed No-Load Losses		Guaranteed Load Losses @ 133 MVA		Guaranteed Auxiliary Losses		Evaluated Unit Price
				kW	Amount	kW	Amount	kW	Amount	
Option 1	Steelbald Substation	230 KV Delta (Δ) to 34.5 KV Grounded Wye (Y) (through a 1.9 ohms resistor), Three-Phase **Note 1**	**$ 1,964,702.00**	**69**	$5,000	**291.5**	$1,000	**3**	$500	$2,602,702
Option 2	Steelbald Substation	230 KV Delta (Δ) to Dual Wound 34.5kV x 24kV Grounded Wye (Y) (through a 1.33 ohms resistor), voltage selectable via in-tank terminal board, Three- Phase **Note 1**	**$ 1,986,475.00**	**69.6**	$5,000	**297**	$1,000	**3**	$500	$2,632,975

MATERIALS AND SERVICE OPTIONS PRICING (BIDDER SHALL FILL IN YELLOW CELLS)

#	Material / Service Option	Description of Work	Unit Price	Qty
1	Field Serivce Technician	3 days of service during time period Monday - Friday, including travel and per diem.	**Note 2**	1 Lot
2	Additional Optional Training	5 days of training, including travel, per diem	**$ 15,000.00**	1 Lot
3	In and Out Costs	Move in and out of Storage	**Note 3**	1 Lot
4	Storage Costs	If Delivery delayed > 30 days from Ready to Ship. Delivery delays < 30 days shall be absorbed by the Company	**Note 3**	Per Month
5	Critical Spare Parts	HV Bushing	**$ 17,000.00**	1
6	Critical Spare Parts	LV Bushing	**$ 4,200.00**	1
7	Critical Spare Parts	Gaskets	**$ 6,500.00**	1 Set

Unit Price with 3% fixed rate escalation	$ 2,044,243.06	**Design Approval - 10%**	**Manufacture Release - 20%**	**Factory Acceptance 40%**	**DELIVERY - 20%**	**Acceptance**	**15 months**
Net 30 Payment, within 30 days of milestone being achieved		0.1	0.2	0.4	0.2	0.1	**65 weeks**
Bid Item from PTI	**Amount**	**5/30/2022**	**8/30/2022**	**4/18/2023**	**6/18/2023**	**7/18/2023**	**455 days**
Base Unit Price of Equipment (includes Dynamic Clamping) Option 1 Pricing - 230 KV Delta (Δ) to 34.5 KV Grounded Wye (Y)	$ 1,984,702.00	$ 198,470.20	$ 396,940.40	$ 793,880.80	$ 396,940.40	$ 198,470.20	$ 1,984,702.00
Fixed increase - escalation 3%	$ 59,541.06	$ 5,954.11	$ 11,908.21	$ 23,816.42	$ 11,908.21	$ 5,954.11	$ 59,541.06
Soft Costs - Technical Support	$ 20,000.00				$ 20,000.00		$ 20,000.00
Training	$ 15,000.00					$ 15,000.00	$ 15,000.00
Storage Costs (Not Expected)	$ -						$ -
Soft Costs - road surveys, PE stamping lift plans	$ 15,000.00				$ 15,000.00		$ 15,000.00
		Article 2.3.1: Payment Schedule					$ 2,094,243.06
		10% net 30 days after Design approval.					FY 2022
		20% net 30 days at time of Manufacturing release.					$ 613,272.92
		40% net 30 days at time of successful completion of testing at our works.					FY 2023
		20% net 30 days upon delivery to site.					$ 1,480,970.14
		Balance 10% payment after the final acceptance, but not to exceed 30 days after delivery.					

JEA

RFP: 1410471846 - STEELBALD TRANSFORMER

Our Ref: Q100478A&B

Submitted: January 19, 2022

PTI TRANSFORMERS

To: **JEA**

Subject: **RFP: 1410471846 | RFP STEELBALD TRANSFORMER OPTION 1 AND 2**

With reference to the aforementioned inquiry, PTI Transformers is pleased to present our detailed commercial and technical offering for the below equipment:

PTI Ref	Qty	Description
Q100478A	1	Option 1 3 Ph, 100/133 MVA, Power Transformer 230 kV Delta – 34.5 kV Grounded Wye through Grounding Reactor.
Q100478B	1	Option 2 3 Ph, 100/133 MVA, Power Transformer 230 kV Delta – 34.5 x 24 kV Grounded Wye through Grounding Reactor.

This proposal is based upon the requirements outlined as per the supplied RFQ documents.

We trust you find our offering in line with your requirements, but should you have any questions please do not hesitate to contact your local PTI Transformer representative (details below).

Mick Cleveland
Engineer Power Solution LLC
336-337-3900
engpwrsol@msn.com

Thank you for considering PTI Transformers, and we look forward to supply the above equipment.

Yours truly,

Shah Mohamed-Ali

Shah Mohamed-Ali
Quotation Specialist
PTI Transformers

Table of Contents

SECTION 1: PRICING & BID INFORMATION

1.1. JEA Appendix B – Proposal Form & Bid Workbook

APPENDIX B PROPOSAL FORM

1410471846 - 230KV to 34.5 KV Transformer for Steelbald Substation

COMPANY INFORMATION:

COMPANY NAME: PTI Transformers LP

BUSINESS ADDRESS: 101 Rockman Street

CITY, STATE, ZIP CODE: Winnipeg, Manitoba, Canada R3T 0L7

TELEPHONE: (204) 452-7446

FAX: (204) 453-8644

EMAIL OF CONTACT: dboyd@ptitransformers.com

Unit Price per Option.

Quoted prices in USD Funds

Description	Unit Price
Option 1 – Unit Price from the Bid Workbook	$ 1,964,702.00
Option 2 – Unit Price from the Bid Workbook	$ 2,061,096.00

Upload 1 electronic signed copy of this Proposal your Proposal Submission

Company's Certification

By submitting this Proposal, the Proposer certifies that it has read and reviewed all of the documents pertaining to this RFP and agrees to abide by the terms and conditions set forth therein, that the person signing below is an authorized representative of the company, that the company is legally authorized to do business in the State of Florida, and that the company maintains in active status an appropriate license for the work. The company certifies that its recent, current, and projected workload will not interfere with the company's ability to Work in a professional, diligent and timely manner.

The Proposer certifies, under penalty of perjury, that it holds all licenses, permits, certifications, insurances, bonds, and other credentials required by law, contract or practice to perform the Work. The Proposer also certifies that, upon the prospect of any change in the status of applicable licenses, permits, certifications, insurances, bonds or other credentials, the Company shall immediately notify JEA of status change.

We have received addenda 1 through 5

Shah Mohamed Ali

Signature of Authorize Officer of Company or Agent

January 7, 2022

Date

for Dan Boyd, Product Sales Manager

Printed Name & Title

(204) 474-5704

Phone Number

1410471846 Bid Workbook - Baldsteel Substation Transformer (BIDDER SHALL FILL IN YELLOW CELLS)

Only 1 Option may be selected	Transformer	Transformer Description	Unit Price (Base Price)	Guaranteed No-Load Losses		Guaranteed Load Losses @ 133 MVA		Guaranteed Auxiliary Losses		Evaluated Unit Price
				kW	Amount	kW	Amount	kW	Amount	
Option 1	Steelbald Substation	230 KV Delta (Δ) to 34.5 KV Grounded Wye (Y) (through a 1.9 ohms resistor), Three-Phase **Note 1**	**$ 1,964,702.00**	**69**	$5,000	**291.5**	$1,000	**3**	$500	$2,602,702
Option 2	Steelbald Substation	230 KV Delta (Δ) to Dual Wound 34.5kV x 24kV Grounded Wye (Y) (through a 1.33 ohms resistor), voltage selectable via in-tank terminal board, Three- Phase **Note 1**	**$ 2,061,096.00**	**70.3**	$5,000	**297**	$1,000	**3**	$500	**$2,711,096**

MATERIALS AND SERVICE OPTIONS PRICING (BIDDER SHALL FILL IN YELLOW CELLS)

#	Material / Service Option	Description of Work	Unit Price	Qty
1	Field Serivce Technician	3 days of service during time period Monday - Friday, including travel and per diem.	**Note 2**	1 Lot
2	Additional Optional Training	5 days of training, including travel, per diem	**$ 15,000.00**	1 Lot
3	In and Out Costs	Move in and out of Storage	**Note 3**	1 Lot
4	Storage Costs	If Delivery delayed > 30 days from Ready to Ship. Delivery delays < 30 days shall be absorbed by the Company	**Note 3**	Per Month
5	Critical Spare Parts	HV Bushing	**$ 17,000.00**	1
6	Critical Spare Parts	LV Bushing	**$ 4,200.00**	1
7	Critical Spare Parts	Gaskets	**$ 6,500.00**	1 Set

Note 1: Assembly, Vacuum Oil Fill, Testing & Commissioning of Transformer at site is not inluded in the price and shall be extra if required.
Note 2: Please refer to the Field Service rates as shown in Section 1.4 of the Bid Proposal.
Note 3: Please refer to Storage and associated costs as shown in Section 1.5 of the Bid Proposal.

Per our e-mail dated Jan 12 &14, 2022 to JEA, we would like to offer two price options:

1. Fixed Price: 3.0 % price increase to the quoted price.
2. Price subject to Escalation: Shall be per price adjustment formula as shown in Section 1.6 with 5.0% cap.

MATERIAL	CODE	PERCENTAGE	NOTES / RATIONALE
Electrical Steel		**Note 2**	There is no US BLS Index for electrical grade steel. JEA may accept the supplier documentation on steel purchase prices, or use an altnernate index such as transformer specialty manufacturer's index.
Carbon Steel	WPU101703	**Note 2**	This commodity category PPI Commodity data for Metals and metal products-Hot rolled steel sheet and strip, including tin mill products, not seasonally adjusted
Copper	Comex	**Note 2**	The quarterly price adjustment for Copper shall be in accordance with PLATTS Metals Daily PDF weekly average for "COMEX HG 1st Position". The weekly average figures that will be used will be the last full week prior to the respective "Drawing Approval Date", as reported by PLATTS.
Oil	DCOILWTICO	**Note 2**	The quarterly price adjustment for Oil shall be in accordance with the U.S. Energy Information Administration: Crude Oil Prices: West Texas Intermediate (WTI) - Cushing, Oklahoma (DCOILWTICO). The U.S. Energy Information Administration publishes this value daily. The pricing for the Oil will be determined by using the last daily reported figure that is the published and available on the Anniversary Date. This reported figure will then be compared to the initial Oil Base to measure the applicable percentage change.
All Other	N/A	**Note 2**	Fixed Cost

Note 2: We have included PTI Escalation Adjustment method, please refer to Section 1.6 of the Bid Proposal.

1.2. Bid Summary

Bid Validity	:	60 days from date of original submittal excluding pricing
	:	30 days from date of original submittal for pricing.
Currency	:	US Funds
Taxes	:	Not included and shall be extra if required.
Delivery	:	52 to 56 weeks after receipt of order and is subject to plant loading and confirmation at time of order.
INCO Terms	:	DDP Site (offload to Pad).
Warranty	:	60/66 months, with in/out coverage for the 1st year and in-out charges capped at 25% of the unit price.

PTI confirm that the transformer and all loose items are to be shipped FOB Destination.

Shipping Conditions:

- Shipping **under dry air** by rail to nearest rail siding in Baldwin, FL
- Getting rail clearance on regular train only.
- Having clear access to the substation with road trailer used to move from nearest rail siding to site.
- Getting road trailer within 30 feet from the pad for offloading;
- Not transloading the transformer to a shorter trailer due to lack of access to or within the substation and to the pad.
- Having clear access to the pad for offloading, not jacking up the transformer more than 2 feet to skid it off the trailer to the pad.
- Not rotating the transformer on site or pad.
- Having good ground conditions within the substation to withstand the trailer with transformer and skidding system.
- Does not include route survey, route engineering study, repair of roads, and utilities and police escorts. This, if required, are at costs plus 15% Adm fee.
- Does not included engineering stamped offloading drawings/lift plan. These, if required, will be at costs plus 15%.

1.3. Recommended Spare Parts

Item	Description	Qty	Price (USD)
Winding Temperature Indicator	Messko	1	$4,200.00
Oil Temperature Indicator	Messko	1	$3,400.00
Sudden Pressure Relay	Qualitrol 900 series	1	$2,400.00
Oil level Gauge	Messko	1	$3,000.00
	TOTAL		**$13,000.00**

1.4. Standard Field Service Rates

The following rates are applicable for personnel working within North America. Prices are subject to change.

Per Diem: $2,050.00 per workday. This rate includes all time worked or traveled during a normal eight (8) hour work day or fraction thereof. A work day is considered any consecutive eight-hour period Monday to Friday (holidays excluded) with an allowance for lunch. Per Diem rate includes local traveling and living expenses only. It does not include the cost of airfare or transportation to/from the job site and personnel headquarters. All hours worked or traveled in excess of eight hours per weekday and all hours on Saturdays, Sundays, and holidays will be billed at the applicable hourly/overtime rates.

Hourly: $190.00 per hour or any fraction thereof. The hourly rate is applicable to all regular workday time, including travel time 00 and time at the job site whether worked or not. A weekday is considered any consecutive eight-hour period Monday to Friday (holidays excluded) with an allowance for lunch.

Overtime: $285. per hour or any part thereof. This rate is applicable to all hours worked in excess of eight (8) hours on weekdays (holidays excluded), and all time worked or traveled on Saturdays.

Sunday & Holiday: $385.00 per hour or any part thereof. This rate is applicable to all hours worked or traveled on Sundays or holidays.

Standby: When personnel are prevented or unable to perform the services requested on the jobsite because of circumstances beyond their control, the purchaser will be billed at the applicable rate.

Time Off: The minimum time off for personnel during one 24-hour period shall be eight (8) hours.

Travel: Traveling time and expenses for each service person includes leaving and returning to headquarters. The maximum billing for traveling time at the applicable rate shall be eight (8) hours per individual for any one calendar day.

TRAVEL & LIVING EXPENSES

Hourly rates do not include any travel or living expenses.
Transportation costs to/from the jobsite and personnel headquarters shall be billed at cost.
Auto travel to/from the jobsite and headquarters, will be billed at a rate of $0.75 per kilometer.
Copies of invoices shall be supplied.

1.5. PTI Storage Requirements and Costs

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PTI Transformers LP
Registered Office & Plant:
101 Rockman Street, Winnipeg, Manitoba R3T 0L7, Canada
T: +1 204 452 7446 F: +1 204 453 8644 W: www.partnertechnologies.net

STORAGE REQUIREMENTS AND COST

I. Storage Requirement

a. Supplier to provide storage requirements associated with short-term and long-term storage plans. This should include any special inspections or maintenance requirements to be performed by Owner or Supplier.

b. 100% of the total unit ex-works price to be paid within 30 days of placement into storage. Remainder of contract price to be invoiced as services are rendered.

II. Storage Costs at Production Facility

Supplier to define the costs associated with potential storage at Suppliers production facility, at the port or other interim storage facility, and at the Project site.

	Storage Cost	Insurance Cost	Maintenance Cost	Total
Storage at Production Facility	$500.00 / Mo	$250.00 / Mo	$1,000.00/Mo	$1,750.00/Mo

III. Offsite Storage

Supplier shall receive written consent from Purchaser prior to any offsite Storage

IV. Storage Costs at Onsite/Offsite Storage Facility (Beyond 3 months)

Purchaser is responsible for actual invoiced costs, plus 10% administrative fee. The costs include charges associated with storage, insurance, maintenance, loading, unloading, transport of unit (from factory to storage location) while being stored at an onsite/offsite storage facility, plus 10% administrative fee.

V. Additional Costs Associated with Long-Term Onsite/Offsite Storage (Beyond 6 Months)

If the unit needs to be stored longer than 6 months, then it needs to be filled with oil, which required assembly, oil processing, and filling at the long-term storage facility. Before the unit can be transported to the site, the oil needs to be drained and the unit needs to be disassembled for the transport. Purchaser is responsible for actual invoiced costs, plus 10% administrative fee, for long-term storage and transport preparations. They are in addition to the onsite/offsite storage costs described above.

1.6. Price Adjustment Formula

Price adjustment methodology per attached.

Price adjustment formula:

	Indices	Weight		Index at Base (12 month prior to ship)	Index 8 Months prior to ship	Calculated adjustment percentage	Adjust Price (8 Months Prior to Shipment)
Core Steel	Per JEA add #1	20%	$ 392,940.40				
Copper Wire	Per JEA add #2	12%	$ 235,764.24				
Fabricated Steel	Per JEA add #3	5%	$ 98,235.10				
Mineral Oil	Per JEA add #4	5%	$ 98,235.10				
Insulation	1% / month (12%)	2%	$ 39,294.04	1	=1+((.12/12)*4)	4.000%	$ 40,865.80
Accessories	0.75% / month (9%)	8%	$ 157,176.16	1	=1+((.09/12)*4)	2.667%	$ 161,367.52
Labour & OH	0.17% / month (2%)	38%	$ 746,586.76	1	=1+((.02/12)*4)	0.667%	$ 751,564.01
Fixed	-	10%	$ 196,470.20				
Total			**$ 1,964,702**				

Per our e-mail dated Jan 14, 2022 to JEA, PTI agree to cap price adjustment at 5%

SECTION 2: COMMERCIAL COMMENTS AND EXCEPTIONS

JEA Contract Terms and Conditions

Article 2.3.1: Payment Method - Task Authorization

We would like to offer milestone payment terms as shown below:
10% net 30 days after Design approval.
20% net 30 days at time of Manufacturing release.
40% net 30 days at time of successful completion of testing at our works.
20% net 30 days upon delivery to site.
Balance 10% payment after the final acceptance, but not to exceed 30 days after delivery.

Article 2.3.6: Taxes

Supplier is not registered to collect taxes within the USA, and Purchaser will need to self asses. Prices quoted do not include federal, state and local taxes.

Article 2.5.5: Limitation of Liability

The Purchaser agrees that the Seller not be liable for loss of expectation of profit, or any indirect special or consequential damages as a result of any failure to execute any of its obligations relating to the sale of the Equipment. The Seller's liability, on any other claim for loss arising out of the sale or repair of the Equipment or any failure of the Equipment or any element thereof shall not exceed the net unit price, exclusive of any taxes, duties or transportation cost of the Equipment or that part of the Equipment involved in such claim for loss, whichever is the lesser.

Article 2.4.1: Warranty

The Warranty Period for the Original Purchaser shall be sixty-six (66) months after the date of Delivery to its original destination or sixty (60) months from the date of the first use of Equipment by the Original Purchaser or End User, whichever is shorter. The Seller warrants that during the Warranty Period, the Equipment shall be free from defects in material and workmanship and shall reasonably meet the specifications of the Purchaser. If, within the Warranty Period, the Equipment does not meet the warranty specified above, and provided that the Purchaser promptly notifies the Seller of any such defects in writing, the Seller agrees to correct any defect, at its option, either by repairing or replacing any defective parts, or by making available, at the Facility, repaired or replacement parts subject to the limit of 100% of the original equipment. The transportation costs to and from the Facility or repair shop, shall be borne by the Seller exclusively over the first year of the warranty period, subject to the limit of twenty five percent (25%) of the original purchase price of the equipment. Seller shall be responsible for the Direct Cost of removing the apparatus from service, transportation to and from the place of repair and reinstallation of the apparatus at site (In/Out). Direct Cost excludes expenses for removing fire walls, installing temporary equipment and incremental costs of supply

service. At the end of the first year of the warranty, the cost of removal and reinstallation of the defective Equipment is the responsibility of the purchaser. The Purchaser acknowledges and agrees, that any repair or replacement of the Equipment shall not renew or extend the Warranty Period. The Purchaser further agrees that the Seller shall have no liability to the Purchaser beyond the expiration of the warranty period, and that the within warranty shall be void if the Equipment had been improperly installed or maintained, operated under abnormal conditions, or contrary to the specifications or instructions of the Seller. The purchaser expressly agrees that, aside from the foregoing, the Seller has not given, and is not bound by, any warranty regarding the equipment, or liability whatsoever including any and all incidental or consequential damages, expenses or loss of use or profits.

