ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER TO EXECUTE A CONTRACT WITH PURE TECHNOLOGIES US INC., FOR THE TRANSMISSION MAINS CONDITION ASSESSMENT FOR THE WATER UTILITIES DEPARTMENT; PROVIDING FOR THE EXPENDITURE OF FUNDS THEREFOR; AND PROVIDING AN EFFECTIVE DATE (RFP 8181 – AWARDED TO PURE TECHNOLOGIES US INC., FOR THREE (3) YEARS, WITH THE OPTION FOR TWO (2) ADDITIONAL ONE (1) YEAR EXTENSIONS, IN THE TOTAL FIVE (5) YEAR NOT-TO-EXCEED AMOUNT OF $10,000,000.00).

WHEREAS, the City has solicited, received, and evaluated competitive proposals for the Transmission Mains Condition Assessment for the Water Utilities Department; and

WHEREAS, the City Manager, or a designated employee, has received, reviewed, and recommended that the herein described proposals are the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals; and

WHEREAS, this procurement was undertaken as part of the City's governmental function [Water and sewer service]; and

WHEREAS, the City Council has provided in the City Budget for the appropriation of funds to be used for the purchase of the materials, equipment, supplies, or services approved and accepted herein; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The items in the following numbered request for proposal for materials, equipment, supplies, or services shown in the "Request Proposals" on file in the office of the Purchasing Agent, are hereby accepted and approved as being the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals.

RFP NUMBER	CONTRACTOR	AMOUNT
8181	Pure Technologies US Inc.	$10,000,000.00

SECTION 2. That by the acceptance and approval of the above numbered items of the submitted proposals, the City accepts the offer of the persons submitting the proposals for such items and agrees to purchase the materials, equipment, supplies, or services in accordance with the terms, specifications, standards, quantities, and for the specified sums contained in the Proposal Invitations, Proposals, and related documents.

SECTION 3. That should the City and person submitting approved and accepted items wish to enter into a formal written agreement as a result of the acceptance, approval, and awarding of the proposals, the City Manager, or their designated representative, is hereby authorized to execute the written contract which shall be attached hereto; provided that the written contract is in accordance with the terms, conditions, specifications, standards, quantities, and specified sums contained in the Proposal and related documents herein approved and accepted.

SECTION 4. The City Council of the City of Denton, hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under this ordinance to the City Manager of the City of Denton, or their designee.

SECTION 5. By the acceptance and approval of the above enumerated bids, the City Council hereby authorizes the expenditure of funds therefor in the amount and in accordance with the approved bids.

SECTION 6. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. This ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Chris Watts, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2023.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
JESUS SALAZAR, INTERIM CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _____

Digitally signed by Marcella Lunn
DN: cn=Marcella Lunn, o, ou=City of Denton, email=marcella.lunn@cityofdenton.com, c=US
Date: 2023.05.10 17:16:22 -05'00'

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Docusign City Council Transmittal Coversheet

RFP	8181
File Name	TRANSMISSION MAINS CONDITION ASSESSMENT
Purchasing Contact	Crystal Westbrook
City Council Target Date	
Piggy Back Option	Yes
Contract Expiration	
Ordinance	

DS
LH

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CONTRACT BY AND BETWEEN CITY OF DENTON, TEXAS AND PURE TECHNOLOGIES US INC. (CONTRACT 8181)

THIS CONTRACT is made and entered into this date _____, by and between **PURE TECHNOLOGIES US INC.,** a DELAWARE corporation, whose address is 2310 McDaniel Drive, Carrollton, TX 75006 hereinafter referred to as "Contractor," and the **CITY OF DENTON, TEXAS**, a home rule municipal corporation, hereinafter referred to as "City," to be effective upon approval of the Denton City Council and subsequent execution of this Contract by the Denton City Manager or their duly authorized designee.

For and in consideration of the covenants and agreements contained herein, and for the mutual benefits to be obtained hereby, the parties agree as follows:

SCOPE OF SERVICES

Contractor shall provide products and/or services in accordance with the City's document RFP #8181 Transmission Mains Condition Assessment, a copy of which is on file at the office of Purchasing Agent and incorporated herein for all purposes. The Contract consists of this written agreement and the following items which are attached hereto and incorporated herein by reference:

(a) Special Terms and Conditions **(Exhibit "A");**
(b) City of Denton's RFP #8181 **(Exhibit "B" on File at the Office of the Purchasing Agent);**
(c) City of Denton Standard Terms and Conditions **(Exhibit "C");**
(d) Insurance Requirements **(Exhibit "D");**
(e) Certificate of Interested Parties Electronic Filing **(Exhibit "E");**
(f) Contractor's Proposal (**Exhibit "F"**);
(g) Form CIQ – Conflict of Interest Questionnaire **(Exhibit "G");**

These documents make up the Contract documents and what is called for by one shall be as binding as if called for by all. In the event of an inconsistency or conflict in any of the provisions of the Contract documents, the inconsistency or conflict shall be resolved by giving precedence first to the written agreement then to the contract documents in the order in which they are listed above. These documents shall be referred to collectively as "Contract Documents."

Prohibition on Contracts with Companies Boycotting Israel
Contractor acknowledges that in accordance with Chapter 2271 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. The terms "boycott Israel" and "company" shall have the meanings ascribed to those terms in Section 808.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Energy Companies
Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is

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prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the contract. The terms "boycott energy company" and "company" shall have the meanings ascribed to those terms in Section 809.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Firearm Entities and Firearm Trade Associations

Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association. The terms "discriminate against a firearm entity or firearm trade association," "firearm entity" and "firearm trade association" shall have the meanings ascribed to those terms in Chapter 2274 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Doing Business with Iran, Sudan, or a Foreign Terrorist Organization

Sections 2252 and 2270 of the Texas Government Code restricts CITY from contracting with companies that do business with Iran, Sudan, or a foreign terrorist organization. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor, pursuant to Chapters 2252 and 2270, is not ineligible to enter into this agreement and will not become ineligible to receive payments under this agreement by doing business with Iran, Sudan, or a foreign terrorist organization***. Failure to meet or maintain the requirements under this provision will be considered a material breach.

Termination Right for Contracts with Companies Doing Business with Certain Foreign-Owned Companies

The City of Denton may terminate this Contract immediately without any further liability if the City of Denton determines, in its sole judgment, that this Contract meets the requirements under Chapter 2274, and Contractor is, or will be in the future, (i) owned by or the majority of stock or other ownership interest of the company is held or controlled by individuals who are citizens of China, Iran, North Korea, Russia, or other designated country (ii) directly controlled by the Government of China, Iran, North Korea, Russia, or other designated country, or (iii) is headquartered in China, Iran, North Korea, Russia, or other designated country.

The parties agree to transact business electronically. Any statutory requirements that certain terms be in writing will be satisfied using electronic documents and signing. Electronic signing of this document will be deemed an original for all legal purposes.

IN WITNESS WHEREOF, the parties of these presents have executed this agreement in the year and day first above written.

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CONTRACTOR

BY: DocuSigned by: Mike Garaci 7A576A7CD4F8404...
AUTHORIZED SIGNATURE

Printed Name: Mike Garaci

Title: Director, Business Development

4,165,744,446.00
PHONE NUMBER

mike.garaci@xylem.com
EMAIL ADDRESS

mike.garaci@xylem.com
TEXAS ETHICS COMMISSION
1295 CERTIFICATE NUMBER

CITY OF DENTON, TEXAS

BY: _____
SARA HENSLEY, CITY MANAGER

ATTEST:
JESUS SALAZAR, INTERIM CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: DocuSigned by: Marcella Lunn 4B070831B4AA438...

THIS AGREEMENT HAS BEEN BOTH REVIEWED AND APPROVED as to financial and operational obligations and business terms.

DocuSigned by: Stephen D. Gay 9EBFF5658E56492...
SIGNATURE

Stephen D. Gay
PRINTED NAME

Director,
TITLE

Water Utilities
DEPARTMENT

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Exhibit A
Special Terms and Conditions

1. Total Contract Amount

The contract total for services shall not exceed $10,000,000. Pricing shall be per Exhibit F attached.

2. The Quantities

The quantities indicated on Exhibit F are estimates based upon the best available information. The City reserves the right to increase or decrease the quantities to meet its actual needs without any adjustments in the bid price. Individual purchase orders will be issued on an as needed basis.

3. Contract Terms

The contract term will be three (3) year, effective from date of award. The City and the Supplier shall have the option to renew this contract for an additional two (2) one-year periods.

The Contract shall commence upon the issuance of a Notice of Award by the City of Denton and shall automatically renew each year, from the date of award by City Council. The Supplier's request to not renew the contract must be submitted in writing to the Purchasing Manager at least 60 days prior to the contract renewal date for each year. At the sole option of the City of Denton, the Contract may be further extended as needed, not to exceed a total of six (6) months.

4. Price Escalation and De-escalation

On Supplier's request in the form stated herein, the City will implement an escalation/de-escalation price adjustment annually based on these special terms. Any request for price adjustment must be based on the, U.S Department of Labor, Bureau of Labor Statistics, Producer Price Index (PPI) or the manufacturer published pricing list. The maximum escalation will not exceed +/- 8% for any individual year. The escalation will be determined annually at the renewal date. The price will be increased or decreased based upon the annual percentage change in the PPI or the percentage change in the manufacturer's price list. Should the PPI or manufacturer price list change exceed a minimum threshold value of +/-1%, then the stated eligible bid prices shall be adjusted in accordance with the percent change not to exceed the 8% limit per year. The supplier should provide documentation as percentage of each cost associated with the unit prices quoted for consideration.

Request must be submitted in writing with supporting evidence for need of such increase to the Purchasing Manager at least 60 days prior to contract expiration of each year. Respondent must also provide supporting documentation as justification for the request. If no request is made, then it will be assumed that the current contract price will be in effect.

Upon receipt of such request, the City of Denton reserves the right to either: accept the escalation as competitive with the general market price at the time, and become effective upon the renewal

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date of the contract award or reject the increases within 30 calendar days after receipt of a properly submitted request. If a properly submitted increase is rejected, the Contractor may request cancellation of such items from the Contract by giving the City of Denton written notice. Cancellation will not go into effect for 15 calendar days after a determination has been issued. Pre-price increase prices must be honored on orders dated up to the official date of the City of Denton approval and/or cancellation.

The request can be sent by e-mail to: purchasing@cityofdenton.com noting the solicitation number.

The City of Denton reserves the right to accept, reject, or negotiate the proposed price changes.

5. Performance Liquidated Damages

The Contractor shall incur contractual payment losses, as initiated by the City for performance that falls short of specified performance standards as outlined below:

- Delivery beyond contracted lead times
- Performance below contracted levels (services only)

The Contractor shall be assessed a one (1%) percent fee each month when any one of the performance standards outlined above are not met in full. The Contractor shall be assessed a two (2%) percent profit fee each month when any two (2) or more performance standards outlined above are not met in full. At the end of each month, the City will review the monthly reports and determine the percentage of penalty to be assessed to the Contractor's monthly profit margin.

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Exhibit C
Standard Purchase Terms and Conditions

These standard Terms and Conditions and the Terms and Conditions, Specifications, Drawings and other requirements included in the City of Denton's contract are applicable to contracts/purchase orders issued by the City of Denton hereinafter referred to as the City or Buyer and the Seller or respondent herein after referred to as Contractor or Supplier. Any deviations must be in writing and signed by a representative of the City's Procurement Department and the Supplier. No Terms and Conditions contained in the seller's proposal response, invoice or statement shall serve to modify the terms set forth herein. If there is a conflict between the provisions on the face of the contract/purchase order these written provisions will take precedence.

The Contractor agrees that the contract shall be governed by the following terms and conditions, unless exceptions are duly noted and fully negotiated. Unless otherwise specified in the contract, Sections 3, 4, 5, 6, 7, 8, 20, 21, and 36 shall apply only to a solicitation to purchase goods, and sections 9, 10, 11, 22 and 32 shall apply only to a solicitation to purchase services to be performed principally at the City's premises or on public rights-of-way.

1. **CONTRACTOR'S OBLIGATIONS**. The Contractor shall fully and timely provide all deliverables described in the Solicitation and in the Contractor's Offer in strict accordance with the terms, covenants, and conditions of the Contract and all applicable Federal, State, and local laws, rules, and regulations.

2. **EFFECTIVE DATE/TERM**. Unless otherwise specified in the Solicitation, this Contract shall be effective as of the date the contract is signed by the City, and shall continue in effect until all obligations are performed in accordance with the Contract.

3. **CONTRACTOR TO PACKAGE DELIVERABLES**: The Contractor will package deliverables in accordance with good commercial practice and shall include a packing list showing the description of each item, the quantity and unit price unless otherwise provided in the Specifications or Supplemental Terms and Conditions, each shipping container shall be clearly and permanently marked as follows: (a) The Contractor's name and address, (b) the City's name, address and purchase order or purchase release number and the price agreement number if applicable, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing list. The Contractor shall bear cost of packaging. Deliverables shall be suitably packed to secure lowest transportation costs and to conform to all the requirements of common carriers and any applicable specification. The City's count or weight shall be final and conclusive on shipments not accompanied by packing lists.

4. **SHIPMENT UNDER RESERVATION PROHIBITED**: The Contractor is not authorized to ship the deliverables under reservation and no tender of a bill of lading will operate as a tender of deliverables.

5. **TITLE & RISK OF LOSS**: Title to and risk of loss of the deliverables shall pass to the City only when the City actually receives and accepts the deliverables.

6. **DELIVERY TERMS AND TRANSPORTATION CHARGES**: Deliverables shall be

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shipped F.O.B. point of delivery unless otherwise specified in the Supplemental Terms and Conditions. Unless otherwise stated in the Offer, the Contractor's price shall be deemed to include all delivery and transportation charges. The City shall have the right to designate what method of transportation shall be used to ship the deliverables. The place of delivery shall be that set forth the purchase order.

7. **RIGHT OF INSPECTION AND REJECTION**: The City expressly reserves all rights under law, including, but not limited to the Uniform Commercial Code, to inspect the deliverables at delivery before accepting them, and to reject defective or non-conforming deliverables. If the City has the right to inspect the Contractor's, or the Contractor's Subcontractor's, facilities, or the deliverables at the Contractor's, or the Contractor's Subcontractor's, premises, the Contractor shall furnish, or cause to be furnished, without additional charge, all reasonable facilities and assistance to the City to facilitate such inspection.

8. **NO REPLACEMENT OF DEFECTIVE TENDER**: Every tender or delivery of deliverables must fully comply with all provisions of the Contract as to time of delivery, quality, and quantity. Any non-complying tender shall constitute a breach and the Contractor shall not have the right to substitute a conforming tender; provided, where the time for performance has not yet expired, the Contractor may notify the City of the intention to cure and may then make a conforming tender within the time allotted in the contract.

9. **PLACE AND CONDITION OF WORK**: The City shall provide the Contractor access to the sites where the Contractor is to perform the services as required in order for the Contractor to perform the services in a timely and efficient manner, in accordance with and subject to the applicable security laws, rules, and regulations. The Contractor acknowledges that it has satisfied itself as to the nature of the City's service requirements and specifications, the location and essential characteristics of the work sites, the quality and quantity of materials, equipment, labor and facilities necessary to perform the services, and any other condition or state of fact which could in any way affect performance of the Contractor's obligations under the contract. The Contractor hereby releases and holds the City harmless from and against any liability or claim for damages of any kind or nature if the actual site or service conditions differ from expected conditions.

The contractor shall, at all times, exercise reasonable precautions for the safety of their employees, City Staff, participants and others on or near the City's facilities.

10. **WORKFORCE**

A. The Contractor shall employ only orderly and competent workers, skilled in the performance of the services which they will perform under the Contract.

B. The Contractor, its employees, subcontractors, and subcontractor's employees may not while engaged in participating or responding to a solicitation or while in the course and scope of delivering goods or services under a City of Denton contract or on the City's property .

i. use or possess a firearm, including a concealed handgun that is licensed under state law, except as required by the terms of the contract; or

ii. use or possess alcoholic or other intoxicating beverages, illegal drugs or controlled substances, nor may such workers be intoxicated, or under the influence of alcohol or drugs, on the job.

C. If the City or the City's representative notifies the Contractor that any worker is incompetent, disorderly or disobedient, has knowingly or repeatedly violated safety regulations, has possessed

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any firearms, or has possessed or was under the influence of alcohol or drugs on the job, the Contractor shall immediately remove such worker from Contract services, and may not employ such worker again on Contract services without the City's prior written consent.
Immigration: The Contractor represents and warrants that it shall comply with the requirements of the Immigration Reform and Control Act of 1986 and 1990 regarding employment verification and retention of verification forms for any individuals hired on or after November 6, 1986, who will perform any labor or services under the Contract and the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 ("IIRIRA) enacted on September 30, 1996.

11. **COMPLIANCE WITH HEALTH, SAFETY, AND ENVIRONMENTAL REGULATIONS**: The Contractor, it's Subcontractors, and their respective employees, shall comply fully with all applicable federal, state, and local health, safety, and environmental laws, ordinances, rules and regulations in the performance of the services, including but not limited to those promulgated by the City and by the Occupational Safety and Health Administration (OSHA). In case of conflict, the most stringent safety requirement shall govern. The Contractor shall indemnify and hold the City harmless from and against all claims, demands, suits, actions, judgments, fines, penalties and liability of every kind arising from the breach of the Contractor's obligations under this paragraph.

Environmental Protection: The Respondent shall be in compliance with all applicable standards, orders, or regulations issued pursuant to the mandates of the Clean Air Act (42 U.S.C. §7401 *et seq*.) and the Federal Water Pollution Control Act, as amended, (33 U.S.C. §1251 *et seq*.).

12. **INVOICES**:
A. The Contractor shall submit separate invoices in duplicate on each purchase order or purchase release after each delivery. If partial shipments or deliveries are authorized by the City, a separate invoice must be sent for each shipment or delivery made.
B. **Proper Invoices must include a unique invoice number, the purchase order or delivery order number and the master agreement number if applicable, the Department's Name, and the name of the point of contact for the Department**. Invoices shall be itemized and transportation charges, if any, shall be listed separately. A copy of the bill of lading and the freight waybill, when applicable, shall be attached to the invoice. The Contractor's name, remittance address and, if applicable, the tax identification number on the invoice must exactly match the information in the Vendor's registration with the City. Unless otherwise instructed in writing, the City may rely on the remittance address specified on the Contractor's invoice.
C. Invoices for labor shall include a copy of all time-sheets with trade labor rate and deliverables order number clearly identified. Invoices shall also include a tabulation of work-hours at the appropriate rates and grouped by work order number. Time billed for labor shall be limited to hours actually worked at the work site.
D. Unless otherwise expressly authorized in the Contract, the Contractor shall pass through all Subcontract and other authorized expenses at actual cost without markup.
E. Federal excise taxes, State taxes, or City sales taxes must not be included in the invoiced amount.
The City will furnish a tax exemption certificate upon request.

13. **PAYMENT**:
A. All proper invoices need to be sent to Accounts Payable. Approved invoices will be paid within thirty (30) calendar days of the City's receipt of the deliverables or of the invoice being received

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in Accounts Payable, whichever is later.

B. **If payment is not timely made, (per paragraph A); interest shall accrue on the unpaid balance at the lesser of the rate specified in Texas Government Code Section 2251.025 or the maximum lawful rate; except, if payment is not timely made for a reason for which the City may withhold payment hereunder, interest shall not accrue until ten (10) calendar days after the grounds for withholding payment have been resolved.**

C. If partial shipments or deliveries are authorized by the City, the Contractor will be paid for the partial shipment or delivery, as stated above, provided that the invoice matches the shipment or delivery.

D. The City may withhold or set off the entire payment or part of any payment otherwise due the Contractor to such extent as may be necessary on account of:

i. delivery of defective or non-conforming deliverables by the Contractor;

ii. third party claims, which are not covered by the insurance which the Contractor is required to provide, are filed or reasonable evidence indicating probable filing of such claims;

iii. failure of the Contractor to pay Subcontractors, or for labor, materials or equipment;

iv. damage to the property of the City or the City's agents, employees or contractors, which is not covered by insurance required to be provided by the Contractor;

v. reasonable evidence that the Contractor's obligations will not be completed within the time specified in the Contract, and that the unpaid balance would not be adequate to cover actual or damages for the anticipated delay;

vi. failure of the Contractor to submit proper invoices with purchase order number, with all required attachments and supporting documentation; or

vii. failure of the Contractor to comply with any material provision of the Contract Documents.

E. Notice is hereby given that any awarded firm who is in arrears to the City of Denton for delinquent taxes, the City may offset indebtedness owed the City through payment withholding.

F. Payment will be made by check unless the parties mutually agree to payment by credit card or electronic transfer of funds. The Contractor agrees that there shall be no additional charges, surcharges, or penalties to the City for payments made by credit card or electronic funds transfer.

G. The awarding or continuation of this contract is dependent upon the availability of funding. The City's payment obligations are payable only and solely from funds Appropriated and available for this contract. The absence of Appropriated or other lawfully available funds shall render the Contract null and void to the extent funds are not Appropriated or available and any deliverables delivered but unpaid shall be returned to the Contractor. The City shall provide the Contractor written notice of the failure of the City to make an adequate Appropriation for any fiscal year to pay the amounts due under the Contract, or the reduction of any Appropriation to an amount insufficient to permit the City to pay its obligations under the Contract. In the event of none or inadequate appropriation of funds, there will be no penalty nor removal fees charged to the City.

14. **TRAVEL EXPENSES**: All travel, lodging and per diem expenses in connection with the Contract shall be paid by the Contractor, unless otherwise stated in the contract terms. During the term of this contract, the contractor shall bill and the City shall reimburse contractor for all reasonable and approved out of pocket expenses which are incurred in the connection with the performance of duties hereunder. Notwithstanding the foregoing, expenses for the time spent by the contractor in traveling to and from City facilities shall not be reimbursed, unless otherwise negotiated.

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15. **FINAL PAYMENT AND CLOSE-OUT**:
A. If a DBE/MBE/WBE Program Plan is agreed to and the Contractor has identified Subcontractors, the Contractor is required to submit a Contract Close-Out MBE/WBE Compliance Report to the Purchasing Manager no later than the 15th calendar day after completion of all work under the contract. Final payment, retainage, or both may be withheld if the Contractor is not in compliance with the requirements as accepted by the City.
B. The making and acceptance of final payment will constitute:
i. a waiver of all claims by the City against the Contractor, except claims (1) which have been previously asserted in writing and not yet settled, (2) arising from defective work appearing after final inspection, (3) arising from failure of the Contractor to comply with the Contract or the terms of any warranty specified herein, (4) arising from the Contractor's continuing obligations under the Contract, including but not limited to indemnity and warranty obligations, or (5) arising under the City's right to audit; and ii. a waiver of all claims by the Contractor against the City other than those previously asserted in writing and not yet settled.

16. **SPECIAL TOOLS & TEST EQUIPMENT**: If the price stated on the Offer includes the cost of any special tooling or special test equipment fabricated or required by the Contractor for the purpose of filling this order, such special tooling equipment and any process sheets related thereto shall become the property of the City and shall be identified by the Contractor as such.

17. **RIGHT TO AUDIT**:
A. The City shall have the right to audit and make copies of the books, records and computations pertaining to the Contract. The Contractor shall retain such books, records, documents and other evidence pertaining to the Contract period and five years thereafter, except if an audit is in progress or audit findings are yet unresolved, in which case records shall be kept until all audit tasks are completed and resolved. These books, records, documents and other evidence shall be available, within ten (10) business days of written request. Further, the Contractor shall also require all Subcontractors, material suppliers, and other payees to retain all books, records, documents and other evidence pertaining to the Contract, and to allow the City similar access to those documents. All books and records will be made available within a 50 mile radius of the City of Denton. The cost of the audit will be borne by the City unless the audit reveals an overpayment of 1% or greater. If an overpayment of 1% or greater occurs, the reasonable cost of the audit, including any travel costs, must be borne by the Contractor which must be payable within five (5) business days of receipt of an invoice.
B. Failure to comply with the provisions of this section shall be a material breach of the Contract and shall constitute, in the City's sole discretion, grounds for termination thereof. Each of the terms "books", "records", "documents" and "other evidence", as used above, shall be construed to include drafts and electronic files, even if such drafts or electronic files are subsequently used to generate or prepare a final printed document.

18. **SUBCONTRACTORS**:
A. If the Contractor identified Subcontractors in a DBE/MBE/WBE agreed to Plan, the Contractor shall comply with all requirements approved by the City. The Contractor shall not initially employ any Subcontractor except as provided in the Contractor's Plan. The Contractor shall not substitute any Subcontractor identified in the Plan, unless the substitute has been accepted by the City in writing. No acceptance by the City of any Subcontractor shall constitute a waiver of any rights or remedies of the City with respect to defective deliverables provided by a Subcontractor. If a Plan has been approved, the Contractor is additionally required to submit a monthly Subcontract

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Awards and Expenditures Report to the Procurement Manager, no later than the tenth calendar day of each month.

B. Work performed for the Contractor by a Subcontractor shall be pursuant to a written contract between the Contractor and Subcontractor. The terms of the subcontract may not conflict with the terms of the

Contract, and shall contain provisions that:

i. require that all deliverables to be provided by the Subcontractor be provided in strict accordance with the provisions, specifications and terms of the Contract;

ii. prohibit the Subcontractor from further subcontracting any portion of the Contract without the prior written consent of the City and the Contractor. The City may require, as a condition to such further subcontracting, that the Subcontractor post a payment bond in form, substance and amount acceptable to the City;

iii. require Subcontractors to submit all invoices and applications for payments, including any claims for additional payments, damages or otherwise, to the Contractor in sufficient time to enable the Contractor to include same with its invoice or application for payment to the City in accordance with the terms of the Contract;

iv. require that all Subcontractors obtain and maintain, throughout the term of their contract, insurance in the type and amounts specified for the Contractor, with the City being a named insured as its interest shall appear; and

v. require that the Subcontractor indemnify and hold the City harmless to the same extent as the Contractor is required to indemnify the City.

C. The Contractor shall be fully responsible to the City for all acts and omissions of the Subcontractors just as the Contractor is responsible for the Contractor's own acts and omissions. Nothing in the Contract shall create for the benefit of any such Subcontractor any contractual relationship between the City and any such Subcontractor, nor shall it create any obligation on the part of the City to pay or to see to the payment of any moneys due any such Subcontractor except as may otherwise be required by law.

D. The Contractor shall pay each Subcontractor its appropriate share of payments made to the Contractor not later than ten (10) calendar days after receipt of payment from the City.

19. **WARRANTY-PRICE**:

A. The Contractor warrants the prices quoted in the Offer are no higher than the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

B. The Contractor certifies that the prices in the Offer have been arrived at independently without consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such fees with any other firm or with any competitor.

C. In addition to any other remedy available, the City may deduct from any amounts owed to the Contractor, or otherwise recover, any amounts paid for items in excess of the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

20. **WARRANTY – TITLE**: The Contractor warrants that it has good and indefeasible title to all deliverables furnished under the Contract, and that the deliverables are free and clear of all liens, claims, security interests and encumbrances. The Contractor shall indemnify and hold the City harmless from and against all adverse title claims to the deliverables.

21. **WARRANTY – DELIVERABLES**: The Contractor warrants and represents that all deliverables sold the City under the Contract shall be free from defects in design, workmanship or manufacture, and conform in all material respects to the specifications, drawings, and descriptions

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in the Solicitation, to any samples furnished by the Contractor, to the terms, covenants and conditions of the Contract, and to all applicable State, Federal or local laws, rules, and regulations, and industry codes and standards. Unless otherwise stated in the Solicitation, the deliverables shall be new or recycled merchandise, and not used or reconditioned.

A. Recycled deliverables shall be clearly identified as such.

B. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law; and any attempt to do so shall be without force or effect.

C. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the date of acceptance of the deliverables or from the date of acceptance of any replacement deliverables. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand either repair the non-conforming deliverables, or replace the non-conforming deliverables with fully conforming deliverables, at the City's option and at no additional cost to the City. All costs incidental to such repair or replacement, including but not limited to, any packaging and shipping costs shall be borne exclusively by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach of warranty, but failure to give timely notice shall not impair the City's rights under this section.

D. If the Contractor is unable or unwilling to repair or replace defective or non-conforming deliverables as required by the City, then in addition to any other available remedy, the City may reduce the quantity of deliverables it may be required to purchase under the Contract from the Contractor, and purchase conforming deliverables from other sources. In such event, the Contractor shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such deliverables from another source.

E. If the Contractor is not the manufacturer, and the deliverables are covered by a separate manufacturer's warranty, the Contractor shall transfer and assign such manufacturer's warranty to the City. If for any reason the manufacturer's warranty cannot be fully transferred to the City, the Contractor shall assist and cooperate with the City to the fullest extent to enforce such manufacturer's warranty for the benefit of the City.

22. **WARRANTY – SERVICES**: The Contractor warrants and represents that all services to be provided the City under the Contract will be fully and timely performed in a good and workmanlike manner in accordance with generally accepted industry standards and practices, the terms, conditions, and covenants of the Contract, and all applicable Federal, State and local laws, rules or regulations.

A. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law, and any attempt to do so shall be without force or effect.

B. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the Acceptance Date. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand perform the services again in accordance with above standard at no additional cost to the City. All costs incidental to such additional performance shall be borne by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach warranty, but failure to give timely notice shall not impair the City's rights under this section.

C. If the Contractor is unable or unwilling to perform its services in accordance with the above standard as required by the City, then in addition to any other available remedy, the City may reduce the amount of services it may be required to purchase under the Contract from the Contractor, and purchase conforming services from other sources. In such event, the Contractor

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shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such services from another source.