SECTION 3: TECHNICAL COMMENTS AND CLARIFICATIONS

Design:

Considering furnace transformer load, we have used epoxy bonded CTC conductors for reduced hotspot and higher short circuit strength. Our clamping system consists of robust hollow structural steel clamps with tie rods. We have also offered dynamic clamping of coils as an option considering varying load on the unit. We have considered laser scribed core steel for this application. Price adder for dynamic clamping of coils option is $20,000 USD per-unit.

Tank:

Please refer to write up on our tank construction in Section 5 of the Bid Proposal.

Paint:

Please refer to write up on our paint system in Section 6 of the Bid Proposal.

Oil quality for site oil:

In case tanker oil does not meet the listed criteria, it will be processed after filling in transformer and oil results checked to meet the requirements

Tests:

Induced test with PD measurements will be performed as per IEEE/CSA standards as applicable. The test levels will be as per the standards and the preferred measurement is only pico-coulombs as they are more reliable to assess healthiness of internal insulation.

Sound level:

Unless otherwise specified, the guaranteed sound level is Sound pressure at No load without fans and at no load with fans. Tests will be performed for these conditions. Sound power will be calculated when specified. Sound level under load will be performed only when specified. Octave band measurements will be performed only when specified. Additional price if any will be in the quote.

DGA limits:

DGA limits will be as per C 57.130

External clearances:

Unless otherwise specified, external air clearances for bushings will be based on IEEE/CSA standards. For Surge arresters, the air clearance will be based on supplier recommendations.

Gasket Material:

Unless otherwise specified, the gasket material supplied will be Nitrile with a temperature range -54° to + 104° C (-65° to +220 ° F). O-Ring gaskets in machined grooves are used on circular openings, with flat gasket material inside metal gasket stops on rectangular openings.

For special requirements/or at additional cost we can supply Flourosilicone gaskets with a temperature range of -57° to + 232° C (-70° to +450 ° F). Price adder for this option is $15,000 USD per-unit.

Gas Collection Configuration:

Unless otherwise specified, bushing turrets are fitted with internal gas deflectors to avoid the need for gas piping between the turrets and the GRD pipework. This also improves safety when working on the cover many pipe connections on cover are avoided.

Core/Clamp Ground:

Unless otherwise specified, the core assembly and the clamp assembly ground connection cables are each brought out through a 1.2kV/30kV BIL bushing and grounded externally with a removable cable to facilitate testing.

Harmonics:

Design considers the 3rd harmonic data provided. If there are other harmonics, design can be verified once data is provided.

SECTION 4: TECHNICAL DATA SHEETS & OUTLINE DRAWINGS

PTI TRANSFORMERS LP — Power Transformer Specification

Option 1: 100/133 MVA, 230 kV Delta - 34.5 kV Wye with HV DETC.

For:	JEA / Steelbald Transformer			**Date:**	12/02/2021
Proposal No.	Q100478A	**Spec No.**	Steelbald Transformer	**Item No.**	Option 1

RATING

		Class	**H Winding**		**X Winding**		**Y Winding**
Type:	POWER						
Phase:	3		230000	kV	34500	kV	
Hertz:	60	ONAN	100.00	MVA	100.00	MVA	
Temp. Rise:	65	ONAF	133.33	MVA	133.33	MVA	
Insul Liquid:	Oil						
Service:	Outdoor						

ADDITIONAL TAP VOLTAGES

H Winding	+/-5	%	+/- 2	Steps
X Winding				

CONNECTIONS FOR OPERATION

Transformers in Bank	To Transformer From	Phase	Connected	To Transformer To	Phase	Connected
	HV		DELTA			
	LV		WYE			

PERFORMANCE BASED ON A LOADING OF

Winding	Voltage	MVA
H Winding	230000	100
X Winding	34500	100
Y Winding	N/A	N/A

DIELECTRIC TESTS

Test	Winding	Voltage
Applied Voltage	H Winding	per ANSI
	X Winding	per ANSI
	Y Winding	per ANSI
Induced Voltage	Line-Line	per ANSI
	Line-Ground	per ANSI

INSULATION LEVELS

Item	BIL
H Line	900
X Line	200

PERFORMANCE DATA, Based on 85 °C Reference Temperature

Losses and Exciting Current at 133.00 MVA

Excitation	%Iex	No Load KW	Load KW	Total Loss KW
100%	0.05 approx.	69.00	291.50	360.50
110%	0.10 approx.			

REGULATION (approximate)

Power Factor	% Regulation
1.0	0.42
0.8	3.30
0.8 P.F Lead	-2.67

AUXILIARY LOSSES (cooling losses only)

Transformer MVA	Class	KW Aux. Loss
100	ONAN	0.00
133	ONAF	3.00

PERCENT IMPEDANCE VOLTS

% IZ	Connection	at MVA
5.00	H-X	100
	H-Y	
	Y-X	

AVERAGE SOUND LEVEL

81/83 dBA per ANSI standard test methods

EFFICIENCIES (approximate)

MVA Rating	1 1/4 Load	Full Load	3/4 Load	1/2 Load	1/4 Load
100	99.58 %	99.64 %	99.69 %	99.72 %	99.65 %
133.33	99.47 %	99.56 %	99.64 %	99.70 %	99.70 %

MECHANICAL DATA
Not For Construction Purposes

For dimensions please refer to attached drawing

Net Weight in		**lbs**
Core and Coils:		185,853
Tank and Fittings:		74,637
Liquid:	15044 U.S. Gal.	107,816
Total Weight:		368,306
Shipping Weight:		236,862

PTI TRANSFORMERS LP — Power Transformer Specification

Option 2: 100/133 MVA, 230 kV Delta - 34.5 x 24 kV Wye with HV DETC.

For:	JEA / Steelbald Transformer			**Date:**	01/06/2022
Proposal No.	**Q100478BR1**	**Spec No.**	Steelbald Transformer	**Item No.**	Option 2

RATING

		Class	H Winding		X Winding		Y Winding
Type:	POWER						
Phase:	3		230000	kV	10500	kV	
Hertz:	60	ONAN	100.00	MVA	100.00	MVA	
Temp. Rise:	65	ONAF	133.33	MVA	133.33	MVA	
Insul Liquid:	Oil						
Service:	Outdoor						

ADDITIONAL TAP VOLTAGES

H Winding	+/-5	%	+/- 2	Steps
X Winding				

CONNECTIONS FOR OPERATION

Transformers in Bank	To Transformer From	Phase	Connected	To Transformer To	Phase	Connected
	HV		DELTA			
	LV		WYE			

PERFORMANCE BASED ON A LOADING OF

Winding	Voltage	MVA
H Winding	230000	100
X Winding	10500	100
Y Winding	N/A	N/A

DIELECTRIC TESTS

Test	Winding	Voltage
Applied Voltage	H Winding	per ANSI
	X Winding	per ANSI
	Y Winding	per ANSI
Induced Voltage	Line-Line	per ANSI
	Line-Ground	per ANSI

INSULATION LEVELS

Item	BIL
H Line	900
X Line	200

PERFORMANCE DATA, Based on 85 **°C Reference Temperature** @ 34.5 kV connection

Losses and Exciting Current at 133.00 **MVA**

Excitation	%Iex		No Load KW	Load KW	Total Loss KW
100%	0.05	approx.	70.30	297.00	367.30
110%	0.10	approx.			

REGULATION (approximate)

Power Factor	% Regulation
1.0	0.42
0.8	3.31
0.8 P.F Lead	-2.67

AUXILIARY LOSSES (cooling losses only)

Transformer MVA	Class	KW Aux. Loss
100	ONAN	0.00
133	ONAF	3.00

PERCENT IMPEDANCE VOLTS

% IZ	Connection	at MVA
5.00	H-X	100
	H-Y	
	Y-X	

AVERAGE SOUND LEVEL

/83 as per Nema dBA per ANSI standard test methods

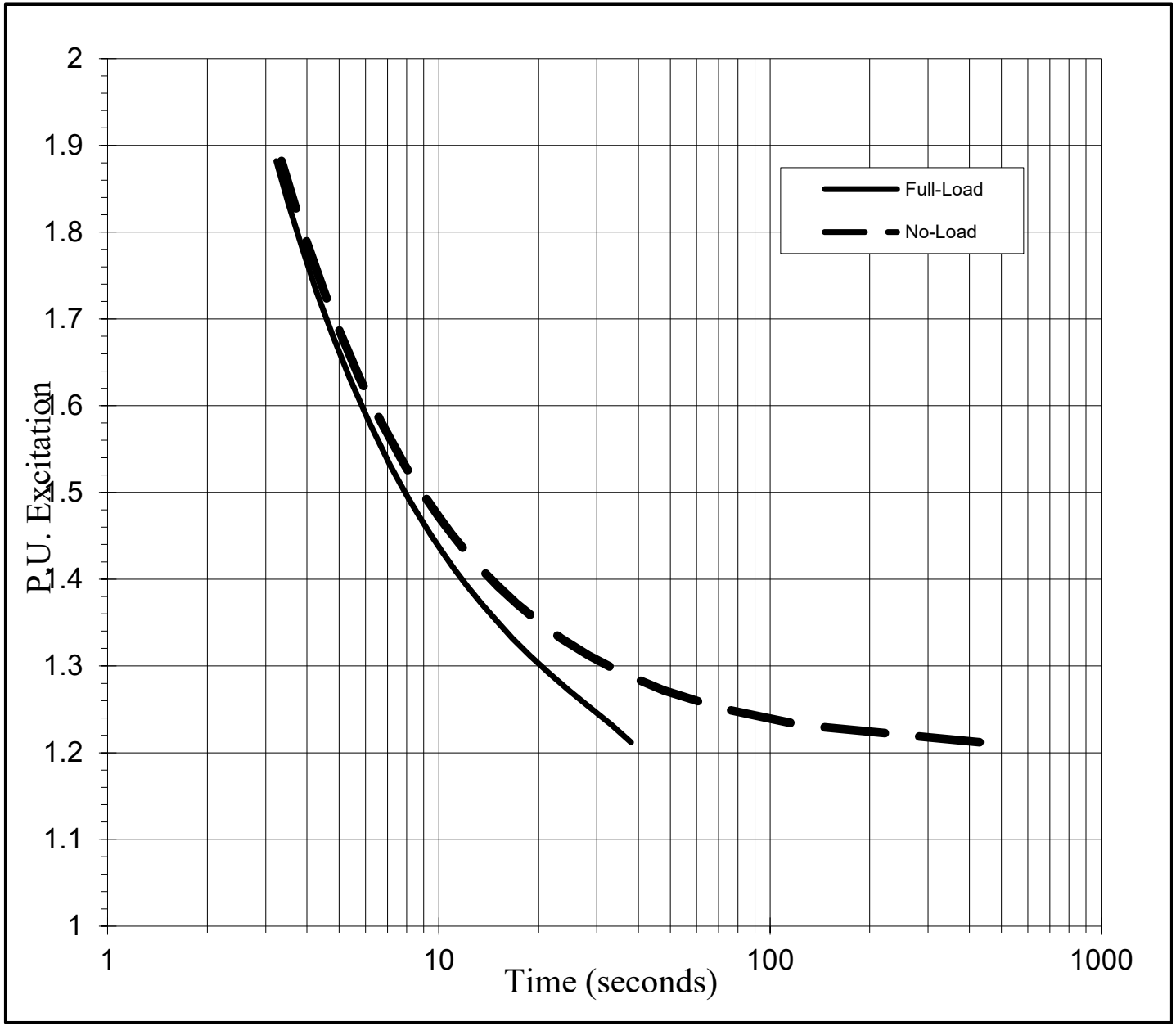
EFFICIENCIES (approximate)

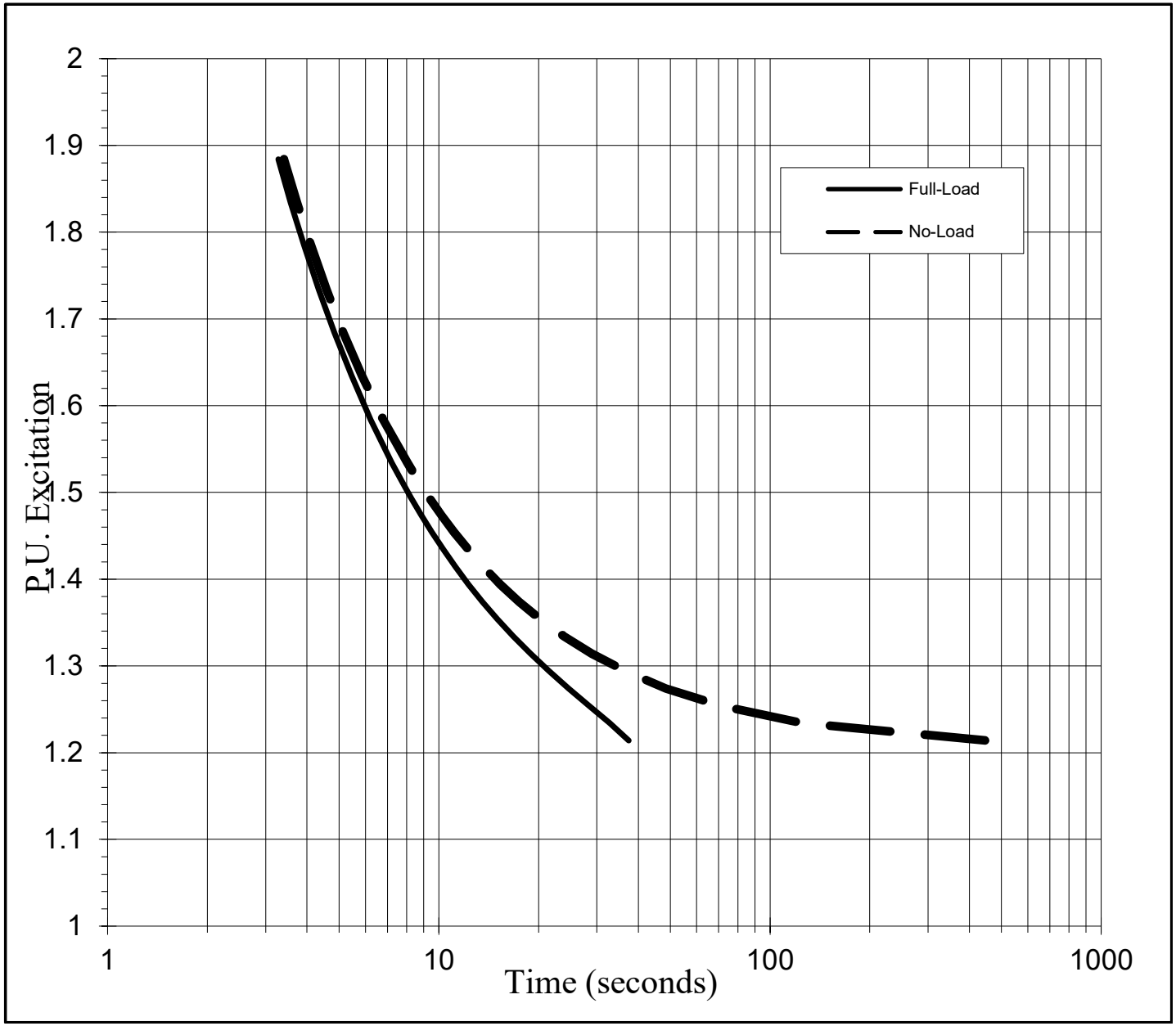
MVA Rating	1 1/4 Load	Full Load	3/4 Load	1/2 Load	1/4 Load
100	99.57 %	99.63 %	99.68 %	99.71 %	99.64 %
133.33	99.46 %	99.55 %	99.63 %	99.70 %	99.69 %

MECHANICAL DATA
Not For Construction Purposes

For dimensions please refer to attached drawing

Net Weight in		**lbs**
Core and Coils:		195,282
Tank and Fittings:		74,676
Liquid:	15768 U.S. Gal.	113,003
Total Weight:		382,961
Shipping Weight:		246,304


2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
P.U. Excitation
1
10
100
1000
Time (seconds)
Full-Load
No-Load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1.1
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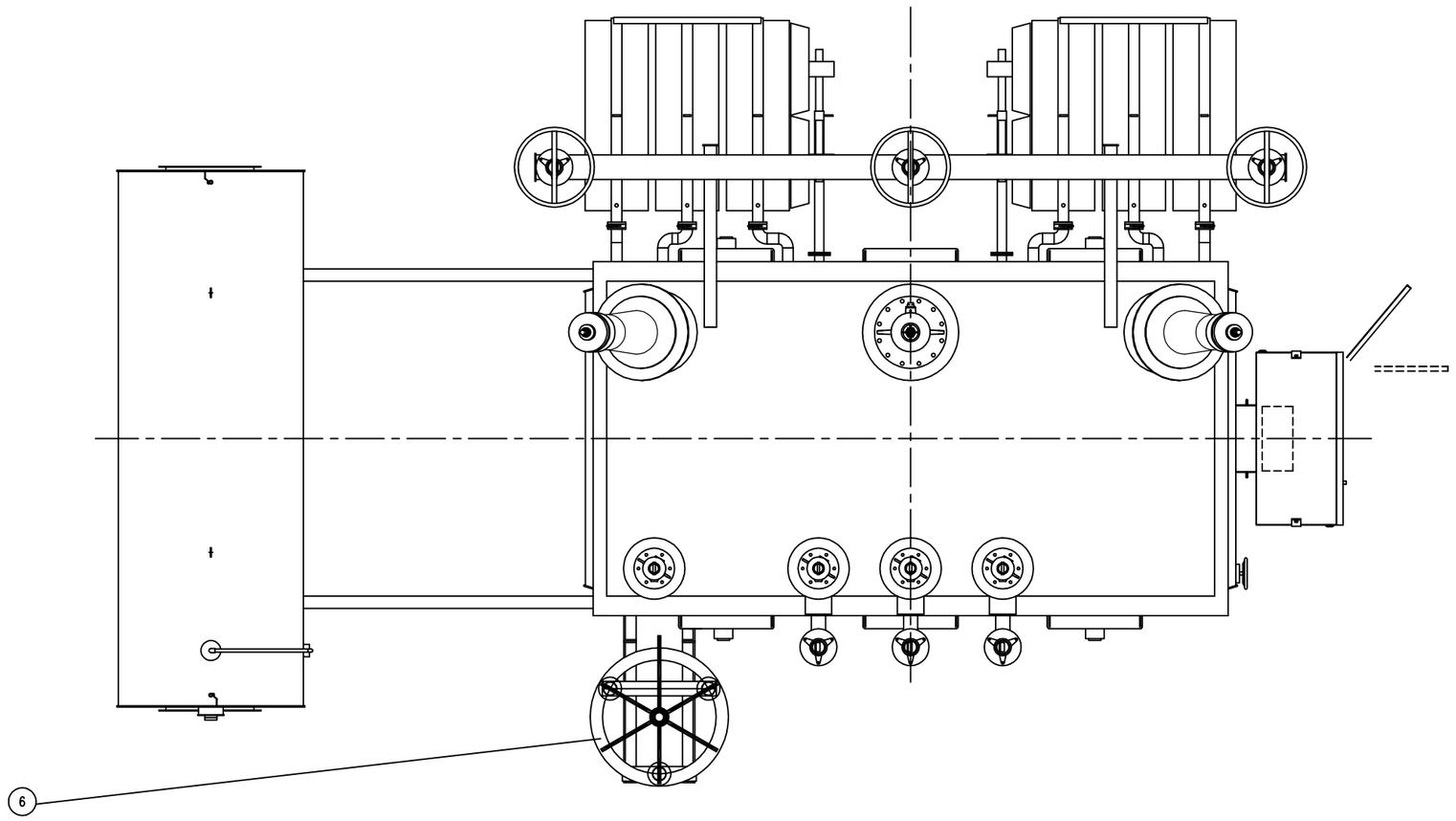
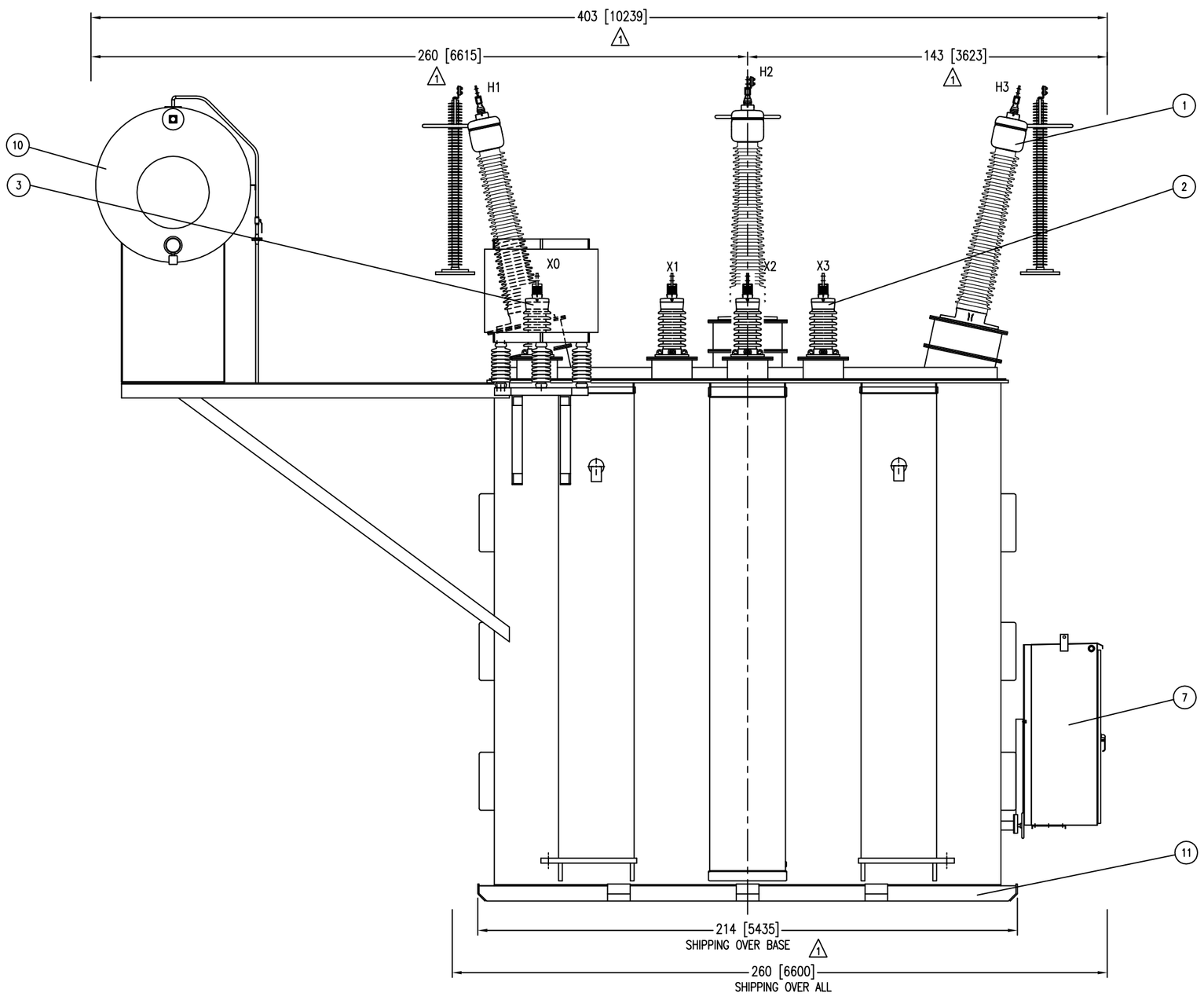
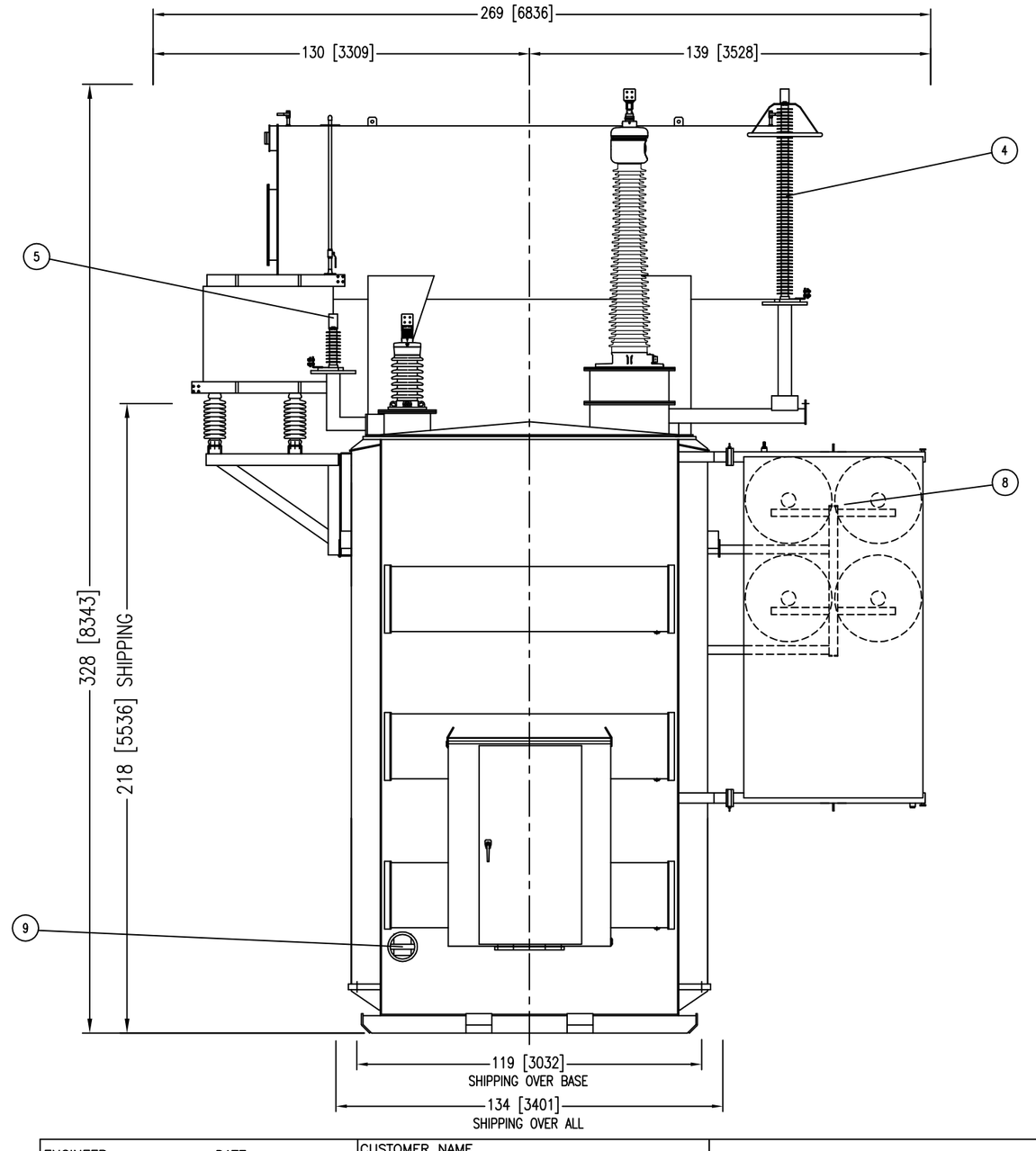
P.U. Excitation
1
10
100
1000
Time (seconds)
Full-Load
No-Load

DATE	BY	APP'D	REV	DESCRIPTION
JAN 6/2022	DU		1	CORRECTED SOME DIMENSIONS



1 HV BUSHINGS c/w 4 HOLE NEMA CONNECTOR
2 LV BUSHINGS c/w 4 HOLE NEMA CONNECTOR
3 XO BUSHING c/w 4 HOLE NEMA CONNECTOR
4 HV L/A'S AND SUPPORT
5 LV L/A'S AND SUPPORT
6 NEUTRAL GROUNDING REACTOR
7 CONTROL BOX
8 FANS & RADIATORS
9 OFF LOAD TAP SWITCH
10 CONSERVATOR – AIR CELL TYPE
11 SKID BASE





ENGINEER	DATE
DRAWN PB	DATE NOV.30/21
CHECKED	DATE
APP'D.	DATE

PTI TRANSFORMERS

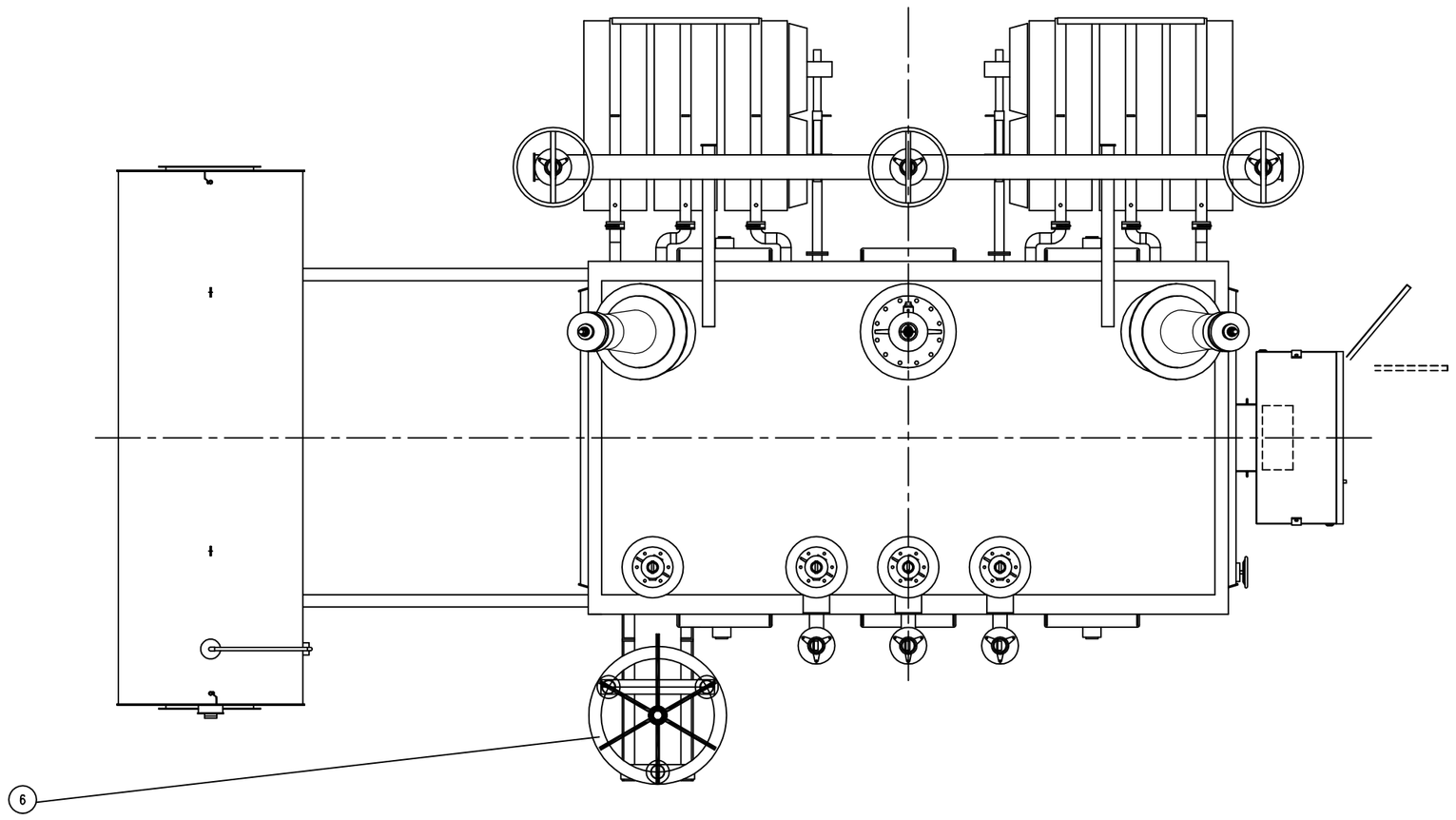
CUSTOMER NAME: JEA
QUOTE NUMBER: Q100478A
DELIVERY LOCATION: JACKSONVILLE ,FL

TITLE: QUOTE OUTLINE STEELBALD SUBSTATION

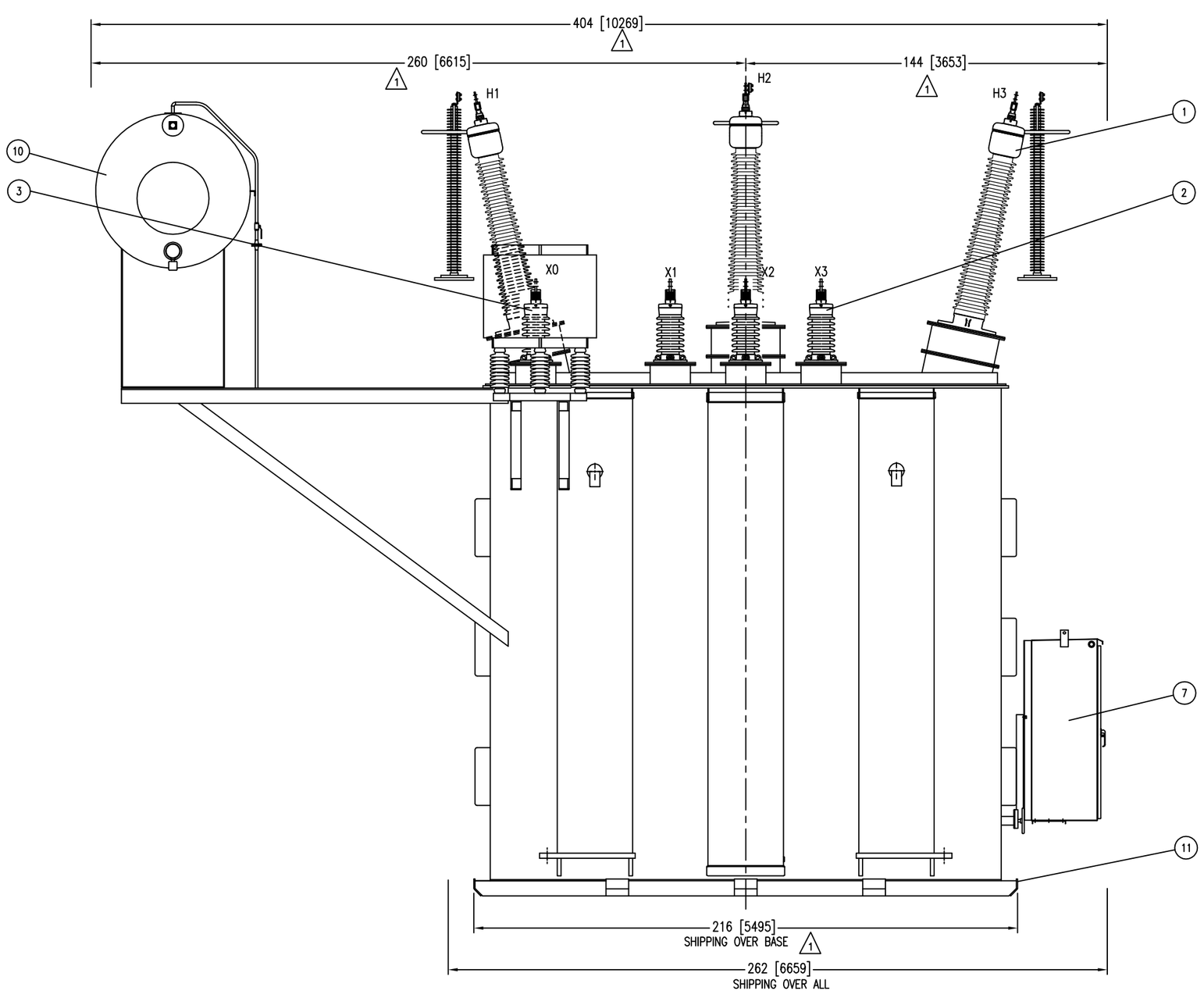
MVA 100//133
VOLTAGE 230 kVD/34.5 kVY
TYPE ONAN//ONAF
FILENAME ENG\ELEC\QUT\MECH\QUT2021\Q100478A

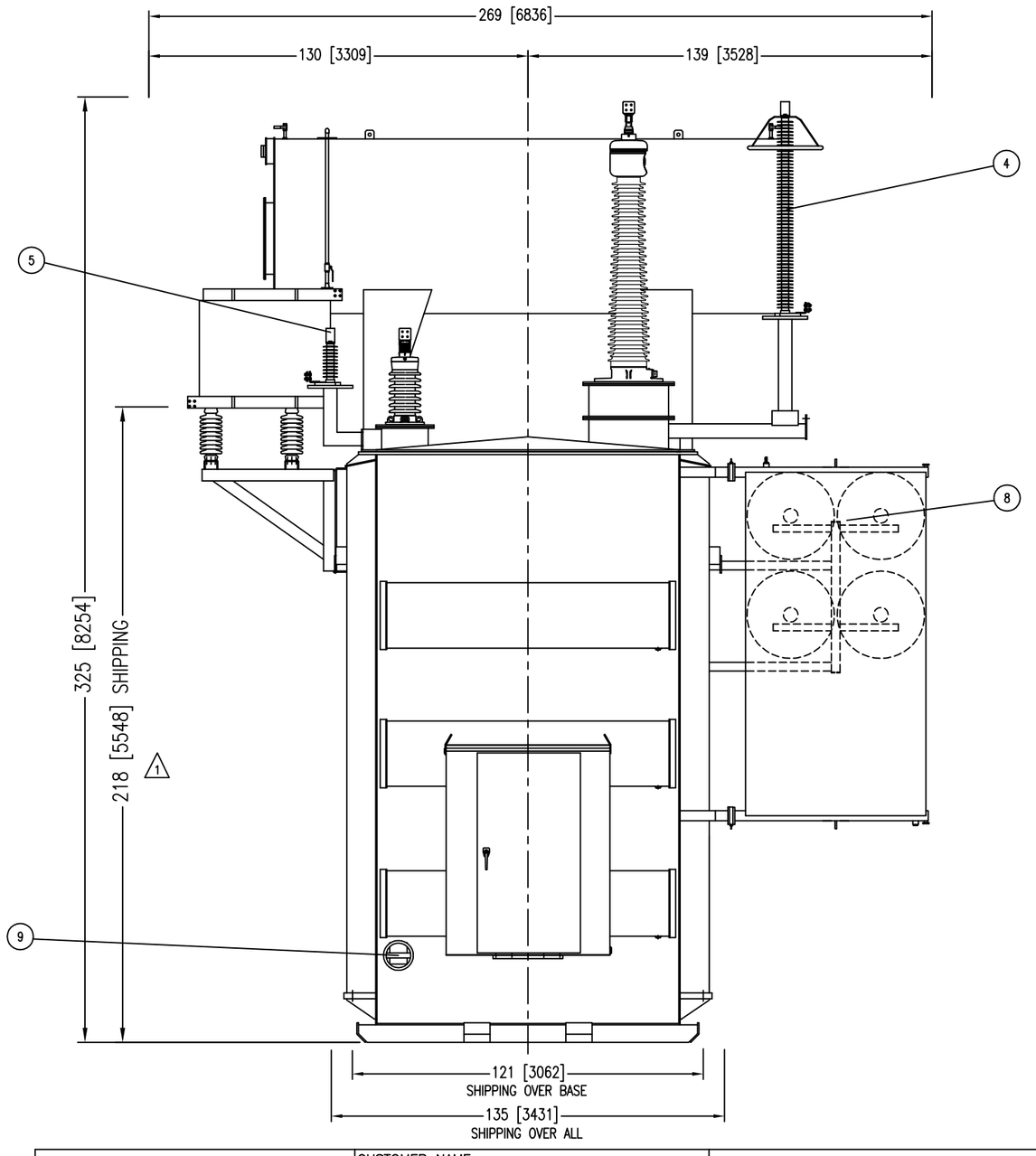
PLOT SCALE 1=65
PROJECTION THIRD ANGLE
PAGE 1 OF 1
DRAWING NUMBER 1601C3433A
REV. 1

DATE	BY	APP'D	REV	DESCRIPTION
JAN 6/2022	DU		1	CORRECTED SOME DIMENSIONS AND INCREASED SHIPPING HEIGHT



1 HV BUSHINGS c/w 4 HOLE NEMA CONNECTOR
2 LV BUSHINGS c/w 4 HOLE NEMA CONNECTOR
3 XO BUSHING c/w 4 HOLE NEMA CONNECTOR
4 HV L/A'S AND SUPPORT
5 LV L/A'S AND SUPPORT
6 NEUTRAL GROUNDING REACTOR
7 CONTROL BOX
8 FANS & RADIATORS
9 OFF LOAD TAP SWITCH
10 CONSERVATOR – AIR CELL TYPE
11 SKID BASE





ENGINEER	DATE
DRAWN PB	DATE DEC.1/21
CHECKED	DATE
APP'D.	DATE

PTI TRANSFORMERS

CUSTOMER NAME: JEA
QUOTE NUMBER: Q100478B
DELIVERY LOCATION: JACKSONVILLE ,FL

TITLE: QUOTE OUTLINE STEELBALD SUBSTATION

MVA 100//133
VOLTAGE 230 kVD/34.5 x 24 kVY
TYPE ONAN//ONAF
FILENAME MECH\QUOTE\2021\Q100478B

PLOT SCALE 1=65
PROJECTION THIRD ANGLE
PAGE 1 OF 1

DRAWING NUMBER 1601C3433B
REV. 1

SECTION 5: COMPANY PROFILE

PROFILE SHEET

COMPANY PROFILE ◊ PTI TRANSFORMERS LP

PTI is a **Canadian family-owned business that is financially sound**. PTI began, in 1989, as a small maintenance and repair shop and currently employs more than 330 people.