23. **ACCEPTANCE OF INCOMPLETE OR NON-CONFORMING DELIVERABLES**: If, instead of requiring immediate correction or removal and replacement of defective or non-conforming deliverables, the City prefers to accept it, the City may do so. The Contractor shall pay all claims, costs, losses and damages attributable to the City's evaluation of and determination to accept such defective or non-conforming deliverables. If any such acceptance occurs prior to final payment, the City may deduct such amounts as are necessary to compensate the City for the diminished value of the defective or non-conforming deliverables. If the acceptance occurs after final payment, such amount will be refunded to the City by the Contractor.

24. **RIGHT TO ASSURANCE**: Whenever one party to the Contract in good faith has reason to question the other party's intent to perform, demand may be made to the other party for written assurance of the intent to perform. In the event that no assurance is given within the time specified after demand is made, the demanding party may treat this failure as an anticipatory repudiation of the Contract.

25. **STOP WORK NOTICE**: The City may issue an immediate Stop Work Notice in the event the Contractor is observed performing in a manner that is in violation of Federal, State, or local guidelines, or in a manner that is determined by the City to be unsafe to either life or property. Upon notification, the Contractor will cease all work until notified by the City that the violation or unsafe condition has been corrected. The Contractor shall be liable for all costs incurred by the City as a result of the issuance of such Stop Work Notice.

26. **DEFAULT**: The Contractor shall be in default under the Contract if the Contractor (a) fails to fully, timely and faithfully perform any of its material obligations under the Contract, (b) fails to provide adequate assurance of performance under Paragraph 24, (c) becomes insolvent or seeks relief under the bankruptcy laws of the United States or (d) makes a material misrepresentation in Contractor's Offer, or in any report or deliverable required to be submitted by the Contractor to the City.

27. **TERMINATION FOR CAUSE:** In the event of a default by the Contractor, the City shall have the right to terminate the Contract for cause, by written notice effective ten (10) calendar days, unless otherwise specified, after the date of such notice, unless the Contractor, within such ten (10) day period, cures such default, or provides evidence sufficient to prove to the City's reasonable satisfaction that such default does not, in fact, exist. In addition to any other remedy available under law or in equity, the City shall be entitled to recover all actual damages, costs, losses and expenses, incurred by the City as a result of the Contractor's default, including, without limitation, cost of cover, reasonable attorneys' fees, court costs, and prejudgment and post-judgment interest at the maximum lawful rate. Additionally, in the event of a default by the Contractor, the City may remove the Contractor from the City's vendor list for three (3) years and any Offer submitted by the Contractor may be disqualified for up to three (3) years. All rights and remedies under the Contract are cumulative and are not exclusive of any other right or remedy provided by law.

28. **TERMINATION WITHOUT CAUSE**: The City shall have the right to terminate the Contract, in whole or in part, without cause any time upon thirty (30) calendar days' prior written notice. Upon receipt of a notice of termination, the Contractor shall promptly cease all further work pursuant to the Contract, with such exceptions, if any, specified in the notice of termination. The

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City shall pay the Contractor, to the extent of funds Appropriated or otherwise legally available for such purposes, for all goods delivered and services performed and obligations incurred prior to the date of termination in accordance with the terms hereof.

29. **FRAUD**: Fraudulent statements by the Contractor on any Offer or in any report or deliverable required to be submitted by the Contractor to the City shall be grounds for the termination of the Contract for cause by the City and may result in legal action.

30. **DELAYS**:
A. The City may delay scheduled delivery or other due dates by written notice to the Contractor if the City deems it is in its best interest. If such delay causes an increase in the cost of the work under the Contract, the City and the Contractor shall negotiate an equitable adjustment for costs incurred by the Contractor in the Contract price and execute an amendment to the Contract. The Contractor must assert its right to an adjustment within thirty (30) calendar days from the date of receipt of the notice of delay. Failure to agree on any adjusted price shall be handled under the Dispute Resolution process specified in paragraph 49. However, nothing in this provision shall excuse the Contractor from delaying the delivery as notified.
B. Neither party shall be liable for any default or delay in the performance of its obligations under this Contract if, while and to the extent such default or delay is caused by acts of God, fire, riots, civil commotion, labor disruptions, sabotage, sovereign conduct, or any other cause beyond the reasonable control of such Party. In the event of default or delay in contract performance due to any of the foregoing causes, then the time for completion of the services will be extended; provided, however, in such an event, a conference will be held within three (3) business days to establish a mutually agreeable period of time reasonably necessary to overcome the effect of such failure to perform.

31. **INDEMNITY**:
A. Definitions:

i. "Indemnified Claims" shall include any and all claims, demands, suits, causes of action, judgments and liability of every character, type or description, including all reasonable costs and expenses of litigation, mediation or other alternate dispute resolution mechanism, including attorney and other professional fees for: (1) damage to or loss of the property of any person (including, but not limited to the City, the Contractor, their respective agents, officers, employees and subcontractors; the officers, agents, and employees of such subcontractors; and third parties); and/or (2) death, bodily injury, illness, disease, worker's compensation, loss of services, or loss of income or wages to any person (including but not limited to the agents, officers and employees of the City, the Contractor, the Contractor's subcontractors, and third parties), ii. "Fault" shall include the sale of defective or non-conforming deliverables, negligence, willful misconduct or a breach of any legally imposed strict liability standard.

B. **THE CONTRACTOR SHALL DEFEND (AT THE OPTION OF THE CITY), INDEMNIFY, AND HOLD THE CITY, ITS SUCCESSORS, ASSIGNS, OFFICERS, EMPLOYEES AND ELECTED OFFICIALS HARMLESS FROM AND AGAINST ALL INDEMNIFIED CLAIMS DIRECTLY CAUSED BY THE FAULT OF THE CONTRACTOR, OR THE CONTRACTOR'S AGENTS, EMPLOYEES OR SUBCONTRACTORS, IN THE PERFORMANCE OF THE CONTRACTOR'S OBLIGATIONS UNDER THE CONTRACT. NOTHING HEREIN SHALL BE DEEMED**

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TO LIMIT THE RIGHTS OF THE CITY OR THE CONTRACTOR (INCLUDING, BUT NOT LIMITED TO, THE RIGHT TO SEEK CONTRIBUTION) AGAINST ANY THIRD PARTY WHO MAY BE LIABLE FOR AN INDEMNIFIED CLAIM.

Notwithstanding anything herein to the contrary, neither party hereto will be liable to the other for any consequential, indirect, incidental, or special loss or damage suffered by the other party or any third party, or for any punitive damages, even if advised of the possibility thereof. Contractor's cumulative liability hereunder, whether in contract, tort, or otherwise, will in no event exceed the greater of (i) the aggregate consideration paid by the City to Contractor for the portion of the Services that gave rise to the liability, or (ii) $1 million; provided, however, that this clause shall not limit Contractor's indemnification obligations hereunder.

32. **INSURANCE**: The following insurance requirements are applicable, in addition to the specific insurance requirements detailed in **Appendix A** for services only**.** The successful firm shall procure and maintain insurance of the types and in the minimum amounts acceptable to the City of Denton. The insurance shall be written by a company licensed to do business in the State of Texas and satisfactory to the City of Denton.

A. General Requirements:

i. The Contractor shall at a minimum carry insurance in the types and amounts indicated and agreed to, as submitted to the City and approved by the City within the procurement process, for the duration of the Contract, including extension options and hold over periods, and during any warranty period.

ii. The Contractor shall provide Certificates of Insurance with the coverage's and endorsements required to the City as verification of coverage prior to contract execution and within fourteen (14) calendar days after written request from the City. Failure to provide the required Certificate of Insurance may subject the Offer to disqualification from consideration for award. The Contractor must also forward a Certificate of Insurance to the City whenever a previously identified policy period has expired, or an extension option or hold over period is exercised, as verification of continuing coverage.

iii. The Contractor shall not commence work until the required insurance is obtained and until such insurance has been reviewed by the City. Approval of insurance by the City shall not relieve or decrease the liability of the Contractor hereunder and shall not be construed to be a limitation of liability on the part of the Contractor.

iv. The Contractor must submit certificates of insurance to the City for all subcontractors prior to the subcontractors commencing work on the project.

v. The Contractor's and all subcontractors' insurance coverage shall be written by companies licensed to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of **A- VII or better**. The City will accept workers' compensation coverage written by the Texas Workers' Compensation Insurance Fund.

vi. All endorsements naming the City as additional insured, waivers, and notices of cancellation endorsements as well as the Certificate of Insurance shall contain the solicitation number and the following information:

City of Denton
Materials Management Department
901B Texas Street
Denton, Texas 76209

vii. The "other" insurance clause shall not apply to the City where the City is an additional

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insured shown on any policy. It is intended that policies required in the Contract, covering both the City and the Contractor, shall be considered primary coverage as applicable.

viii. If insurance policies are not written for amounts agreed to with the City, the Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of the primary coverage.

ix. The City shall be entitled, upon request, at an agreed upon location, and without expense, to review certified copies of policies and endorsements thereto and may make any reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions except where policy provisions are established by law or regulations binding upon either of the parties hereto or the underwriter on any such policies.

x. The City reserves the right to review the insurance requirements set forth during the effective period of the Contract and to make reasonable adjustments to insurance coverage, limits, and exclusions when deemed necessary and prudent by the City based upon changes in statutory law, court decisions, the claims history of the industry or financial condition of the insurance company as well as the Contractor.

xi. The Contractor shall not cause any insurance to be canceled nor permit any insurance to lapse during the term of the Contract or as required in the Contract.

xii. The Contractor shall be responsible for premiums, deductibles and self-insured retentions, if any, stated in policies. All deductibles or self-insured retentions shall be disclosed on the Certificate of Insurance.

xiii. The Contractor shall endeavor to provide the City thirty (30) calendar days' written notice of erosion of the aggregate limits below occurrence limits for all applicable coverage's indicated within the Contract.

xiv. The insurance coverage's specified in within the solicitation and requirements are required minimums and are not intended to limit the responsibility or liability of the Contractor.

B. Specific Coverage Requirements: Specific insurance requirements are contained in the solicitation instrument.

33. **CLAIMS**: If any claim, demand, suit, or other action is asserted against the Contractor which arises under or concerns the Contract, or which could have a material adverse effect on the Contractor's ability to perform thereunder, the Contractor shall give written notice thereof to the City within ten (10) calendar days after receipt of notice by the Contractor. Such notice to the City shall state the date of notification of any such claim, demand, suit, or other action; the names and addresses of the claimant(s); the basis thereof; and the name of each person against whom such claim is being asserted. Such notice shall be delivered personally or by mail and shall be sent to the City and to the Denton City Attorney. Personal delivery to the City Attorney shall be to City Hall, 215 East McKinney Street, Denton, Texas 76201.

34. **NOTICES**: Unless otherwise specified, all notices, requests, or other communications required or appropriate to be given under the Contract shall be in writing and shall be deemed delivered three (3) business days after postmarked if sent by U.S. Postal Service Certified or Registered Mail, Return Receipt Requested. Notices delivered by other means shall be deemed delivered upon receipt by the addressee. Routine communications may be made by first class mail, telefax, or other commercially accepted means. Notices to the Contractor shall be sent to the address specified in the Contractor's Offer, or at such other address as a party may notify the other in writing. Notices to the City shall be addressed to the City at 901B Texas Street, Denton, Texas 76209 and marked

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to the attention of the Purchasing Manager.

35. **RIGHTS TO BID, PROPOSAL AND CONTRACTUAL MATERIAL**: All material submitted by the Contractor to the City shall become property of the City upon receipt. Any portions of such material claimed by the Contractor to be proprietary must be clearly marked as such. Determination of the public nature of the material is subject to the Texas Public Information Act, Chapter 552, and Texas Government Code.

36. **NO WARRANTY BY CITY AGAINST INFRINGEMENTS**: The Contractor represents and warrants to the City that: (i) the Contractor shall provide the City good and indefeasible title to the deliverables and (ii) the deliverables supplied by the Contractor in accordance with the specifications in the Contract will not infringe, directly or contributorily, any patent, trademark, copyright, trade secret, or any other intellectual property right of any kind of any third party; that no claims have been made by any person or entity with respect to the ownership or operation of the deliverables and the Contractor does not know of any valid basis for any such claims. The Contractor shall, at its sole expense, defend, indemnify, and hold the City harmless from and against all liability, damages, and costs (including court costs and reasonable fees of attorneys and other professionals) arising out of or resulting from: (i) any claim that the City's exercise anywhere in the world of the rights associated with the City's' ownership, and if applicable, license rights, and its use of the deliverables infringes the intellectual property rights of any third party; or (ii) the Contractor's breach of any of Contractor's representations or warranties stated in this Contract. In the event of any such claim, the City shall have the right to monitor such claim or at its option engage its own separate counsel to act as co-counsel on the City's behalf. Further, Contractor agrees that the City's specifications regarding the deliverables shall in no way diminish Contractor's warranties or obligations under this paragraph and the City makes no warranty that the production, development, or delivery of such deliverables will not impact such warranties of Contractor.

37. **CONFIDENTIALITY**: In order to provide the deliverables to the City, Contractor may require access to certain of the City's and/or its licensors' confidential information (including inventions, employee information, trade secrets, confidential know-how, confidential business information, and other information which the City or its licensors consider confidential) (collectively, "Confidential Information"). Contractor acknowledges and agrees that the Confidential Information is the valuable property of the City and/or its licensors and any unauthorized use, disclosure, dissemination, or other release of the Confidential Information will substantially injure the City and/or its licensors. The Contractor (including its employees, subcontractors, agents, or representatives) agrees that it will maintain the Confidential Information in strict confidence and shall not disclose, disseminate, copy, divulge, recreate, or otherwise use the Confidential Information without the prior written consent of the City or in a manner not expressly permitted under this Agreement, unless the Confidential Information is required to be disclosed by law or an order of any court or other governmental authority with proper jurisdiction, provided the Contractor promptly notifies the City before disclosing such information so as to permit the City reasonable time to seek an appropriate protective order. The Contractor agrees to use protective measures no less stringent than the Contractor uses within its own business to protect its own most valuable information, which protective measures shall under all circumstances be at least reasonable measures to ensure the continued confidentiality of the Confidential Information.

38. **OWNERSHIP AND USE OF DELIVERABLES**: The City shall own all rights, titles, and

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interests throughout the world in and to the deliverables.

A. Reserved.

B. Copyrights. As to any deliverables containing copyrightable subject matter, the Contractor agrees that upon their creation, such deliverables shall be considered as work made-for-hire by the Contractor for the City and the City shall own all copyrights in and to such deliverables, provided however, that nothing in this Paragraph 38 shall negate the City's sole or joint ownership of any such deliverables arising by virtue of the City's sole or joint authorship of such deliverables. Should by operation of law, such deliverables not be considered works made-for-hire, the Contractor hereby assigns to the City (and agrees to cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver an assignment to the City of) all worldwide right, title, and interest in and to such deliverables. With respect to such work made-for-hire, the Contractor agrees to execute, acknowledge, and deliver and cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver a work-made-for-hire agreement, in a form to be reasonably approved by the City, to the City upon delivery of such deliverables to the City or at such other time as the City may request.

C. Additional Assignments. The Contractor further agrees to, and if applicable, cause each of its employees to, execute, acknowledge, and deliver all applications, specifications, oaths, assignments, and all other instruments which the City might reasonably deem necessary in order to apply for and obtain copyright protection, mask work registration, trademark registration and/or protection, or any similar rights in any and all countries and in order to assign and convey to the City, its successors, assigns and nominees, the sole and exclusive right, title, and interest in and to the deliverables. The Contractor's obligations to execute, acknowledge, and deliver (or cause to be executed, acknowledged, and delivered) instruments or papers such as those described in this Paragraph 38 a., b., and c. shall continue after the termination of this Contract with respect to such deliverables. In the event the City should not seek to obtain copyright protection, mask work registration or patent protection for any of the deliverables, but should desire to keep the same secret, the Contractor agrees to treat the same as Confidential Information under the terms of Paragraph 37 above.

39. **PUBLICATIONS**: All published material and written reports submitted under the Contract must be originally developed material unless otherwise specifically provided in the Contract. When material not originally developed is included in a report in any form, the source shall be identified.

40. **ADVERTISING**: The Contractor shall not advertise or publish, without the City's prior consent, the fact that the City has entered into the Contract, except to the extent required by law.

41. **NO CONTINGENT FEES**: The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure the Contract upon any agreement or understanding for commission, percentage, brokerage, or contingent fee, excepting bona fide employees of bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the City shall have the right, in addition to any other remedy available, to cancel the Contract without liability and to deduct from any amounts owed to the Contractor, or otherwise recover, the full amount of such commission, percentage, brokerage or contingent fee.

42. **GRATUITIES**: The City may, by written notice to the Contractor, cancel the Contract without liability if it is determined by the City that gratuities were offered or given by the Contractor or

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any agent or representative of the Contractor to any officer or employee of the City of Denton with a view toward securing the Contract or securing favorable treatment with respect to the awarding or amending or the making of any determinations with respect to the performing of such contract. In the event the Contract is canceled by the City pursuant to this provision, the City shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by the Contractor in providing such gratuities.

43. **PROHIBITION AGAINST PERSONAL INTEREST IN CONTRACTS**: No officer, employee, independent consultant, or elected official of the City who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation as defined in the City's Ethic Ordinance 18-757 and in the City Charter chapter 2 article XI(Ethics). Any willful violation of this section shall constitute impropriety in office, and any officer or employee guilty thereof shall be subject to disciplinary action up to and including dismissal. Any violation of this provision, with the knowledge, expressed or implied, of the Contractor shall render the Contract voidable by the City. The Contractor shall complete and submit the City's Conflict of Interest Questionnaire.

44. **INDEPENDENT CONTRACTOR**: The Contract shall not be construed as creating an employer/employee relationship, a partnership, or a joint venture. The Contractor's services shall be those of an independent contractor. The Contractor agrees and understands that the Contract does not grant any rights or privileges established for employees of the City of Denton, Texas for the purposes of income tax, withholding, social security taxes, vacation or sick leave benefits, worker's compensation, or any other City employee benefit. The City shall not have supervision and control of the Contractor or any employee of the Contractor, and it is expressly understood that Contractor shall perform the services hereunder according to the attached specifications at the general direction of the City Manager of the City of Denton, Texas, or their designee under this agreement. The contractor is expressly free to advertise and perform services for other parties while performing services for the City.

45. **ASSIGNMENT-DELEGATION**: The Contract shall be binding upon and ensure to the benefit of the City and the Contractor and their respective successors and assigns, provided however, that no right or interest in the Contract shall be assigned and no obligation shall be delegated by the Contractor without the prior written consent of the City. Any attempted assignment or delegation by the Contractor shall be void unless made in conformity with this paragraph. The Contract is not intended to confer rights or benefits on any person, firm or entity not a party hereto; it being the intention of the parties that there are no third party beneficiaries to the Contract.
The Vendor shall notify the City's Purchasing Manager, in writing, of a company name, ownership, or address change for the purpose of maintaining updated City records. The president of the company or authorized official must sign the letter. A letter indicating changes in a company name or ownership must be accompanied with supporting legal documentation such as an updated W-9, documents filed with the state indicating such change, copy of the board of director's resolution approving the action, or an executed merger or acquisition agreement. Failure to do so may adversely impact future invoice payments.

46. **WAIVER**: No claim or right arising out of a breach of the Contract can be discharged in whole

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or in part by a waiver or renunciation of the claim or right unless the waiver or renunciation is supported by consideration and is in writing signed by the aggrieved party. No waiver by either the Contractor or the City of any one or more events of default by the other party shall operate as, or be construed to be, a permanent waiver of any rights or obligations under the Contract, or an express or implied acceptance of any other existing or future default or defaults, whether of a similar or different character.

47. **MODIFICATIONS**: The Contract can be modified or amended only by a writing signed by both parties. No pre-printed or similar terms on any the Contractor invoice, order or other document shall have any force or effect to change the terms, covenants, and conditions of the Contract.

48. **INTERPRETATION**: The Contract is intended by the parties as a final, complete and exclusive statement of the terms of their agreement. No course of prior dealing between the parties or course of performance or usage of the trade shall be relevant to supplement or explain any term used in the Contract. Although the Contract may have been substantially drafted by one party, it is the intent of the parties that all provisions be construed in a manner to be fair to both parties, reading no provisions more strictly against one party or the other. Whenever a term defined by the Uniform Commercial Code, as enacted by the State of Texas, is used in the Contract, the UCC definition shall control, unless otherwise defined in the Contract.

49. **DISPUTE RESOLUTION**:
A. If a dispute arises out of or relates to the Contract, or the breach thereof, the parties agree to negotiate prior to prosecuting a suit for damages. However, this section does not prohibit the filing of a lawsuit to toll the running of a statute of limitations or to seek injunctive relief. Either party may make a written request for a meeting between representatives of each party within fourteen (14) calendar days after receipt of the request or such later period as agreed by the parties. Each party shall include, at a minimum, one (1) senior level individual with decision-making authority regarding the dispute. The purpose of this and any subsequent meeting is to attempt in good faith to negotiate a resolution of the dispute. If, within thirty (30) calendar days after such meeting, the parties have not succeeded in negotiating a resolution of the dispute, they will proceed directly to mediation as described below. Negotiation may be waived by a written agreement signed by both parties, in which event the parties may proceed directly to mediation as described below.
B. If the efforts to resolve the dispute through negotiation fail, or the parties waive the negotiation process, the parties may select, within thirty (30) calendar days, a mediator trained in mediation skills to assist with resolution of the dispute. Should they choose this option; the City and the Contractor agree to act in good faith in the selection of the mediator and to give consideration to qualified individuals nominated to act as mediator. Nothing in the Contract prevents the parties from relying on the skills of a person who is trained in the subject matter of the dispute or a contract interpretation expert. If the parties fail to agree on a mediator within thirty (30) calendar days of initiation of the mediation process, the mediator shall be selected by the Denton County Alternative Dispute Resolution Program (DCAP). The parties agree to participate in mediation in good faith for up to thirty (30) calendar days from the date of the first mediation session. The City and the Contractor will share the mediator's fees equally and the parties will bear their own costs of participation such as fees for any consultants or attorneys they may utilize to represent them or otherwise assist them in the mediation.

50. **JURISDICTION AND VENUE**: The Contract is made under and shall be governed by the

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laws of the State of Texas, including, when applicable, the Uniform Commercial Code as adopted in Texas, V.T.C.A., Bus. & Comm. Code, Chapter 1, excluding any rule or principle that would refer to and apply the substantive law of another state or jurisdiction. All issues arising from this Contract shall be resolved in the courts of Denton County, Texas and the parties agree to submit to the exclusive personal jurisdiction of such courts. The foregoing, however, shall not be construed or interpreted to limit or restrict the right or ability of the City to seek and secure injunctive relief from any competent authority as contemplated herein.

51. **INVALIDITY**: The invalidity, illegality, or unenforceability of any provision of the Contract shall in no way affect the validity or enforceability of any other portion or provision of the Contract. Any void provision shall be deemed severed from the Contract and the balance of the Contract shall be construed and enforced as if the Contract did not contain the particular portion or provision held to be void. The parties further agree to reform the Contract to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this section shall not prevent this entire Contract from being void should a provision which is the essence of the Contract be determined to be void.

52. **HOLIDAYS:** The following holidays are observed by the City:

New Year's Day (observed)
Martin Luther King, Jr. Day
Memorial Day
Juneteenth
Independence Day
Labor Day
Veterans Day
Thanksgiving
Friday After Thanksgiving
Christmas Eve (observed)
Christmas Day (observed)

If a Legal Holiday falls on Saturday, it will be observed on the preceding Friday. If a Legal Holiday falls on Sunday, it will be observed on the following Monday. Normal hours of operation shall be between 8:00 am and 4:00 pm, Monday through Friday, excluding City of Denton Holidays. Any scheduled deliveries or work performance not within the normal hours of operation **must be approved** by the City Manager of Denton, Texas or their authorized designee.

53. **SURVIVABILITY OF OBLIGATIONS:** All provisions of the Contract that impose continuing obligations on the parties, including but not limited to the warranty, indemnity, and confidentiality obligations of the parties, shall survive the expiration or termination of the Contract.

54. **NON-SUSPENSION OR DEBARMENT CERTIFICATION:**
The City of Denton is prohibited from contracting with or making prime or sub-awards to parties that are suspended or debarred or whose principals are suspended or debarred from Federal, State, or City of Denton Contracts. By accepting a Contract with the City, the Vendor certifies that its firm and its principals are not currently suspended or debarred from doing business with the Federal Government, as indicated by the General Services Administration List of Parties Excluded from Federal Procurement and Non-Procurement Programs, the State of Texas, or the City of Denton.

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55. **EQUAL OPPORTUNITY**

A. **Equal Employment Opportunity:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice. No person shall, on the grounds of race, sex, sexual orientation, age, disability, creed, color, genetic testing, or national origin, be refused the benefits of, or be otherwise subjected to discrimination under any activities resulting from this RFQ.

B. **Americans with Disabilities Act (ADA) Compliance:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice against individuals with disabilities as defined in the ADA.

56. **BUY AMERICAN ACT-SUPPLIES (Applicable to certain federally funded requirements)**

The following federally funded requirements are applicable. A. Definitions. As used in this paragraph –

i. "Component" means an article, material, or supply incorporated directly into an end product.

ii. "Cost of components" means -

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

iii. "Domestic end product" means-

(1) An unmanufactured end product mined or produced in the United States; or

(2) An end product manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as those that the agency determines are not mined, produced, or manufactured in sufficient and reasonably available commercial quantities of a satisfactory quality are treated as domestic. Scrap generated, collected, and prepared for processing in the United States is considered domestic.

iv. "End product" means those articles, materials, and supplies to be acquired under the contract for public use.

v. "Foreign end product" means an end product other than a domestic end product.

vi. "United States" means the 50 States, the District of Columbia, and outlying areas.

B. The Buy American Act (41 U.S.C. 10a - 10d) provides a preference for domestic end products for supplies acquired for use in the United States.

C. The City does not maintain a list of foreign articles that will be treated as domestic for this Contract; but will consider for approval foreign articles as domestic for this product if the articles are on a list approved by another Governmental Agency. The Offeror shall submit documentation with their Offer demonstrating that the article is on an approved Governmental list.

D. The Contractor shall deliver only domestic end products except to the extent that it specified delivery of foreign end products in the provision of the Solicitation entitled "Buy American Act Certificate".

57. **RIGHT TO INFORMATION:** The City of Denton reserves the right to use any and all information presented in any response to this contract, whether amended or not, except as prohibited by law. Selection of rejection of the submittal does not affect this right.

58. **LICENSE FEES OR TAXES:** Provided the solicitation requires an awarded contractor or

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supplier to be licensed by the State of Texas, any and all fees and taxes are the responsibility of the respondent.

59. **PREVAILING WAGE RATES:** The contractor shall comply with prevailing wage rates as defined by the United States Department of Labor Davis-Bacon Wage Determination at http://www.dol.gov/whd/contracts/dbra.htm and at the Wage Determinations website www.wdol.gov for Denton County, Texas (WD-2509).

60. **COMPLIANCE WITH ALL STATE, FEDERAL, AND LOCAL LAWS:** The contractor or supplier shall comply with all State, Federal, and Local laws and requirements. The Respondent must comply with all applicable laws at all times, including, without limitation, the following: (i) §36.02 of the Texas Penal Code, which prohibits bribery; (ii) §36.09 of the Texas Penal Code, which prohibits the offering or conferring of benefits to public servants. The Respondent shall give all notices and comply with all laws and regulations applicable to furnishing and performance of the Contract.

61. **FEDERAL, STATE, AND LOCAL REQUIREMENTS:** Respondent shall demonstrate on-site compliance with the Federal Tax Reform Act of 1986, Section 1706, amending Section 530 of the Revenue Act of 1978, dealing with issuance of Form W-2's to common law employees. Respondent is responsible for both federal and State unemployment insurance coverage and standard Workers' Compensation insurance coverage. Respondent shall ensure compliance with all federal and State tax laws and withholding requirements. The City of Denton shall not be liable to Respondent or its employees for any Unemployment or Workers' Compensation coverage, or federal or State withholding requirements. Contractor shall indemnify the City of Denton and shall pay all costs, penalties, or losses resulting from Respondent's omission or breach of this Section.

62. **DRUG FREE WORKPLACE:** The contractor shall comply with the applicable provisions of the Drug-Free Work Place Act of 1988 (Public Law 100-690, Title V, Subtitle D; 41 U.S.C. 701 ET SEQ.) and maintain a drug-free work environment; and the final rule, government-wide requirements for drug-free work place (grants), issued by the Office of Management and Budget and the Department of Defense (32 CFR Part 280, Subpart F) to implement the provisions of the Drug-Free Work Place Act of 1988 is incorporated by reference and the contractor shall comply with the relevant provisions thereof, including any amendments to the final rule that may hereafter be issued.

63. **RESPONDENT LIABILITY FOR DAMAGE TO GOVERNMENT PROPERTY:** The Respondent shall be liable for all damages to government-owned, leased, or occupied property and equipment caused by the Respondent and its employees, agents, subcontractors, and suppliers, including any delivery or cartage company, in connection with any performance pursuant to the Contract. The Respondent shall notify the City of Denton Procurement Manager in writing of any such damage within one (1) calendar day.

64. **FORCE MAJEURE:** The City of Denton, any Customer, and the Respondent shall not be responsible for performance under the Contract should it be prevented from performance by an act of war, order of legal authority, act of God, or other unavoidable cause not attributable to the fault or negligence of the City of Denton. In the event of an occurrence under this Section, the Respondent will be excused from any further performance or observance of the requirements so affected for as long as such circumstances prevail and the Respondent continues to use

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commercially reasonable efforts to recommence performance or observance whenever and to whatever extent possible without delay. The Respondent shall immediately notify the City of Denton Procurement Manager by telephone (to be confirmed in writing within five (5) calendar days of the inception of such occurrence) and describe at a reasonable level of detail the circumstances causing the non-performance or delay in performance.