PTI has two (2) transformer facilities one (1) of which is located in Regina, Saskatchewan and one (1) in Winnipeg, Manitoba.

The Winnipeg, Manitoba, facility, **called PTI Transformers LP,** was purchased under a fixed asset deal in November 2015 from CG Power Systems Canada Inc. which included design technologies up to 525 kV and HVDC technology. The facility manufactures medium and large power transformers up to 750 MVA top rating, with primary voltage up to 525 kV and mobile substation up to 100 MVA ODAF, and primary voltage up to 230 kV.

PTI Transformers operated previously under brand-names CG Power Systems Canada, Pauwels and Federal Pioneer. The facility is known in the industry for having a very reliable **core designs** with an in-field failure rate that is **less than 0.01%**.

The 200,000 sq. ft. facility is state-of-the-art with environmentally controlled critical areas, such as the winding area and insulation area.

PTI Transformers is ISO 9001:2008 and ISO 14001:2004 certified.

The Regina facility manufactures liquid filled distribution, small and medium power transformers up to 40 MVA top rating with primary voltage up to 138 kV.

PTI, Regina, is ISO 9001:2008 certified.

PTI, Regina facility, developed a "Portable Outdoor Distribution Station", called POD's, through 145 kV, which allows our customers to significantly reduce construction and installation costs compared to building a conventional substation.

PRODUCT RANGE:

- ◊ Substation transformers
- ◊ GSU transformers
- ◊ Auto-transformers
- ◊ Phase shifting transformers
- ◊ Mobile substation transformer

- ◊ Primary voltage up to 525 kV
- ◊ Primary voltage up to 230 kV for mobile substations

- ◊ Up to 750 MVA top rating
- ◊ LTC & DETC

PTI Transformers LP ◊ 101 Rockman Street ◊ Winnipeg MB R3T 0LT ◊ T: 204-452-7446 ◊ F: 204-453-8644

PROFILE SHEET

PTI TRANSFORMERS

COMPANY PROFILE ◊ CORE COMPETENCY

The PTI Transformers medium and large power transformers as well as the mobile substations are designed and manufactured to meet or exceed the customer expectations while complying with the applicable industry standards.

All option and special features are incorporated into the original design per customer's specification.

LTC & DETC design is available as well as ONAN, ONAF, ODAF and ODWF cooling.

All standard accessories as per customers' specification are included.

Transformer Type	Rating*	Voltages		Phase
		HV	LV	
Substation transformers	Up to 750 MVA	Up to 525 kV	Up to 69 kV	1 or 3
Auto transformers	Up to 750 MVA	Up to 525 kV	Up to 345 kV	1 or 3
Generator Step-Up Transformers	Up to 750 MVA	Up to 525 kV	Up to 34.5 kV	1 or 3
Mobile substations	Up to 100 MVA	Up to 230 kV	Up to 115 kV	3

* Rating is top rating





PRODUCT RANGE:

- ◊ Substation transformers
- ◊ GSU transformers
- ◊ Auto-transformers
- ◊ Phase shifting transformers
- ◊ Mobile substation transformer

- ◊ Primary voltage up to 525 kV
- ◊ Primary voltage up to 230 kV for mobile substations

- ◊ Up to 750 MVA top rating
- ◊ LTC & DETC

PROFILE SHEET

COMPANY PROFILE ◊ LONGEVITY OF TRANSFORMERS THROUGH PD CONTROL

Utilities value assets, network reliability and safety. It is for this reason that **PTI Transformer's design and manufacturing of utility grade transformers**, (substation power transformers, auto-transformers and GSU transformers), are focused on having an **unmatched low partial discharge (PD) of less than 25pC, when subjected to the induced voltage test per IEEE standard C57.12.00 and C57.12.90.**

These IEEE standards prescribe a PD level of lower than 500pC. An upcoming reduction of allowable PD level to 300pC, is already being reflected in most of the utilities' specifications. This future acceptance level, i.e. 300pC, has long been adopted by PTI Transformers as **its internal manufacturing PD limit** for all power transformers manufactured.

PD is a major contributing factor in the degradation of any power transformer insulation, which ultimately leads to reduction of life expectation and ultimately to transformers failure, furthermore leading to a reduced grid reliability.

PD is an electrical discharge or spark that bridges a portion of the insulation between two conducting electrodes. It can occur at any point in the insulation system, where the electric field strength exceeds the breakdown strength of that portion of the insulating material. PD can occur in a gaseous, liquid or solid insulating medium. It often starts within gas voids; such as voids in insulation or bubbles in transformer oil. Protracted partial discharge can erode solid insulation and eventually lead to breakdown of insulation.

Testing PD as a standard practice, by all means, provides clear evidence that the transformer is fit for installing in a way that is not likely to lead to failure and will contribute to longevity.

Once PD activity is present, even if it is intermittent, damage will **always increase over time**, unless the cause of such source is corrected. The process of deterioration can propagate and develop, until the insulation is unable to withstand the electrical stress, leading to breakdown. PD activity is a clear indication that the transformer's insulation is deteriorating in a progressive manner, which will eventually result in it being unable to withstand the electrical stress, leading to insulation breakdown which may result in a catastrophic failure and finally lead to outages.

PD can usually be prevented through careful design and material selection. In critical high voltage equipment, the integrity of the insulation is confirmed using PD detection equipment during the manufacturing stage as well as periodically through the equipment's useful life. PD prevention and detection are essential to ensure reliable, long-term operation of high voltage equipment used by electric power utilities.

PTI Transformers, with decades of designing and manufacturing high voltage power transformers, has the necessary expertise in designing PD-free transformers, detecting and measuring PD activities.

PTI Transformers measures PD on **all power transformers it manufactures;** therefore, supplying specific untapped value to our customers and contributing to the **network reliability and safety**.

Measuring PD on a regular basis is important and is key, however, PD control starts with good design criteria for PD free condition, such as the limits for averaged and point stress (i.e. Weidmann criteria), avoiding sharp electrodes for each specific voltage class and capability to analyze complex geometries using 2D and 3D electric field solvers. Hence these are stringent design criteria that must be present at the manufacturer and more specifically in the manufacturing space itself. This must be considered when purchasing the transformer and should be questioned at time of evaluation.

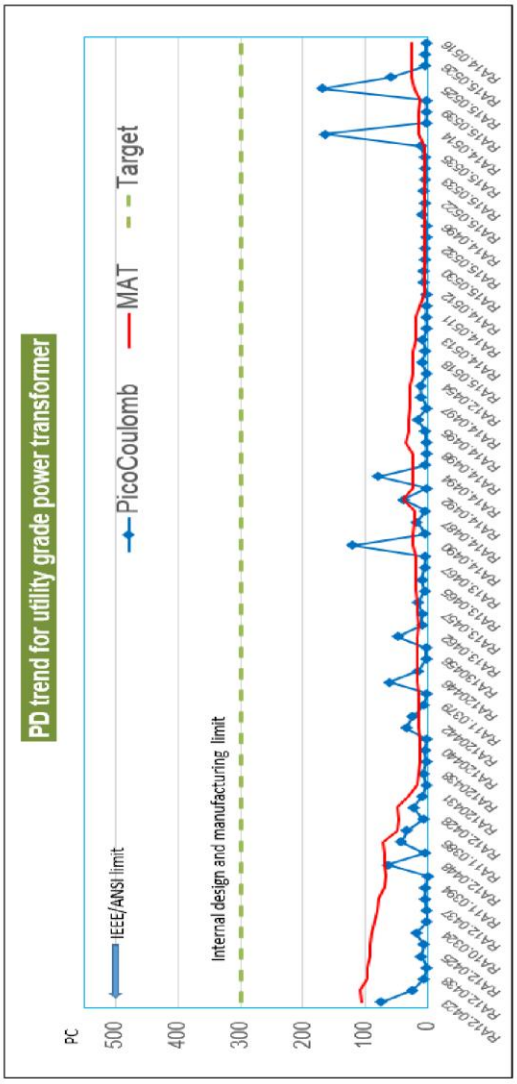
A PD-free design is not only driven by design, but also through stringent quality control of insulating materials, workmanship, cleanliness of work environment and moisture control in the manufacturing processes.

As indicated previously, power transformers are subjected to the induced voltage test per IEEE standard C57.12.00 and C57.12.90. with PD measurement prescribed.

Notwithstanding these standards **and self-imposed minimum PD levels**, the quality of our design guarantees longevity through even more stringent control of PD level on all power transformers manufactured.

Over the past recent period of one-hundred (100) transformers manufactured at PTI's Winnipeg facility, 90% tested at PD levels of less than 50pC, of which, the majority (94%) tested at 25pC or less.

The graph on the right demonstrates the results discussed in this profile sheet.



ENGINEERING INNOVATION ◊ 300 YEARS OF CUMULATIVE EXPERIENCE

PTI Transformers Engineering team has over 300 years of cumulative experience in design and development of transformers PTI Transformers is always very active in working together with lead customers on the development of new solutions in large power transformer engineering.

The progress in this area was achieved through:

(i) Pro-active **interpretation of customer's specification**, looking for most economical solution for the customer. As example – the customer was looking for design of a spare GSU for a few locations with different LV voltages and same HV voltage; the original specification called for reconnectable LV winding which at 600MVA power rating would extremely impractical; instead we proposed and developed with MR , Germany a new multi-position de-energized switch for HV side, which allowed to generate all required ranges of HV voltage with different supply voltage at LV terminals (with variable flux design) – see reference [5]

(ii) **Common research** with a power utility, also through University of Manitoba, Winnipeg, MB and Poznan University of Technology, Poland – see e.g. [2, 3, 6.7] Example - Study of transformers' operational problems with moisture ingress - see [4]

(iii) **Publication of recent achievements** in conference papers or international journals – see [1-14]

(iv) Participation in international **standardizing organizations** (IEEE, IEC) to promote implementation of solutions and new materials, e.g. in IEEE Standard C57.54 IEEE Standard for the Design, Testing, and Application of Liquid-Immersed Distribution, Power, and Regulating Transformers Using High-Temperature Insulation Systems and Operating at Elevated Temperatures (CG was represented by a few persons in the IEEE Working Group providing required input related to thermal performance and implementation of high temperature materials, such as aramid paper and board)

(v) **Knowledge sharing with customers** through seminars, e.g. Weidman seminars, IEEE tutorials, customized presentations to customers

(vi) In-depth **design reviews** with customer's consultant(s) before and after award of the contract to search for cost savings opportunities
As example – PTI developed a large phase-shifting transformer with both exiting and series units housed in one tank – this reduced the footprint of the unit in the station, simplified transport and allowed for easier operation of the unit – see ref. [8-9].

(vii) Contribution to development of **integrated design solution** to achieve optimized design with transient, thermal and short circuit strength verification

(viii) Expertise to design and manufacture **design solutions to special requirements of customer** like Mobile substations up to 230kV class, HVDC converter transformers, units with dual LV in zig-zag connection, GSU unit with 500kV-230kV reconnection, Universal spare GSU units with different LV voltages, Phase shifting transformers

(ix) **Collaborative design solutions** for site operation, e.g. Reverse power flow studies

References – selected literature on research performed by PTI Transformer LP:

1. W.Ziomek TRANSFORMER ELECTRICAL INSULATION (Editorial), IEEE Transactions on Dielectrics and Electrical Insulation, Vol.19, No6, December 2012

2. W.Sikorski, K.Siodla, W.Moranda, W.Ziomek LOCATION OF PARTIAL DISCHARGE SOURCES IN POWER TRANSFORMERS BASED ON ADVANCED AUSCULTATORY TECHNIQUE, IEEE Transactions on Dielectrics and Electrical Insulation, Vol.19, No6, December 2012
3. K.Ludwikowski, K.Siodla, W.Ziomek INVESTIGATION OF TRANSFORMER MODEL WINDING DEFORMATION USING SWEEP FREQUENCY RESPONSE ANALYSIS, IEEE Transactions on Dielectrics and Electrical Insulation, Vol.19, No6, December 2012
4. T.Kalicki, W.Ziomek MOISTURE IN HIGH VOLTAGE POWER TRANSFORMERS IN SERVICE, Spec. Edition of Journal ELEKTROTECHNIKA, Warsaw, Poland, 2010
5. K.Vijayan, W.Ziomek, J.Tennant UNIVERSAL SPARE GSU TRANSFORMER FOR ONTARIO POWER GENERATION INC OF CANADA, Conference TRAFOTECH 2010, India
6. W.Ziomek, W.Sikorski, K.Siodła, P.Staniek, E.Kuffel, LOCATION AND RECOGNITION OF PARTIAL DISCHARGE SOURCES IN A POWER TRANSFORMER USING ADVANCED ACOUSTIC EMISSION METHOD, Spec. Edition of Journal ELEKTROTECHNIKA, Warsaw, Poland, 2008
7. S.N.Fernando, M.R.Raghuveer, W.Ziomek OPTIMAL WAVELET SELECTION TO IDENTIFY FAULTS DURING IMPULSE TESTS, 2006 IEEE Conference on Electrical Insulation and Dielectric Phenomena, Oct. 2006, pp.77-80
8. W.Ziomek, K.Vijayan, W.Felber DEVELOPMENT OF PHASE SHIFTING TRANSFORMERS AT PAUWELS CANADA, Spec. Edition of Journal ELEKTROTECHNIKA, Warsaw, Poland, 2006
9. W.Ziomek, K.Vijayan, J.C.Garcia, W.Felber DEVELOPMENT OF PHASE SHIFTING TRANSFORMERS FOR SCOTTISH SOUTHERN ENERGY, Conference TRAFOTECH 2006, India
10. W.Ziomek, E.Kuffel, DESIGN OF INSULATION SYSTEM FOR LARGE POWER TRANSFORMERS, Spec. Edition of Journal ELEKTROTECHNIKA, Warsaw, Poland, 2004
11. S.N.Fernando, M.R.Raghuveer, W.Ziomek DETECTION OF TEMPORARY FAULTS DURING IMPULSE TESTS USING WAVELETS, IEEE Conference on Electrical Insulation and Dielectric Phenomena 2003, Annual Report 2003, pp.478-481
12. W.Ziomek, E.Kuffel, GAS INSULATED POWER TRANSFORMERS, Spec. Edition of Journal ELEKTROTECHNIKA, Warsaw, Poland, 2002
13. K.Siodla, W.Ziomek, E.Kuffel, THE VOLUME AND AREA EFFECT IN TRANSFORMER OIL , Conf. Record of the 2002 IEEE International Symposium on Electrical Insulation, Boston, USA, April 7-10, 2002
14. Kuffel E. Kuffel P, Ziomek W, NELSON RIVER HVDC POWER SYSTEM IN MANITOBA, Proc. of V Symposium on High Voltage Engineering, 19-22 May, 2000, Poznan-Kiekrz, Poland

PRODUCT RANGE:

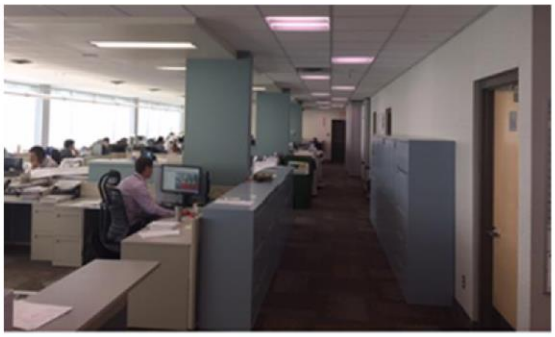
- ◊ Substation transformers
- ◊ GSU transformers
- ◊ Auto-transformers
- ◊ Phase shifting transformers
- ◊ Mobile substation transformer

- ◊ Primary voltage up to 525 kV
- ◊ Primary voltage up to 230 kV for mobile substations

- ◊ Up to 750 MVA top rating
- ◊ LTC & DETC

PROFILE SHEET

COMPANY PROFILE ◊ ENGINEERING



At PTI Transformers we realize that the design of power transformers, with primary voltage through 525 kV, requires a very high level of expertise which we have in-house

Our senior engineers are members of the IEEE and are active at various IEEE transformer working groups or committees and are experts on NEMA, IEEE/ANSI, CSA and IEC standards.

Our transformers are designed to the specifications and applications as per our customers' request.

Through special in-house developed software, we optimize every transformer in relation to labor and current material cost and loss evaluation together with eventual noise level restrictions imposed. We evaluate transformer behavior during short-circuit conditions, as well as the analysis of specific areas where high electrical stresses can occur during normal transformer operation. Part of our design verification is hinged on the calculation of distribution of voltage stresses during lightning impulse and switching surge conditions.

Should seismic calculation and withstand be required we can provide static or dynamic design evaluation to ensure the transformer will withstand the specified customer requirement.

The PTI Transformers LP engineering staff, entails a group of twenty-six (26) full-time engineers having a total of 336 years of experience.

Our engineer staff, members of the IEEE and CIGRE organization, are using robust and proven designs philosophies which in turn translates in an ultra-low in-filed failure rate of less than 0.01%. We are using 3D fabrication drawings to further reduce the first pass yield to industry standards.

Department	# of people	Avg. seniority	Total seniority
Mechanical engineering	14	13.33	186.62
Electrical engineering	10	6.29	62.90
Engineering management	2	43.50	87.00
Total years	26		336.52

Our senior engineers are well respected in the North American transformer market, below their biography:

Dr. Waldemar Ziomek – Engineering R & D Manager

Waldemar started in 1997 with Pauwels Canada Inc. as a design engineer and became in 1999 their Engineering Manager through 2014. Today, due to his vast experience he is the **Engineering R&D Manager at PTI Transformers.** He as a PhD, in EE, from the Poznan University of Technology specialized in Electric Power and High Voltage Engineering, as well as a MSC degree in Electric Machines and Apparatus.

As Manager of Engineering he designed the insulating structures as well as supervised designs and the manufacturing of 500+ power transformers between 1999 and 2014; entailing substation transformers, generator step-up transformers, auto-transformers, phase shifting transformers, and HVDC transformers. Although, PTI Transformers LP is not manufacturing transformers with a primary voltage up to 765 kV, he was part of the 765 kV development team.

He published over sixty (60) papers for various organization or institutions such as CIGRE and IEEE, this concerning

transformer insulation, vacuum insulation systems, gaseous dielectrics and discharge recognition methods.

He is a current member of the IEEE Power Engineering Society, Transformer Committee, IEEE standards association, CSA and CIGRE.

Currently he is also Adjunct Professor at the University of Manitoba.

Krishnamurthy Vijayan – Engineering Manager

From 1981 through 1989, Vijayan was the Senior Electrical Design Engineer at Crompton Greaves Ltda., India. From 1998 through 2001, he was the Engineering Design Manager at Crompton Greaves Ltda., India. He immigrated to Canada in 2001 as Senior Electrical Design Engineer for Pauwels Canada Inc./CG Power Systems Canada Inc. Vijayan was promoted to Head of Electrical Engineering with CG Power Systems Canada Inc. and promoted as Engineering Manager in 2014.

He has a Master of Engineering with specialization of High Voltage Engineering from the reputed University, Indian Institute of Science in India.

Although, PTI Transformers LP is not manufacturing transformers with a primary voltage up to 765 kV, Vijayan was part of the CG Power Systems, Hungary, 765 kV development team. He was also part of the development team for 1200kV auto-transformer by the CG group.

He was directly involved in the electrical design of 420 kV shunt reactors, 750 MVA top rating 3 ∅ auto-transformers, 200 MVA 1 ∅ generator step-up transformer, 650 MVA 3 ∅ generator step-up transformer, 200 MVA 3 ∅ phase shifting transformer as well as a 600 MVA 3 ∅ universal generator step-up transformer and not to forget the development of a 3 ∅ 230 kV mobile substation transformer.

He published over twelve (12) technical papers for various organization or institutions such as CIGRE and IEEE, this concerning Shunt reactors, Phase shifting transformers, Universal spare GSU transformers, Mobile substation, Smart transformers and Geomagnetic induced currents in transformers.

In short, Vijayan has over thirty-eight (38) years of large power, transformer, EHV shunt reactor, phase shifting and mobile transformer experience.

PRODUCT RANGE:

- ◊ Substation transformers
- ◊ GSU transformers
- ◊ Auto-transformers
- ◊ Phase shifting transformers
- ◊ Mobile substation transformer

- ◊ Primary voltage up to 525 kV
- ◊ Primary voltage up to 230 kV for mobile substations

- ◊ Up to 750 MVA top rating
- ◊ LTC & DETC

PROFILE SHEET

COMPANY PROFILE ◊ QUALITY MANAGEMENT SYSTEM

PTI Transformers LP is ISO 9001:2008 **certified** for **"power transformers up to 1,000 MVA, with a primary voltage class up to 765 kV and mobile transformers"**.

Our quality philosophy is:

- To provide best in-class power systems of exceptional quality and productivity
- To be a customer-focused organization through the translating customer requirements into world class power systems
- To foster a creative work environment that promotes employee innovation, development, and engagement
- To continue improve our operations, systems and productivities
- To develop and sustain and exceptional supply chain network that delivers quality products and services every time, through a mutual beneficial customer supplier relationship

On a periodically basis, as prescribed by the quality manual, reviews at the level of management are made to evaluate key performance factors related to the quality policy and quality objectives, which are shared through the organization in words and in action. This review process is described in detail in the controlled quality manual and this for all level of the organization; hence we are truly a made-to-order organization. Not only do we focus on in-house control PTI Transformers, through internal audits, customer satisfaction is of paramount importance and is the primary responsibility of each employee; hence on regular basis customer surveys are conducted to analyze the effectiveness of our quality management systems.

Each of all quality management processes are monitored and measured by the respective process owners through through their selected Key Performance Indicators (KPI's). Process owners must select KPI's that allow them to monitor their process or department's performance, and to be able to react where corrections or improvement are required to adhere to adhere to the quality objectives set. Measurement of success and failure is contribution to PTI Transformers LP success as a first-class large power transformer supplier.

The success of PTI Transformer's quality process control is hinged on the following corner-stone procedure; and these are:

- **Control of documents procedure** – to establish and maintain a process for review, approval, distribution and control of all essential documents related to ISO 9001 Quality Management Systems (QMS) and ISO 14000 Environmental Management System (EMS).
- **Sales procedure** – to establish and maintain a process for all request for quotations within the organizations and provide guidance of execution though flow chart control.
- **Design procedure** – to establish and maintain a process for all quotation design with the design tools in place through flow chart control.
- **Manufacturing procedure** – establishes a well-documented manufacturing procedures and work instructions for all of our fabrication and manufacturing processes, including collection of relevant manufacturing data.
- **Contract administration procedure** – to establish and maintain the contract administration function within the organization and to provide guidance through flow-chart control.
- **Scheduling procedure** – to establish and maintain a process for scheduling through the organization and at all levels of the organization and to provide guidance through flow-chart control.

- **Design-to-order procedure** – to establish and maintain a design process for transformers orders within the engineering department and to provide guidance through flow-chart control.
- **Manufacturing procedure** –
- **Inspection and testing procedure** – to establish and maintain a process for inspection and testing process for all products manufactured at PTI Transformers LP
- **Getting ready for transportation** – to establish and maintain a process for testing the product and all associated parts and preparing it for shipment to defined location as specified in the customer's contract.
- **Shipping and invoicing** – to establish and maintain a process for shipping and invoicing for the product manufactured by PTI Transformers LP.

PTI Transformer's objective is well defined in our QMS and are solely related to ensure that the **manufactured products perform safely and reliably, meeting the requirements specified by its customers and providing excellent life cycle value; while considering that for the most part people are driving the quality of organization and products supplied.**

Therefore, we measure success and failure within the PTI Transformers organization as defined in the QMS manual, these are:

- **Continual improvement** – to establish and maintain continual improvement processes throughout the organization
- **Preventative action** – to establish and maintain a process to induce preventive action processes throughout the organization to identify and eliminate the causes of potential nonconformities to prevent their occurrences
- **Control of non-conformances** – to establish and maintain as process for identification, segregation and disposition of non-conformances of the product manufactured to further prevent its unintended use of delivery

The continual improvement processes include the monthly measurement of:

- First pass yield
- In-field failures
- Cost of poor quality (COPQ) as a percentage of net sales
- Efficiency in production as a measure of throughput time
- EHS
- Quality of supply
- Inventory control

The PTI Transformers QMS and EHS program is geared towards safe operation of the product manufactured as customers are depending on high quality products to contribute greatly to the stability of their grid system in various shapes and forms. Indeed, the PTI Transformers power transformers are in fact an investment in our technology that needs to be secured for decades. Our customer's investment is secured through our processes implemented therefore inducing consistent quality of the product and its vital parts.

PTI Transformers LP does not compromise on quality; this through systems put in place and rigorous acceptance testing which ultimately has resulted in an "in-field failure rate of less than 0.01%".

PRODUCT RANGE:

- ◊ Substation transformers
- ◊ GSU transformers
- ◊ Auto-transformers
- ◊ Phase shifting transformers
- ◊ Mobile substation transformer

- ◊ Primary voltage up to 525 kV
- ◊ Primary voltage up to 230 kV for mobile substations

- ◊ Up to 750 MVA top rating
- ◊ LTC & DETC

PROFILE SHEET

TRANSFORMERS

COMPANY PROFILE ◊ CORE CONSTRUCTION

PTI Transformers medium and large, power transformers are always **core form** design, two (2) legged, three (3) legged or five (5) legged depending on customer requirement and application.

All cores are of circular cross section, step-lapped design with fully mitered corner joints to minimize core loss, coated with carlite to increase the interlamination resistance and to reduce eddy current and reduce sound level.

Computer controlled core shears accurately cut mitered laminations using the fully automated Georg 1000 core cutting machine. Once stacked, the exposed core edges are coated with low viscosity high tensile strength epoxy resin, which penetrates and bonds the laminations.

Our cores are carefully designed to limit core surface temperatures and leakage fluxes, and are constructed **without** through-bolts to eliminate a potential source of overheating. Core legs are additionally bonded with fiber-glass reinforced bands. Based on design, core top yoke is bonded with Nomex®/Kevlar® bands for mechanical integrity.

Where loss evaluations justify its use, core steel used is high grade, non-aging, grain-oriented, electrical silicon steel of low hysteresis loss and high permeability; hence we select M4-grade and laser-scribed steel.

We only use step-lap core principle to reduce losses, magnetizing current and sound level. The cores are fully-mitered on all joints in order to improve the flux distribution.

The laminations are stacked in steps, resulting in a circular core shape which gives the windings optimum radial support, especially during short-circuit conditions. The temperature rise of the core is designed to be low and is controlled. If required by design, and customer requirement, vertical oil ducts are placed within the core packets.

The core is clamped using structural steel clamps which provide high strength under both static (lifting and clamping) and dynamic (short-circuit) mechanical loads. The clamps are very lightweight for their strength and provide a smooth surface facing the winding ends, eliminating regions of high local electrical stress.

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PROFILE SHEET

COMPANY PROFILE ◊ WINDINGS

Windings are of the circular concentric type, because this shape results in the highest short-circuit strength and provides excellent cooling performance with natural or forced oil flow. The copper conductors are paper covered magnet wire (single, twin, or triple), or continuously transposed cable and designed to optimize eddy loss and withstand anticipated short circuit forces. Low-voltage windings are made with netting tape/perforated Nomex® insulation for better thermal performance. The inner windings are designed to withstand inward radial forces based on ability of conductor to resist forces in a "free-buckling" mode. All the CTC conductors are epoxy bonded for high mechanical strength. High voltage windings are designed with special shielded windings without any joints for better impulse strength. Custom designed static rings are normally used to control the electric field at the ends of windings.

Insulation materials are made from pre-compressed boards of high mechanical and electrical strength. Insulating material is cut to size. End blocks and supporting structures are fabricated in the plant insulation shop or by PTI Transformers LP approved insulation manufacturers. All angle rings and caps are made of molded pressboard, with contoured profiles, in order to increase the dielectric withstand.

Directed oil flow is typically used to provide enhanced cooling and to limit hot spot temperatures. The oil flow washers/seals direct the oil flow in a zigzag pattern through the windings to provide effective cooling. For the units with forced cooling the oil from pumps is directed into the windings (ODAF) where oil enters through the oil holes in the bottom insulation; it is distributed through the oil reservoir into all windings, continues throughout the winding in zigzag pattern and leaves the coil assembly at the top. This system is superior to the OFAF method in which the oil is pumped into the tank, cooling only the bulk volume of oil and not the oil in the windings.
After the individual coils are wound, they are initially sized, dried in the auto clave vacuum oven, and then sized again with a clamping pressure of 600psi (4 N/mm2). Critical windings are sized under spring pressure. After drying, they are sized to the required axial height to ensure short circuit performance. The coils are combined together into the coil assembly and then completed with end insulation. The coil assembly is next compressed to ensure correct positions of all windings within the coil assembly. The Winding area has been completely refurbished to isolate the department and provide a dust free environment. Positive air pressure is maintained by filtered air make-up units to ensure that positive air flow is provided in the shop. This air flow minimizes the intake of non-filtered air through open doors etc. and ensures that air-borne contaminants are kept to a reduced to a level that will ensure a clean production environment.

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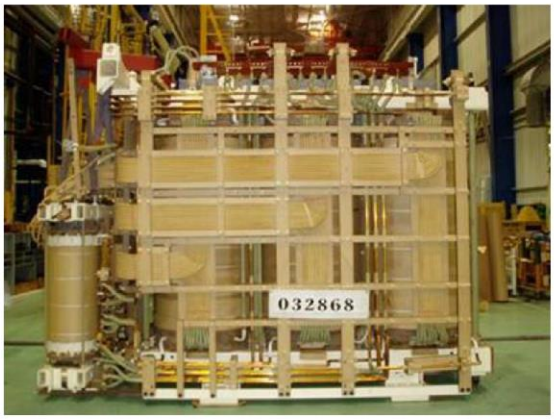
PTI TRANSFORMERS PROFILE SHEET

COMPANY PROFILE ◊ CORE & COILS ASSEMBLY



Prefabricated coil to clamp insulation is fitted on the bottom clamps prior to placing the coil assemblies concentrically on the core legs. The major insulation is usually of rigid form. It is prefabricated in a specially designated insulation area, isolated from other departments to provide carefully controlled clean and dry manufacturing and storage environment.

After the coils are lowered into place, the top pre-fabricated coil to clamp insulation is placed in position and the top yoke of core steel and box clamp are added. The coils are clamped axially by tie rods, or tie-plates, made of high tensile strength steel, as required by design. The core clamps and tie rods (or tie-plates) are designed so that the coils cannot shift during shipment and can withstand the maximum forces that may develop under short circuit conditions.

All leads and bus-bars are rigidly supported to withstand shipping and short circuit forces. Supports are made of high density pressboard with specially developed fiber-glass reinforced epoxy hardware.

All steel projections are located in areas of low electrical stress and, where necessary, high voltage leads are insulated using contoured insulation or shielded by metal tubes to minimize the local electrical stresses. The core & coils assembly is thoroughly inspected before it goes into the vapor phase process.

During the manufacture of HVDC units, a clean room is utilized to minimize the opportunity for active part contamination. The structure is erected in the assembly area and positive air flow provided through portable air filters. Employees are required to dress in lint free coveralls and entrance to the area is controlled and limited only to employees involved in the project and fully compliant with clean room procedures.

PTI Transformers LP core and coils are of robust quality and design, which ultimately has resulted in an "in-field failure rate of less than 0.01%".

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PROFILE SHEET

TRANSFORMERS

COMPANY PROFILE ◊ VAPOR-PHASE PROCESSING

Increasing quality requirements demand a more and more careful treatment under vacuum. After the initially applied technologies such as the hot-air circulation process, the vapor-phase drying process nowadays is the most efficient method to treat power transformers. At PTI Transformers LP we use a Hedrich system, 400 kW, cascade evaporator.

The completed core and coil assembly is thoroughly dried by the vapor-phase drying process to achieve the predetermined parameters, such dew point and water content in cellulose insulation (less than 0.3% moisture content in insulation).

The core and coil assembly is heated to 50C, by injecting kerosene vapor into the autoclave; afterwards the autoclave internal pressure is lowered to 35mbar for 2 hours. Then kerosene vapor is injected again and the core and coil assembly is now raised to a temperature 85C with a vacuum to 30mbar and this for 2 hours. A new kerosene vapor cycle is introduced now with the core and coil assembly reaching a temperature of 110C with vacuum to 30mbar for 2 hours. At the final heating cycle the core and coil assembly is raised to 120C and the autoclave internal pressure is then lowered to 25mbar for 1 hour. The chamber is then placed under fine vacuum; minimum end criteria for vacuum is 0.15mbar or less for a minimum of 3 hours with all other process parameters met.

The core and coil assembly must be at a minimum temperature of 115C at the end of the fine vacuum cycle and water extraction rate must be 14 g/hr/tonne. Only then these parameters together give an insulation moisture level of 0.3% or less as required.

The vapor phase is a fully automated machine with 24 hours fully automated monitoring and logging.

As the environment in the autoclave is essentially oxygen free, temperature reaching 120ºC can be utilized without damage to the insulation or loss of life.

After the core and coil assembly is removed from the autoclave, the assembly is completely retightened, while hot, to take up all shrinkage, then cleaned, inspected, and promptly tanked within the times set by design.

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PTI TRANSFORMERS

PROFILE SHEET

COMPANY PROFILE ◊ TANK MANUFACTURE

Transformer tanks are constructed of mild-steel and designed to withstand normal operating conditions, application full vacuum, lifting, jacking, and skidding.

The completed tank and accessories are abrasive blasted to remove all mill scale and contaminants, and coated with a robust plural component coating system that exceeds IEEE recommended performance standards.

Adequate facilities are provided on the tank for lifting, jacking and pulling, as per CSA, IEEE/ANSI or even IEC. Openings in the cover are formed by raised flanges designed so that the fasteners do not extend through the cover. Hand-holes and/or manholes are provided for easy access to the active assembly within the tank, access to internal bushing connections etc. Tank bases are made from structural shapes or thickened base plates.

PTI Transformers is Canadian Welding Bureau certified for welding design, practices and procedures. Only CWB or AWS certified fabrication shops are employed for metal fabrication. Only AWS or CWB prequalified joints are utilized. The tank corner joint design is a tee-joint with a double fillet weld (one fillet on each side of the plate). As only CWB or AWS certified fabrication shops are employed, all welds are performed to qualified procedures by qualified welders.

The tee-joint corner design of the tanks allows for a flexible joint and increases the rupture resistance of the tank due to possible internal fault. This tank corner welding procedure has been our standard since the early 1970's and no field issues where reported with respect to tanks leaking at the corner joints.

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PROFILE SHEET

COMPANY PROFILE ◊ TESTING

Prior to shipment, all transformers manufactured by PTI Transformers LP are tested in accordance with the latest applicable IEEE/ANSI and CSA standards and customer specifications.

All industry standard and optional tests with the exception of short-circuit tests, are performed in-house at PTI Transformers LP We have well trained personnel and utilize accurate, certified and modern test equipment.

The results of all tests are provided in a certified test report.

PTI Transformers LP performs the tests as listed in IEEE/ANSI C57.12.90 and CAN/CSA-C88-M90.

The PTI Transformers LP are tested as follows:

Performance tests:

- Ratio test
- No load loss and % excitation current before and after dielectric tests
- Load loss and % impedance
- Zero sequence impedance

Dielectric tests:

- Lightning impulse test include full wave and chopped wave impulse.
- Switching Impulse
- Applied voltage test
- Induced overvoltage with partial discharge measurement (3 phase or 1 Phase)

Thermal test:

- Winding resistance
- Heat run test
- Over load heat run
- Dissolved gas analysis (DGA)
- Thermal scan on transformer tank.

Other tests:

- Insulation capacitance and power factor test on windings and bushings.
- 10 kV excitation current
- Sound level test
- Megger - Insulation resistance (IR) and polarization index (PI) of winding.
- Megger for core, clamp and ground.
- Recurrent surge test – only done on new, critical or if specified be customer.
- CT test – ratio, excitation, polarity, resistance and knee point voltage.
- On load tap changer test for rated voltage and current.
- Magnetic balance test
- Vector group and polarity.
- The control test on auxiliary equipment.

In process test:

These tests are done during the manufacturing process on core and coil assembly of transformer.

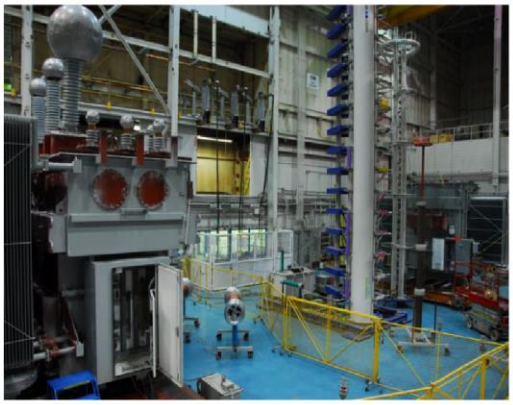
- Core insulation tests.
- Pre-lead assembly ratio test.
- Winding resistance (optional).

Prior to shipment, and upon customer's request, PTI Transformers LP can do a frequency response analysis (often referred to as FRA or SFRA) which is a powerful and sensitive method for

testing the mechanical integrity of transformer cores, windings, and press frames, in power transformers.

SFRA creates a so-called **"fingerprint"** of the power transformer. Comparing the measurements taken at various phases or on multiple identical transformers, as well as comparing measurements with the former fingerprint of the same transformer, provide indications of any mechanical or electrical changes after the transformer has been delivered to site.

PTI Transformers recommend testing the frequency response particularly after transporting transformers and after faults at high currents have occurred and compare these with one done prior shipment.