65. **NON-WAIVER OF RIGHTS:** Failure of a Party to require performance by another Party under the Contract will not affect the right of such Party to require performance in the future. No delay, failure, or waiver of either Party's exercise or partial exercise of any right or remedy under the Contract shall operate to limit, impair, preclude, cancel, waive or otherwise affect such right or remedy. A waiver by a Party of any breach of any term of the Contract will not be construed as a waiver of any continuing or succeeding breach.

66. **NO WAIVER OF SOVEREIGN IMMUNITY:** The Parties expressly agree that no provision of the Contract is in any way intended to constitute a waiver by the City of Denton of any immunities from suit or from liability that the City of Denton may have by operation of law.

67. **RECORDS RETENTION:** The Respondent shall retain all financial records, supporting documents, statistical records, and any other records or books relating to the performances called for in the Contract. The Respondent shall retain all such records for a period of four (4) years after the expiration of the Contract, or until the CPA or State Auditor's Office is satisfied that all audit and litigation matters are resolved, whichever period is longer. The Respondent shall grant access to all books, records and documents pertinent to the Contract to the CPA, the State Auditor of Texas, and any federal governmental entity that has authority to review records due to federal funds being spent under the Contract.

Should a conflict arise between any of the contract documents, it shall be resolved with the following order of precedence (if applicable). In any event, the final negotiated contract shall take precedence over any and all contract documents to the extent of such conflict.

1. **Final negotiated contract**
2. **RFP/Bid documents**
3. **City's standard terms and conditions**
4. **Purchase order**
5. **Supplier terms and conditions**

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Exhibit D
INSURANCE REQUIREMENTS AND WORKERS' COMPENSATION REQUIREMENTS

Upon contract execution, all insurance requirements shall become contractual obligations, which the successful contractor shall have a duty to maintain throughout the course of this contract.

STANDARD PROVISIONS:

Without limiting any of the other obligations or liabilities of the Contractor, the Contractor shall provide and maintain until the contracted work has been completed and accepted by the City of Denton, Owner, the minimum insurance coverage as indicated hereinafter.

Contractor shall file with the Purchasing Department satisfactory certificates of insurance including any applicable addendum or endorsements, containing the contract number and title of the project. Contractor may, upon written request to the Purchasing Department, ask for clarification of any insurance requirements at any time; however, Contractor shall not commence any work or deliver any material until he or she receives notification that the contract has been accepted, approved, and signed by the City of Denton.

All insurance policies proposed or obtained in satisfaction of these requirements shall comply with the following general specifications, and shall be maintained in compliance with these general specifications throughout the duration of the Contract, or longer, if so noted:

- Each policy shall be issued by a company authorized to do business in the State of Texas with an A.M. Best Company rating of at least **A or better**.

- Any deductibles or self-insured retentions shall be declared in the proposal. If requested by the City, the insurer shall reduce or eliminate such deductibles or self-insured retentions with respect to the City, its officials, agents, employees and volunteers; or, the contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.
- Liability policies shall be endorsed to provide the following:

    - Name as Additional Insured the City of Denton, its Officials, Agents, Employees and volunteers.

    - That such insurance is primary to any other insurance available to the Additional Insured with respect to claims covered under the policy and that this insurance applies separately to each insured against whom claim is made or suit is brought. The inclusion of more than one insured shall not operate to increase the insurer's limit of liability.

    - Provide a Waiver of Subrogation in favor of the City of Denton, its officials, agents, employees, and volunteers.

- ***Cancellation: City requires 30 day written notice should any of the policies described on the certificate be cancelled or materially changed before the expiration date.***

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- Should any of the required insurance be provided under a claims made form, Contractor shall maintain such coverage continuously throughout the term of this contract and, without lapse, for a period of three years beyond the contract expiration, such that occurrences arising during the contract term which give rise to claims made after expiration of the contract shall be covered.

- Should any of the required insurance be provided under a form of coverage that includes a general annual aggregate limit providing for claims investigation or legal defense costs to be included in the general annual aggregate limit, the Contractor shall either double the occurrence limits or obtain Owners and Contractors Protective Liability Insurance.

- Should any required insurance lapse during the contract term, requests for payments originating after such lapse shall not be processed until the City receives satisfactory evidence of reinstated coverage as required by this contract, effective as of the lapse date. If insurance is not reinstated, City may, at its sole option, terminate this agreement effective on the date of the lapse.

SPECIFIC ADDITIONAL INSURANCE REQUIREMENTS:

All insurance policies proposed or obtained in satisfaction of this Contract shall additionally comply with the following marked specifications, and shall be maintained in compliance with these additional specifications throughout the duration of the Contract, or longer, if so noted:

[X] A. **General Liability Insurance:**

General Liability insurance with combined single limits of not less than **$1,000,000.00** shall be provided and maintained by the Contractor. The policy shall be written on an occurrence basis either in a single policy or in a combination of underlying and umbrella or excess policies.

If the Commercial General Liability form (ISO Form CG 0001 current edition) is used:

- Coverage A shall include premises, operations, products, and completed operations, independent contractors, contractual liability covering this contract and broad form property damage coverage.

- Coverage B shall include personal injury.

- Coverage C, medical payments, is not required.

If the Comprehensive General Liability form (ISO Form GL 0002 Current Edition and ISO Form GL 0404) is used, it shall include at least:

- Bodily injury and Property Damage Liability for premises, operations, products and completed operations, independent contractors and property damage resulting from explosion, collapse or underground (XCU) exposures.

- Broad form contractual liability (preferably by endorsement) covering this contract, personal injury liability and broad form property damage liability.

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[X] **Automobile Liability Insurance:**

Contractor shall provide Commercial Automobile Liability insurance with Combined Single Limits (CSL) of not less than **$500,000** either in a single policy or in a combination of basic and umbrella or excess policies. The policy will include bodily injury and property damage liability arising out of the operation, maintenance and use of all automobiles and mobile equipment used in conjunction with this contract.

Satisfaction of the above requirement shall be in the form of a policy endorsement for:

- any auto, or
- all owned hired and non-owned autos.

[X] **Workers' Compensation Insurance**

Contractor shall purchase and maintain Workers' Compensation insurance which, in addition to meeting the minimum statutory requirements for issuance of such insurance, has Employer's Liability limits of at least $100,000 for each accident, $100,000 per each employee, and a $500,000 policy limit for occupational disease. The City need not be named as an "Additional Insured" but the insurer shall agree to waive all rights of subrogation against the City, its officials, agents, employees and volunteers for any work performed for the City by the Named Insured. For building or construction projects, the Contractor shall comply with the provisions of Attachment 1 in accordance with §406.096 of the Texas Labor Code and rule 28TAC 110.110 of the Texas Workers' Compensation Commission (TWCC).

[ ] **Owner's and Contractor's Protective Liability Insurance**

The Contractor shall obtain, pay for and maintain at all times during the prosecution of the work under this contract, an Owner's and Contractor's Protective Liability insurance policy naming the City as insured for property damage and bodily injury which may arise in the prosecution of the work or Contractor's operations under this contract. Coverage shall be on an "occurrence" basis and the policy shall be issued by the same insurance company that carries the Contractor's liability insurance. Policy limits will be at least **$500,000.00** combined bodily injury and property damage per occurrence with a **$1,000,000.00** aggregate.

[ ] **Fire Damage Legal Liability Insurance**

Coverage is required if Broad form General Liability is not provided or is unavailable to the contractor or if a contractor leases or rents a portion of a City building. Limits of not less than _____ each occurrence are required.

[ ] **Professional Liability Insurance**

Professional liability insurance with limits not less than **$1,000,000.00** per claim with respect to negligent acts, errors or omissions in connection with professional services is required under this Agreement.

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[ ] **Builders' Risk Insurance**

Builders' Risk Insurance, on an All-Risk form for 100% of the completed value shall be provided. Such policy shall include as "Named Insured" the City of Denton and all subcontractors as their interests may appear.

[ ] **Environmental Liability Insurance**

Environmental liability insurance for $1,000,000 to cover all hazards contemplated by this contract.

[ ] **Riggers Insurance**

The Contractor shall provide coverage for Rigger's Liability. Said coverage may be provided by a Rigger's Liability endorsement on the existing CGL coverage; through and Installation Floater covering rigging contractors; or through ISO form IH 00 91 12 11, Rigger's Liability Coverage form. Said coverage shall mirror the limits provided by the CGL coverage

[ ] **Commercial Crime**

Provides coverage for the theft or disappearance of cash or checks, robbery inside/outside the premises, burglary of the premises, and employee fidelity. The employee fidelity portion of this coverage should be written on a "blanket" basis to cover all employees, including new hires. This type insurance should be required if the contractor has access to City funds. Limits of not less than $_____ each occurrence are required.

[ ] **Additional Insurance**

Other insurance may be required on an individual basis for extra hazardous contracts and specific service agreements. If such additional insurance is required for a specific contract, that requirement will be described in the "Specific Conditions" of the contract specifications.

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ATTACHMENT 1

[ ] **Workers' Compensation Coverage for Building or Construction Projects for Governmental Entities**

A. Definitions:

Certificate of coverage ("certificate")-A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project - includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

Persons providing services on the project ("subcontractor" in §406.096) - includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

B. The contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any overage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the Contractor providing services on the project, for the duration of the project.

C. The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.

D. If the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project, the contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

E. The contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

1. a certificate of coverage, prior to that person beginning work on the

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project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

2. no later than seven days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

F. The contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.

G. The contractor shall notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

H. The contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

I. The contractor shall contractually require each person with whom it contracts to provide services on a project, to:

1. provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;

2. provide to the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;

3. provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

4. obtain from each other person with whom it contracts, and provide to the contractor:

a. a certificate of coverage, prior to the other person beginning work on the project; and

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b. a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

5. retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

6. notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

7. Contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.

J. By signing this contract or providing or causing to be provided a certificate of coverage, the contractor is representing to the governmental entity that all employees of the contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

K. The contractor’s failure to comply with any of these provisions is a breach of contract by the contractor which entitles the governmental entity to declare the contract void if the contractor does not remedy the breach within ten days after receipt of notice of breach from the governmental entity.

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Exhibit E
Certificate of Interested Parties Electronic Filing

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that the City may not enter into this contract unless the Contractor submits a disclosure of interested parties (Form 1295) to the City at the time the Contractor submits the signed contract. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission.

Contractor will be required to furnish a Certificate of Interest Parties before the contract is awarded, in accordance with Government Code 2252.908.

The contractor shall:

1. Log onto the State Ethics Commission Website at : https://www.ethics.state.tx.us/filinginfo/1295/
2. Register utilizing the tutorial provided by the State
3. Print a copy of the completed Form 1295
4. Enter the Certificate Number on page 2 of this contract.
5. Complete and sign the Form 1295
6. Email the form to purchasing@cityofdenton.com with the contract number in the subject line. (EX: Contract 1234 – Form 1295)

The City must acknowledge the receipt of the filed Form 1295 not later than the 30th day after Council award. Once a Form 1295 is acknowledged, it will be posted to the Texas Ethics Commission's website within seven business days.

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EXHIBIT F

Line #	Description	UOM	Pure Technologies US Inc Unit Pricing
1	Group 1 -- Internal Tethered Leak and Gas Pocket Inspection with Video.*** Pricing is based on a single (one-day) inspection including mobilization, planning, execution, and letter report. The below pricing guidelines would be available for consecutive days: Mobilization = $12,000.00 Inspection (Daily Rate) = $10,000.00Report with findings = $5,500.00 Letter report for single inspections = $2,500.00 Standby rate = $8,500.00 per crew day*	Per Day	$24,500.00
2	Group 2 -- Non-Flow Internal Tethered Leak and Gas Pocket Inspection with Video.*** Pricing is based on a single (one-day) inspection including mobilization, planning, execution, and letter report. The below pricing guidelines would be available for consecutive days: Mobilization = $19,000.00 Inspection (Daily Rate) = $15,000.00 Report with findings = $5,500.00 Letter report for single inspections = $2,500.00 Standby rate = $8,500.00 per crew day*	Per Day	$36,500.00
3	Group 3 -- Internal Non-Tethered Free-Swimming Leak and Gas Pocket Inspection. *** Pricing is based on inspecting up to 2 miles consecutively including mobilization, planning, execution, and report.For clarity, the below pricing guidelines would be available for longer segments inspected under one mobilization: Mobilization = $20,000.00Inspection (First 2 miles) = $22,500.00 eachInspection (Next 2 miles) = $10,000.00/miInspection (Next 3 miles) = $9,000.00/miInspection (Next 3 miles) = $8,000.00/miInspection (remaining mileage greater than 10 miles) = $7,000.00/miMapping (X-Y Alignment) = $6,500.00/miAdditional insertion(s) = $6,000.00 Reporting = $15,000.00 Standby rate = $10,500.00 per crew dayHydrant Extraction equipment = $3,000.00Hydrant Insertion Flow support = $TBD (Subcontractor)*	2 Miles	$57,500.00
4	Group 4 -- Manned Electromagnetic Nondestructive Inspection. ***The above pricing is based on inspecting up to 2 miles in a single mobilization with a Technology Report only.For clarity, the below pricing guidelines would be available for longer segments inspected under one mobilization: Mobilization = $44,000.00Inspection (first 2 miles) = $82,000.00 eachInspection (Next 2 miles) = $39,000.00/miInspection (Next 3 miles) = $36,000.00/miInspection (Next 3 miles) = $30,000.00/miInspection (remaining mileage greater than 10 miles) = $24,000.00/miExpedited Pipe List = $18,000.00 each (delivered in a 3-week turnaround)Technology Report alone = $30,000.00 Technology Report with Engineering Evaluation/Report = $45,000.00 Standby rate = $13,125.00 per crew day*	2 Miles	$156,000.00
5	Group 5 -- Internal Robotic Electromagnetic Nondestructive Inspection. ***The above pricing is based on inspecting up to 2 miles in a single mobilization and Technology Report only.For clarity, the below pricing guidelines would be available for longer segments inspected under one mobilization:Mobilization = $58,000.00Inspection (first 2 miles) = $124,000.00 eachInspection (Next 2 miles) = $62,000.00/miInspection (Next 3 miles) = $59,000.00/miInspection (Next 3 miles) = $55,000.00/miInspection (remaining mileage greater than 10 miles) = $50,000.00/miExpedited Pipe List = $18,000.00 each (delivered in a 3-week turnaround)Technology Report alone = $30,000.00 Technology Report with Engineering Evaluation/Report = $45,000.00 Standby rate = $18,900.00 per crew day*	2 Miles	$212,000.00
6	Group 6 -- Internal Free-Swimming Electromagnetic Nondescructive Inspection Capable of Passing Butterfly Valves. ***The above pricing is based on inspecting up to 2 miles in a single mobilization, non-pressurized insertion and extraction of tool, and Technology Report only.For clarity, the below pricing guidelines would be available for longer segments inspected under one mobilization: Mobilization = $78,750.00Inspection (first 2 miles) = $175,000.00 eachInspection (Next 2 miles) = $87,000.00/miInspection (Next 3 miles) = $84,000.00/miInspection (Next 3 miles) = $80,000.00/miInspection (remaining mileage greater than 10 miles) = $76,000.00/miPressurized Insertion ONLY = $38,000.00 additionallyPressurized Insertion and Extraction = $78,750.00 additionallyExpedited Pipe List = $18,000.00 each (delivered in a 3-week turnaround)Technology Report alone = $30,000.00 Technology Report with Engineering Evaluation/Report = $45,000.00Standby rate = $18,900.00 per crew day*	2 Miles	$283,750.00
7	Group 7 -- Free Swimming Ultrasonic Inspection Technology. ***The above pricing is based on inspecting up to 2 miles in a single mobilization, non-pressurized insertion and extraction of tool, and Technology Report only.For clarity, the below pricing guidelines would be available for longer segments inspected under one mobilization: Mobilization = $78,750.00Inspection (first 2 miles) = $128,000.00 eachInspection (Next 2 miles) = $62,500.00/miInspection (Next 3 miles) = $60,000.00/miInspection (Next 3 miles) = $57,500.00/miInspection (remaining mileage greater than 10 miles) = $55,000.00/miPressurized Insertion ONLY = $38,000.00 additionallyPressurized Insertion and Extraction = $78,750.00 additionallyExpedited Pipe List = $18,000.00 each (delivered in a 3-week turnaround)Technology Report alone = $30,000.00 Technology Report with Engineering Evaluation/Report = $45,000.00Standby rate = $18,900.00 per crew day*	2 Miles	$269,750.00
8	Group 8 -- Remote Transient Pressure Monitoring. ***Listed in "Exhibit F"*	EA	$12,602.00
9	Group 9 -- Acoustic Fiber Optic (AFO) Monitoring of PCCP. **The above pricing is based on the installation and equipment sales for 2 miles of AFO in a single mobilization using an indoor single DAQ, 4-fiber cable as a wet install.For clarity, the below pricing guidelines should be followed for alternate lengths:AFO Equipment Sales: SoundPrint AFO Single Data Acquisition Unit (Standard - indoor) = $353,500.00 SoundPrint AFO Single Data Acquisition Unit (Standalone - outdoor) = $424,200.00 SoundPrint AFO Dual Data Acquisition Unit (Standard - indoor) = $618,625.00 SoundPrint AFO Dual Data Acquisition Unit (Standalone - outdoor) = $742,350.00 AFO cable supply: 4-fiber (Standard) = $4.60 per foot AFO cable supply: 8-fiber = $9.10 per foot Splice Point and Internal Hardware = $13,500.00 per splice pointAFO Installation Install of AFO cable (< 2 miles) - standard = $28.00 per foot (next 2 miles) >2 to 4 miles = $24.70 per foot (next 3 miles) >4 to 7 miles = $22.60 per foot (next 3 miles) >7 to 10 miles = $21.00 per foot (remaining mileage) >10 miles = $20.10 per foot AFO Design & Project Setup (Dry) = $63,000.00 each DAQ system AFO Design & Project Setup (Wet) = $73,500.00 each DAQ system Stand-by rate = $10,500.00 per crew dayAFO Monitoring from Year 1Standard monitoring services (wire breaks) = $2.52 per footAFO Extended Warranty and Maintenance beyond Year 1 Warranty for Single Data Acquisition Unit and System Components = $42,966.00 per year per DAQ system Warranty for Dual Data Acquisition Unit and System Components = $78,120.00 per year per DAQ system Annual Inspection and Maintenance = $10,000.00 per year	2 Miles	$797,867.20
10	Other Tasks Not Identified (please provide description of each) ***Listed in "Exhibit F"*	EA	$200,000.00

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PROJECT APPROACH

Pure Technologies is proposing to address the City of Denton Transmission Mains Condition Assessment RFP as both a "Program" and multiple "Projects."

Given the City of Denton's intent to enter into a long-term Professional Services Agreement, we believe the over arching scope, planning and long-term scheduling to fall under the auspices a Program. Where as, the individual pipeline assessments/inspections will constitute a "Project". We have been working with Texas clients in a similar manner since 2001, including Dallas Water Utilities, North Texas Municipal Water District, Austin Water, Gulf Coast Water Authority and Tarrant Regional Water District.

Our first order of business would be to meet with the City of Denton to fully understand what is expected under the Program and what the City of Denton would like to achieve in the 3-to-5-year agreement period.

Creating the Program Work Plan

The RFP indicates that the City of Denton will export GIS data containing facility ID's to Pure Technologies. As such, Pure Technologies would populate our geospatial GIS digital interface with all of the large diameter water mains to be addressed under the condition assessment Program.

Evan though the GIS may identify all large diameter water mains, Pure technologies and the City of Denton will need to define the pipeline assets according to how they can be assessed. Hence, our next step would be to conduct a gap analysis to determine what, if any, additional information may be required to complete an inventory designation for all large diameter pipelines and associated appurtenances. Although the initial inventory assignment will identify a defined length of large diameter pipeline – node-to-node, our end product will seek to refine the asset data base by defining each individual pipe as an asset. It is much easier to manage individual distressed pipes rather than simply replacing an entire pipeline. The EPA estimates that 70% to 90% of the pipes being removed for replacement projects are actually in good condition. We refer to this as "throwing the baby out with the bathwater."

Once we have identified all of the linear assets, Pure Technologies can work with the City of Denton to develop a risk ranking of the large diameter pipelines in the water delivery system. Although Pure Technologies can evaluate the Likelihood of Failure component of the risk ranking, the initial evaluation of risk will weigh heavily on Consequence of Failure (CoF), which the City of Denton will have a more intimate knowledge of. We also assume that the City of Denton may already have

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in mind a number of potentially high-risk water mains they would like to assess. Such information would allow us to jump start the assessment "Projects."

Because operational and logistical support requirements can often affect the overall cost of a physical assessment as well as "availability" for inspecting (i.e., due to high demand periods, etc.), Pure Technologies would propose to conduct a "preliminary" evaluation of all large diameter water main assets in advance. The purpose of the preliminary evaluation is to:

- evaluate the alternative technologies, methodologies, and delivery platforms applicable to the pipe material, access, size, and configuration,
- understand logistical support requirements to operational and availability constraints, and
- provide a single page preliminary scope of work with budget costs that addresses both the assessment inspections and the logistical support requirements for each large diameter water main asset.

Once completed, the Program can be more clearly defined in terms of scope, costs, and schedule. This information will allow Pure Technologies and the City of Denton to understand what is achievable over the next 3 to 5 years.

Please rest assured that Pure Technologies does not anticipate this planning to require significant time or cost. We have included a not-to-exceed fee for the Pre-Planning tasks presented above in the Section titled "OTHER TASKS NOT IDENTIFIED".

Pure Technologies does not believe in spending money on desk top studies – we want the City of Denton to realize high value for their investment by providing "actionable" data through high resolution assessments of the water mains.

Project Tasks and Schedule

We now have a working plan with Project task identified and scheduled for the Program that we can track and meet monthly to make certain the schedule remains on track and that Pure Technologies exceed the City of Denton expectations.

Using the relative risk ranking of the pipeline assets and understanding the logistical support requirements, availability of pipelines and projected costs, the City and Pure Technologies can lay out well defined quarterly and annual planning schedules.

Advanced planning will also allow Pure Technologies to move forward with detailed planning well in advance, whereby multiple projects are planned and

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ready for assessment should there be any unexpected delays on a given pipeline. The funnel will always be full of planning documents at ready.

Statement of Work and Authorization to Proceed

For the assessment of a given water main, Pure Technologies will evaluate the desired deliverables and submit a Statement of Work describing the technologies and methodologies to be used in accomplishing said task. The Statement of Work will include costs as established in the proposal's line items for each technology and engineering service and Pure Technologies will only initiate work upon receipt of written authorization to proceed on each Statement of Work. Similarly, any changes to the scope of services for a given project must be processed in a similar manner with understanding and approval by the City of Denton before authorizing us to proceed. Such a process has worked extremely well with other similar Programs we participate in with the other water utilities Programs in Texas.

Project Planning

Upon authorization to proceed by the City of Denton to assess a linear asset, Pure Technologies will meet with the City of Denton water utilities and operations to verify the scope of work and discuss any applicable alternatives. In advance of said workshop, Pure Technologies will review available documents associated with the proposed pipeline, including pipe specifications, pipe manufacturer's lay drawings, plan, and profile as-builts or original drawings, information pertaining to any pipeline modifications, leak, failures, etc.

Pure Technologies will review the documents to understand the logistical support requirements and identify potential risk points associated with the proposed inspection(s).

Pure Technologies will request that the City of Denton provide personnel to accompany our team in conducting a site reconnaissance of the assigned pipeline. The purpose of the site reconnaissance is to:

- identify existing appurtenances on the pipeline that can provide access for deployment and extraction of the selected inspection technology(s) and delivery platform(s),
- identify locations to attach tracking sensors to track the travel of free-swimming inspection tools,
- collect GPS coordinates (mapping grade) of any exposed pipe and ALL appurtenances including in-line valves, air relief valves, blow-offs, etc.,
- measure flow velocities if applicable,
- collect photographic documentation,

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- determine traffic control requirements for the proposed inspection(s), and
- walk the entire pipeline.

NOTE: As most inspections require operation and/or closure of in-line and/or lateral valves, Pure Technologies will require that all affected valves be assessed and operated prior to initiating any field inspection of a pipeline, as well as supporting the inspection teams during the pipeline inspection(s).

Pure Technologies / dba as Wachs Water Services (WWS) is available to assist with these services. As a division of Pure Technologies, WWS has been providing valve assessment and turning for nearly 25 years and is highly experienced and qualified to assist with initial valve assessments, minor and major valve repairs, and operating of valves in support of our inspection projects or other requests by the City of Denton.

Additional information regarding WWS's services, project references and fees are presented in the Section titled "OTHER TASKS NOT IDENTIFIED".

On completion of document review, site reconnaissance, take-off of the pipeline components, appurtenances and configuration, Pure Technologies will finalize a detailed project planning document that addresses the scope of work, deliverables, logistical support requirements, personnel, and schedule for presentation to the City of Denton for review.

After which, Pure Technologies will hold a workshop with the City to review the planning document and assure that all parties involved in the inspections(s) understand their roles and scheduling.

The planning document will also address any items of concern and identify any potential risks along with an accompanying contingency plan. Pure Technologies' will also incorporate our Safety Plan in the planning document.

If requested, Pure Technologies can de-water pipelines, install access for insertion and extraction of tools, and furnish traffic control and file necessary permits as required. When ever confined space entry is required, Pure Technologies will prepare a confined space permit and provide adequate top side support and a qualified Rescue and Safety Support team.

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Condition Assessment of Water Mains

The scope of work and deliverables will vary from pipeline to pipeline. Following is a listing of the field inspections and engineering services typically associated with a condition assessment for critical water mains.

Please keep in mind that not all pipelines may require the extent of high-resolution inspection technologies and engineering services described below, as it is important to understand the need for "the right tool for the right job" and if the cost of the resulting data corresponds to the asset value.

Typical Components of a Comprehensive Condition Assessment include:

- ✓ Client meeting to verify scope of work and collect available documentation and drawings.
- ✓ Site Reconnaissance.
- ✓ Project Planning Document and Client workshop.
- ✓ High Frequency Pressure monitoring to understand maximum operational and transient pressures. Can be temporary or permanent.
- ✓ Conducting a leak inspection of the pipeline using…
  - ➢ an external listening mics and correlators,
  - ➢ a tethered internal acoustic leak and gas (air) pocket inspection system (Sahara®) with CCTV camera viewing and recording, or
  - ➢ a free-swimming internal acoustic leak and gas (air) pocket inspection (SmartBall®)
- ✓ Performing a direct inspection of the pipeline wall to evaluate the structural integrity and overall condition of each pipe stick within the pipeline. This would include identifying and locating broken prestressing wires in PCCP, broken reinforcing bars and wall loss on the cylinder of BWP, wall loss on steel, ductile iron or cast iron pipe, etc.
- ✓ Performing a design check to verify if the pipe was designed and manufactured in accordance with applicable AWWA or Federal Specifications and Standards in place at the time the pipe was manufactured. Also evaluate the design of the pipe material as it compares to current Specifications and Standards that currently apply.

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Pipe Performance Risk Curves

While the inspection technologies described herein will provide data for wall loss on metallic cylinders and broken prestresssing wires or reinforcing bars, the challenge associated with assessing and managing either pipe material is determining how much cylinder corrosion and/or broken wires or bars creates an unacceptable level of risk - thereby requiring repair and/or replacement actions.

Pure Technologies has developed an innovative approach for condition-based pipeline management using structural models along with hydraulic evaluation data, ultimately delivering a comprehensive decision-making tool – a Pipe Performance Risk Curve - for the management of pressure mains.

For pipes identified to be in distress (i.e., broken prestressing wires or reinforcing bar wraps, wall loss, etc.), Pure Technologies can utilize 3D finite element analysis (FEA) to develop Pipe Performance Risk Curves that identify when the distressed pipe may be reaching or exceeding a yield state., and identify those that represent a low to moderate LoF that can continue to be safely managed.

The 3D finite element analysis and Pipe Performance Risk Curves are developed by Pure Technologies Assessment Engineering Services Group. As a Registered Texas Board of Professional Engineering Firm (No. F-13679), our Assessment Engineering Services Group also conducts visual and sounding inspections of pipe, conducts forensic analysis of failed pipes, develops the Pipe Performance Risk Curves, reviews and performs QA/QC on all reports, make repair or replacement recommendations, monitors repairs and replacement of pipes, evaluates root cause of failure, conducts inspection and verification of distressed pipes, evaluated external loading conditions and can develop an estimate of remaining useful life. Additional information pertaining to the Assessment Engineering Services Group and associated fees is presented in the Section titled “OTHER TASKS NOT IDENTIFIED”.

Reporting

Technical inspection reports will be prepared and incorporated into the final Condition Assessment Report prepared by the Assessment Engineering Services Group for each inspection technology employed. The technical reports will present the data and findings provided by the inspection technology. An engineer within Pure Technologies’ Assessment Engineering Services Group incorporates the technical data and findings within a comprehensive condition assessment report that pulls the entire assessment together.

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The condition assessment report also includes the design check(s) of pipe material and can include the 3D FEA and Pipe Performance Risk Curve as may be applicable for distressed pipes that have been identified.

The report will include a risk ranking of the distressed pipes with respect to risk (LoF and CoF), and provide recommendations and alternatives for repair, rehabilitation and/or replacement for pipes of concern.