PTI Transformers is equipped with a state-of-the-art digital impulse recording system. The Haefely-Trench impulse system (HAIS) with 16 stages impulse voltage generator of capacity 3200kV and 320 kJ, provides the most accurate analysis of impulse results available today. The electronic recording of the impulse current and voltage waveforms allows quick mathematical comparisons to be made, including the difference between the two waveforms under scrutiny. Accurate printed and plotted final results are quickly available.

For chopped wave tests, a five-stage, 15 gaps, 3000 kV multiple chopping gap is used. The PTI Transformers test bay is capable of performing lightning impulse with chopping and switching impulse tests as per customer requirement and international standards.

For induced testing, a variable voltage alternator, rated 8.66kV, 100 Amps, 3/1-phase, 50 to 240 Hz, is used and solid state speed control of the 1000 HP, DC driving motor with DC voltage 527-700 volts. In the induced potential test, partial discharge (pC) and RIV (µV) measurements are done with omicron MPD 600 High-end partial discharge measurement system with 6 channel output, it is the best partial discharge measurement and analysis equipment available across the industry.

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PROFILE SHEET

COMPANY PROFILE ◊ PACKING, SHIPPING & LOGISTICS

Medium and large power transformers by their size and weight are challenging to ship. The plant is ideally located to take advantage of both highway and rail links to major transportation arteries in North America. This allows PTI Transformers to ship transformers units to the four corners of the content. PTI Transformers has significant experience in the transportation of large power transformers which reduces the risk of transportation damage for our customer.

We are able to coordinate all of our customer's logistics requirements from a single point of contact (SPOC). PTI Transformer's shipping department can make arrangements for customer's units to be shipped by rail, track, ship or any combination. We will also coordinate the offloading of the unit at the site or storage area and moving the unit to its final location.

We use reputable specialty carries for our trucking requirements and utilize local logistics agencies to establish permits for long haul truck shipments from the plant. Our facility has a railway spur which enters the main building on the east side and allows our staff to load a transformer directly onto the railcar inside the factory.

Our shipping department transports all of the parts and spare parts for the unit to the site or a location of the customer's choosing. These parts are coordinated to meet the transformer at the site to ensure the economic off-loading of parts and the transformer at the same time.

We use the latest digital sensors and GPS technology to monitor the shipping process while the transformer is on the move. Each transformer can be equipped with digital impact monitor and/or GOS tracing system. This allows PTI Transformers LP to assess whether there were any anomalies during the shipping of the unit and whether there were any impacts that could affect the quality of the product. The GPS tracking system allows us to track the process of the unit in real time and if there are any anomalies in the impact recorder, they can be coordinated with the GPS information after the fact to determine where and when the anomaly took place.

All of the activities related to packing and shipping are controlled by written/illustrated procedures to ensure consistency and conformance to requirements. These procedures are available at the plant for audit at a time convenient to our customers.

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PROFILE SHEET

TRANSFORMERS

COMPANY PROFILE ◊ AFTER SALES SERVICE

PTI Transformer LP's professional service group is ready and capable to fulfill all the after sales service requirements you may have.

Our transformer service group consist of five (5) experienced technicians; fully qualified and safety certified to dress-out large power transformers with primary voltages up to 525 kV.

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PTI Transformer's service team carry-out on-site inspections, diagnostics and maintenance activities in addition to on-site refurbishments and repair work.

We have the expertise to perform all required activities on power transformers and load tap changers as follows:

- **Installations and relocations**
  - New transformer installs and testing
  - Existing transformer relocation
  - Commissioning and start-up
- **Repairs and refurbishment**
  - Radiator/Cooler replacements
  - Gasket replacement & leak repair
  - Cleaning and painting
  - LTC and DETC refurbishment
  - HV & LV bushing refurbishment
  - Control box refurbishment
- **Transformer enhancement and improvement**
  - Cooling upgrades
  - Breather upgrades
  - Controls upgrade
  - LTC & DETC upgrades
  - Gauges & probes upgrade
  - Pressure relief device conversions and ducting

In addition to providing the above mentioned services, PTI Transformers also provides OEM spare parts such as buchholz relay, radiators, WTI/OTI, fans, pumps, bushings, gauges or any other related LTC transformer accessory.

We provide on-site transformer consulting, including surveys, commissioning, internal & external transformer inspections, oil testing and training where required.

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SECTION 6: ADDITIONAL INFORMATION

- Reference List
- Short Circuit Capability
- Approved List of Vendors for PTI Manitoba Inc.
- W-8BEN-E instead of W-9
- Certificate of Insurance
- ISO Certificates
- Paint Specification
- Transformer Oil Data Sheet

PTI TRANSFORMERS - REFERENCE LIST - 3 PHASE POWER TRANSFORMERS

Ship Year	Customer	Base MVA	Top MVA	HV KV	LV KV	HV BIL KV
2023	Manitoba Hydro	57	95	230	66	900
2023	Manitoba Hydro	57	95	230	66	900
2022	Stelco	60	112	230	14.4	900
2022	Fortis BC	120	200	230	138	900
2022	Manitoba Hydro	84	140	230	66	900
2021	ENEL Green Power North America	112	140	345	34.5	1050
2021	ENEL Green Power North America	112	190	345	34.5	1050
2021	ENEL Green Power North America	112	190	345	34.5	1050
2021	Algonquin Power	120	200	230	34.5	1050
2020	Blue Earth Renewables	90	150	240	34.5	900
2020	Blue Earth Renewables	90	150	240	34.5	900
2021	Hydro Ottawa	60	100	230	27.6	900
2023	Saskpower (EB Campbell Unit #4)	75	100	230	14.4	950
2022	Saskpower (EB Campbell Unit #3)	75	100	230	14.4	950
2021	Saskpower (EB Campbell Unit #2)	75	100	230	14.4	950
2020	Saskpower (EB Campbell Unit #1)	75	100	230	14.4	950
2021	Capital Power	100	167	240	34.5	950
2017	RES Construction	116	192	345	34.5	650
2018	Veridian Connections	75	125	215.5	28	975
2018	Veridian Connections	75	125	215.5	28	975
2018	Veridian Connections	75	125	215.5	28	975
2017	Capital Power	100	167	240	34.5	950
2017	Capital Power	60	100	161	34.5	750
2017	Black & McDonald	66	110	240	34.5	1050
2016	Blattner Energy (Electra)	67	112	345	34.5	1050
2016	POWER STREAM INC.	75	125	215.5	28	950
2016	POWER STREAM INC.	75	125	215.5	28	950
2015	WANZEK CONSTRUCTION INC.	102	170	230	34.5	750
2015	BLATTNER ENERGY INC (Mustang)	68	112	230	34.5	750
2015	Blattner Energy (Horse Creek)	87	145	345	34.5	1050
2015	MINNESOTA POWER	100	167	230	115	900
2015	MINNESOTA POWER	100	167	230	115	900
2015	Geronimo Energy (Odell)	107	180	345	115	1050
2015	Blattner Energy Inc	116	192	345	34.5	1050
2015	Blattner Energy Inc	71	118	230	34.5	825
2014	Blattner (Roosevelt)	83	139	345	34.5	1050
2014	Oakville Hydro	75	125	215.5	28	975
2014	Oakville Hydro	75	125	215.5	28	975
2014	Blattner (Antelope)	116	192	345	34.5	650
2014	GERONIMO WIND ENERGY	72	120	345	34.5	1050
2014	GERONIMO WIND ENERGY	72	120	345	34.5	1050
2014	GERONIMO WIND ENERGY	72	120	345	34.5	1050
2014	GERONIMO WIND ENERGY	72	120	345	34.5	1050
2013	Luna Diversified	120	200	230	115	900
2012	Invenergy LLC	100	167	230	34.5	950

2012	Invenergy LLC	100	167	230	34.5	950
2012	Hydro One - Brampton	75	125	215.5	28	950
2012	Sask Power	144	192	230	16	1050
2012	Minnesota Power	90	150	230	34.5	900
2012	Minnesota Power	90	150	230	34.5	900
2012	MidAmerican Energy	75	125	161	69	650
2012	MidAmerican Energy	108	180	345	34.5	1050
2012	MidAmerican Energy	75	125	161	69	650
2011	MidAmerican Energy	75	125	161	69	650
2015	Otter Tail Power Company	84	140	230	115	900
2010	National Electric Systems Inc.	90	150	230	115	900
2010	Areva T&D	60	100	230	20	900
2010	Areva T&D	60	100	230	20	900
2010	Areva T&D	60	100	230	20	900
2010	Areva T&D	60	100	230	20	900
2009	Duquesne Light & Power	90	150	345	138	1050
2009	Duquesne Light & Power	90	150	345	138	1050
2009	Duquesne Light & Power	90	150	345	138	1050
2009	Duquesne Light & Power	90	150	345	138	1050
2009	Flathead Electric	60	100	230	69	750
2009	South Mississippi Electric Power Asso.	60	100	161	69	650
2008	South Mississippi Electric Power Asso.	60	100	161	69	650
2008	Newfoundland & Labrador Electric	60	100	230	13.8	950
2008	White River Electric Association	120	200	345	138	1175
2008	White River Electric Association	120	200	345	138	1175
2008	East Kentucky Power Coop.	120	200	161	138	650
2007	Alliant Energy	60	100	161	69	650
2007	Pennsylvania Power & Light	106	170	230	69	750
2006	Pennsylvania Power & Light	106	170	230	69	750
2006	Pennsylvania Power & Light	106	170	230	69	750
2006	FirstEnergy Corp	100	168	230	69	750
2006	FirstEnergy Corp	100	166.6	230	69	750
2006	Connecticut Light & Power	120	200	345	115	1050
2006	Connecticut Light & Power	120	200	345	115	1050
2006	Connecticut Light & Power	120	200	345	115	1050
2005	Kansas City Board of Public Utils.	60	100	161	13.2	650
2005	Connecticut Light & Power	120	200	345	115	1050
2005	Connecticut Light & Power	120	200	345	115	1050
2005	Connecticut Light & Power	120	200	345	115	1050
2005	Mitsubishi Electric Power Prod.	120	200	345	115	1050
2005	Mitsubishi Electric Power Prod.	120	200	345	115	1050
2005	Mitsubishi Electric Power Prod.	120	200	345	115	1050
2005	Mitsubishi Electric Power Prod.	120	200	345	115	1050
2005	Fortis BC	120	200	230	132	850
2003	BC Hydro	90	150	225	12.6/12.6	850
2003	BC Hydro	90	150	225	12.6/12.6	850
2003	Northeast Utilities	84	140	345	34.5	1050
2002	Sask Power	120	200	230	138	950
2002	Imperial Oil	60	100	214.5	28	900

2001	Flathead Electric Co-op Inc.	75	125	230	34.5	750
2001	Utilicorp United/ Peak Power Eng	60	100	230	115	900
2001	Parsons Energy	109	182	345	18	1050
2001	Parsons Energy	109	182	345	18	1050
2001	Luz Y Fuerza	75	100	230	85	900
2001	South Texas Electric	90	150	345	138	1050
2000	Allegheny	120	200	230	135.3	900
2000	Kissimmee Utility	69.5	116	230	13.5	900
2000	Bramption Hydro Electr.	75	175	215.5	28-28	950
2000	Bramption Hydro Electr.	75	125	215.5	28	950
1999	Rochester Gas & Elec.	120	200	345	118	900
1999	CINERGY	60	100	240	69	825
1998	SIEMENS	60	100	230	13.5	900
1998	SIEMENS	60	100	230	13.5	900
1998	SIEMENS	60	100	230	13.5	900
1998	SIEMENS	60	100	230	13.5	900
1996	Raytheon	75	125	230	13.2	825
1996	Raytheon	75	125	230	13.2	825
1996	Raytheon	75	125	230	13.2	825
1996	Tennessee Valley Authority	120	200	230	115	825
1996	Tennessee Valley Authority	120	200	230	115	825
1994	Baltimore Gas & Electric	90	150	230	34.5	750
1994	East Kentucky Power Coop.	60	100	161	69	650
1993	Ontario Hydro	75	125	215.5	44	900
1993	Ontario Hydro	75	125	215.5	44	900
1993	Ontario Hydro	75	125	215.5	44	900
1993	Ontario Hydro	75	125	215.5	44	900
1993	Manitoba Hydro	120	200	230	115	900
1992	Manitoba Hydro	120	160	230	13.8	850
1992	Ontario Hydro	75	125	216	44	900
1992	Ontario Hydro	75	125	216	44	900
1992	Kilborn Limited	75	125	215.5	28	900
1992	Kilborn Limited	75	125	215.5	28	900
1992	Kilborn Limited	75	125	215.5	28	900
1992	Kilborn Limited	75	125	215.5	28	900
1992	Ontario Hydro	75	125	215.5	44	900
1992	Ontario Hydro	75	125	215.5	44	900
1992	Ontario Hydro	75	125	215.5	44	900
1992	Ontario Hydro	75	125	215.5	44	900
1992	Ontario Hydro	75	125	215.5	44	900
1992	Pennsylvania Power & Light	90	150	230	69	750
1992	Pennsylvania Power & Light	90	150	230	69	750
1992	Newfoundland & Labrador Hydro	75	125	230	66	950
1991	Manitoba Hydro	120	160	230	13.8	850
1991	Manitoba Hydro	120	160	230	13.8	850
1991	Manitoba Hydro	120	160	230	13.8	850
1991	Manitoba Hydro	120	160	230	13.8	850
1991	Ontario Hydro	75	125	216	44	900
1991	Ontario Hydro	75	125	216	44	900

1991	Ontario Hydro	75	125	216	44	900
1991	Ontario Hydro	75	125	216	44	900
1991	BC Hydro	90	150	225	25.2	850
1991	BC Hydro	90	150	225	25.2	850
1991	Ontario Hydro	75	125	215.5	28	900
1991	Ontario Hydro	75	125	215.5	28	900
1991	Ontario Hydro	75	125	215.5	28	900
1991	New Brunswick Power	90	150	230	13.8	950
1991	New Brunswick Power	90	150	230	13.8	950
1991	Sask Power	90	150	230	138	950
1991	Sask Power	90	150	230	138	950

SHORT CIRCUIT CAPABILITY

Short circuit test is a very special test which is performed to demonstrate the ability of the transformer to withstand stresses due to short circuit during operation. For high voltage transformers this test can be performed only at few special high-power laboratories in the world. At PTI short circuit design capability is verified using special field program. The calculations verify free/forced buckling, radial bending, axial bending, axial stress on key spacer & tilting for inner windings and hoop stress, tilting, axial bending, axial stress on key spacer for the outer winding. CTC conductors are epoxy bonded to enhance mechanical strength. Inner windings are designed for free buckling condition. PTI group has successfully verified the design capability by performing short circuit tests on units up to 315MVA 3 phase and 200MVA single phase units. The list below indicates details of the units successfully tested for short circuit.

Re: SHORT-CIRCUIT TESTING OF POWER TRANSFORMERS

PTI Transformers LP's has manufactured power transformers since 1947.

The Winnipeg transformer manufacturing plant (formerly CG Power Systems Canada Inc.), acquired by PTI Transformers LP in 2015, has been in operation for over 70 years. During this time period, several thousand power transformers were built and installed. Within the entire history of manufacturing power transformers in Winnipeg, there have not been any reported short-circuit failures of units in operation.

A few years after the 1994 Pauwels acquisition of the Winnipeg plant, all Pauwels facilities went through an Alignment Process, resulting in a commonality of design, manufacturing techniques and technology. In particular, the short-circuit calculations and methods for supporting the active part were thoroughly analyzed. All transformers are subjected to like conditions during short-circuit events, whether in testing or in operation. Most manufacturers of large power transformers with experience in the short-circuit testing of units have very similar design techniques to calculate short-circuit forces and stresses, as well as similar production methods and materials. Through the years and after numerous design reviews with customers and their consultants, certain elements of transformer technology become a standard for the industry.

From the early 1970's the Winnipeg manufacturing plant has used practically the same short-circuit calculations. The same set of critical parameters are also used to evaluate the "withstand "of conductors, pressboard spacers and clamping structures.

As stated before, all PTI transformers are designed using exactly the same rules. All PTI transformer units are built using the same technology, materials and processes. This standardization is important as any units built by PTI may be subjected to short-circuit testing. In any event certainly all of them will be subjected to real life short-circuit conditions while in service. PTI Transformers LP is more than willing to subject any of our transformers to short-circuit testing.

PTI Manitoba Inc uses trusted suppliers of active part materials, e.g. ASTA and Nexans for copper conductors, Weidmann for pressboard insulation. All materials were subjected to thorough withstand tests.

In North America it is commonly accepted that a design review is done in lieu of short-circuit testing. Subsequently, we have had only a few units short-circuit tested. This is a common practice amongst transformer manufacturers in North America, and has unfortunately recently lead to the termination of operation of a large power laboratory (IREQ in Quebec).

Globally, there has been a discussion going on for decades, whether to test or not to test the short-circuit performance. CIGRE (International Council on Large Electric Systems) during its general session in year 2000 expansively discussed this issue. There was no consensus on this problem, therefore CIGRE decided not to suggest any method for short-circuit performance evaluation, i.e. to (i) select trusted supplier, (ii) perform own design review, (iii) perform design review with consultant, (iv) short circuit testing. Moreover, based on numerous studies, the rate of short-circuit failures in operation has no relation to the way short-circuit performance is evaluated (see CIGRE report by Working Group 12.19 in Electr. No203, August 2003).

In conclusion one may state:

- The fact that only a few transformers built by Winnipeg plant have been short-circuit tested is typical for the North American industry, where design reviews are seen as sufficient method of approving the short-circuit performance of units;

- PTI Manitoba Inc is willing to subject any units to short-circuit tests. The cost for this service would be an extra to the contract.

Regards,

Dr. Waldemar Ziomek,
Director of Research & Development

PTI APPROVED LIST OF VENDORS

Component	Vendor Name	Country of Origin
Core	Cogent Power Inc.	Canada
Copper Conductor	Essex Group Canada Sam Dong Inc.	Canada USA
Insulation	Weidmann Electrical Technology Inc. USA Canduct Industries Inc.	USA Canada
Transformer Tank	W.S. Machining & Fabrication	Canada
LTC	Reinhausen	Germany
Bushings	ABB HSP Electro-Composite	USA Germany Canada
Arresters	Cooper Ohio Brass	USA USA
Oil	Nynas Petro Canada Calumet Lubricants Co.	Canada Canada USA
Current Transformer	Polycast International Meramec Instrument Transformers	Canada USA
Control Box	Celco Controls Ltd. Indus Automation	Canada Canada
Radiators	Menk Trantech	USA USA
Fans	Krenz & Company Inc. Ziehl Abbeg Inc.	USA Germany
Gaskets	Argus Industrial Supply Hi-Tech Seals	Canada Canada
Air Cell	Pronal SEI Industries	France Canada

Form **W-8BEN-E**
(Rev. July 2017)
Department of the Treasury
Internal Revenue Service

Certificate of Status of Beneficial Owner for United States Tax Withholding and Reporting (Entities)

▶ For use by entities. Individuals must use Form W-8BEN. ▶ Section references are to the Internal Revenue Code.
▶ Go to *www.irs.gov/FormW8BENE* for instructions and the latest information.
▶ Give this form to the withholding agent or payer. Do not send to the IRS.