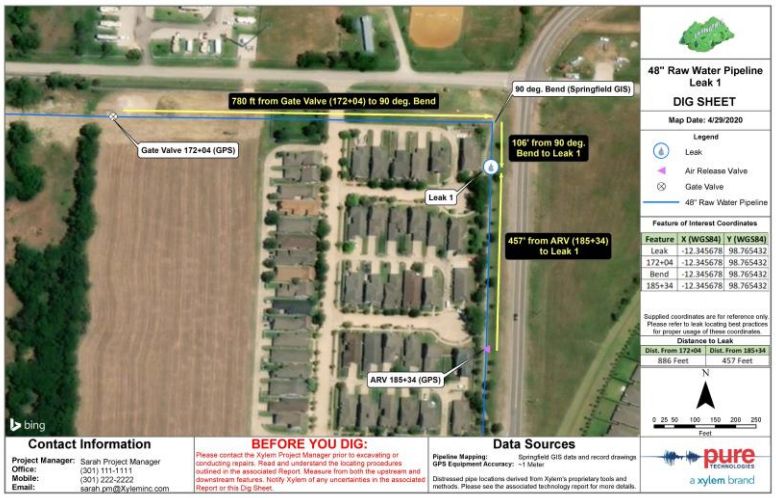
Pure Technologies will compile all data and findings to present in a pipe-by-pipe geospatial GIS shapefile deliverable compatible to the City of Denton's GIS system. Each pipe stick is represented by a polygon that when clicked on presents a pop-up window sharing all information related to the pipe design and distress.

NOTE: Should the City of Denton elect, Pure Technologies Wachs Water Services Group can assess all valves and appurtenances associated with the water mains we assess, and we can include assessment of such control systems as part of our overall report. Wachs Water Services capabilities and fee schedule for valve assessments and repairs, external leak inspection, hydrant assessment and maintenance and uni-directional flushing are presented in the Section titled "OTHER TASKS NOT IDENTIFIED".

Following submittal of all reports, Pure Technologies will meet with the City of Denton to review all inspection data and findings as well as the recommendations and alternatives for action items.

Pipe Verifications and Repairs.

Pure Technologies provides detailed "dig sheets" identifying the location of each distressed pipe (including leaks and air pockets) of concern and uses the dig sheets to mark the pipe locations.



Technologies' engineer will be on site when the City of Denton excavates and

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exposes the pipe to verify that the correct pipe is exposed before proceeding with any repair or replacement. Our engineer will also identify what the potential root cause of distress or failure may be and can also conduct a forensic evaluation of the pipe. Material samples including adjacent soil, groundwater if present, concrete core, metallic cylinder, prestressing wires or reinforcing bar wrap, pipe coatings, etc. can also be collected and maintained as control samples. The engineer will collect photographic documentation, collect GPS coordinates, and prepare a summary for inclusion in a written report to the client and incorporated in our pipe-by-pipe geospatial GIS digital interface.

Long Term Management of Pipeline Assets

Pure Technologies will work with the City of Denton to establish a long-term management program specific to the life cycle analysis associated with each pipe stick and pipeline asset.

Pure Technologies can also incorporate distributed sensors to monitor the structural integrity of prestressed concrete cylinder pipe (PCCP) in near real time, identifying when an individual pipe may be trending towards failure and avoiding an unforeseen pipe rupture or failure – we call this a "forever" pipeline.

The high frequency pressure monitoring unit is also a distributed sensor system that supports the City of Denton's pressure management throughout the water delivery system in real time. This technology is capable of alerting the Ciy of Denton whenever an absolute pressure or standard deviation is exceeded (both positively and negatively). A proper pressure management program will extend the RUL of all pipeline assets.

Combined with the Client's SCADA monitoring data, these distributed sensor applications offer a precursor to a digital transformation of the City of Denton's water delivery system (focused solely on Pump Station to customer meters) addressing asset management and optimization of performance.

The Project Approach presented above addresses all of the requirements set forth in the City of Denton's RFP for Project Scope Requirements. A more detailed description of each inspection technology and delivery platform identified by the City of Denton (as Groups 1 through 9) is presented below.

In evaluating the project approach, Pure Technologies approach to condition assessment of water mains closely emulates the practices recommended in the American Water Works Association's (AWWA) M77 Manual of Water Supply Practices for the Condition Assessment of Water Mains.

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Additional documents Pure Technologies may refer to when participating in a condition assessment program include:

The Environmental Protections Agency's (EPA) document titled "Condition Assessment Technologies for Water Transmission and Distribution Systems" [EPA/600/R-12/017, 2012].

EPA Report on "Condition Assessment of Ferrous Water Transmission and Distribution Systems [EPA/600/R-09/055, 2009].

EPA Technology Report for Assessment of Force Mains [EPA 832-F-00-071].

EPA Report on "State of the Technology for Force Main Rehabilitation" [EPA/600/R-10/044, 2010].

It is also important to note that the condition assessment Program will address key components identified by AWWA and the EPA in their Partnership for Safe Water for the performance optimization in water distribution systems.

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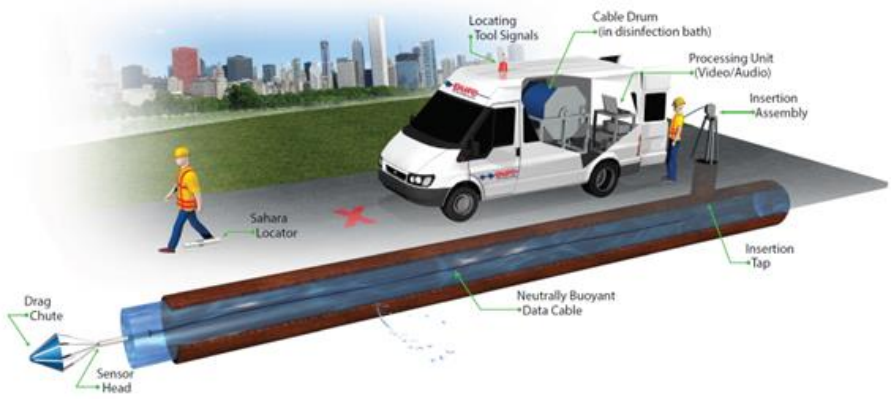
GROUP 1 - REQUIREMENTS FOR INTERNAL TETHERED LEAK AND GAS POCKET INSPECTION WITH VIDEO

Pure Technologies' Internal Tethered Acoustic Leak and Gas Inspection Technology with Video is referred to as the Sahara® system.

Sahara Technology Overview

The Sahara inspection platform is an acoustic-based, non-destructive condition assessment technology that detects acoustic activity associated with leaks or pockets of trapped air, and potential structural defects via CCTV in pressurized water pipelines (12-inches in diameter and larger) of all construction types and materials. The Sahara inspection platform is composed of the following:

- a sensor with acoustic and video components (including LED lighting)
- a system for tracking the sensor
- an insertion assembly for inserting the sensor into a live pipeline
- a cable drum containing the communication umbilical for the sensor
- a rack of electronic instrumentation for the processing of acoustic and visual data



Sahara System Overview Diagram

The system is inserted into a live pipeline through a tap with a minimum diameter of 2-inch full bore clearance using the insertion assembly. The sensor is propelled by the water flow using a drag chute that carries the tethered sensor head through the pipe for distances up to 6,000 feet per insertion as the data cable is unreeled from the cable drum. Actual inspection distance will vary depending on flow rate (3 to 4 fps is optimal) and pipeline configuration (bends, in-line butterfly valves, etc.) The above figure depicts the typical Sahara system configuration.

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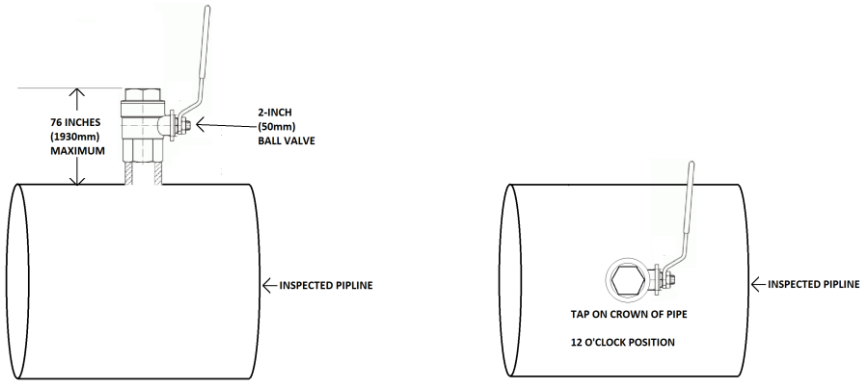
Typical Insertion Requirements

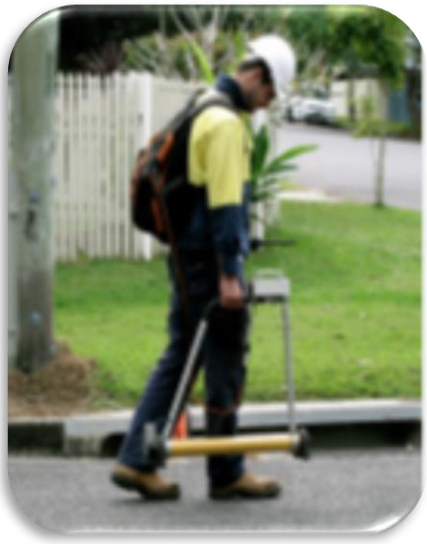
Sahara requires a standard full bore 2-inch valve at each insertion point. Alternatively, for valves larger than 2 inches, a blind flange tapped with 2-inch national pipe thread (NPT) female threads is required. The figure below shows the typical insertion set-up with a 2-inch ball valve.



Typical Insertion Set-up: Profile and Plan View

Sahara Tracking System

The Sahara sensor is tracked from above ground during the inspection at set intervals and at select points of interest. The sensor is tracked using the Sahara Locator®. The Sahara Locator is an extremely low frequency (ELF) transmitter that is detected by the miniaturized receiver located on the Sahara sensor head within the pipeline. The frequency used allows accurate through-pipe communication, even within metallic mains with a ground cover of up to 33 feet.



Sahara Locator

While the Sahara Locator is capable of detecting the leak location to within 12-inches, location accuracy can be affected by the presence of large amounts of steel in or on the ground (such as railroad tracks, rebar, or unusually thick metallic pipe walls), steep slopes, or heavily wooded areas.

A technician follows the sensor head above ground, locating the sensor when requested by the Sahara operator – typically at a leak, air pocket, or other location of interest. The Sahara Locator can also be used to locate the sensor at set intervals to determine the alignment of a given section of pipeline.

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Locating Leaks and Air Pockets

The acoustic signal processor equipment and software provides the primary operator with the ability to monitor and analyze the data collected from the Sahara sensor in real time. This allows for near real-time reporting of acoustic and visual events found in the pressure pipeline. The acoustic signal processor software also converts the audio signal into visual form, displaying the signal amplitude, frequencies, head position, and velocity. The Sahara operator can isolate acoustic event locations, estimate leak magnitude qualitatively, and identify the limits of pockets of trapped air. The precise location of an acoustic event is identified by positioning the sensor within the pipe and simultaneously positioning the Sahara Locator directly above the sensor head, allowing for above ground location.

Closed Circuit Televising (CCTV)

In addition, the operator can distinguish pipeline features or other points of interest using the Sahara platform's closed-circuit televising (CCTV) capability. As with leaks, the Sahara operator can indicate above ground the position of visual points of interest by positioning the sensor within the pipe and simultaneously positioning the Sahara Locator directly above the sensor head.

Clarity of the video can be affected negatively by high turbidity, turbulent flow, surface condition of the pipe wall, and when inspecting pipes over 48 inches in diameter.

Confirmations | Clarifications | Submittals per RFP Requirements:

The Sahara inspection system is a non-destructive technology and is deployed into a fully flowing and pressurized pipeline. Minimum pressure of 15 psi is required. All inspection results are identified in real time and the location of interest is marked on the ground and GPS coordinates collected.

The Sahara system can identify all leaks within any pipe material including Pre-stressed Concrete Cylinder Pipe (PCCP), Reinforced Concrete Cylinder Pipe (RCCP), Asbestos Cement (AC) Pipe, Polyvinyl Chloride (PVC), High-Density Polyethylene (HDPE), Glass Reinforced Polymer (GRP), Steel, Cast Iron, and Ductile Iron Pipe.

With a standard perpendicular access on the crown of the pipe, the Sahara unit can be deployed via the 2-inch full bore outlet into pipe diameters of 12-inch or larger. For smaller pipes down to 6-inch diameter, the access will need to be installed at an angle or WYE fitting on the crown of the pipe.

The Sahara system can be deployed into pipelines with up to 250 psi pressure.

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A representative from the City of Denton is invited to monitor the CCTV video screen and identify areas where closer evaluation may be warranted, instructing the Sahara operator to halt while personnel evaluate the CCTV view. At any time, the Sahara operator can advance, stop, or pull back the Sahara sensor and CCTV camera.

There is no need to interchange the acoustic leak detection technology with the CCTC video technology under separate deployments. Both inspection technologies are always deployed together.

The Sahara system will identify and locate multiple leaks (actually ALL leaks and air pockets) under a single deployment.

The Sahara system will track the sensor head from the surface in real-time during the inspection, providing surface locations with 3 foot accuracy along the length of the pipeline as well as laterally for cases where the exact pipe alignment is not known and collect GPS coordinate data.

The Sahara system can be deployed and operate within the pipeline at a minimum flow velocity of 1 foot per second (fps).

All Sahara equipment that contacts potable water is disinfected with a chlorine solution prior to being introduced inside the pipe. The cable is also spooled in a chlorine bath throughout the inspection. All equipment utilized by Pure Technologies for use in potable water pipelines is dedicated and certified to only be utilized in potable water lines. Devices previously deployed within wastewater piping systems are never utilized within potable water pipelines.

The Sahara system can detect leaks as small as 0.05 gallons per minute at 15 psi.

The Sahara tracking locator is capable of locating leaks within 12-inches of the leak or gas pocket location and will provide preliminary results on-site during the inspection.

Pure Technologies will respond to any request for emergency services within 48 hours. Our experience with most emergency situations is that it may require several days to arrest the existing issues and be available for us to have access to the pipeline. Hence, our initial rapid response is to meet with the City and conduct a site reconnaissance to understand what equipment and services are required and if the existing configuration can accommodate such services. Because our technologies may be deployed on other projects in Texas, availability of equipment and field personnel will need to be confirmed and communicated to the City for planning.

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Pure Technologies will provide mapping grade GPS surface markings depicting the location of the pipeline every 300 feet and at each bend as requested, to allow accurate updating of the City's GIS databases.

Pure Technologies will provide a detailed report of pipeline segment(s) assessed within GIS format using mapping-grade GPS data. GIS data must be compatible with the City of Denton GIS system. The report will include the location and rating/size of each leak as (Small for < 2 gpm | Medium for 2 to 10 gpm | large for > 10 gpm) detected during the inspection.

The Sahara report and associated deliverables shall be submitted in hard copies (three copies) and electronic format with database, information viewable in ArcMap with all pertinent information. The report will include at minimum; an executive summary, a location map of the project, indicating the start and end of the project, the date started, and date completed, tables with pertinent information, photographs, videos of CCTV, and any other pertinent information necessary for the project. The conclusion shall be clear and concise depicting the condition of the pipe at the time of inspection and database tables will be named clearly identifying the information. The database will be the property of the City of Denton and information will not be shared without prior written approval from the City of Denton staff responsible for the project/inspection.

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As requested in the RFP, Pure Technologies presents a list of comparable references, within the past 24 months, where pipelines were surveyed in a single deployment for distances of 3,500 feet or more using the Sahara system.

^ *Inspections highlighted in gold were performed by the Pure Technologies Dallas office.*

Client Name	Project Manager	Name of Pipeline	Length (ft)
Baltimore City	Vennila Durai	Herring Run Main	4185
Brazos River Authority ^	Stacie Sandmann	Intake	4225
City of Montreal	Hamid Goorkani	Lacordaire	3691
Dallas Water Utility ^	George Schaaf	Jim Miller	3790
Dallas Water Utility ^	George Schaaf	5720 walnut hill ln	3720
Dallas Water Utility ^	George Schaaf	Williamson rd.	3560
Dallas Water Utility ^	George Schaaf	McMillan and Vickery	3515
Dallas Water Utility ^	George Schaaf	4675 Hwy 121	3457
Dallas Water Utility ^	George Schaaf	Cedar Springs	3802
Dallas Water Utility ^	George Schaaf	4700 Jim Miller	3684
Dallas Water Utility ^	George Schaaf	W-4 Water Main	3620
Dallas Water Utility ^	George Schaaf	2501 Web Chapel	3500
Dallas Water Utility ^	George Schaaf	Corinth	3480
FENG XIAN WATER		21-Feng-4	3609
FENG XIAN WATER		21-Feng-4	3609
GCWA ^	George Schaaf	42in	3730
Hampton Roads	Zachary Brenners	LCWM-3	3739
Hampton Roads	Zachary Brenners	LCWM-2	3500
Jacobs Engineering ^	Leo Huang	24 inch Raw Water Main	4000
JIN SHAN WATER		21-Jin-1	3560
NTMWD ^	Stacie Sandmann	Mesquite	3603
Philadelphia Water	Nathan Wilson	3rdST	3500
PWD	Nathan Wilson		3733
Reynolds Construction	CJ Roebuck	West Side Loop 2	4653
SFPUC	Brian Hext	San Antonio Pipeline	4255
Spat	Gustavo Valverde	Biritiba 1500 mm	5013
Spat	Gustavo Valverde	Itaquá-Arujá	4928
Spat	Gustavo Valverde	1800 mm PI-05	4062
Spat	Gustavo Valverde	SAM Leste Trecho IIA	3688
Spat	Gustavo Valverde	Guaio 2100 mm	3609
Spat	Gustavo Valverde	Mogi 900 mm	3583
Spat	Gustavo Valverde	Itaquá-Guarulhos	3530
Spat	Gustavo Valverde	Biritiba	3530
Spat	Gustavo Valverde	Sam Leste Trecho II	3510
Spat / Sabesp	Gustavo Valverde	SAM Leste Sul 1800mm	3648
SWI WATER		20-Min-13	3609
SWI WATER		20-Min-13	3609
SWI WATER		20-Chang-10	3539
Tighe & Bond	CJ Roebuck	30-inch CIP Finish Water	3690

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As requested by the RFP, Pure Technologies presents the following summary documenting the successful performance of the Sahara system inspections by Pure Technologies and our licensed operators on more than 1,500 miles of pipeline and with more than 1,500 leaks found.

Year	Annual Inspection Distance (Miles)	Total Inspection Distance (Miles)
2013	31	31
2014	42	73
2015	35	108
2016	74	183
2017	138	320
2018	57	378
2019	53	431
2020	43	474
2021	46	520
2022	85	605
3rd Party Users	4329	4934
TOTAL		8,058

Year	Annual Leaks Detected	Total Leaks Detected
2013	91	91
2014	114	205
2015	91	296
2016	231	527
2017	434	961
2018	186	1147
2019	181	1328
2020	159	1487
2021	135	1622
2022	213	1835
3rd Party Users	1163	2998
TOTAL		12,497

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GROUP 2 - REQUIREMENTS FOR NO-FLOW INTERNAL TETHERED LEAK AND GAS POCKET INSPECTION WITH VIDEO

No-Flow Sahara applications typically address inspection in pipelines undergoing hydrostatic pressure tests where there are no flows in the pipeline and the contractor cannot pass the hydrostatic pressure test.

Dallas Water Utilities has also required contractors to conduct a 100% leak tightness testing using the Sahara No-Flow inspection technology following successful hydrostatic testing on newly installed large diameter water mains.

Technical Specifications

Purpose

This technical specification describes the materials and procedures needed to carry out a Sahara Inspection under "No Flow" Conditions. A Sahara Inspection using the No Flow Condition may be used either in conjunction with or instead of a Hydrostatic Pressure Test to confirm leak tightness in a pipeline.

Terminology

The following terms are used in this specification:

Sahara System: Non-destructive, acoustic, condition assessment technology that identifies and locates leaks and gas pockets in large diameter (greater than 12-inches) pipelines and estimates the magnitude of the leaks.

Insertion Site: Location where the MuleTape and Sahara System are inserted into the pipeline.

MuleTape: High strength Kevlar tape used to pull the Sahara System through the pipeline.

Sahara Locator: Aboveground tool used to pinpoint the location of the Sahara System during the inspection

Pull Site: Location where the MuleTape is pulled to propel the Sahara System through the pipeline.

Material Requirements

The following materials are required to carry out a Sahara Inspection using the No Flow Condition:

MuleTape (manufactured by Neptco) – 5/8-inch wide, flat, woven, Aramid (Kevlar) material with a tensile strength of 2500 lbs.

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Inspection Log – Handwritten log used to document all findings from the inspection.

Pipeline Access – A minimum 2-inch inner diameter, clear bore access with full port 2-inch ball valve is required on the crown of the pipe at each insertion and pull site.

Guide Tube – 1-inch poly water service tubing, cut at a length that ensures a minimum penetration into the pipe of 12-inches from the innermost weir.

Lars Pressure Diverting Manifold - Abbreviated LPDM; Installed with a sealing gland on top of the 2-inch ball valve at the insertion site. Allows the Sahara System to be inserted into the pipeline under full hydrostatic pressure (up to 300 psi).

PVC hoses – 2-inch diameter hoses attached to the LPDM. Used to divert pressure from the vault at the insertion site.

Guide Tube/Sealing Gland Component – Attach a 1-inch compression by 1-inch MIP NPT threaded brass coupling to one end of the guide tube. A 2-inch x 5-inch galvanized nipple is threaded onto the ball valve over the brass coupling, and then a 2-inch galvanized coupling is installed on the nipple. A 2-inch x ½-inch bushing is installed onto the coupling and then a special ½-inch electrical connector with a rubber tapered grommet, cut in half, is installed on the bushing.

Tethered Umbilical – 5/8-inch diameter cable with a polyurethane outer sheath. The interior of the cable contains four wires, a Kevlar tether and neutrally buoyant materials. The umbilical cable is capable of extending up to approximately 5,000 feet; however, the actual deployment length is dependent on the pipeline configuration.

Hydraulic Winch – Forces the umbilical into the pipe at the insertion site

Acoustic Sensor Head – 1-inch diameter hydrophone unit that is used to detect leaks. Attached to the MuleTape and the tethered umbilical.

Cable Drum – Stainless steel framed, hydraulically operated and completely encased spooling machine. Contains 1,000 ppm chlorinated water to disinfect the tethered umbilical cable.

Processing Unit – Unit where the Sahara operator can view the acoustic data being recorded by the sensor head.

Hydraulic Capstan – Installed at the pull site to extract the MuleTape.

Sahara Locator – Low Frequency transmitter used to locate the sensor head during the inspection.

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City of Denton Responsibilities

The City of Denton is required to provide the following:

- Plan and profile drawings of the section of the pipeline to be inspected.
- As-Built drawings, if available, including manhole access locations and details of the manhole openings and vaults.
- A complete set of drawings for any relocation or revision to the pipeline since its original construction that is not reflected on the plan and profile drawings.
- A full 2-inch inner diameter bore into the pipe, located on the crown, at the insertion site with a short riser (no more than 8-inches tall) and a full port 2-inch ball with 2-inch female NPT threads.
- Two 2-inch ports and 2-inch ball valves at intermediate locations with 2-inch female NPT threads
- Traffic control, if necessary.
- Access to allow delivery of equipment to insertion and pull sites.
- Personnel familiar with the pipeline to assist Pure Technologies personnel at the insertion site and with the Sahara Locator.
- The pipeline must be fully dewatered prior to installing the MuleTape
- If manned entry is required for installation of the MuleTape, proper equipment to allow manned access into the pipe shall be provided, as well as a confined space permit, top side and rescue support, and air ventilation.

Safety Considerations and Requirements

Safety of all personnel involved in the inspection is of importance to the success of the project. When completing a Sahara Inspection using the No Flow Condition, consider the following safety requirements:

When manned entry is required, confined space entry procedures should be followed, including a confined space permit, proper top support and adequate. All personnel entering the pipe shall utilize personal air quality monitors.

The pipe must be fully dewatered prior to installing the MuleTape

Lock-out/Tag-out of all electrical equipment and in-line valves must be performed.

Traffic control must be provided.

All personnel entering the pipeline or any vault at the insertion or pull sites are required to wear personal protective equipment (“PPE”) including, but not limited to a protective helmet, head lamp, air monitor, harness, steel toe hip boots/waders, Tyvek suit and gloves. PPE is required for all pipeline entrants.

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Personnel remaining aboveground are also required to wear PPE including, including, but not limited to reflective vests, hard hats and steel toe boots.

Inspection Methodology

To complete a Sahara Inspection using the No Flow Condition, the following procedure should be used:

Install the MuleTape between two defined access points in a dewatered pipeline via manned or robotic entry.

Fill and pressurize the pipeline as required.

Remove the sealing gland and bushing from the 2-inch ball valve on top of the LPDM.

Pre-load the sensor head and cable into the insertion tube and lower the insertion tube into the vault, next to the LPDM.

Attach the sensor head to the MuleTape using a standard fishing knot and half-hitch. Epoxy the knot.

Install the hydraulic winch, encoder cable, hydraulic hoses and support legs at the Insertion Site. At the Pull Site, install the hydraulic capstan, spooler, pit rollers, generator, and hydraulic power pack.

At the Pull Site, attach the MuleTape to the hydraulic capstan.

Thread the insertion tube onto the 2-inch valve located on top of the LPDM with as small amount of MuleTape slack as possible.

Open the ball valves on the bowl of the LPDM to divert the pressure out of the vault via 2-inch PVC hoses.

Open the top LPDM valve. As the lower LPDM valve is being opened, begin to pull the MuleTape slack at the Pull Site. This pressurizes the insertion tube.

Lower the piston tube into position using a hydraulic hand pump.

Turn on the computer, Sahara interface and electronics to prepare for deployment of the sensor head.

The Sahara Operator (Insertion Site) informs the Capstan Operator (Pull Site) to begin to pull the MuleTape, deploying the sensor head. Synchronization must be maintained between the Sahara Operator and the Capstan Operator to ensure that the MuleTape remains taut.

The operators should stop pulling at 1 meter intervals to listen for leaks until the sensor head reaches the pull site.

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Dispatch the PipeHawk Operator to track the sensor head, locate and mark the leak location(s), gas pockets and pipeline intervals on the ground surface as may be required. Document all findings in the Inspection Log.

When the sensor head reaches the Pull Site, the Sahara Operator instructs the Capstan Operator to reconfigure for retrieval. At the Insertion Site, use the hydraulic winch to retrieve the cable and sensor head.

Once the sensor head has been retrieved and the inspection is complete, use the capstan equipment at the Pull Site to retrieve and re-spool the MuleTape.

Deliverables

The Sahara Locator operator will mark all detected leaks, pockets of trapped gas and/or desired pipeline intervals on the ground surface during the inspection.

A set of GPS coordinates, which give the insertion point, end point and the locations of any detected leaks and/or gas pockets (PI) will be provided. If required, the Sahara Locator operator will flag the pipeline location at desired intervals and points of intersection (PI). GPS coordinates of the pipeline interval stations can be taken and recorded.

A written inspection report is provided to the client within two (2) weeks of the inspection.

Confirmations | Clarifications | Submittals per RFP Requirements:

The leak assessment shall be performed internally while the pipeline remains in service or using a pull tape with no flow. A sensor head (tethered device) is inserted into a live pipeline carried by the flow of water or pulled by tape with no flow. The sensor will travel through the pipeline pinpointing the exact location of leak(s). Leaks are identified by the distinctive acoustic signals generated at the pipe wall.

Pure Technologies will perform the inspection in a non-destructive manner, while the pipeline is in service or under pressure of at least 15 psi, using real-time data to be able to inspect pipelines without flow.

The Sahara system is capable of inspecting multiple pipeline material types including Pre-stressed Concrete Cylinder Pipe (PCCP), Reinforced Concrete Cylinder Pipe (RCCP), Asbestos Cement (AC) Pipe, Polyvinyl Chloride (PVC), High-Density Polyethylene (HDPE), Glass Reinforced Polymer (GRP), Steel, Cast Iron, and Ductile Iron Pipe.

The no-flow Sahara inspection is capable of inspecting in pipelines that are 10-inch diameter and larger.

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Assuming the tag lines are in place, the Sahara system can be inserted into static pressurized pipelines up to 200 psi.

The Sahara system operator can advance, stop, and/or retrieve the sensor head at any time during the inspection.

The Sahara system will identify and locate multiple leaks (actually ALL leaks and air pockets) under a single deployment.

The Sahara system will track the sensor head from the surface in real-time during the inspection, providing surface locations with 3 foot accuracy along the length of the pipeline as well as laterally for cases where the exact pipe alignment is not known and collect GPS coordinate data.

All Sahara equipment that contacts potable water is disinfected with a chlorine solution prior to being introduced inside the pipe. The cable is also spooled in a chlorine bath throughout the inspection. All equipment utilized by Pure Technologies for use in potable water pipelines is dedicated and certified to only be utilized in potable water lines. Devices previously deployed within wastewater piping systems are never utilized within potable water pipelines.

The Sahara no-flow inspection system can detect leaks as small as 0.01 gallons per minute at 90 psi of pressure and 0.1 gallons per minute at 25 psi.

The Sahara tracking locator is capable of locating leaks within 12-inches of the leak or gas pocket location and will provide preliminary results on-site during the inspection.

Be capable of providing preliminary results to City of Denton staff on-site during the inspection.

Pure Technologies will respond to any request for emergency services within 48 hours. Our experience with most emergency situations is that it may require several days to arrest the existing issues and be available for us to have access to the pipeline. Hence, our initial rapid response is to meet with the City and conduct a site reconnaissance to understand what equipment and services are required and if the existing configuration can accommodate such services. Because our technologies may be deployed on other projects in Texas, availability of equipment and field personnel will need to be confirmed and communicated to the City for planning.