OMB No. 1545-1621

Do NOT use this form for: **Instead use Form:**

- U.S. entity or U.S. citizen or resident W-9
- A foreign individual . . . . . W-8BEN (Individual) or Form 8233
- A foreign individual or entity claiming that income is effectively connected with the conduct of trade or business within the U.S. (unless claiming treaty benefits) W-8ECI
- A foreign partnership, a foreign simple trust, or a foreign grantor trust (unless claiming treaty benefits) (see instructions for exceptions) . . W-8IMY
- A foreign government, international organization, foreign central bank of issue, foreign tax-exempt organization, foreign private foundation, or government of a U.S. possession claiming that income is effectively connected U.S. income or that is claiming the applicability of section(s) 115(2), 501(c), 892, 895, or 1443(b) (unless claiming treaty benefits) (see instructions for other exceptions) . . . . . W-8ECI or W-8EXP
- Any person acting as an intermediary (including a qualified intermediary acting as a qualified derivatives dealer) W-8IMY

Part I Identification of Beneficial Owner

1 Name of organization that is the beneficial owner
PTI Transformers LP

2 Country of incorporation or organization
CANADA

3 Name of disregarded entity receiving the payment (if applicable, see instructions)

4 Chapter 3 Status (entity type) (Must check one box only):
☐ Corporation ☐ Disregarded entity ☑ Partnership
☐ Simple trust ☐ Grantor trust ☐ Complex trust ☐ Estate ☐ Government
☐ Central Bank of Issue ☐ Tax-exempt organization ☐ Private foundation ☐ International organization

If you entered disregarded entity, partnership, simple trust, or grantor trust above, is the entity a hybrid making a treaty claim? If "Yes" complete Part III. ☐ Yes ☐ No

5 Chapter 4 Status (FATCA status) (See instructions for details and complete the certification below for the entity's applicable status.)

☐ Nonparticipating FFI (including an FFI related to a Reporting IGA FFI other than a deemed-compliant FFI, participating FFI, or exempt beneficial owner).
☐ Participating FFI.
☐ Reporting Model 1 FFI.
☐ Reporting Model 2 FFI.
☐ Registered deemed-compliant FFI (other than a reporting Model 1 FFI, sponsored FFI, or nonreporting IGA FFI covered in Part XII). See instructions.
☐ Sponsored FFI. Complete Part IV.
☐ Certified deemed-compliant nonregistering local bank. Complete Part V.
☐ Certified deemed-compliant FFI with only low-value accounts. Complete Part VI.
☐ Certified deemed-compliant sponsored, closely held investment vehicle. Complete Part VII.
☐ Certified deemed-compliant limited life debt investment entity. Complete Part VIII.
☐ Certain investment entities that do not maintain financial accounts. Complete Part IX.
☐ Owner-documented FFI. Complete Part X.
☐ Restricted distributor. Complete Part XI.
☐ Nonreporting IGA FFI. Complete Part XII.
☐ Foreign government, government of a U.S. possession, or foreign central bank of issue. Complete Part XIII.
☐ International organization. Complete Part XIV.
☐ Exempt retirement plans. Complete Part XV.
☐ Entity wholly owned by exempt beneficial owners. Complete Part XVI.
☐ Territory financial institution. Complete Part XVII.
☐ Excepted nonfinancial group entity. Complete Part XVIII.
☐ Excepted nonfinancial start-up company. Complete Part XIX.
☐ Excepted nonfinancial entity in liquidation or bankruptcy. Complete Part XX.
☐ 501(c) organization. Complete Part XXI.
☐ Nonprofit organization. Complete Part XXII.
☐ Publicly traded NFFE or NFFE affiliate of a publicly traded corporation. Complete Part XXIII.
☐ Excepted territory NFFE. Complete Part XXIV.
☑ Active NFFE. Complete Part XXV.
☐ Passive NFFE. Complete Part XXVI.
☐ Excepted inter-affiliate FFI. Complete Part XXVII.
☐ Direct reporting NFFE.
☐ Sponsored direct reporting NFFE. Complete Part XXVIII.
☐ Account that is not a financial account.

6 Permanent residence address (street, apt. or suite no., or rural route). **Do not use a P.O. box or in-care-of address** (other than a registered address).
101 Rockman Street

City or town, state or province. Include postal code where appropriate.
Winnipeg, Manitoba R3T 0L7

Country
CANADA

7 Mailing address (if different from above)

City or town, state or province. Include postal code where appropriate.

Country

8 U.S. taxpayer identification number (TIN), if required

9a GIIN

b Foreign TIN
734422314 RT0001

10 Reference number(s) (see instructions)

Note: Please complete remainder of the form including signing the form in Part XXX.

Part II **Disregarded Entity or Branch Receiving Payment.** (Complete only if a disregarded entity with a GIIN or a branch of an FFI in a country other than the FFI's country of residence. See instructions.)

11 Chapter 4 Status (FATCA status) of disregarded entity or branch receiving payment

☐ Branch treated as nonparticipating FFI. ☐ Reporting Model 1 FFI. ☐ U.S. Branch.
☐ Participating FFI. ☐ Reporting Model 2 FFI.

12 Address of disregarded entity or branch (street, apt. or suite no., or rural route). **Do not use a P.O. box or in-care-of address** (other than a registered address).

City or town, state or province. Include postal code where appropriate.

Country

13 GIIN (if any)

Part III **Claim of Tax Treaty Benefits** (if applicable). (For chapter 3 purposes only.)

14 I certify that (check all that apply):

a ☑ The beneficial owner is a resident of **CANADA** within the meaning of the income tax treaty between the United States and that country.

b ☑ The beneficial owner derives the item (or items) of income for which the treaty benefits are claimed, and, if applicable, meets the requirements of the treaty provision dealing with limitation on benefits. The following are types of limitation on benefits provisions that may be included in an applicable tax treaty (check only one; see instructions):

☐ Government
☐ Tax exempt pension trust or pension fund
☐ Other tax exempt organization
☐ Publicly traded corporation
☐ Subsidiary of a publicly traded corporation
☑ Company that meets the ownership and base erosion test
☐ Company that meets the derivative benefits test
☐ Company with an item of income that meets active trade or business test
☐ Favorable discretionary determination by the U.S. competent authority received
☐ Other (specify Article and paragraph):

c ☐ The beneficial owner is claiming treaty benefits for U.S. source dividends received from a foreign corporation or interest from a U.S. trade or business of a foreign corporation and meets qualified resident status (see instructions).

15 **Special rates and conditions** (if applicable—see instructions):
The beneficial owner is claiming the provisions of Article and paragraph
of the treaty identified on line 14a above to claim a % rate of withholding on (specify type of income):
Explain the additional conditions in the Article the beneficial owner meets to be eligible for the rate of withholding:

Part IV **Sponsored FFI**

16 Name of sponsoring entity:

17 **Check whichever box applies.**

☐ I certify that the entity identified in Part I:

- Is an investment entity;
- Is not a QI, WP (except to the extent permitted in the withholding foreign partnership agreement), or WT; **and**
- Has agreed with the entity identified above (that is not a nonparticipating FFI) to act as the sponsoring entity for this entity.

☐ I certify that the entity identified in Part I:

- Is a controlled foreign corporation as defined in section 957(a);
- Is not a QI, WP, or WT;
- Is wholly owned, directly or indirectly, by the U.S. financial institution identified above that agrees to act as the sponsoring entity for this entity; **and**
- Shares a common electronic account system with the sponsoring entity (identified above) that enables the sponsoring entity to identify all account holders and payees of the entity and to access all account and customer information maintained by the entity including, but not limited to, customer identification information, customer documentation, account balance, and all payments made to account holders or payees.

Part V Certified Deemed-Compliant Nonregistering Local Bank

18 ☐ I certify that the FFI identified in Part I:

- Operates and is licensed solely as a bank or credit union (or similar cooperative credit organization operated without profit) in its country of incorporation or organization;
- Engages primarily in the business of receiving deposits from and making loans to, with respect to a bank, retail customers unrelated to such bank and, with respect to a credit union or similar cooperative credit organization, members, provided that no member has a greater than 5% interest in such credit union or cooperative credit organization;
- Does not solicit account holders outside its country of organization;
- Has no fixed place of business outside such country (for this purpose, a fixed place of business does not include a location that is not advertised to the public and from which the FFI performs solely administrative support functions);
- Has no more than $175 million in assets on its balance sheet and, if it is a member of an expanded affiliated group, the group has no more than $500 million in total assets on its consolidated or combined balance sheets; **and**
- Does not have any member of its expanded affiliated group that is a foreign financial institution, other than a foreign financial institution that is incorporated or organized in the same country as the FFI identified in Part I and that meets the requirements set forth in this part.

Part VI Certified Deemed-Compliant FFI with Only Low-Value Accounts

19 ☐ I certify that the FFI identified in Part I:

- Is not engaged primarily in the business of investing, reinvesting, or trading in securities, partnership interests, commodities, notional principal contracts, insurance or annuity contracts, or any interest (including a futures or forward contract or option) in such security, partnership interest, commodity, notional principal contract, insurance contract or annuity contract;
- No financial account maintained by the FFI or any member of its expanded affiliated group, if any, has a balance or value in excess of $50,000 (as determined after applying applicable account aggregation rules); **and**
- Neither the FFI nor the entire expanded affiliated group, if any, of the FFI, have more than $50 million in assets on its consolidated or combined balance sheet as of the end of its most recent accounting year.

Part VII Certified Deemed-Compliant Sponsored, Closely Held Investment Vehicle

20 Name of sponsoring entity: _____

21 ☐ I certify that the entity identified in Part I:

- Is an FFI solely because it is an investment entity described in Regulations section 1.1471-5(e)(4);
- Is not a QI, WP, or WT;
- Will have all of its due diligence, withholding, and reporting responsibilities (determined as if the FFI were a participating FFI) fulfilled by the sponsoring entity identified on line 20; **and**
- 20 or fewer individuals own all of the debt and equity interests in the entity (disregarding debt interests owned by U.S. financial institutions, participating FFIs, registered deemed-compliant FFIs, and certified deemed-compliant FFIs and equity interests owned by an entity if that entity owns 100% of the equity interests in the FFI and is itself a sponsored FFI).

Part VIII Certified Deemed-Compliant Limited Life Debt Investment Entity

22 ☐ I certify that the entity identified in Part I:

- Was in existence as of January 17, 2013;
- Issued all classes of its debt or equity interests to investors on or before January 17, 2013, pursuant to a trust indenture or similar agreement; **and**
- Is certified deemed-compliant because it satisfies the requirements to be treated as a limited life debt investment entity (such as the restrictions with respect to its assets and other requirements under Regulations section 1.1471-5(f)(2)(iv)).

Part IX Certain Investment Entities that Do Not Maintain Financial Accounts

23 ☐ I certify that the entity identified in Part I:

- Is a financial institution solely because it is an investment entity described in Regulations section 1.1471-5(e)(4)(i)(A), **and**
- Does not maintain financial accounts.

Part X Owner-Documented FFI

Note: This status only applies if the U.S. financial institution, participating FFI, or reporting Model 1 FFI to which this form is given has agreed that it will treat the FFI as an owner-documented FFI (see instructions for eligibility requirements). In addition, the FFI must make the certifications below.

24a ☐ (All owner-documented FFIs check here) I certify that the FFI identified in Part I:

- Does not act as an intermediary;
- Does not accept deposits in the ordinary course of a banking or similar business;
- Does not hold, as a substantial portion of its business, financial assets for the account of others;
- Is not an insurance company (or the holding company of an insurance company) that issues or is obligated to make payments with respect to a financial account;
- Is not owned by or in an expanded affiliated group with an entity that accepts deposits in the ordinary course of a banking or similar business, holds, as a substantial portion of its business, financial assets for the account of others, or is an insurance company (or the holding company of an insurance company) that issues or is obligated to make payments with respect to a financial account;
- Does not maintain a financial account for any nonparticipating FFI; **and**
- Does not have any specified U.S. persons that own an equity interest or debt interest (other than a debt interest that is not a financial account or that has a balance or value not exceeding $50,000) in the FFI other than those identified on the FFI owner reporting statement.

Part X Owner-Documented FFI *(continued)*

Check box 24b or 24c, whichever applies.

b ☐ I certify that the FFI identified in Part I:

- Has provided, or will provide, an FFI owner reporting statement that contains:
  - **(i)** The name, address, TIN (if any), chapter 4 status, and type of documentation provided (if required) of every individual and specified U.S. person that owns a direct or indirect equity interest in the owner-documented FFI (looking through all entities other than specified U.S. persons);
  - **(ii)** The name, address, TIN (if any), and chapter 4 status of every individual and specified U.S. person that owns a debt interest in the owner-documented FFI (including any indirect debt interest, which includes debt interests in any entity that directly or indirectly owns the payee or any direct or indirect equity interest in a debt holder of the payee) that constitutes a financial account in excess of $50,000 (disregarding all such debt interests owned by participating FFIs, registered deemed-compliant FFIs, certified deemed-compliant FFIs, excepted NFFEs, exempt beneficial owners, or U.S. persons other than specified U.S. persons); **and**
  - **(iii)** Any additional information the withholding agent requests in order to fulfill its obligations with respect to the entity.
- Has provided, or will provide, valid documentation meeting the requirements of Regulations section 1.1471-3(d)(6)(iii) for each person identified in the FFI owner reporting statement.

c ☐ I certify that the FFI identified in Part I has provided, or will provide, an auditor's letter, signed within 4 years of the date of payment, from an independent accounting firm or legal representative with a location in the United States stating that the firm or representative has reviewed the FFI's documentation with respect to all of its owners and debt holders identified in Regulations section 1.1471-3(d)(6)(iv)(A)(2), and that the FFI meets all the requirements to be an owner-documented FFI. The FFI identified in Part I has also provided, or will provide, an FFI owner reporting statement of its owners that are specified U.S. persons and Form(s) W-9, with applicable waivers.

Check box 24d if applicable (optional, see instructions).

d ☐ I certify that the entity identified on line 1 is a trust that does not have any contingent beneficiaries or designated classes with unidentified beneficiaries.

Part XI Restricted Distributor

25a ☐ (All restricted distributors check here) I certify that the entity identified in Part I:

- Operates as a distributor with respect to debt or equity interests of the restricted fund with respect to which this form is furnished;
- Provides investment services to at least 30 customers unrelated to each other and less than half of its customers are related to each other;
- Is required to perform AML due diligence procedures under the anti-money laundering laws of its country of organization (which is an FATF-compliant jurisdiction);
- Operates solely in its country of incorporation or organization, has no fixed place of business outside of that country, and has the same country of incorporation or organization as all members of its affiliated group, if any;
- Does not solicit customers outside its country of incorporation or organization;
- Has no more than $175 million in total assets under management and no more than $7 million in gross revenue on its income statement for the most recent accounting year;
- Is not a member of an expanded affiliated group that has more than $500 million in total assets under management or more than $20 million in gross revenue for its most recent accounting year on a combined or consolidated income statement; **and**
- Does not distribute any debt or securities of the restricted fund to specified U.S. persons, passive NFFEs with one or more substantial U.S. owners, or nonparticipating FFIs.

Check box 25b or 25c, whichever applies.

I further certify that with respect to all sales of debt or equity interests in the restricted fund with respect to which this form is furnished that are made after December 31, 2011, the entity identified in Part I:

b ☐ Has been bound by a distribution agreement that contained a general prohibition on the sale of debt or securities to U.S. entities and U.S. resident individuals and is currently bound by a distribution agreement that contains a prohibition of the sale of debt or securities to any specified U.S. person, passive NFFE with one or more substantial U.S. owners, or nonparticipating FFI.

c ☐ Is currently bound by a distribution agreement that contains a prohibition on the sale of debt or securities to any specified U.S. person, passive NFFE with one or more substantial U.S. owners, or nonparticipating FFI and, for all sales made prior to the time that such a restriction was included in its distribution agreement, has reviewed all accounts related to such sales in accordance with the procedures identified in Regulations section 1.1471-4(c) applicable to preexisting accounts and has redeemed or retired any, or caused the restricted fund to transfer the securities to a distributor that is a participating FFI or reporting Model 1 FFI securities which were sold to specified U.S. persons, passive NFFEs with one or more substantial U.S. owners, or nonparticipating FFIs.

Part XII Nonreporting IGA FFI

26 ☐ I certify that the entity identified in Part I:

- Meets the requirements to be considered a nonreporting financial institution pursuant to an applicable IGA between the United States and _____. The applicable IGA is a ☐ Model 1 IGA or a ☐ Model 2 IGA; and
- is treated as a _____ under the provisions of the applicable IGA or Treasury regulations (if applicable, see instructions);
- If you are a trustee documented trust or a sponsored entity, provide the name of the trustee or sponsor _____.

The trustee is: ☐ U.S. ☐ Foreign

Part XIII Foreign Government, Government of a U.S. Possession, or Foreign Central Bank of Issue

27 ☐ I certify that the entity identified in Part I is the beneficial owner of the payment, and is not engaged in commercial financial activities of a type engaged in by an insurance company, custodial institution, or depository institution with respect to the payments, accounts, or obligations for which this form is submitted (except as permitted in Regulations section 1.1471-6(h)(2)).

Part XIV International Organization

Check box 28a or 28b, whichever applies.

28a ☐ I certify that the entity identified in Part I is an international organization described in section 7701(a)(18).

b ☐ I certify that the entity identified in Part I:

- Is comprised primarily of foreign governments;
- Is recognized as an intergovernmental or supranational organization under a foreign law similar to the International Organizations Immunities Act or that has in effect a headquarters agreement with a foreign government;
- The benefit of the entity's income does not inure to any private person; **and**
- Is the beneficial owner of the payment and is not engaged in commercial financial activities of a type engaged in by an insurance company, custodial institution, or depository institution with respect to the payments, accounts, or obligations for which this form is submitted (except as permitted in Regulations section 1.1471-6(h)(2)).

Part XV Exempt Retirement Plans

Check box 29a, b, c, d, e, or f, whichever applies.

29a ☐ I certify that the entity identified in Part I:

- Is established in a country with which the United States has an income tax treaty in force (see Part III if claiming treaty benefits);
- Is operated principally to administer or provide pension or retirement benefits; **and**
- Is entitled to treaty benefits on income that the fund derives from U.S. sources (or would be entitled to benefits if it derived any such income) as a resident of the other country which satisfies any applicable limitation on benefits requirement.

b ☐ I certify that the entity identified in Part I:

- Is organized for the provision of retirement, disability, or death benefits (or any combination thereof) to beneficiaries that are former employees of one or more employers in consideration for services rendered;
- No single beneficiary has a right to more than 5% of the FFI's assets;
- Is subject to government regulation and provides annual information reporting about its beneficiaries to the relevant tax authorities in the country in which the fund is established or operated; **and**
  - **(i)** Is generally exempt from tax on investment income under the laws of the country in which it is established or operates due to its status as a retirement or pension plan;
  - **(ii)** Receives at least 50% of its total contributions from sponsoring employers (disregarding transfers of assets from other plans described in this part, retirement and pension accounts described in an applicable Model 1 or Model 2 IGA, other retirement funds described in an applicable Model 1 or Model 2 IGA, or accounts described in Regulations section 1.1471-5(b)(2)(i)(A));
  - **(iii)** Either does not permit or penalizes distributions or withdrawals made before the occurrence of specified events related to retirement, disability, or death (except rollover distributions to accounts described in Regulations section 1.1471-5(b)(2)(i)(A) (referring to retirement and pension accounts), to retirement and pension accounts described in an applicable Model 1 or Model 2 IGA, or to other retirement funds described in this part or in an applicable Model 1 or Model 2 IGA); **or**
  - **(iv)** Limits contributions by employees to the fund by reference to earned income of the employee or may not exceed $50,000 annually.

c ☐ I certify that the entity identified in Part I:

- Is organized for the provision of retirement, disability, or death benefits (or any combination thereof) to beneficiaries that are former employees of one or more employers in consideration for services rendered;
- Has fewer than 50 participants;
- Is sponsored by one or more employers each of which is not an investment entity or passive NFFE;
- Employee and employer contributions to the fund (disregarding transfers of assets from other plans described in this part, retirement and pension accounts described in an applicable Model 1 or Model 2 IGA, or accounts described in Regulations section 1.1471-5(b)(2)(i)(A)) are limited by reference to earned income and compensation of the employee, respectively;
- Participants that are not residents of the country in which the fund is established or operated are not entitled to more than 20% of the fund's assets; **and**
- Is subject to government regulation and provides annual information reporting about its beneficiaries to the relevant tax authorities in the country in which the fund is established or operates.