Pure Technologies will provide mapping grade GPS surface markings depicting the location of the pipeline every 300 feet and at each bend as requested, to allow accurate updating of the City's GIS databases.

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Pure Technologies will provide a detailed report of pipeline segment(s) assessed within GIS format using mapping-grade GPS data. GIS data must be compatible with the City of Denton GIS system. The report will include the location and rating/size of each leak as (Small for < 2 gpm | Medium for 2 to 10 gpm | large for > 10 gpm) detected during the inspection.

The Sahara no-flow inspection report and associated deliverables shall be submitted in hard copies (three copies) and electronic format with database, information viewable in ArcMap with all pertinent information. The report will include at minimum; an executive summary, a location map of the project, indicating the start and end of the project, the date started, and date completed, tables with pertinent information, photographs, videos of CCTV , and any other pertinent information necessary for the project. The conclusion shall be clear and concise depicting the condition of the pipe at the time of inspection and database tables will be named clearly identifying the information. The database will be the property of the City of Denton and information will not be shared without prior written approval from the City of Denton staff responsible for the project/inspection.

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GROUP 3 - REQUIREMENTS FOR INTERNAL NON-TETHERED FREE-SWIMMING LEAK AND GAS POCKET INSPECTION

This specification covers the requirements for conducting non-tethered free-swimming leak assessments. The leak assessment shall be performed internally while the pipeline remains in service. A free-swimming acoustic leak detection system is inserted into a live water main and carried by the flow of water. The device will travel through the pipeline detecting and locating leak(s) and gas (air) pockets.

Pure Technologies' Free-Swimming Internal Acoustic Leak and Gas Inspection Technology with Video is referred to as "SmartBall®".

SmartBall Technology Overview

Internal acoustic leak detection systems have proven to be the most effective and reliable means for identifying leaks in larger diameter pipelines. Technological advances have resulted in the development of the SmartBall, a free-swimming acoustic leak detection device capable of surveying many miles of fully operating pipeline with a single deployment. The device can identify and locate small leaks in water pipelines 6-inches and larger, constructed of any pipe material. The device can also pass through in-line valves (including butterfly valves > 10-inches) and negotiate unlimited bends in the pipeline. These benefits provide a cost effective and timely approach to identifying and locating leaks in large diameter water pipelines and wastewater force mains.

Background

Acoustic leak detection equipment identifies the sound or vibration induced by water escaping from pipes under pressure. When pressurized product leaks from a pipe, it creates a distinctive acoustic signal that travels through the water column flowing in the pipeline.

Recognizing the value offered by acoustic leak detection technology yet realizing some of the limitations associated with current leak detection technologies applicable to large diameter water transmission mains, a research and development program was undertaken by Pure Technologies in 2004 to develop a free-swimming (non-tethered) acoustic leak detection device. The goal of the program was to develop a technology that would provide operators with the ability to survey water transmission pipelines for which inspection was previously not practical.

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Water Pipelines

Aluminum core containing instrumentation and battery power.

For water pipeline and sewer force main applications, the SmartBall consists of an outer foam ball that envelops a water-tight, aluminum sphere (approximately 2-1/2" in diameter) containing the sensitive acoustic instrumentation. The figure to the right shows a graphic representation of the instrumentation housed inside the aluminum core.

The device is inserted into the pipeline and released to allow the flow to roll the SmartBall downstream. The compressible foam outer ball allows for insertion through existing 4-inch diameter outlets. If a dry or pressure tap is required, Pure Technologies requires that a 6-inch tap be provided. The outer ball also provides mass by which the device is pushed by the hydraulic flow of the water.

A photograph of the inner aluminum core and the outer foam ball is presented in the figure below. While the ball is traversing the pipeline, it continuously records all acoustic activity in the pipeline.

Aluminum core and outer foam protective ball.

Smartball Receiver (SBR) units are placed periodically along the pipeline at convenient surface access locations, whereby the movement of the device can be tracked. Once the ball has traversed the desired pipeline length, it is retrieved from the pipeline. The acoustic data can then be evaluated to determine the presence and location of any leaks and/or gas (air) pockets in the pipeline.

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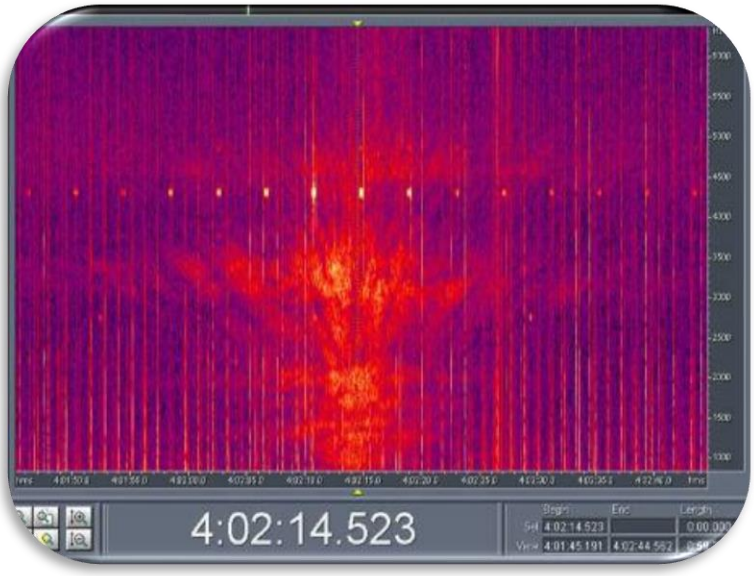
For water pipelines, the technology requires two access locations (4-inch or 6-inch diameter) equipped with a full port valve having a standard flange face (one each for insertion and extraction of the device).

Once deployed, the SmartBall can pass through open in-line valves (including butterfly valves greater than 10-inches), reducers and other fittings, as well as navigate unlimited bends and profile changes. The ball is propelled by the hydraulic flow of the water, requiring a minimum flow velocity of ½ fps, and will roll along the bottom of the pipeline. Greater flow rates (1 to 3 fps) may be required for significant pipeline profiles. At a flow velocity of 2 fps, the ball will typically flow vertically.

The device provides for thirty (30) hours of acoustic monitoring and recording. Based on a flow velocity of two feet per second, the Smartball can survey about 40 miles of pipeline via a single deployment. Larger cores are also available to accommodate longer inspection distances.

Depending on the ambient acoustic environment (the "noise floor"), leaks as small as 0.03 gallons per minute (gpm) have been detected at higher operating pressures. The leak detection limits are approximately 0.5 gpm at 15 psi, 0.1 gpm at 25 psi and 0.01 gpm at 90 psi.

A printout of an acoustic frequency spectrum display for a one (1) gallon per minute leak in a 48-inch water pipeline is presented below.



Acoustic frequency displaying a 1 gpm leak in a 48-inch water pipeline.

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Two techniques are utilized to locate an identified leak in a pipeline. The primary technology utilizes the miniature ultrasonic transponder placed inside the sphere which emits a timed, high frequency, coded ping that allows the GPS based and synchronized SBR unit on the surface to track the device. The SBR utilizes a surface mounted tracking sensor that is attached to a metal interface or appurtenance that is in direct contact with the water column. This allows the receiver to detect the high frequency ultrasonic pings that travel through the water column at the speed of sound. By tracking the device as it travels through the pipeline, the relative position of the ball to the receiver can be calculated once the device passes the acoustic receiver unit. The SBR unit also provides a fixed reference point for both position and time.

The SBR has demonstrated an ability to track the device for more than one mile (1/2 mile in either direction). However, various factors can affect the distance to which the device can be detected. These include the pipeline configuration (bends, etc.), diameter of the pipe, the pipe material and lining condition, the presence of air pockets, debris, or sediment accumulation – all factor that may attenuate sound.

The SmartBall is the only free-swimming internal acoustic leak and gas pocket inspection device that can be tracked throughout an inspection run.

By placing an SBR every 2,500 to 3,000 feet, Pure Technologies will locate detected leaks or gas pockets within 1 to 2 meters.

Standard reporting of identified leaks is broken down by Small (0 to 2 gpm), Medium (2 to 10 gpm) and Large (> 10 gpm).

The following presents a summary for a SmartBall inspection in Airdrie, Canada. References for SmartBall projects performed in Texas are also included herein.

Airdrie, Alberta, Canada

Thee SmartBall was deployed for the City of Airdrie to inspect a 36" water line that supplies the city with water. The line runs approximately 8 miles from the northern city limits of Calgary, past Balzac, to the Airdrie reservoir.

SBR tracking receivers were deployed at the insertion and retrieval locations, as well as at existing appurtenances (air relief valves and manholes) – resulting in a spacing of approximately ½ mile between acoustic tracking receivers. The yellow tacks shown in the figure 4 denote the location of the receivers.

36-inch Airdrie Water Main

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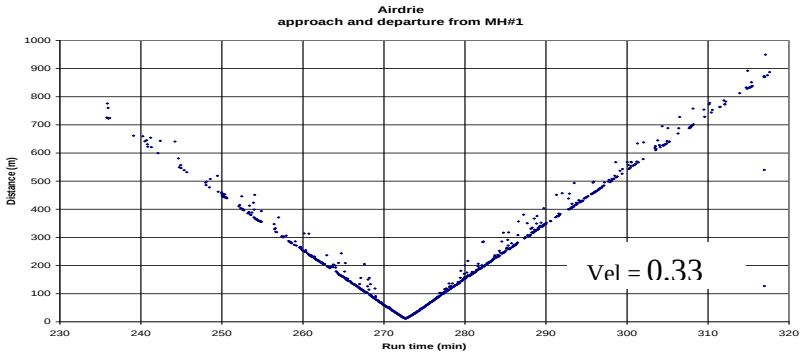
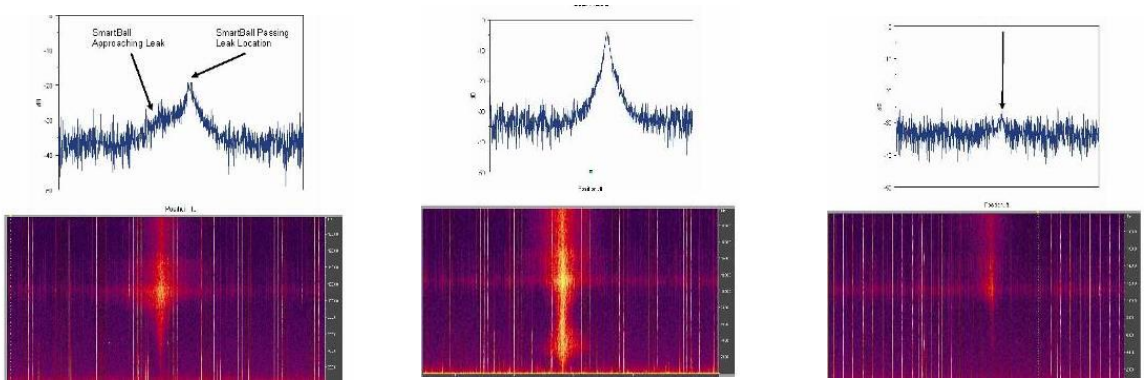


SBR's were able to track the SmartBall ½ mile in each direction.

Rotation data from the on-board accelerometer is utilized to calculate the rate of rotation of the device as it traversed the pipeline, which allows for a velocity profile to be developed. Then, absolute position reference points obtained from the SBR's are applied to the time stamped data. The result is a position versus time relationship for the entire run of the tool.

Upon retrieval of the tool, the acoustic data recorded by the SmartBall was analyzed and cross-referenced with the position data from the SBR to determine location. Three leaks were detected during the tool run. The figures below display the leak intensity and accompanying acoustic frequency display associated with each of the three identified leaks.



Identified Leaks (L to R) 5 gpm, 35 gpm and 0.8 gpm leaks.

The City of Airdrie confirmed all three leaks. A photograph the 30 gpm leak source is shown below. Unbeknownst to Pure Technologies, the City had simulated the two (2) smaller leaks. However, the City was unaware of the large leak, as it occurred in a remote field and the water was not coming to the surface – rather running down the pipeline to an underground destination.

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35 gpm leak at ¼-inch slit in the steel bell joint of the PCCP

Confirmations | Clarifications | Submittals per RFP Requirements:

All SmartBall inspections are performed internally while the pipeline remains in service. The free-swimming acoustic leak detection system is inserted into a live water main carried by the flow of water. The device will travel through the pipeline detecting "ALL" leak(s) and gas pockets in a single deployment.

The SmartBall can enter and exit a fully operating and flowing pipeline, while the pipeline remains in service and flowing at a velocity of one (1) foot per second or greater and the SmartBall will detect and locate multiple leaks and/or gas pockets over the entire length of a pipeline inspected under a single deployment.

The SmartBall can map the alignment of the pipeline being inspected. The pipeline alignment and suspected level of accuracy will be provided in a geodatabase and identifying pipeline alignment discrepancies between the recorded data and as-built pipeline drawings or existing GIS.

The SmartBall inspection is performed in a non-destructive manner and can survey pipelines with an inside diameter of six (6) inches or larger.

The SmartBall can operate inside a pipeline with a minimum flow velocity of one (1) foot per second and can be actively tracked throughout the duration of the inspection run. Note: a flow velocity of 2 fps may be required to traverse vertical risers.

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The SmartBall can be tracked inside a pipeline a up to 3,000 feet between tracking sensors. The SmartBall Tracking technology will assist in verifying the instantaneous velocity of the device to predict the arrival time of the device at downstream pipeline features and identify changes in the velocity of the device between tracking sensors.

The SmartBall can inspect pipelines with partially open offtake valves, allowing restricted offtake service to continue throughout the inspection. The SmartBall can also be tracked as it approaches and passes such offtakes whereby the City can be notified when the device passes the lateral and the City can open the offtake valve fully, thereby minimizing the duration of restricted flow into the offtake.

The SmartBall is inserted into and extracted from the pipeline through a minimum access of four (4) inches equipped with a corresponding full port valve.

The SmartBall may be inserted and extracted via fire hydrants.

The SmartBall can record data for up to 24 hours and can be deployed into a pipeline operating at pressures up to 500 psi.

The SmartBall can record the pipeline operating pressure and water temperature (up to 150 degrees Fahrenheit) throughout the inspection and include such data in the final report.

The post-survey report shall include an executive summary, a location map of the project that indicates the start and end point, survey date(s), tables with pertinent information, photographs, any other information necessary for the project, and the location of leaks and gas pockets.

The SmartBall will detected leaks as originating from the pipe barrel, pipe joint, or a pipe feature and can perform in any type of pipe material types, including steel, cast iron, ductile iron, pre-stressed concrete cylinder pipe, bar wrapped pipe, asbestos cement, polyvinyl chloride, high-density polyethylene, and glass reinforced plastic.

All Pure Technologies field personnel are OSHA and confined space trained and certified and meet local and or national standards for confined space entry. Pure Technologies will furnish confined spec permits whenever the scope of work identifies work to be performed in confined space areas.

Pure Technologies personnel are always equipped with required safety equipment including calibrated gas monitors, lifting harnesses, safety lines, and all other required safety equipment to ensure their welfare while entering confined spaces.

Within 24 hours following extraction of the SmartBall, Pure Technologies will identify, report (letter report) and field verify (using external listening mics and

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correlators) the location of any identified leaks estimated to be larger than two (2) gallons per minute.

Pure Technologies maintains sufficient equipment including the SmartBall devices and replacement components, tracking sensors and receivers, insertion stacks, and extraction stacks within our Dallas warehouse facility.

The following two (2) summaries presented below of SmartBall inspection distances and leaks found is in response to the RFP requirement to demonstrate that the SmartBall technology as successfully been utilized on a minimum of 7,000 miles of pipeline and reported 3,000 leaks.

SmartBall Inspection Summary		
Year	Annual Inspection Distance (Miles)	Total Inspection Distance (Miles)
2007	39	39
2008	131	170
2009	249	419
2010	315	734
2011	364	1098
2012	257	1355
2013	520	1875
2014	538	2413
2015	961	3374
2016	1266	4640
2017	959	5599
2018	748	6347
2019	750	7097
2020	574	7671
2021	650	8321
2022	1084	9405
TOTAL		60,557 Miles 319,740,960 feet

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SmartBall Inspection Summary		
Year	Annual Leaks Detected	Total Leaks Detected
2007	6	6
2008	10	16
2009	44	60
2010	29	89
2011	42	131
2012	17	148
2013	8	156
2014	52	208
2015	315	523
2016	547	1070
2017	464	1534
2018	295	1829
2019	275	2104
2020	257	2361
2021	372	2733
2022	464	3197
TOTAL		16,165

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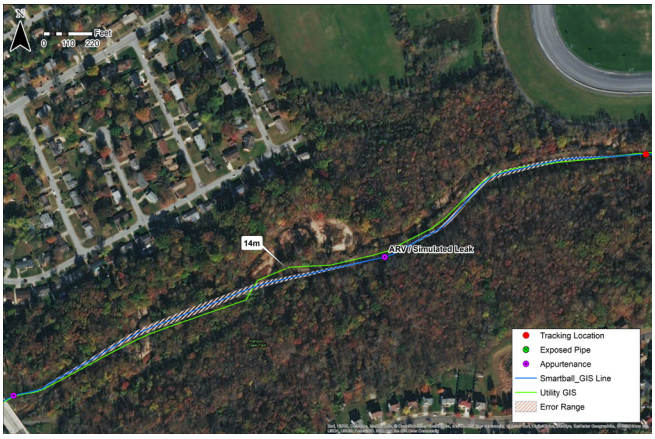
SmartBall® Mapping

INLINE FREE-SWIMMING PIPELINE INSPECTION AND MAPPING PLATFORM



Sample SmartBall Mapping Line

Why X and Y Mapping?

The SmartBall® platform is a free-swimming inspection tool used to detect leaks and gas pockets and map pipeline networks. Knowing the location of underground pipelines with certainty is a key component of pipeline management and a comprehensive condition assessment program. Confirming the location of buried assets helps pipeline managers evaluate their risk of failure, understand the alignment of pipes relative to nearby utilities, plan maintenance work more efficiently, reduce the likelihood of third-party damage, and conduct more accurate hydraulic modeling.

How it Works

SmartBall Mapping combines the latest accelerometer and gyroscope technologies with advanced location algorithms to calculate pipeline directional data. With field-collected GPS points and pipeline bearing information, a geodatabase is created containing the X-Y alignment of the pipeline, known as the SmartBall Mapping Line.

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Mapping Accuracy

The range of accuracy for SmartBall Mapping depends on the quality and frequency of control points and the consistency of the SmartBall tool's rolling. Under ideal conditions, the expected accuracy is:

Range of Accuracy = The greater of ±2 ft (0.6 m) or 0.5% of the distance from a control point.

For example, the maximum expected error for an area with control points 3,000 feet (914 m) apart will be ±7.5 feet (±2.3 m). This maximum expected error occurs in the middle of the area, when the SmartBall tool is 1,500 feet (457 m) from either control point.

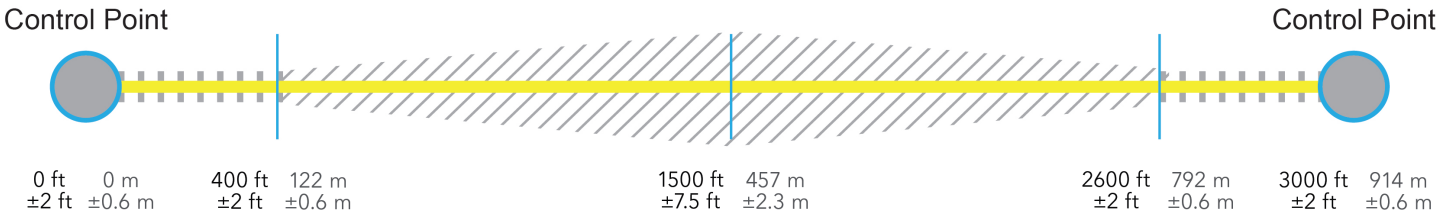
SmartBall Mapping Deliverables

SmartBall mapping will provide the utility with a geodatabase that includes:

- GIS X-Y alignment of the pipeline
- GPS control points
- Error range

A SmartBall inspection report will include:

- Conflicts between the utility's GIS and the SmartBall Mapping Line
- Quality of inputs and range of accuracy for each area defined by GPS control points



Using the SmartBall Mapping Line

The SmartBall Mapping Line is compared to available pipeline information, such as existing pipeline GIS and as-built drawings, to identify conflicts or confirm the assumed pipeline alignment. In areas where the SmartBall Mapping Line agrees with a utility's records, the utility can feel more confident in the assumed location of the pipeline. If a conflict is identified, a targeted effort of exposing the pipeline, line finding, or surveying at these specific areas may be warranted depending on the location accuracy required for the subject pipeline.

Operational Requirements

Pipe Materials	Any pipe material
Flow Velocity	Pipeline flow must be between 1.5 and 3 feet per second (0.5 – 0.9 m/sec)
Flow Consistency	Flow changes should be minimized throughout the inspection
Tracking Locations and Control Points	Known features are required for GPS control points, including air release valves, inline valves, or other appurtenances. Potholes can be used when there are not enough known features.
GPS and Pipeline Bearing	Centimeter-grade GPS point and the pipeline directional bearing will be recorded at all control points
Number of Inspections	Two inspections are needed to create a complete deliverable with a geodatabase and report; a single inspection can provide a confirmation of alignment delivered in report format with no geodatabase.

For more information on how we can help you, contact us at: puretech@xyleminc.com

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SmartBall

HYDRANT INSERTION AND EXTRACTION INTRODUCTION

APRIL 16, 2020

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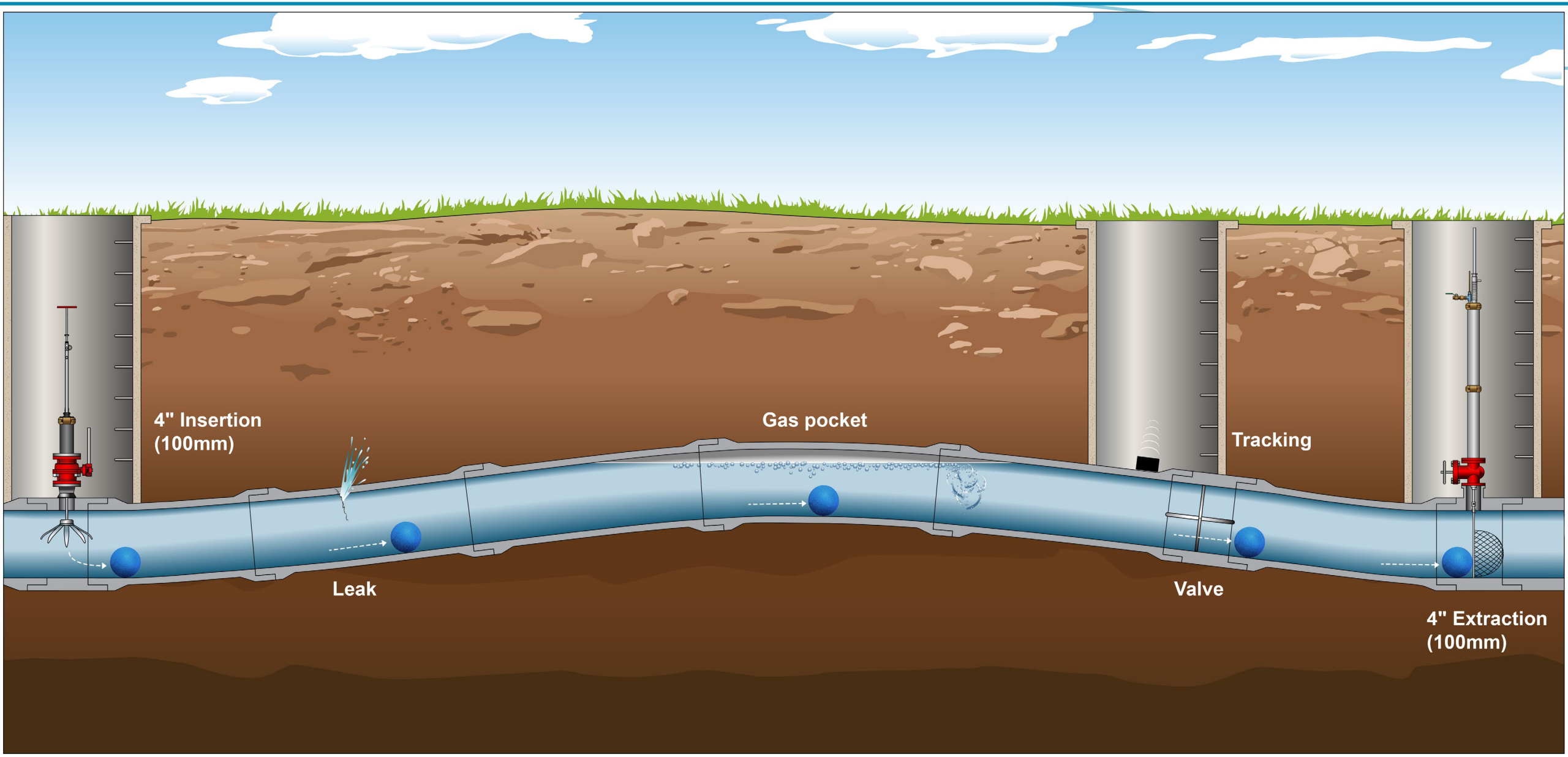
SmartBall Overview



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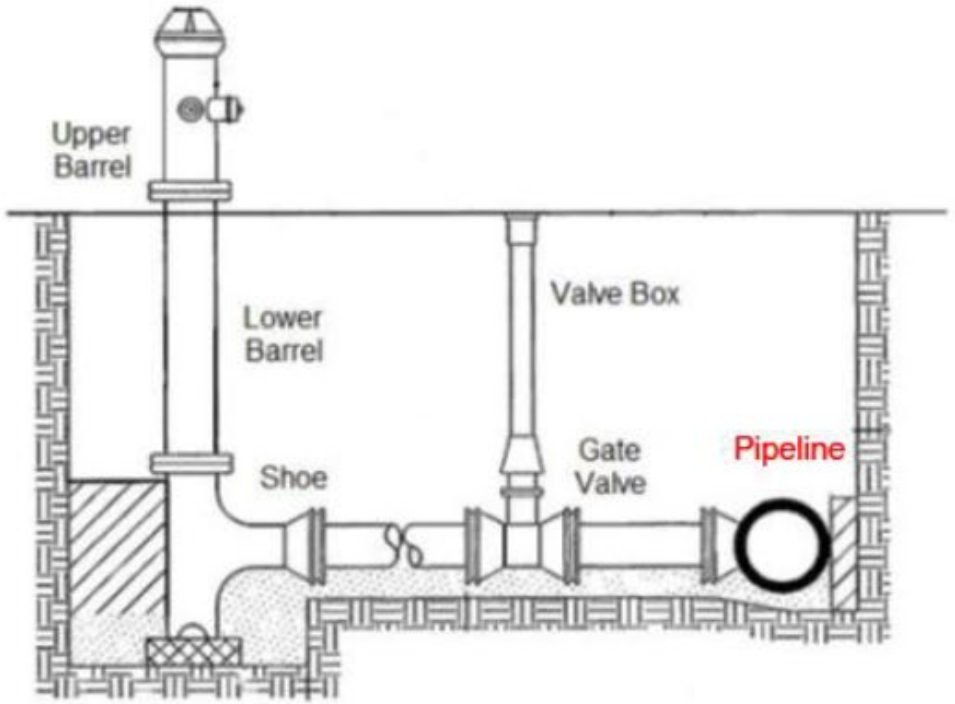
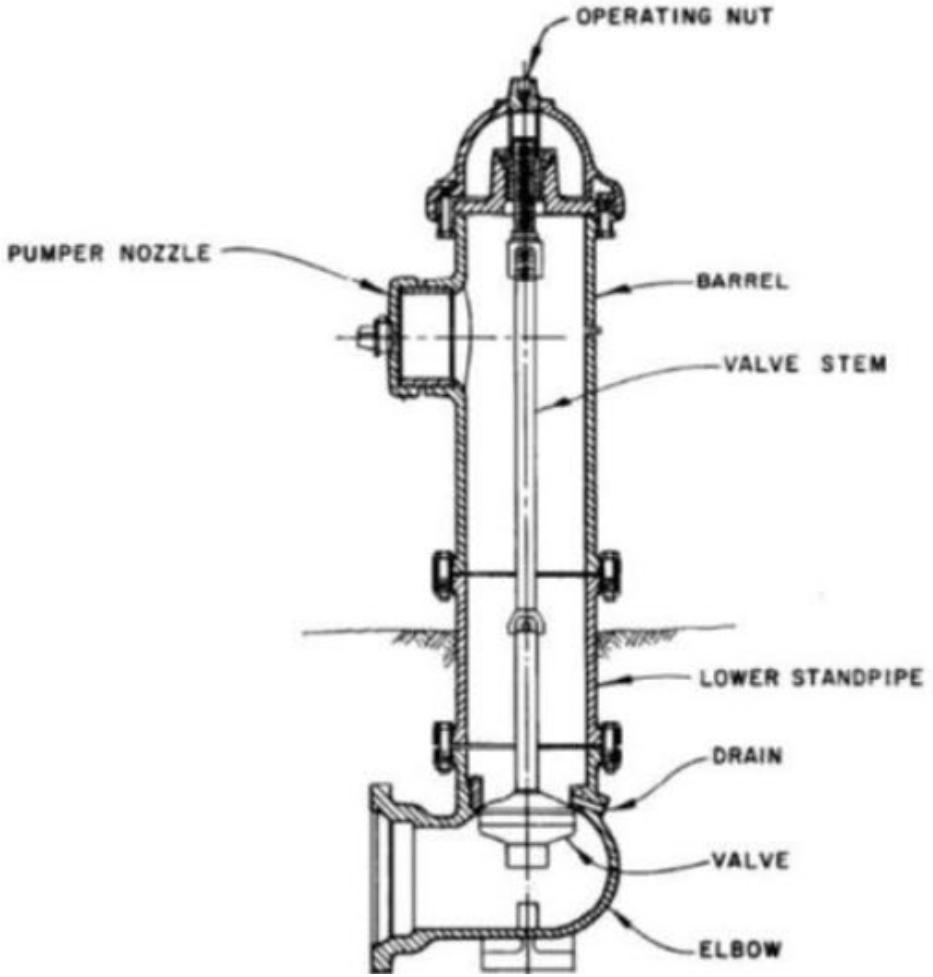
Hydrant Overview





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Hydrant Insertion

Basic Procedure

1. Isolate hydrant from the pipeline
2. Remove the dome, valve stem and operating nut
3. Insert SmartBall into the hydrant lateral
4. Re-install valve stem, dome and operating nut
5. Connect supplemental water source that has a higher pressure than the watermain to the hydrant
    - Firetruck
    - Upstream fire hydrant
6. Open hydrant valve and pressurize hydrant
7. Turn on supplemental water source and launch the SmartBall

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Hydrant Extraction

Basic Procedure

1. Attach extraction equipment to hydrant
2. Setup extraction hose, diffuser, and dechlorinating tablets
3. Slowly open hydrant to achieve required flow rates
4. Track SmartBall and confirm when it is at the bottom of the hydrant
5. Isolate hydrant and remove valve stem etc
6. Slowly open the hydrant valve until the SmartBall comes to the surface
7. Reassemble hydrant

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Client Preparation Work

1. Provide CAD or GIS files
2. Identify hydrants to be used
3. Exercise all valves associated with the inspection to confirm operability (hydrant isolation valve and inline control valves for flow management)
4. Flush hydrant connection to remove debris
5. Confirm if local fire department can assist with insertion
6. Exercise and confirm the internal hydrant valve can be removed
7. Identify where water is going to be discharged when extraction hydrant is open

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Hydrant Kit Components

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Hydrant Experience

Colorado Spring Project

- 10 inspections
- 54,000 feet
- 10” to 30”
- DIP

Toledo Ohio

- 1 inspection
- 7 miles
- 18” to 24”
- PCCP and DIP

GEFA

- 8 inspections
- 58,000 feet
- 10” to 30”
- PCCP and DIP

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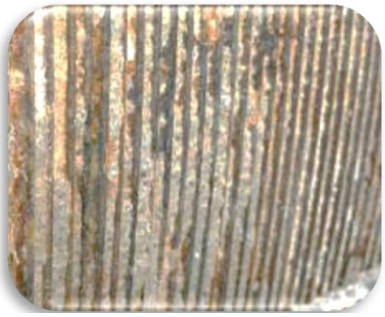
GROUP 4 - REQUIREMENTS FOR MANNED EM NONDESTRUCTIVE INSPECTION

This specification covers the requirements for detecting and quantifying the number of broken wires within all types of Pre-stressed Concrete Cylinder Pipe (PCCP). The PCCP assessment involves an exciter coil that is used to induce a small electrical current in the steel wires and steel cylinder. The current in the steel wires then induces a small current in a second coil called the detector. The amplitude and phase of the signal received at the detector will change depending on if the steel wire is broken or not. The change in the detector signal is then analyzed and an estimate of the number of broken wires is given.

Using Electromagnetic (EM) Inspections to Assess PCCP

Prestressed Concrete Cylinder Pipe (PCCP) designed and manufactured in accordance with AWWA Standard 301 and C304 relies on high strength steel prestressing wire helically wrapped around the pipe's concrete core under extremely high tension to provide its strength. Due to its vulnerability to corrosion, the wire is embedded in a cement rich mortar coating, which provides an alkaline environment (a very effective form of corrosion protection) that inhibits corrosion and provides an outer armor protection.



Heavily corroded and broken prestressing wire

Problems arise in PCCP when the cement mortar, and thus the alkaline environment, is compromised, leaving the wire susceptible to corrosion. When corrosion of the prestressing wire occurs, the wire eventually breaks - reducing the strength of the pipe at that location. If corrosion continues, multiple wire breaks may occur in the same region and can significantly reduce the pipe's strength, eventually to the point of failure. The above figure shows the springline of a PCCP pipe section with numerous broken wires in one location.

In addition to corrosion, a common failure mode of prestressing wire is due to a change in the manufacturing process during the 1970s. This process led to the production of wire with increased tensile strength but also a reduced ductility of the steel, making the wire susceptible to hydrogen embrittlement. The combination of low ductility in the wire and susceptibility to hydrogen embrittlement creates a higher probability of failure for PCCP versus other standard water main pipe materials.

Hydrogen embrittlement may also result from exposure to stray current and from improperly applied cathodic protection.

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Failure of PCCP is usually a sudden, catastrophic event with no warning. Thus, the consequences associated with its failure not only severely disrupt operations and delivery of water to customers but can also increase significant risks associated with collateral damage.

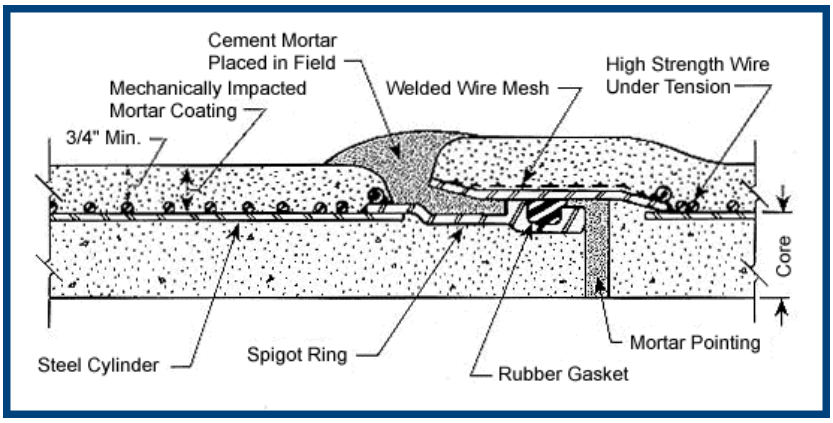
Assessing the condition of a PCCP buried pipeline is a challenging task that is best performed using state-of-the-art non-destructive testing technologies combined with sound engineering science and judgement. The primary goal of an assessment program is to provide an understanding of the condition of the structural component that provides the pipe's strength—the prestressing wire. An electromagnetic inspection provides a high resolution, non-destructive method of evaluating the existing condition of the prestressing wire, as it identifies the quantity and location of wire breaks for each pipe.

Pure Technologies has developed and owns the electromagnetic inspection technology (PureEM®) and would propose to use said technology to assess the condition of the PCCP water mains within the City of Denton water system.

There are several designs of PCCP in use in the United States. The most common types are AWWA C301-E (Embedded Cylinder Pipe) and C301-L (Lined Cylinder Pipe) as shown below. The figure on the right shows a cross-sectional view of the Lined Cylinder Pipe which is representative of the PCCP typically installed in the City of Denton water main system. Pure Technologies has been utilizing the EM inspection technology since 2001 and numerous excavations have confirmed the efficiency of the technology. As a result, this technology represents the most advanced solution for assessing PCCP water mains.

The EM technology can be deployed using any of three delivery platforms: manned, long-range robotic and free-swimming PipeDiver. The manned delivery platform requires that the water main be completely de-watered to allow for confined space entry.

Cross Section at the Joint of L-301 Lined PCCP



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Manned EM Inspection

A manned EM inspection shall utilize a cart on which the equipment and power source are mounted. The components of the system are lowered through an access and assembled inside the pipeline. The cart is pushed through the pipeline and assisted by a rope support team in areas of steep slopes or slippery conditions. When an in-line butterfly valve or a reduction is encountered, the electromagnetic inspection cart must be disassembled, the components passed through the constriction, and then reassembled. Having the pipeline dewatered for the manned electromagnetic inspection allows for a concurrent visual and sounding inspection of the pipeline

General requirements applicable for conducting an electromagnetic inspection using any of the three (3) delivery platforms include, but not limited to the following:

Pure Technologies' personnel shall be trained and certified to perform work in confined space conditions and equipped with calibrated air quality monitors, lifting harnesses, safety ropes, all other miscellaneous safety apparel to ensure the welfare of their personnel entering chambers.

Pure Technologies will identify proposed access manways for any of the delivery platforms when conducting a site reconnaissance and include as such in the project planning document.

If requested, Pure Technologies can excavate and expose any buried manways or pipeline accesses.

If requested, Pure Technologies can remove the access lid or blind flange to pipeline outlets. If the bolts need to be removed with a cutting torch or if bolts and nuts are in poor condition, Pure Technologies may be requested to replace the cover or blind flange when work is completed using a new gasket and new stainless-steel nuts and bolts.

The EM Inspection Report shall include an executive summary, location map of the project, indicating start and end points, date(s) started and completed, tables with pertinent information, photographs, log notes of the visual and sounding inspection if applicable, summary of all electromagnetic inspection results for each individual pipe, photographic documentation, video recording from CCTV cameras if applicable, pipe-by-pipe geospatial GIS deliverable via shapefile, and any other information necessary for the project.

If requested, Pure Technologies will furnish lifting equipment for removal of vault lids, existing ARV's and appurtenances, access lids or blind flanges and placing of EM inspection equipment into the pipeline.

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Requirements for conducting a Manned EM and Visual and Sounding Inspection include, but are not limited, to the following:

Manned EM inspections may be performed on pipelines that are 36-inch diameter and larger.

Access for ingress/egress shall not be spaced more than one (1) mile apart.

Access openings for ingress/egress shall be a minimum of 20-inch diameter full clearance, with 24-inch and larger diameter preferable.

The pipeline must be fully de-watered to accommodate a visual and sounding inspection. If requested, Pure Technologies can de-water the pipeline. De-watering of the pipeline will also require Pure Technologies to develop a de-watering plan for submittal to and approval by the City. Any treated water containing chlorine residuals must be treated to eliminate the chlorine residual prior to releasing the water to the surrounding environment.

Manned inspections require that Pure Technologies adhere to all OSHA regulations addressing confined space activities. Pure Technologies will submit a confined space work plan and permit.

All personnel entering the pipeline or other areas considered to be a confined space will be confined space certified.

Pure Technologies shall furnish Top Side Attendants at manway accesses and Top Side Supervisor to monitor the manned EM inspection throughout. All top side personnel shall be confined space certified.

Pure Technologies shall furnish a Rescue and Safety Team to include three (3) qualified and certified Safety Technicians that can position themselves at each of the two (2) manholes defining an inspection leg, along with the third technician positioning and preparing themselves at the next downstream access. Rescue Team shall be equipped with gas monitors (H2S, CO, O2 and LEL), tripods, a 4x4 support vehicle and a trailer mounted rescue kit.

Confined space certifications for all project personnel will be included in Pure Technologies' project planning document.

Pure Technologies shall confirm acceptable air quality in the pipeline or other confined space prior to allowing personnel to enter, and Pure Technologies shall maintain air quality throughout the duration of the project.

Pure Technologies will furnish air blowers and manway templates as needed to maintain air flow and air quality in the pipeline.

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Prior to any personnel entering the pipeline, Pure Technologies and the City of Denton will perform "lock-out/tag-out" (LOTO) on all pumps and boundary valves associated with the pipeline. The City will furnish double isolation of closed valves on each end of the pipeline to be inspected and at lateral or boundary valves. If requested, Pure Technologies shall assess the condition of all in-line and lateral valves, close the valves and document said closure to the City. Pure Technologies shall provide documentation confirming the opening of said valves at the completion of work.

Pure Technologies will furnish and secure necessary ladders to accommodate ingress and egress.

Pure Technologies shall furnish tripods and harnesses to assist in ingress and egress of personnel and equipment.

Pure Technologies' Visual and Sounding inspection will be performed by a 3-person team led by an engineer having more than five (5) years of documented experience with inspecting pressure pipelines.

Pure Technologies' engineering inspection team will identify pipes that are deemed to be in the state of incipient failure. Should the engineering team identify such distressed pipes, the team will correlate with the corresponding EM inspection results and then meet with the City daily to advise accordingly.

Pure Technologies' engineering inspection team will also document all pipes and features that support the development of a pipe-by-pipe geospatial as-built GIS deliverable; inspect all joints and document all distress and concerns identified, including photographic documentation.

When inspecting "Embedded" Cylinder PCCP, Pure Technologies will also sound the pipeline by impacting the interior pipe wall with a steel rod and listening for "hollow" areas that demonstrate a delamination of the concrete core from the steel cylinder. Such delamination is an indication that a pipe may be in a state of incipient failure. The delaminated area will be mapped out, carefully documented, correlated with the EM inspection findings and reported to the City.

Confirmations | Clarifications | Submittals per RFP Requirements:

re Technologies will perform the EM inspection in a non-destructive manner.

Pure Technologies will submit results in a GIS format using mapping-grade GPS data and that is compatible with the City of Denton GIS system.

Assuming that a proper planning document including projected dates for inspection has been prepared and Workshop completed with the City, Pure

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Technologies should be capability of mobilizing and beginning an inspection within 48 hours (or less) following authorization to proceed by the City of Denton.

Pure Technologies can conduct a manned EM inspection on pipe diameters greater than 36-inches.

Pure Technologies has the largest detailed library of EM signals based on different features, pipe diameters and pipe types which will allow us to make informed judgments on the condition of pipelines.

Pure Technologies can traverse tight bends and angles that are enveloped with water (tributary crossings) and earth.

Pure Technologies can utilize our V-tool delivery platform externally to inspect the PCCP for wire breaks.

Pure Technologies can track all versions of testing equipment delivery platforms from above ground during assessment.

Pure Technologies can compare results to previous Pure EM inspection results, using the same calibration curve for both data sets.

Pure Technologies will submit reports and deliverables in hard copies (three copies) and electronic format with database, information viewable in ArcMap with all pertinent information. Report will include at minimum; executive summary, location map of the project, indicating start and end of project, start and completion dates, tables with pertinent information, pictures, videos if it helps understand the condition, and any other information necessary for the project. Conclusions shall be clear and concise depicting the condition of pipe at the time of inspection. Database tables will be named clearly identifying the information. Database will be the property of the City of Denton and information will not be shared without prior written approval from the City of Denton staff responsible for the project/inspection.

If selected to perform the services requested herein, Pure Technologies will provide examples of calibration curves generated from various pipe types including LCP, ECP, and ECP with shorting straps. The vendor must be able to provide detailed data regarding how these curves are used to estimate the pipe damage with the bid packet.

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GROUP 5 - REQUIREMENTS FOR INTERNAL ROBOTIC EM NONDESTRUCTIVE INSPECTION

This specification covers the requirements for detecting and quantifying the number of broken wires within all types of Pre-stressed Concrete Cylinder Pipe (PCCP) and Bar-Wrapped Pipe (BWP) water lines and locating areas of concern in Metallic pipelines using a tethered robot fitted with multiple sensors and placed into a depressurized pipeline. As the inspection vehicle travels down the pipeline data from multiple sensors are collected. When the inspection is completed, the vehicle is pulled back via its tether or drives back by itself to the entry point. Data can include ovality/deflection, shape, diameter, corrosion/pipe wall loss, sediment volume, and slope, bend radius, condition of joints, and cracks. The currently approved brand is PureRobotics™ or approved equal.

The PureRobotics delivery platform incorporates both near-field and remote field eddy current EM inspection technologies. This allows Pure Technologies to identify broken prestressing wires on PCCP and broken reinforcing bars on bar wrapped pipe. The Robotic EM unit can also identify areas of wall loss on the BWP cylinder, as well as on steel pipe and ductile iron pipe.

The PureRobotics platform consists of a modular tethered robotic vehicle capable of numerous configuration options for inspection of small, medium, and large diameter "depressurized" pipelines. The PureRobotic unit can operate in fully submersible conditions.

PureRobotics EM Inspection Delivery Platform

The vehicle traverses the pipe using independently operable tracks to offer inspection deployments greater than one mile in both directions from a single access point. A trained operator navigates the vehicle and controls a high-definition pan-tilt-zoom camera with high-intensity LEDs for visual inspection. Simultaneously, an electromagnetics technician monitors electromagnetic (EM) data live and can direct a closer look at visual anomalies that may correlate with collected data.

Pure Technologies welcomes observers from the City of Denton to join the operators and monitor the live pan-tilt zoom CCTV camera images.

High-definition video and two sets of EM data (forward and reverse pass) are recorded for detailed post inspection analysis. Analysts then identify, quantify, and locate areas of distress. Broken prestressing wires and broken reinforcing bars are reported in an axial position on an individual pipe. Wall loss on metallic cylinders

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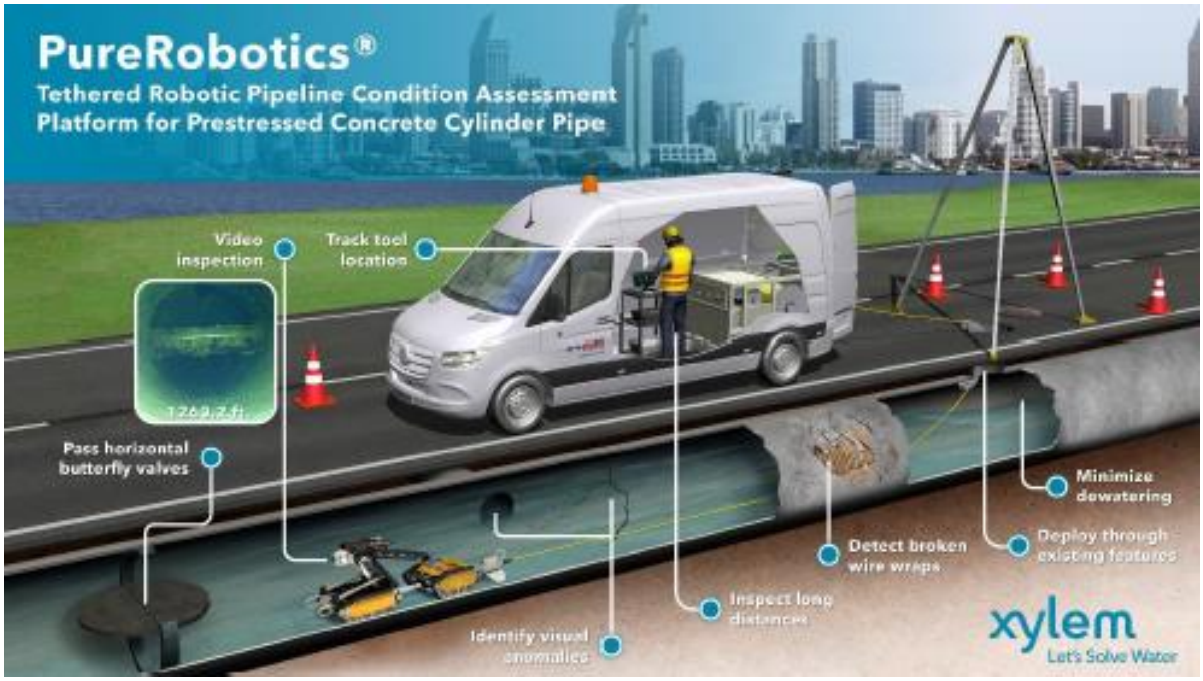
(BWP, steel or DI) are reported on a 3D image of the pipe denoting the location of the wall loss in both an axial and circumferential location on the pipe.

Based on our experience working in water delivery systems similar to the City of Denton's, Pure Technologies anticipates that the Robotic EM system may represent the more appropriate EM inspection delivery platform. If there are any PCCP water mains longer than a few miles, the free-swimming PipeDiver delivery is a viable alternative. Manned EM inspections may be limited given the smaller diameters of pipelines, lack of access points and the need to de-water the pipeline.

From our experience successfully inspecting pipelines with the PureRobotics delivery platform, we have identified key factors for success when utilizing the robotic inspections to minimize risk and downtime associated with the inspection.

Since 2010, North American utilities have relied on the PureRobotics platform to inspect more than 600 miles of pipeline.



Long Range, Multi-Sensor PureRobotics Inspection Platform

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Confirmations | Clarifications | Submittals per RFP Requirements:

Confirmations, Clarifications and Submittals in response to RFP Requirements:

The PureRobotics EM unit is a non-destructive technology for assessing pipelines.

The PureRobotics can deploy via a single access, advancing down the pipeline and returning back through the access point. The robotics unit can also be directed in the opposite direction traveling out and back to the same access point – thus allowing the PureRobotics unit to potentially assess over 2 miles of pipeline from a single access point.

Please note that the actual inspection distance may be affected by pipeline configuration (i.e., bends, in-line butterfly valves, steep slopes, etc.) and conditions (i.e., significant debris or sediment accumulation, biofilm, etc.).

The PureRobotics unit can be inserted and extracted through an 18-inch or larger diameter access into a depressurized pipeline.

The PureRobotics Perform can operate in fully submerged conditions and up to an internal head pressure of 100 psi.

The PureRobotics unit can assess identify broken prestressing wires and reinforcing bars in 16-inch to 120-inch pipe diameters. The robotic unit currently is limited to using the remote field eddy current to identify wall loss in pipes from 16-inch to 48-inches.

The PureRobotics unit will collect digital video for visual assessment and support high accuracy mapping with inertial measurement unit (IMU) capabilities. SONAR and laser profiling are currently not available on the robotic unit.

Pure Technologies will collect the appropriate data to detect localized wall loss on the cylinder in BWP, DIP, Steel, and broken wraps in BWP and PCCP.

The Robotic EM inspection technology can detect a less then five (5) wire breaks but will conservatively report a minimum of five (5) consecutive broken wire wraps on PCCP and BWP. The Robotic EM unit can identify wall loss that is at least 3-inch diameter with a minimum 30% wall loss in the cylinder of steel, ductile iron, or BWP.

The PureRobotics unit can pass through gate valves but cannot pass through butterfly valves in pipe less than 48-inch diameter.

The PureRobotics unit can be tracked in real time from above ground during the inspection.

All of Pure Technologies field technicians are confined space trained and meet OSHA standards for confined space.

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Pure Technologies will supply field personnel with all safety equipment necessary for the inspection such as calibrated gas detectors, lifting harnesses, communication devices, safety ropes and other pertinent personal protective equipment.

Pure Technologies analysts will classify anomalies found based on a detailed signal library as features, damage or other as applicable, quantify the extent of damage found, describe the location of the defect, and provide a ranking as relates to LoF.

Should the City select Pure Technologies to perform the requested services, Pure Technologies will provide examples of calibration curves generated from various pipe types including BWP, DIP, Steel, and PCCP. The vendor must be able to provide detailed data regarding how these curves are used to estimate the pipe damage.

Pure Technologies report will include at minimum; executive summary, location map of the project, indicating start and end of project, start and completion dates, tables with pertinent information, pictures, videos if it helps understand the condition, and any other information necessary for the project. Conclusion shall be clear and concise depicting the condition of pipe at the time of inspection. Database tables will be named clearly identifying the information.

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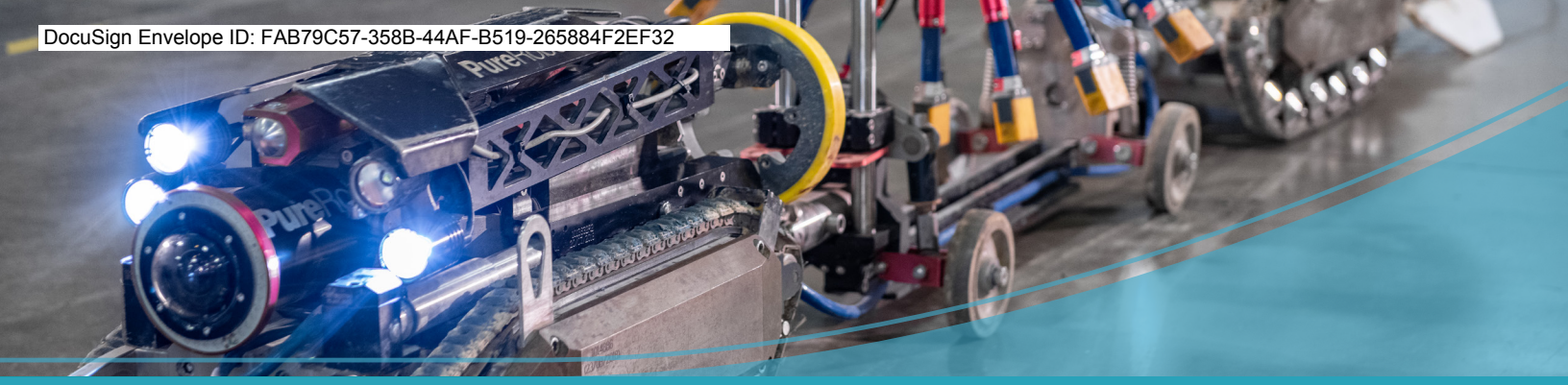

PureRobotics®

For metallic pressure pipe

TETHERED ROBOTIC CONDITION ASSESSMENT PLATFORM FOR METALLIC WATER PIPELINES

Operating Environment

Pipe Materials	Steel, Ductile Iron, Cast Iron, and Bar-Wrapped Pipe (BWP)
Minimum Metal Thickness	• 0.20 inches (5.1 mm) – Steel, Ductile Iron, and Cast Iron • 0.11 inches (2.8 mm) – BWP (cylinder)
Maximum Metal Thickness	• 0.50 inches (12.7 mm) – Steel, Ductile Iron, and BWP (cylinder) • 0.90 inches (22.9 mm) – Cast Iron

Tool Configurations	Small-Diameter Chassis	Standard Chassis
Pipeline Diameters	16 to 24 inches (400 to 600 mm)	24 to 48 inches (600 to 1200 mm)
Detection Threshold - BWP	5 broken bars	5 broken bars
Detection Threshold - Metallic	• 3 inch x 3 inch (75 mm x 75 mm) by 30% wall loss	• **Pipes ≤ 36 inches (900 mm):** 3 inch x 3 inch (75 mm x 75 mm) by 30% wall loss • **Pipes ≥ 37 inches (940 mm):** 4 inch x 4 inch (100 mm x 100 mm) by 40% wall loss
Minimum Access	• Same diameter as pipe or open pipe access • No side insertions **Fully dewatered at access*	• Factory: 18 inches (450 mm) • Tap: 20 inches (500 mm) • Side insertions require review **Fully dewatered at access*
Maximum Lift and Overhead Clearance for Insertion	15 feet (4.6 m)	10 feet (3.0 m)
Insertion Methods		
Tripod	Yes	Yes
Crane	Yes **recommended*	Yes **recommended*
Backhoe	Yes	Yes

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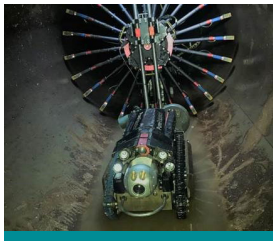
Operating Environment Continued

Number of Inspection Runs	• 1 run required for Steel, Ductile Iron, and Cast Iron • 2 runs required for BWP (for bar and cylinder inspection)
Maximum Slope	Up slope – 15 degrees | Down slope – 25 degrees
Maximum Horizontal Bend	90 degrees
Traversable Features	Gate valves, when the valve is the same diameter as the pipeline
Non-Traversable Features	Butterfly valves, ball valves, vertical runs, reducers
Cumulative Bends	1,000 feet (300 m) or less – 270 degrees 2,000 feet (600 m) or less – 180 degrees 3,000 feet (900 m) or greater – 90 degrees

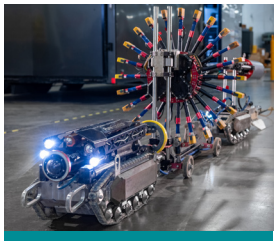
Specifications

Add-On Sensors	Inertial Mapping System – combines data collected during an inspection with known above-ground locations and pipeline drawings to create a field-generated GIS map of a pipeline
Video System	• Pan-tilt zoom camera or panoramic camera • LED lighting • Video quality is dependent on water turbidity and wall conditions • When included in the inspection package, the video file is delivered with anomalies noted as part of the final report
Tool Tracking	A line finder can be used to locate and mark the location of the robotic platform while it is in the pipeline
Sanitation	All components sanitized with 10,000 ppm sodium hypochlorite and water solution prior to insertion, as per AWWA C651-05 standard



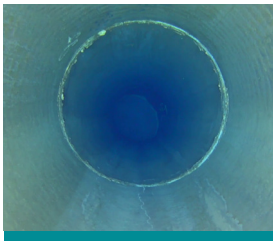
PureRobotics Platform

Wall Loss



Tool Preparation

Tool Insertion



Video Inspection

xylem
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puretech@xylem.com

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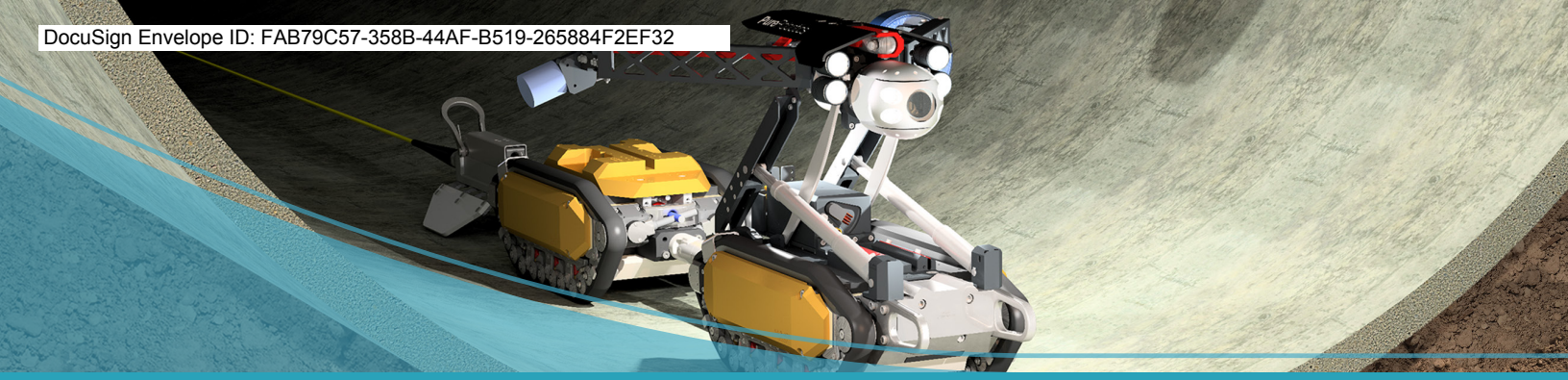