Part XV Exempt Retirement Plans *(continued)*

d ☐ I certify that the entity identified in Part I is formed pursuant to a pension plan that would meet the requirements of section 401(a), other than the requirement that the plan be funded by a trust created or organized in the United States.

e ☐ I certify that the entity identified in Part I is established exclusively to earn income for the benefit of one or more retirement funds described in this part or in an applicable Model 1 or Model 2 IGA, or accounts described in Regulations section 1.1471-5(b)(2)(i)(A) (referring to retirement and pension accounts), or retirement and pension accounts described in an applicable Model 1 or Model 2 IGA.

f ☐ I certify that the entity identified in Part I:

- Is established and sponsored by a foreign government, international organization, central bank of issue, or government of a U.S. possession (each as defined in Regulations section 1.1471-6) or an exempt beneficial owner described in an applicable Model 1 or Model 2 IGA to provide retirement, disability, or death benefits to beneficiaries or participants that are current or former employees of the sponsor (or persons designated by such employees); **or**

- Is established and sponsored by a foreign government, international organization, central bank of issue, or government of a U.S. possession (each as defined in Regulations section 1.1471-6) or an exempt beneficial owner described in an applicable Model 1 or Model 2 IGA to provide retirement, disability, or death benefits to beneficiaries or participants that are not current or former employees of such sponsor, but are in consideration of personal services performed for the sponsor.

Part XVI Entity Wholly Owned by Exempt Beneficial Owners

30 ☐ I certify that the entity identified in Part I:

- Is an FFI solely because it is an investment entity;
- Each direct holder of an equity interest in the investment entity is an exempt beneficial owner described in Regulations section 1.1471-6 or in an applicable Model 1 or Model 2 IGA;
- Each direct holder of a debt interest in the investment entity is either a depository institution (with respect to a loan made to such entity) or an exempt beneficial owner described in Regulations section 1.1471-6 or an applicable Model 1 or Model 2 IGA.
- Has provided an owner reporting statement that contains the name, address, TIN (if any), chapter 4 status, and a description of the type of documentation provided to the withholding agent for every person that owns a debt interest constituting a financial account or direct equity interest in the entity; **and**
- Has provided documentation establishing that every owner of the entity is an entity described in Regulations section 1.1471-6(b), (c), (d), (e), (f) and/or (g) without regard to whether such owners are beneficial owners.

Part XVII Territory Financial Institution

31 ☐ I certify that the entity identified in Part I is a financial institution (other than an investment entity) that is incorporated or organized under the laws of a possession of the United States.

Part XVIII Excepted Nonfinancial Group Entity

32 ☐ I certify that the entity identified in Part I:

- Is a holding company, treasury center, or captive finance company and substantially all of the entity's activities are functions described in Regulations section 1.1471-5(e)(5)(i)(C) through (E);
- Is a member of a nonfinancial group described in Regulations section 1.1471-5(e)(5)(i)(B);
- Is not a depository or custodial institution (other than for members of the entity's expanded affiliated group); **and**
- Does not function (or hold itself out) as an investment fund, such as a private equity fund, venture capital fund, leveraged buyout fund, or any investment vehicle with an investment strategy to acquire or fund companies and then hold interests in those companies as capital assets for investment purposes.

Part XIX Excepted Nonfinancial Start-Up Company

33 ☐ I certify that the entity identified in Part I:

- Was formed on (or, in the case of a new line of business, the date of board resolution approving the new line of business) _____ (date must be less than 24 months prior to date of payment);
- Is not yet operating a business and has no prior operating history or is investing capital in assets with the intent to operate a new line of business other than that of a financial institution or passive NFFE;
- Is investing capital into assets with the intent to operate a business other than that of a financial institution; **and**
- Does not function (or hold itself out) as an investment fund, such as a private equity fund, venture capital fund, leveraged buyout fund, or any investment vehicle whose purpose is to acquire or fund companies and then hold interests in those companies as capital assets for investment purposes.

Part XX Excepted Nonfinancial Entity in Liquidation or Bankruptcy

34 ☐ I certify that the entity identified in Part I:

- Filed a plan of liquidation, filed a plan of reorganization, or filed for bankruptcy on _____;
- During the past 5 years has not been engaged in business as a financial institution or acted as a passive NFFE;
- Is either liquidating or emerging from a reorganization or bankruptcy with the intent to continue or recommence operations as a nonfinancial entity; **and**
- Has, or will provide, documentary evidence such as a bankruptcy filing or other public documentation that supports its claim if it remains in bankruptcy or liquidation for more than 3 years.

Part XXI 501(c) Organization

35 ☐ I certify that the entity identified in Part I is a 501(c) organization that:

- Has been issued a determination letter from the IRS that is currently in effect concluding that the payee is a section 501(c) organization that is dated _____; **or**
- Has provided a copy of an opinion from U.S. counsel certifying that the payee is a section 501(c) organization (without regard to whether the payee is a foreign private foundation).

Part XXII Nonprofit Organization

36 ☐ I certify that the entity identified in Part I is a nonprofit organization that meets the following requirements.

- The entity is established and maintained in its country of residence exclusively for religious, charitable, scientific, artistic, cultural or educational purposes;
- The entity is exempt from income tax in its country of residence;
- The entity has no shareholders or members who have a proprietary or beneficial interest in its income or assets;
- Neither the applicable laws of the entity's country of residence nor the entity's formation documents permit any income or assets of the entity to be distributed to, or applied for the benefit of, a private person or noncharitable entity other than pursuant to the conduct of the entity's charitable activities or as payment of reasonable compensation for services rendered or payment representing the fair market value of property which the entity has purchased; **and**
- The applicable laws of the entity's country of residence or the entity's formation documents require that, upon the entity's liquidation or dissolution, all of its assets be distributed to an entity that is a foreign government, an integral part of a foreign government, a controlled entity of a foreign government, or another organization that is described in this part or escheats to the government of the entity's country of residence or any political subdivision thereof.

Part XXIII Publicly Traded NFFE or NFFE Affiliate of a Publicly Traded Corporation

Check box 37a or 37b, whichever applies.

37a ☐ I certify that:

- The entity identified in Part I is a foreign corporation that is not a financial institution; **and**
- The stock of such corporation is regularly traded on one or more established securities markets, including _____ (name one securities exchange upon which the stock is regularly traded).

b ☐ I certify that:

- The entity identified in Part I is a foreign corporation that is not a financial institution;
- The entity identified in Part I is a member of the same expanded affiliated group as an entity the stock of which is regularly traded on an established securities market;
- The name of the entity, the stock of which is regularly traded on an established securities market, is _____; **and**
- The name of the securities market on which the stock is regularly traded is _____.

Part XXIV Excepted Territory NFFE

38 ☐ I certify that:

- The entity identified in Part I is an entity that is organized in a possession of the United States;
- The entity identified in Part I:
  - **(i)** Does not accept deposits in the ordinary course of a banking or similar business;
  - **(ii)** Does not hold, as a substantial portion of its business, financial assets for the account of others; **or**
  - **(iii)** Is not an insurance company (or the holding company of an insurance company) that issues or is obligated to make payments with respect to a financial account; **and**
- All of the owners of the entity identified in Part I are bona fide residents of the possession in which the NFFE is organized or incorporated.

Part XXV Active NFFE

39 ☑ I certify that:

- The entity identified in Part I is a foreign entity that is not a financial institution;
- Less than 50% of such entity's gross income for the preceding calendar year is passive income; **and**
- Less than 50% of the assets held by such entity are assets that produce or are held for the production of passive income (calculated as a weighted average of the percentage of passive assets measured quarterly) (see instructions for the definition of passive income).

Part XXVI Passive NFFE

40a ☐ I certify that the entity identified in Part I is a foreign entity that is not a financial institution (other than an investment entity organized in a possession of the United States) and is not certifying its status as a publicly traded NFFE (or affiliate), excepted territory NFFE, active NFFE, direct reporting NFFE, or sponsored direct reporting NFFE.

Check box 40b or 40c, whichever applies.

b ☐ I further certify that the entity identified in Part I has no substantial U.S. owners (or, if applicable, no controlling U.S. persons); **or**

c ☐ I further certify that the entity identified in Part I has provided the name, address, and TIN of each substantial U.S. owner (or, if applicable, controlling U.S. person) of the NFFE in Part XXIX.

Part XXVII Excepted Inter-Affiliate FFI

41 ☐ I certify that the entity identified in Part I:

- Is a member of an expanded affiliated group;
- Does not maintain financial accounts (other than accounts maintained for members of its expanded affiliated group);
- Does not make withholdable payments to any person other than to members of its expanded affiliated group;
- Does not hold an account (other than depository accounts in the country in which the entity is operating to pay for expenses) with or receive payments from any withholding agent other than a member of its expanded affiliated group; **and**
- Has not agreed to report under Regulations section 1.1471-4(d)(2)(ii)(C) or otherwise act as an agent for chapter 4 purposes on behalf of any financial institution, including a member of its expanded affiliated group.

Part XXVIII Sponsored Direct Reporting NFFE (see instructions for when this is permitted)

42 Name of sponsoring entity: _____

43 ☐ I certify that the entity identified in Part I is a direct reporting NFFE that is sponsored by the entity identified on line 42.

Part XXIX Substantial U.S. Owners of Passive NFFE

As required by Part XXVI, provide the name, address, and TIN of each substantial U.S. owner of the NFFE. Please see the instructions for a definition of substantial U.S. owner. If providing the form to an FFI treated as a reporting Model 1 FFI or reporting Model 2 FFI, an NFFE may also use this part for reporting its controlling U.S. persons under an applicable IGA.

Name	Address	TIN

Part XXX Certification

Under penalties of perjury, I declare that I have examined the information on this form and to the best of my knowledge and belief it is true, correct, and complete. I further certify under penalties of perjury that:

- The entity identified on line 1 of this form is the beneficial owner of all the income to which this form relates, is using this form to certify its status for chapter 4 purposes, or is a merchant submitting this form for purposes of section 6050W;
- The entity identified on line 1 of this form is not a U.S. person;
- The income to which this form relates is: (a) not effectively connected with the conduct of a trade or business in the United States, (b) effectively connected but is not subject to tax under an income tax treaty, or (c) the partner's share of a partnership's effectively connected income; **and**
- For broker transactions or barter exchanges, the beneficial owner is an exempt foreign person as defined in the instructions.

Furthermore, I authorize this form to be provided to any withholding agent that has control, receipt, or custody of the income of which the entity on line 1 is the beneficial owner or any withholding agent that can disburse or make payments of the income of which the entity on line 1 is the beneficial owner.

I agree that I will submit a new form within 30 days if any certification on this form becomes incorrect.

Sign Here ▶ _____ **Stuart Gibson** **10-11-2018**

Signature of individual authorized to sign for beneficial owner | Print Name | Date (MM-DD-YYYY)

☑ **I certify that I have the capacity to sign for the entity identified on line 1 of this form.**

Aon Reed Stenhouse Inc.
2103 - llth Avenue, 8th Floor
Regina, Saskatchewan
S4P 3Z8

Certificate of Insurance

To: **TO WHOM IT MAY CONCERN** **Re:** **Evidence of Insurance**

Insurance as described herein has been arranged on behalf of the insured named herein under the following policy(ies) and as more fully described by the terms, conditions, exclusions and provisions contained in the said policy(ies) and any endorsements attached thereto.

Insured: **PTI Transformers LP**
101 Rockman Street
Winnipeg, MB R3T 0L7

Coverage:	Insurer(s)	Policy No.	Policy Eff. Date	Policy Exp. Date	Limit(s) of Liability
Commercial General Liability	Northbridge General Insurance Corporation	CBC 1939268	June 15, 2020	May 15, 2021	$2,000,000 each Occurrence - Bodily Injury and Property Damage, subject to aggregate where applicable Non-Owned Automobile Liability
Umbrella Liability	Northbridge General Insurance Corporation	CBC 1939268	June 15, 2020	May 15, 2021	$3,000,000 each Occurrence in excess of underlying policies above on a follow form basis.
Cargo	Underwriters at Lloyd's through Aon Group Limited	MACAR1700374	May 15, 2020	May 15, 2021	$5,000,000 by any one inland conveyance $50,000 Deductible any one loss
Manufacturer's E&O	Northbridge General Insurance Corporation	CBC 1939268	June 15, 2020	May 15, 2021	$2,000,000 each Claim $2,000,000 Aggregate $10,000 Retention

THIS IS A SUMMARY OF COVERAGES ONLY; ACTUAL POLICY WORDING, CONDITIONS AND LIMITATIONS APPLY

This Certificate constitutes a statement of the facts as of the date of issuance and are so represented and warranted only to the Certificate Holder; other persons relying on this Certificate do so at their own risk.

Aon Reed Stenhouse Inc.

Dated June 15, 2020, at Regina, Saskatchewan

Terrilee Lamer, CAIB
(306) 569-6726

THE POLICY CONTAINS A CLAUSE THAT MAY LIMIT THE AMOUNT PAYABLE
OR, IN THE CASE OF AUTOMOBILE INSURANCE,
THE POLICY CONTAINS A PARTIAL PAYMENT OF LOSS CLAUSE

Certificate of Registration

This certifies that the Quality Management System of

PTI Transformers LP

101 Rockman Street
Winnipeg, Manitoba, R3T 0L7, Canada

has been assessed by NSF-ISR and found to be in conformance to the following standard(s):

ISO 9001:2015

Scope of Registration:
Design, manufacture, delivery and servicing of medium and large power transformers.

Certificate Number:	6G721-IS10
Certificate Issue Date:	22-APR-2021
Registration Date:	09-MAY-2021
Expiration Date *:	08-MAY-2024

Jennifer Morecraft,
Senior Managing Director

NSF International Strategic Registrations
789 North Dixboro Road, Ann Arbor, Michigan 48105 | (888) NSF-9000 | www.nsf-isr.org

Authorized Registration and /or Accreditation Marks. This certificate is property of NSF-ISR and must be returned upon request.
*Company is audited for conformance at regular intervals. To verify registrations call (888) NSF-9000 or visit our web site at www.nsf-isr.org

Certificate of Registration

This certifies that the Environmental Management System of

PTI Transformers LP

101 Rockman Street
Winnipeg, Manitoba, R3T 0L7, Canada

has been assessed by NSF-ISR and found to be in conformance to the following standard(s):

ISO 14001:2015

Scope of Registration:
Design, manufacture, delivery and servicing of medium and large power transformers.

Certificate Number:	6G721-EM7
Certificate Issue Date:	22-APR-2021
Registration Date:	09-MAY-2021
Expiration Date *:	08-MAY-2024

Jennifer Morecraft,
Senior Managing Director

NSF International Strategic Registrations
789 North Dixboro Road, Ann Arbor, Michigan 48105 | (888) NSF-9000 | www.nsf-isr.org

Authorized Registration and /or Accreditation Marks. This certificate is property of NSF-ISR and must be returned upon request.
*Company is audited for conformance at regular intervals. To verify registrations call (888) NSF-9000 or visit our web site at www.nsf-isr.org

1. **Scope:**

This specification outlines the paint requirement for metal parts, it shall be suitable for spray application.

2. **General:**

All paints shall be ready-mixed at the factory to comply with the specification formula for the type of paint ordered shall be free from dirt, water and other foreign matter; and shall dry within the specified period to a good film without running, streaking or sagging.

Two specific requirements for painting metal parts:

Internal metal parts – consist of metal parts and surfaces in contact with transformer oil such as clamp structure, base bar, end bracket assembly, top cross brace, locating beam, and inside surface of the tank, cover, conservator, turret, LTC box, cooler pipe, header, hand-hole cover.

External metal parts – consist of metal parts and surfaces not in contact with transformer oil such as lightning arrestor (L/A) support assembly, A-Frame assembly, conservator support assembly, control box and outside surface of the tank, cover, conservator, turret, LTC box, cooler pipe, header, hand hole cover.

3. **Specific Instruction:**

3.1. Surface Preparation

3.1.1. Surfaces shall be free of all visible oil, grease, dirt, mill scale, rust, coating, oxides, corrosion, and other foreign matter.
3.1.2. All sharp edges must be broken with appropriate grinding tool, 3 passes with 100 grit.
3.1.3. Commercial blast to SSPC-SP 6
3.1.4. Blast profile of 2 mil +/- 0.5 mil
3.1.5. A maximum of 24 hours exposure time is allowed before painting application.
3.1.6. Use Loctite two part epoxy to seal welded clamping plates from egress of trapped Shot-blast material.

3.2. Masking surfaces before painting

3.2.1. For internal metal parts such as clamp, base bar, top cross brace, end brackets, and locating beam, the surfaces to be masked with tape will be specified by standard drawings.
3.2.2. For the tank and cover, the surfaces to be masked with tape will be specified by standard drawings.
3.2.3. For the conservator, the surfaces to be masked with tape will be specified by standard drawings.

3.3. Spot/Stripe Priming

3.3.1. Apply a stripe primer coat first on welds, edges, and hard to reach surface areas before full prime coat application. Spray or brush application are acceptable.

3.4. Internal Metal Parts Paint Requirements

3.4.1. White epoxy primer/Top coat - Superior-Sequoia 263-166 A&B
3.4.2. Dry film thickness (DFT) is 3.0mils-5.0 mils for 1,500 hrs

3.5. External Metal Parts Paint Requirements

3.5.1. First full prime coat – High solids red oxide epoxy primer; Superior Sequoia 263-147 A&B, DFT at least 4.0 mils for 1,500 hrs.
3.5.2. Top coat – Urethane Topcoat 4:1; Superior Sequoia 273-719, DFT at least 2.0 mils above profile.
3.5.3. Color for top coat - as required by specific order.

4. **Approval List:**

Responsibility Center: Engineering	Prepared by: R. Jorundson *Original signed* Date:	Issued by ISO Coord: John Manansala *Original signed* Date:
Accepted for Quality: Arlyne Jutiz *Original signed* Date:	Accepted for Engineering: Jim Nielsen *Original signed* Date:	*Intentionally left blank*

5. **Revision History:**

Revision no	Revised by	Date	Description of Revision
0	A. Minh Vuong	August 26, 2013	New work instruction
1	Armand Siapno	July 29, 2013	Added item 3.1.6 under surface preparation
2	ST	January 2016	New company name, logo
3	B.Seerapathy	March 21, 2018	Minor Format Updation. Logo changed from Pauwels to PTI
4	R. Jorundson	June 18, 2018	Update 2.2.4 & 2.2.5 to current product in use.
5	Arlyne Jutiz	February 1, 2019	Modify “Approval List” section Change company name and logo

Products

Transformer Oils

Caltran 60-15 (Type II)

Compare >>

Calumet produces both Type I and Type II transformer oils from our Princeton refinery. These oils meet the requirements of ASTM D3487.

Tests	Test Method	Typicals
Viscosity, CST @ 0C	D445	56.85
Viscosity, CST @ 40C	D445	8.63
Viscosity, CST @ 100C	D445	2.23
Gravity, API, 60F	D4052	27.4
Density @ 15C, KG/DM3	D1298	0.8900
Flash, COC, C(F)	D92	148(298)
Pour Point, C(F)	D97	-57(-71)
Color, ASTM	D1500	L0.5
Aniline Point, C(F)	D611	70.3(158.5)
Neut. No., MG KOH/G	D974	0.013
Water Content, ppm	D1533	15
Dielectric Breakdown @ 60 HZ		
Disk Electrodes, KV	D877	43
KV 1.02 MM Gap	D1816	30
KV 2.03 MM Gap	D1816	60
Dielec. Breakdown, Impulse Conds.	D3300	
25C, Needle Neg. to Sphere		
Grounded, 25.4 MM Gap, KV		300
Corrosive Sulfur	D1275 (Method B)	n/corros.
Interfacial Tension, Dynes/CM	D971	47.6
Oxidation Stability	D2440	
72 hr Sludge, Mass %		0.01
72 hr Acid No., MG KOH/G		0.01
164 hr Sludge, Mass %		0.01
164 hr Acid No., MG KOH/G		0.01
Oxidation Stability, RBOT, MIN	D2112	271
Oxid. Inhibitor Content, Mass %	D2668	0.19
Gassing Tendency	D2300	

Micro L/MIN (Procedure B)		+12
Power Factor, 25C, %	D924	0.006
Power Factor, 100C, %	D924	0.06
Visual Examination	D1524	B & C
PCB Content, PPM	D4059	n/detect.