PureRobotics®

For concrete pressure pipe

TETHERED ROBOTIC CONDITION ASSESSMENT PLATFORM FOR CONCRETE WATER PIPELINES

Operating Environment

Pipe Materials	Prestressed Concrete Cylinder Pipe (PCCP)
Number of Inspection Runs	1 run
Detection Threshold	5 broken wire wraps

Tool Configurations	Small-Diameter Chassis	Standard Chassis	Large-Diameter Chassis
Pipeline Diameters	16 to 48 inches (400 to 1200 mm)	24 to 120 inches (600 to 3050 mm)	78 to 120 inches (2000 to 3050 mm)
Minimum Access	14 inches (355 mm) No side insertion **Diameter dependent*	Factory: 18 inches (450 mm) Tap: 20 inches (500 mm)	24 inches (600 mm)
Smallest Horizontal BFV Passage	30 inches (750 mm)	42 inches (1050 mm)	72 inches (1800 mm)
Maximum Lift and Overhead Clearance for Insertion	12 feet (3.6 m)	8 feet (2.4 m)	Short legs: 12 feet (3.6 m) Long legs: 15 feet (4.6 m)
Insertion Methods			
Tripod	Yes	Yes ** Recommended*	No
Crane	Yes **Recommended*	Yes	Yes **Recommended*
Backhoe	Yes	Yes	Yes
Maximum Horizontal Bend	90 degrees	90 degrees	Short legs: 70 degrees Long legs: 45 degrees

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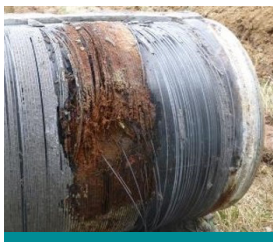
Operating Environment Continued

Maximum Slope	Up slope – 15 degrees | Down slope – 30 degrees **Down slope can go up to 45 deg, depending on bends and distance before slope*
Traversable Features	Horizontal butterfly valves (minimum diameter defined above), gate valves, reducers
Non-Traversable Features	Vertical butterfly valves, ball valves, vertical runs
Cumulative Bends	1,000 feet (300 m) or less – 270 degrees 2,000 feet (600 m) or less – 180 degrees 3,000 feet (900 m) or greater – 90 degrees

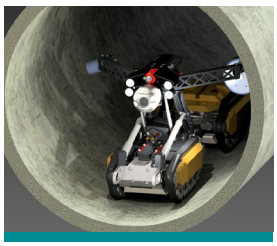
Specifications

Add-On Sensor	Inertial Mapping System – combines data collected during an inspection with known above-ground locations and pipeline drawings to create a field-generated GIS map of a pipeline
Video System	• Pan-tilt zoom camera or panoramic camera • LED lighting • Video quality is dependent on water turbidity and wall conditions • When included in the inspection package, the video file is delivered with anomalies noted as part of the final report
Tool Tracking	A line finder can be used to locate and mark the location of the robotic platform while it is in the pipeline
Sanitation	All components sanitized with 10,000 ppm sodium hypochlorite and water solution prior to insertion, as per AWWA C651-05 standard

PureRobotics Platform

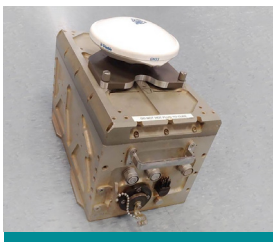


Broken Wire Wraps



Tool Preparation

Tool Insertion



Inertial Mapping Unit

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Let's Solve Water

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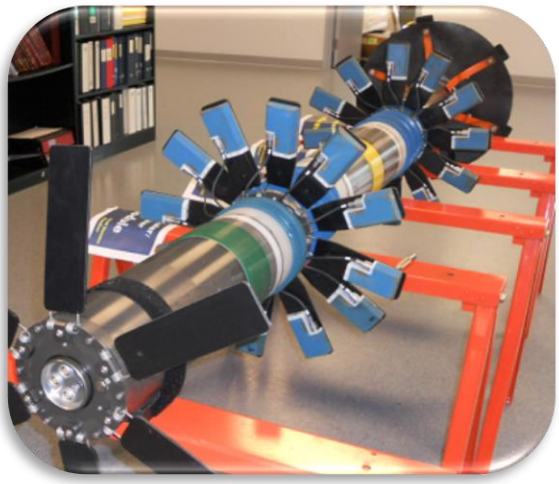
GROUP 6 - REQUIREMENTS FOR INTERNAL FREE SWIMMING EM NONDESTRUCTIVE INSPECTION CAPABLE OF PASSING BUTTERFLY VALVES

This specification covers the requirements for detecting and quantifying the number of broken prestressing wires within all types of Prestressed Concrete Cylinder Pipe (PCCP) and reinforcing bar wraps in Bar-Wrapped Pipe (BWP); and locating areas of concern in Metallic pipelines using a non-destructive free-swimming delivery platform.

The PipeDiver delivery platform can accommodate both near-field and remote field eddy current EM configurations. The near field eddy current configuration employs an EM exciter that creates an electromagnetic field on the PCCP prestressing wires, or the BWP reinforcing bars and identifies broken wires and bars as it passes by – whereby our data analysts interpret signals that return to the on-board receivers or detectors. The EM signal includes both a phase and amplitude associated with the returning signal. As long as the prestressing wire or reinforcing bar is intact, the phase and amplitude signals will not vary and be displayed as a relatively consistent signal. When broken wire(s) are detected there will be a disruption or shift in the phase and amplitude of the EM signal. The analysts can use the disrupted signal to identify the break zone containing multiple breaks and apply calibration data to determine how many wires or bars are broken within the affected zone.

When inspecting for wall loss on the BWP steel cylinder, steel pipe or ductile iron pipe, the PipeDiver employs a remote field eddy current EM configuration that also uses a signal exciter to create the electromagnetic field; however, the PipeDiver (and the Robotic EM unit) typically utilize a 24-detector circumferential array spaced approximately three pipe diameters from the excitor. The remote EM field created by the excitor travels outside the metal cylinder and back in through the cylinder to the detectors. As long as the wall thickness of the metallic cylinder remains consistent, the amplitude and phase signal will remain relatively consistent.



24D PipeDiver configured to assess a 24-inch steel pipeline – Note the 24 detectors on the tip of the petals that are distributed circumferentially

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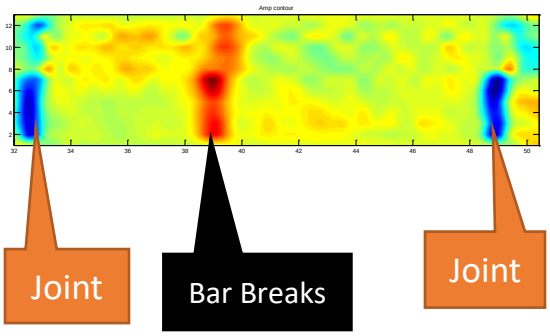

However, when wall loss is present, the resulting phase and amplitude of the EM signal will be disrupted. The analysts will be able to estimate the size of the distressed area and the percentage of wall loss I the distressed area. The 24-detector array allows Pure Technologies to identify wall loss as small as a 3-inch square area with a minimum 30% wall loss. Pure Technologies will identify smaller areas and less wall loss if the distress is positioned directly over a receiving detector.

Free-Swimming PipeDiver Delivery Platform

The free-swimming PipeDiver is typically deployed under temporarily de-pressurized conditions to allow for placement of the PipeDiver into the pipeline via an access. The PipeDIver is held in place, and once the pipeline is re-pressurized and flow established, the PipeDiver is released into the flow. The PipeDiver is captured downstream using a capture screen deployed at a second access location. The pipeline would again need to be temporarily de-pressurized to accommodate removal of the PipeDiver.

If the City of Denton is unable to de-pressurize the pipeline temporarily, Pure Technologies can deploy the PipeDiver using special Launch and Retrieval tubes. Such an approach requires greater logistical support (lifting equipment, valves for access, etc.) by the City, plus the added cost of the launch tubes.

Confirmations | Clarifications | Submittals per RFP Requirements:

The PipeDiver EM inspection is a non-destructive inspection that id deployed through a fully operational and flowing pipeline.

Collect the appropriate data to detect localized wall loss on the cylinder in BWP, DIP, and steel pipe, as well as identifying broken wraps in BWP and broken prestressing wires in PCCP.

The PipeDiver platform incorporates fixed CCTV cameras that can be post analysed to accommodate a visual assessment. Quality of the video will vary depending on the clarity of the water.

The PipeDiver EM inspection technology can detect a less then five (5) wire breaks but will conservatively report a minimum of five (5) consecutive broken wire wraps on PCCP and BWP. The PipeDiver EM unit can identify wall loss that is at least 3-inch diameter with a minimum 30% wall loss in the cylinder of steel, ductile iron, or BWP.

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The PipeDiver delivery platform can be used in pipes that are 18-inch and larger in diameter. The 24 detector array to assess wall loss is currently limited to pipe diameters that are 48-inch or smaller.

The PipeDiver delivery platform can pass butterfly valves, gate valves and other configurations common to water mains.

Pure Technologies will track the PipeDiver using the same tracking sensors and technology employed with tracking the free-swimming SmartBall. This tracking technology requires attaching tracking sensors every ½ miles or so, thereby allowing us to know the location of the PipeDiver at all times throughout the inspection.

All Pure Technologies' field personnel are confined space trained and meet OSHA standards for confined space. Certifications will be presented to City of Denton upon request.

Pure Technologies supplies all field personnel with all safety equipment necessary for the inspection such as calibrated gas detectors, lifting harnesses, communication devices, safety ropes and other pertinent personal protective equipment.

Pure technologies furnishes and supplies vehicles/equipment enabling the delivery of staff and testing equipment to project locations as necessary.

Pure Technologies houses the largest collection of calibration and historical data related to EM inspections that is available to assist in classifying anomalies found based on a detailed signal library as features, damage or other as applicable.

Pure Technologies' analysts will quantify the extent of damage found and provide the location of the defect.

Pure Technologies will compare results to previous inspections, where applicable, using the same calibration curve for both data sets.

Should the City select Pure Technologies to perform the requested services, Pure Technologies will provide examples of calibration curves generated from various pipe types including BWP, DIP, Steel, and PCCP. The vendor must be able to provide detailed data regarding how these curves are used to estimate the pipe damage.

Pure Technologies will submit results in a GIS format using mapping-grade GPS data and that is compatible with the City of Denton GIS system.

Pure Technologies reports and deliverables will be submitted as a pipe-by-pipe display in electronic version and with geo-database.

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Pure technologies' reports will include at minimum; executive summary, location map of the project, indicating start and end of project, start and completion dates, tables with pertinent information, pictures, videos if it helps understand the condition, and any other information necessary for the project. Conclusion shall be clear and concise depicting the condition of pipe at the time of inspection. Database tables will be named clearly identifying the information. Database will be the property of the City of Denton and information will not be shared without prior written approval from the City of Denton staff responsible for the project/inspection.

A list of recent electromagnetic inspection including PipeDiver EM inspections that successfully passed butterfly valves is presented on the following page free swimming inspections projects where the tool is capable of passing butterfly vales and data quality and accuracy verified.

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Summary of Recent Electromagnetic Inspections and Verifications

Diameter (inches)	Pipe Type	Client	Pipeline Name	Inspection Date	Verification Date	Tool used in Original Inspection
42	PCCP (LCP)	City of Arlington	Green Oaks Potable Water Main	Apr-16	Jan-19	PipeDiver
42	PCCP (LCP)	City of Arlington	Green Oaks Potable Water Main	Apr-16	Jan-19	PipeDiver
42	PCCP (LCP)	City of Arlington	Green Oaks Potable Water Main	Apr-16	Jul-19	PipeDiver
42	PCCP (LCP)	WSSC	42-inch Montgomery Village	Oct-17	Oct-18	PureRobotics
42	PCCP (LCP)	WSSC	42-inch Montgomery Village	Oct-17	Oct-18	PureRobotics
42	PCCP (LCP)	WSSC	42-inch Montgomery Village	Oct-17	Oct-18	PureRobotics
42	PCCP (LCP)	WSSC	42-inch Montgomery Village	Oct-17	Oct-18	PureRobotics
48	PCCP (ECP)	City of Baltimore DPW	48-inch Towson East	Mar-17	Oct-18	PipeDiver
48	PCCP (ECP)	City of Baltimore DPW	48-inch Towson East	Mar-17	Oct-18	PipeDiver
48	PCCP (ECP)	City of Baltimore DPW	48-inch Towson East	Mar-17	Oct-18	PipeDiver
48	PCCP (LCP)	AWU	Westgate 48-inch Water Main	Jul-16	Oct-18	PipeDiver
54	PCCP (ECP)	Tampa Bay Water	Hillborough Main	Apr-13	Sep-18	PipeDiver
54	PCCP (ECP)	WSSC	Rock Creek	Sep-15	Feb-19	PipeWalker
94	PCCP (ECP)	Beijing Water Project	Langfang DN2400	Mar-21	Dec-21	PipeWalker
94	PCCP (ECP)	Beijing Water Project	Langfang DN2400	Mar-21	Jan-22	PipeWalker
48	Ductile Iron	SAWS	Hill Country 48" DIP	Dec-17	Mar-19	PipeDiver 24D
20	Ductile Iron	Village of Romeoville	Woods Force Main	Dec-19	Sep-20	PipeDiver 24D
36	Ductile Iron	Cobb County WA	Transmission Main	May-18	Jun-19	PipeDiver Ultra
32	Steel (Riveted)	City of Vancouver	Transmission Main	Oct-19	Jul-21	PipeDiver Ultra
30	Cast Iron	MWD	Santa Monica Feeder	Jan-20	Apr-21	PipeDiver Ultra
36	Ductile Iron	Syndicat des Eaux du Barrage d'Esch-sur-Sûre	Schankegraecht-Nospelt Pipeline	Nov-20	Apr-21	PipeDiver Ultra
36	Steel	Syndicat des Eaux du Barrage d'Esch-sur-Sûre	Schankegraecht-Nospelt Pipeline	Nov-20	Apr-22	PipeDiver Ultra
30	Ductile Iron	SW Water Authority	Southwest Pipeline (Section 1 and 2)	Mar-21	Mar-21	PipeDiver Ultra
30	Ductile Iron	WaterOne	Projects 45 and 157	Mar-21	Aug-21	PipeDiver Ultra

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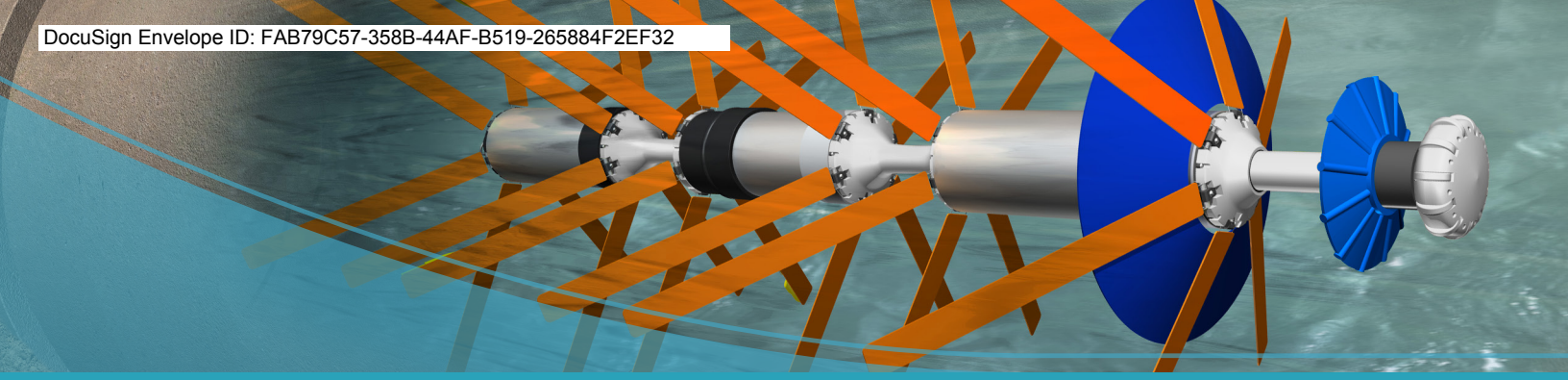

PipeDiver®

For small-diameter concrete pipe

FREE-SWIMMING CONDITION ASSESSMENT PLATFORM FOR CONCRETE WATER AND WASTEWATER PIPELINES

Operating Environment

Pipe Materials	Prestressed Concrete Cylinder Pipe (PCCP), Bar-Wrapped Pipe (BWP - bars only), Noncylinder Pipe (NCP)
Detection Threshold	5 broken wire wraps in PCCP and NCP or 5 broken bars in BWP
Number of Inspection Runs	1 run **pipelines can be 2 diameters with a maximum difference up to 12 inches (300 mm)*
Pipeline Diameters	16 to 60 inches (400 to 1520 mm)
Maximum Flow Velocity	3 feet/second (0.90 m/s)
Minimum Flow Velocity	0.5 foot/second (0.15 m/s)
Maximum Pressure	300 psi (20 bar)
Traversable Features	Butterfly valves, ball valves, gate valves, vertical sections, reducers
Minimum Butterfly Valve	24 inch (600 mm) flat plate
Maximum Bend Degree	Sharp 90 degrees in ≥ 18-inch (450-mm) pipe
Slopes	No restrictions
Maximum Deployment	• With video: 20–30 hours of inspection time, depending on PipeDiver version • Without video: 30 hours of inspection time **Distance is dependent on flow rate*

Insertion / Extraction Requirements

Insertion Methods (Depressurized)	Manhole access, open chamber, reservoir tank
Insertion Method (Pressurized)	PipeDiver Tubes – 24 to 48 inches (600 to 1200 mm) **16-inch (400-mm) ANSI Class 150 flange recommended*

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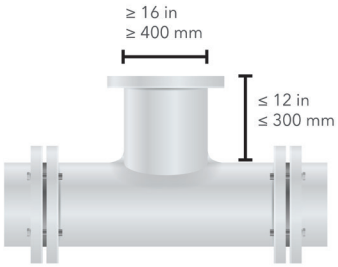
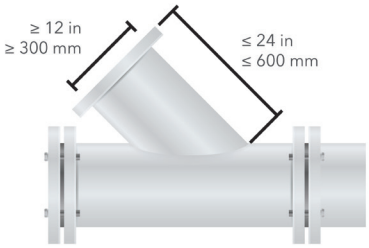
Insertion / Extraction Requirements Continued

Minimum Access Diameter

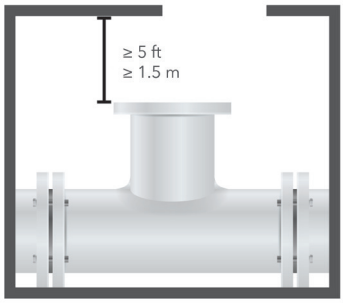


Insertion / Extraction at Vertical Tee



Insertion / Extraction at WYE

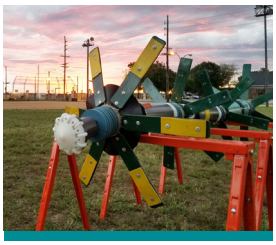
Minimum Clearance from Access Port



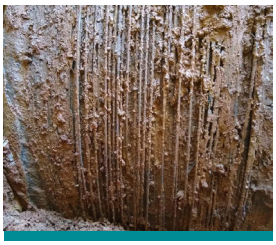
Insertion / Extraction at Vertical Tee (Chamber)

Specifications

Electromagnetic Sensors	• Identify broken wire wraps and broken bars • Identify pipe features: outlets, valves, joints
Video System	• Three cameras positioned to capture the pipe wall • LED lighting • Video quality dependent on water turbidity and wall conditions • Video deliverable (when part of the inspection package) – video file is provided with anomalies noted as part of the final report
Tool Tracking	Tracking units are pre-installed along the pipeline and monitored during the inspection to determine tool travel
Sanitation	All components sanitized with 10,000 ppm sodium hypochlorite and water solution prior to insertion, as per AWWA C651-05 standard



PipeDiver Platform



Broken Wire Wraps

Tool Preparation

Tool Insertion

Location Tracking

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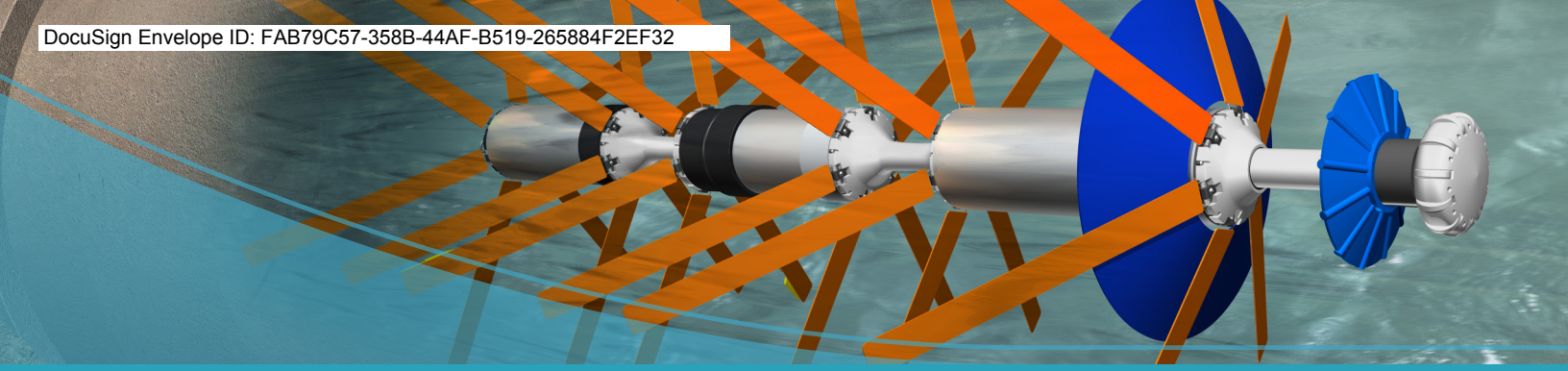

PipeDiver®

For small-diameter metallic pipe

FREE-SWIMMING CONDITION ASSESSMENT PLATFORM FOR METALLIC WATER AND WASTEWATER PIPELINES

Operating Environment

Pipe Materials	Steel, Ductile Iron, Cast Iron, and Bar-Wrapped Pipe (BWP - cylinder only)
Detection Threshold	• Pipes ≤ 36-inch (900 mm): 3 inch x 3 inch (75 mm x 75 mm) by 30% wall loss • Pipes ≥ 37-inch (940 mm): 4 inch x 4 inch (100 mm x 100 mm) by 40% wall loss
Number of Inspection Runs	2 runs
Pipeline Diameters	16 to 48 inches (400 to 1200 mm)
Minimum Metal Thickness	• 0.20 inches (5.1 mm) – Steel, Ductile Iron, and Cast Iron • 0.11 inches (2.8 mm) – BWP (cylinder)
Maximum Metal Thickness	• 0.50 inches (12.7 mm) – Steel, Ductile Iron, and BWP (cylinder) • 0.90 inches (22.9 mm) – Cast Iron
Minimum Lining Thickness	Lining is not required but improves sensitivity
Maximum Lining Thickness	All lining types up to 0.50 inches (12.7 mm)
Maximum Flow Velocity	1.5 feet/second (0.45 m/s)
Minimum Flow Velocity	0.5 foot/second (0.15 m/s)
Maximum Pressure	300 psi (20 bar)
Traversable Features	Butterfly valves, ball valves, gate valves, vertical sections, reducers
Minimum Butterfly Valve	24 inch (600 mm) flat plate
Maximum Bend Degree	Sharp 90 degrees in ≥ 24-inch (600-mm) pipe
Slopes	No restrictions
Maximum Deployment	• Water: 15 hours of inspection time • Wastewater: 30 hours of inspection time **Distance is dependent on flow rate*

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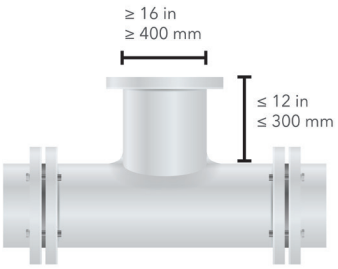
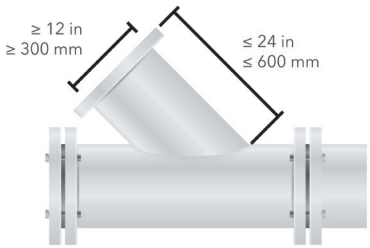
Insertion / Extraction Requirements

Minimum Access Diameter

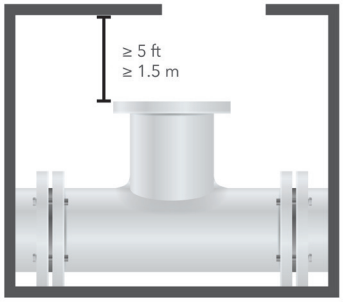


Insertion / Extraction at Vertical Tee



Insertion / Extraction at WYE

Minimum Clearance from Access Port

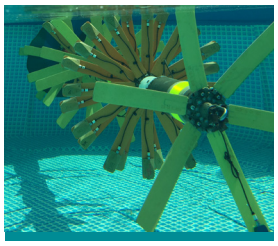


Insertion / Extraction at Vertical Tee (Chamber)

Insertion Methods (Depressurized)	Manhole access, open chamber, reservoir tank
Insertion Method (Pressurized)	PipeDiver Tubes **16-inch (400-mm) ANSI Class 150 flange recommended*

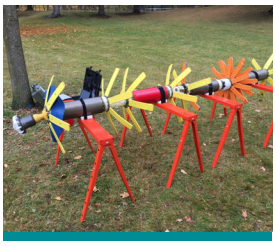
Specifications

Electromagnetic Sensors	• Identify and accurately locate wall loss within each pipe stick • Identify pipe features: outlets, valves, joints • Provide location from upstream joint
Tool Tracking	Tracking units are pre-installed along the pipeline and monitored during the inspection to determine tool travel
Sanitation	All components sanitized with 10,000 ppm sodium hypochlorite and water solution prior to insertion, as per AWWA C651-05 standard



PipeDiver Platform

Wall Loss



Tool Preparation

Tool Insertion

Location Tracking

xylem
Let's Solve Water

www.xylem.com

United States
8920 State Route 108, Suite D
Columbia, Maryland USA 21045
Tel: +1 (443) 766-7873
puretech@xyleminc.com

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Ribamar, Santo Isidoro
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Tel: +351 (261) 863-159
puretech@xyleminc.com

Asia Pacific
3A International Business Park Rd.
08-14 Tower B, ICON@IBP
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March 2021

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PipeDiver® Tubes General Requirements

Physical Dimensions and Inspection Specifications

PARAMETERS

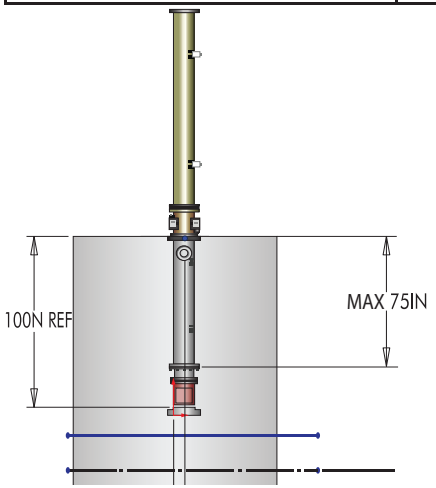
mm=millimeters

Pipe Materials*	PCCP, BWP
Maximum Pressure	200 psi (13.8 bar)
Minimum Pressure	25 psi (1.7 bar)
Pipeline Diameter	24-48 inches (610-1219 mm)
Flow Speed**	Up to 2 feet/second (0.6 meters/second)
Tube Weight	3500 pounds (1588 kilograms)
Tube Height on Transport Rails	22 feet (6.7 meters)
Tube Height off Transport Rails	18 feet (5.5 meters)

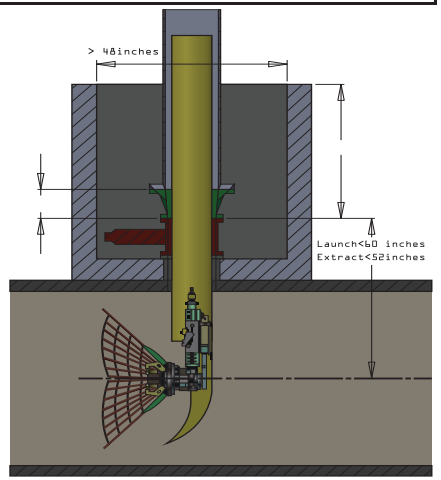
*Only regular Mini PipeDiver can be used with the tubes (up to 12 detectors) *BWP - Bar breaks only
**Clients should be able to reduce the flow to 1 foot/second (0.3 meters/second) for the extraction process

HOT TAP REQUIREMENTS

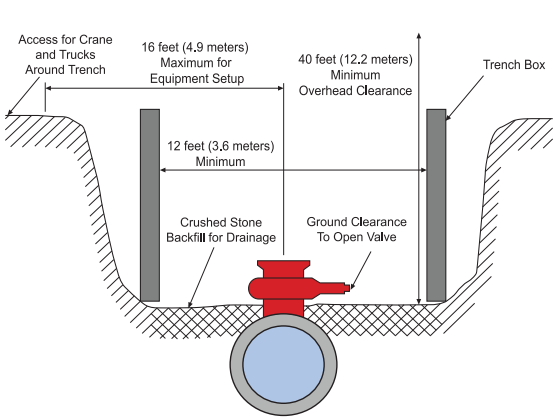
Level	Within 3°
Hot Tap Size	12, 14, or 16 inches (305, 356, or 406 mm) *Recommend 14 inches (356 mm) (ANSI class 150)
Features	No features within 24 inches (610 mm) radius around tap center
Flange to Pipe Centerline	Pipe diameter 24-36 inches (610-914 mm) : <60 inches (1524 mm) for both insertion and extraction tube Pipe diameter 42-48 inches (1067-1219 mm) : <60 inches (1524 mm) for insertion tube, <52 inches (1321 mm) for extraction
Distance from Adapter Flange to Chamber's Ceiling	Maximum 75 inches (1905 mm)



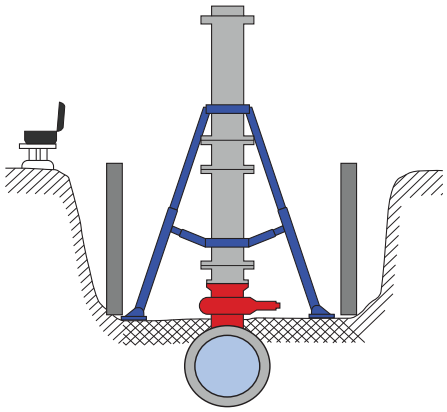
Chamber Hot Tap Requirements



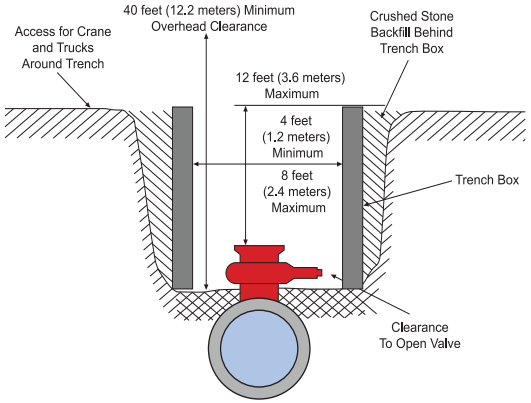
Flange to Pipe Centerline



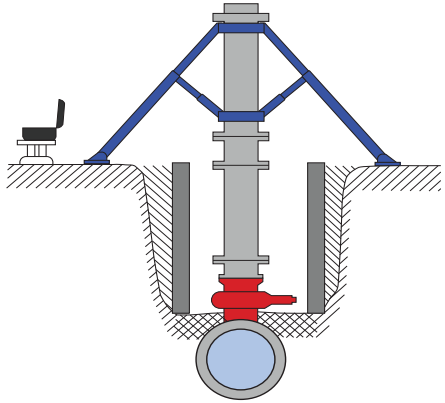
Wide Trench Box Access



Wide Trench Box Access



Narrow Trench Box Access



Narrow Trench Box Access

pure® TECHNOLOGIES

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PipeDiver® Tubes General Requirements

Physical Dimensions and Inspection Specifications

TRANSPORTATION

Truck	8x25 foot (2.4x7.6 meters) flat bed to accommodate both tubes and water tanks

Typical Transportation

CRANE SPECIFICATIONS

Minimum Lifting Load	3500 pounds (1588 kilograms)
Minimum Hook Height	25 feet (7.6 meters)
Minimum Reach	20 feet (6.1 meters)

*A fork lift may be required to load and unload the tubes from the flat bed truck.
Minimum lifting load: 3500 pounds (1588 kilograms)

Typical Crane

EQUIPMENT STORAGE

Storage	Covered (climate controlled preferred), 50 square feet (4.6 square meters) Electrical source available, water source available

WATER SOURCE

Water	130 gallons U.S. (492 liters) of water for each tank (2)

*On-site access to water source, refer to below diagram (Water Source Fitting)

Water Tank

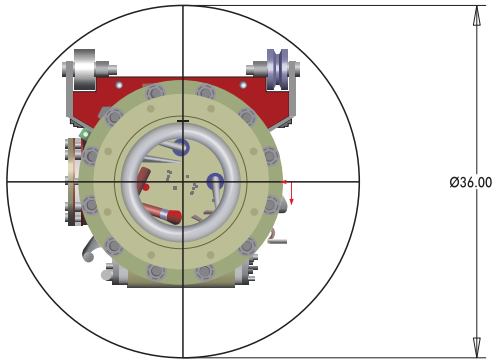
Water Source Fitting

CHAMBER REQUIREMENTS

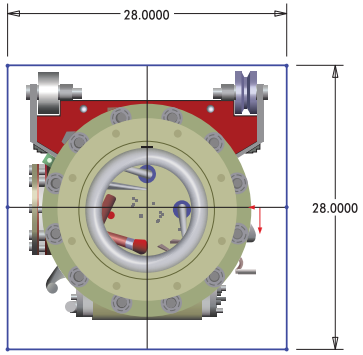
mm=millimeters

Circular Access	Minimum 36 inches (914 mm)*
Square Access	Minimum 28 inches (711 mm)*
Crane Clearance	Proximity of obstructions above or around the tap location could impede crane operations and need to be identified

*Center of the tap should be centered with the chamber access.
If they are off centered the listed requirements won't be sufficient for the tube installation.



Circular Access



Square Access

Chamber Access Dimensions

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GROUP 7 - REQUIREMENTS FOR FREE-SWIMMING PIPEDIVER ULTRASONIC INSPECTION TECHNOLOGY

This specification covers the requirements for using an ultrasonic inspection technology to assess the structural integrity of metallic pipe (ductile iron pipe (DIP), cast iron pipe (CIP) or steel pipe). Further, this specification covers the requirements for detecting and quantifying cylinder corrosion in metallic pipe (ductile iron pipe (DIP), cast iron pipe (CIP) or steel pipe). The current approved delivery platform is PipeDiver® Ultra.

PipeDiver® Ultra is a long-distance, free-swimming condition assessment tool for metallic water pipelines.

It directly measures pipe wall thickness using high-resolution ultrasonic technology. Building on the trusted PipeDiver platform, the tool inspects the pipeline while in service, navigating valves, sharp bends, and tees. It is inserted through existing pipe features, making it flexible and easy to deploy. The quality and quantity of data the PipeDiver Ultra platform collects enables utilities to make high-confidence repair and replacement decisions today and informs long-term asset management.

During an inspection, the PipeDiver Ultra platform collects three layers of pipeline condition data: wall loss, out-of-roundness, and internal visual information. Use the tabs above to explore each data layer and learn how threat layering gives utilities a more complete view of pipe condition.

Corrosion is a leading cause of metallic pipe failure. Any loss in wall thickness undermines the pipeâ€™s structural integrity. PipeDiver Ultra collects quantitative wall thickness measurements around the circumference of each pipe.

PipeDiver Ultra differentiates between interior and exterior defects to guide repair actions. With routine inspections, utilities can monitor corrosion growth over time. High-resolution data is available for each individual pipe stick. This helps utilities proactively and selectively manage their metallic assets to prevent leaks and failures. We report these features and metallic wall loss by pipe stick from the upstream joint and clocked to the pipe circumferentially.

When metallic pipelines lose their original round shape, it weakens their structural integrity. Out-of-roundness occurs due to a number of factors from poor installation to excessive loading to a lack of support. Out-of-roundness can lead to pipe lining and coating damage. It can also cause the pipe to crack or buckle under external pressure. Pipes with wall loss are more vulnerable to the threats caused

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by out-of-roundness. PipeDiver Ultra identifies the maximum and average out-of-roundness on each inspected pipe stick.

The PipeDiver Ultra platform is equipped with high-definition cameras and a lighting system to capture and record video within the pipeline. The tool records a 360-degree view of the pipe wall as it travels the length of the inspection. Using video can help utilities locate air pockets, debris, outlets, cracks, and corrosion stains. The video is available after the inspection and provides additional context for the metal loss and out-of-roundness data collected.

Utilities receive a report summarizing the inspection, outlining the results, and providing recommendations. Visualize detailed wall-loss data as a heat map and within a geodatabase, along with out-of-roundness and visual points-of-interest. Xylem provides dig sheets with the report to help utilities accurately locate problematic pipe segments. Xylem offers additional support services to assist utilities in locating and verifying pipe damage.

Get more insights out of the PipeDiver Ultra data with a design review. We check whether the measured pipe wall thickness meets the latest design standards. We also offer structural evaluation services that can include three-dimensional, nonlinear finite element analysis (FEA). FEA performance curves help utilities better understand the structural significance of wall loss by modeling the level of distress that could cause the pipe to exceed its yield limits.

Confirmations | Clarifications | Submittals per RFP Requirements:

Pure Technologies can perform the ultrasonic wall thickness measurements with a free-swimming inspection tool in a non-destructive manner.

The free-swimming ultrasonic inspection tool will pass butterfly valves.

The technology will differentiate between exterior and interior wall defects.

The technology will detect outlets or other appurtenances.

The technology will provide ovality data and identify liner defects.

Pure Technologies will submit results in a pipe-by-pipe geospatial GIS deliverable (geodatabase) that is compatible with the City of Denton's GIS system.

Pure Technologies will track the progress of the tool as it traverses the pipeline. The City of Denton will make provisions for Pure Technologies to install external sensors for tracking the free-swimming inspection device. Pure Technologies may be requested to install potholes via vacuum extraction to assist in tracking the device.

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Pure Technologies will provide evidence that all of our personnel have been trained in accordance with OSHA safety and confined space requirements and shall provide such certification upon request.

Pure Technologies personnel will be equipped with calibrated gas monitors, lifting harnesses, safety ropes, and all other miscellaneous safety apparel to ensure the welfare of their personnel.

Pure Technologies furnishes all personnel with appropriate off-road vehicle/equipment enabling the delivery of staff and testing equipment to rural project locations.

Pure Technologies will advise City of Denton as to logistical support requirements including required rate of flow and operating pressure.

Pure Technologies will advise City of Denton with respect to insertion and extraction requirements.

Pure Technologies will maintain a comprehensive database of ultrasonic signals based on different features, pipe diameters and pipe types which will allow it to make informed judgments on the condition of pipelines.

City of Denton will accommodate insertion and retrieval of the free-swimming tool under de-pressurized conditions.

City of Denton will furnish minimum 12-inch diameter access for insertion and retrieval of the free-swimming tool. Pure Technologies may be requested to furnish and install access for deployment of the tool.

The ultrasonic inspection will serve as a high-resolution technology capable of identifying wall loss due to corrosion on the steel cylinder. On metallic pipe 52in and smaller in diameter, the ultrasonic inspection shall be capable of identifying and locating areas of corrosion 2 inches by 2 inches with 20% wall loss or greater, or provide a 1-inch by 1-inch with 40% wall loss or greater.

Pure Technologies will submit reports and deliverables in hard copies (two copies) and electronic format with database. Report should include at minimum; executive summary, location map of the project, indicating start and end of project, date started, and date completed tables with pertinent information, photographs and any other information necessary for the project. Conclusion shall be clear and concise depicting the condition of pipe. Database tables will be named clearly identifying the information. Data will be the property of CLIENT and information will not be shared without prior written approval from CLIENT.

As part of the proposal, the Pure Technologies will submit a minimum of five (5) comparable project references, within the past twelve (12) months, where

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pipelines have been surveyed and the results reported. The Company must provide the contact information of the clients and name of respective agency with the bid packet.

If requested, the PipeDiver can be equipped with fixed CCTV cameras on the rear petals of the device, able to capture and record video from each of the three (3) cameras. Real time viewing is not available. A copy of the video recording will be submitted as part of the final report.

Evidence that the tool has been successfully proven and platform is included in the summary of the PipeDiver Ultra inspections included under Group 6 summary.

Pure Technologies shall develop a Pipe Performance Risk Curve based on 3D finite element analysis for each pipe design, or as may be required.

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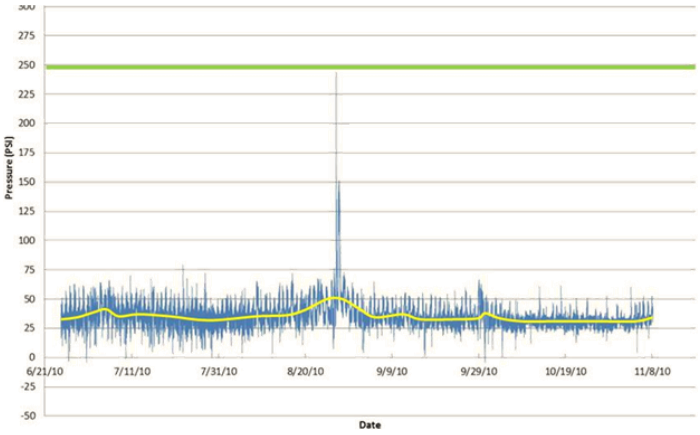
GROUP 8 - REQUIREMENTS FOR REMOTE TRANSIENT PRESSURE MONITORING

This specification covers the requirements for monitoring and recording of pressures acting on a pipeline. The process involves the attachment of sensor to pipeline, transferring activities to data acquisition unit. The pressure is recorded at set intervals during steady state conditions and increases when a transient pressure is detected.

Hydraulic pressure transients occur in pipelines when the steady-state conditions of the system change due to pressure or flow disturbances (e.g., the rapid closure of a valve, pump start-up/shutdown, etc.). The magnitude of a transient is related to several factors including the flow rate within the pipeline, the time in which the change in the steady-state condition occurs, and pipe hoop rigidity. During the change, the kinetic energy of the flow momentum is converted into potential energy with a rise in pressure and strain energy in the pipe wall.

Conventional pressure monitors collect data in intervals of minutes while a pressure transient may occur in fractions of a second. When a transient occurs in the pipeline, it is important that a high rate of sampling be utilized to capture the true magnitude of the transient event. High frequency pressure monitoring equipment addresses the sampling frequency issue by continuously monitoring pressure at a high sample rate, while only recording data every few minutes under normal operating conditions (based on user defined parameters). When a transient or cyclical pressure anomaly is detected, data is recorded continuously at the high sample rate.

The figure below illustrates the difference between conventional and high frequency pressure monitoring.



Comparison of Traditional (in yellow) and transient (in blue) Pressure monitoring data

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The yellow trend line in the figure shows the pressure data recorded at a sample rate of one reading per minute. Based on conventional pressure monitoring, the internal pipeline pressure ranges between 25 and 50 psi, which is well below the "operating +surge" design pressure of 250 psi (green horizontal line). However, when the high frequency pressure monitor data, recorded at a sample rate of more than 20 samples per second (blue trend line) is analyzed, a significant transient event can be seen that nearly reaches the 250-psi threshold.

Further evaluation of available pump station operational data indicated that the transient coincided with a rapid pump shutdown. If a pipeline owner/operator relies solely on conventional pressure monitoring, the actual pressures impacting a pipeline may not be detected, thereby limiting the data or information needed to support an accurate structural evaluation, condition assessment, and operational awareness.

Why implement High Frequency Pressure Monitoring?

Collection of high frequency pressure data is critical in the hydraulic evaluation of a pipeline's performance and can add significant value to the condition assessment. The occurrence of pressure transients within a pipeline can have adverse effects on the integrity of a pipe section. Damage from pressure transients can include cracking of mortar coating or lining, crack propagation, movement at joints, and structural fatigue. The impact of pressure transients can vary depending on the magnitude of the transient and current condition of the pipe. Accumulated damage of this nature can eventually decrease the structural integrity of the pipe.

Implementation of high frequency pressure monitoring also measures the true impact of various system operations on a pipeline and can help validate and calibrate a hydraulic or transient surge model.

Baloch's SurgeWave™ "Defender" Transient Pressure Monitor

Pricing for the Blachoh Defender unit includes one-year warranty and cellular service. The system is a permanent mounted system, whereby the City will need to continue paying for the cellular service after Year 1. The City can purchase a warranty from Blacoh after Year 1.

All pressure data is delivered to a dedicated web-based site and a mobile app that is only accessible to designated personnel within the City. The web-based site includes a software program that will allow the City to view all time-based recorded pressure readings

Blacoh's patented SurgeWave™ High Frequency Pressure Monitoring System solves the need for pipeline operators to detect and record transient pressure events occurring in water, wastewater, and petroleum pipelines. The system is

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unique in that it employs a system of dynamic pressure transducers and digital technology to monitor pipelines for indefinite periods of time. When a transient such as a pressure surge, pressure spike or water hammer event is detected, the system activates a high-speed data recorder to record the event 100x/second.

Monitors Critical Pipelines and Associated Linear Assets Including:

- Actuated Valves, Pressure Reducing Valves, Pressure Relief Valves, Pump Control Valves, Air/Vacuum Valves, Check Valves
- Pump Suction/Discharge, Constant/Variable Speed
- Back Flow Preventers
- Surge Vessel and Pulsation Dampener Liquid Level

SurgeWave DEFENDER™

Designed for locations with cellular service, the DEFENDER is ready to go with hard wired cable connections. All system data is stored on remote cloud servers and can be accessed anytime from anywhere via the Blacoh Surge website or mobile app.

- Cellular communication to web/mobile app
- Data stored to cloud servers
- 2 inputs
- Hard wired transducer cables
- Power: 500 mA @ 12 VDC
- Components:
- Pressure transducer
- Transducer cable
- Cellular antenna
- AC adapter

Confirmations | Clarifications | Submittals per RFP Requirements:

Perform the analysis in a non-destructive manner. High frequency pressure monitoring units require a threaded outlet in which to install a pressure transducer that is in contact with the fluid column.

Pure Technologies can use a temporary Telog high frequency pressure monitor to install should the City of Denton require monitoring within 24 hours. It will not provide cellular communications, as data will need to be collected in the field and downloaded.

Be capable of increasing the sample rate up to 100 times per second when a transient event occurs within pipeline. High-rate sampling trigger should be individually programmable based on a user defined absolute change in pressure or standard deviation within a user defined period of time.

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High frequency pressure monitoring units are battery powered and will require periodic changeout by the City of Denton. Solar panel housing configurations are available. Support mechanisms are securable with weather resistant cables.

Sensors will cover pressure range from -14.7 psi to 300 psi.

The high frequency pressure monitoring units can be installed while pipeline remains in service. City will need to furnish a TEE coming off of the valve to accommodate two (2) pressure sensors.

Pure Technologies will ensure adequate staffing is onsite during system installations. All data will be downloaded via cellular communications to the City of Denton. City of Denton will be responsible for communications. Pure Technologies will furnish software and training to receive and view data in real time.

Units shall be capable of remotely downloading data using wireless data transmission (cellular communications).

The high frequency pressure monitoring devices can be utilized on all pipe materials and sizes.

When applicable, reports and deliverables shall be submitted in hard copies (three copies) and electronic format with database, information viewable in ArcMap with all pertinent information. Report should include at minimum; executive summary, location map of the project, start and completion dates, tables with pertinent information, pictures, and any other information necessary for the project. Conclusion shall be clear and concise depicting findings. Database tables will be named clearly identifying the information. Database will be the property of the City of Denton and information will not be shared without prior written approval from the City of Denton staff responsible for the project/inspection.

Wireless transient pressure monitoring units may be allowed where installation site and application permit. Wireless transient pressure monitoring units shall be supplied as complete units, including integrated communications for use on existing wireless networks, with all wireless communication requirements (SIM card, data plan, data hosting, web portal) included in comprehensive package. Wireless units shall be supplied by a manufacturer who has been in business with a history of providing remote sensor units for a minimum of five (5) years.

All installations shall include a shut-off valve, and analog pressure gauge for verification of recorded pressures.

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FEE SCHEDULE: REMOTE TRANSIENT PRESSURE MONITORING

Assessment Engineering Services				
Item No.	Service Description	Unit	Unit Fee	Notes
TPM-1	Furnishing and installing a Permanent SurgeWave TPM "Defender" Unit, includes: • Cellular Communications and Service (Service for Year 1 only) • High Frequency recording rate of 100 times per second • Analog Input of 2 channels maximum, 0-5 VDC • 12 VDC Power (500 mA @ 12 VDC)	EA	$ 9,885	1
TPM-2	Pressure Transducer with Standard ¼" MNPT Cable (-1 to 30 Bar)	EA	$ 472	
TPM-3	ATEX/IEC Flameproof, ¼" MNPT Cable (-1 to 30 Bar)	EA	$ 2,335	
TPM-4	Cellular Antenna Extension with Magnetic Mount	EA	$ 190	
TPM-5	12 VDC Battery Cable	EA	$ 55	
TPM-6	Solar Panel System	EA	TBD	3
TPM-7	Fabricated junction box.	EA	TBD	1
TPM-8	Annual Service Fee after Year 1	Per Unit	$ 685	

Additional Notes:

1. Pricing does not include furnishing an enclosure. Assumes the unit can be mounted on an existing above grade structure.
2. Pure Technologies will furnish 3 sets of rechargeable batteries and on charger for each unit.
3. Pure Technologies can furnish and install a solar panel system if requested. Pricing to be determined.

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GROUP 9 - REQUIREMENTS FOR ACOUSTIC FIBER OPTIC (AFO) MONITORING OF PCCP

This specification covers requirements for the installation and operation of an Acoustic Fiber Optic (AFO) pipeline monitoring system in pre-stressed concrete cylinder pipelines (PCCP). An AFO System can be installed while the pipeline is dewatered or under full operational and flowing conditions and will continuously monitor the pipeline while in service. The AFO System is designed to detect energy signals that are generated by wire breaks as they occur. The system will identify and report these events to the City of Denton in near real-time.

Whereas an electromagnetic inspection will provide information as to the distressed PCCP (i.e., wire breaks) the analysis and data presents only a static report of the condition of pipes on the day of inspection. An initial electromagnetic inspection cannot provide information as to the deterioration rate of distressed pipes.

The benefit of re-inspections is to obtain future wire break data identifying significantly distressed pipes that may require immediate repair or replacement, as well as to compare new data against the baseline data on previously identified distressed pipes.

The difficulty in trying to predict a reasonable re-inspection schedule that is both cost effective and provides reliable data is that the wires on prestressed concrete cylinder pipe (PCCP) do not fail in a linear regression. Rather, wires breaks tend to occur in an exponential regression as they near failure, with a resulting failure of the pipe within a short duration once the exponential regression initiates.

Although periodic EM inspections are often recommended whereby a more accurate evaluation of pipe deterioration may be assumed such projections can be misleading as PCCP does not fail in a linear regression. Rather, the failure of prestressing wires tends to increase exponentially as the pipe trends to failure.

To avoid repetitive EM inspections and not be concerned with distressed PCCP failing between EM re-inspections, Pure Technologies offers a continuous (24/7) acoustic fiber optic (AFO) monitoring system that detects and locates on which pipe a wire breaks. Employing a 3D Pipe Performance Curve based on finite element analysis of pipe designs allows the City to monitor distressed pipes and cost effectively intervene when a pipe may trend to exceeding its yield state. The AFO system may not prevent the wire breaks but most certainly will advise when a failure is imminent and needs to be addressed – thereby avoiding significant pipe ruptures, loss of service to customers and costs associated with collateral damage.

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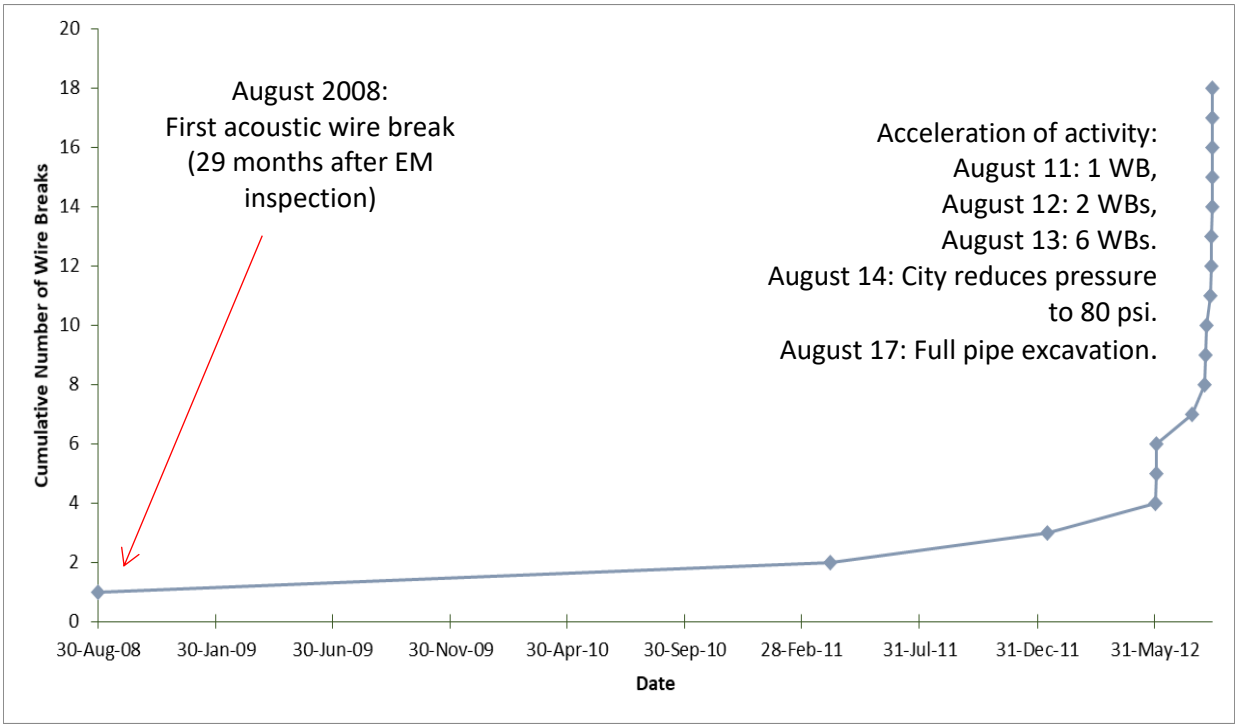
The figure below displays an exponential regression of wire breaks on a pipe in a water transmission main that was trending towards failure. This pipe was being continuously monitored 24/7 at the time utilizing Pure Technologies' Soundprint acoustic fiber optic (AFO) monitoring system. When the pipe experienced the significant increase in wire break activity, the client was immediately notified and the pressure in the line reduced until it could be shut down for excavation, validation, and repair/replacement - avoiding the loss of service to customers as well as a potentially catastrophic rupture resulting in collateral damage requiring emergency response.



The photographs shown on the following page were taken of the excavated and exposed pipe presented in the above wire break regression.

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Excavation

Damage evident

Inspecting the damage

Wire Breaks

Damage concentrated in 9' section

Damage

AFO monitoring systems have also documented increased wire break activity associated with the de-pressurization and re-pressurization of a PCCP water main, further demonstrating that pressure and flow management are important to effective management of water mains.

Pure Technologies Scope of Work with respect to furnishing, installing, and monitoring an AFO Monitoring System is presented below.

SoundPrint® AFO

Most structural failures in prestressed concrete cylinder pipes (PCCP) result from a breakdown of the exterior mortar coating leading to corrosion of the prestressing wires or hydrogen embrittlement, a condition resulting from loss of ductility in the prestressing wires. As wire breaks continue to increase, the pipe eventually ruptures.

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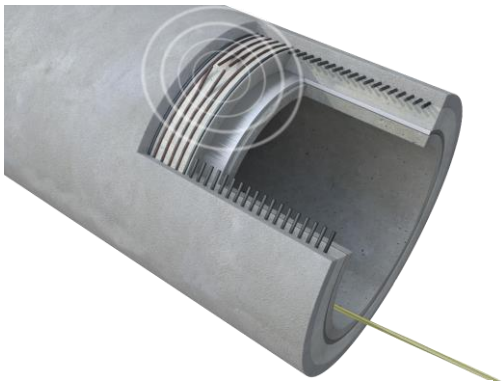
The SoundPrint Acoustic Fiber Optic (AFO) monitoring system detects and locates these wire breaks. SoundPrint AFO is a proven solution that leverages more than 15 years of experience to monitor wire breaks reliably and continuously in PCCP, the primary indicator of degradation in this pipe type. With this advanced warning system and a dedicated support team, utilities can determine the condition of critical pipelines and take preventive action to avoid large-scale failures.



Acoustic Fiber Optic cable detects the energy released when a prestressing wire fails

The SoundPrint AFO acoustic monitoring system consists of a data acquisition system (DAQ) connected to single-mode optical fibers that are bundled in a reinforced "AFO cable." Lasers are used to project light down the fibers, whereby the DAQ system monitors reflections generated by the acoustic activity in a pipeline.

The acoustically sensitive SoundPrint AFO cable acts as a sensor throughout its length of deployment; the source of the noise activity (i.e., wire breaks) is never further away than a pipe diameter. With the distinctive high frequency noise signature generated by a wire break and the sensor's proximity, the SoundPrint AFO system reliably detects wire breaks as they occur in reported in near real-time. Up to approximately 12.5 miles of pipeline can be monitored from a single DAQ location and 25 miles using a 'dual' DAQ.

Wire break events are located to within +/- 5 feet along the fiber optic cable and reported the next business day following QA/QC review by our data analysts. The analysts identify the pipe on which a wire break occurs, incorporates this information into the web-based pipe-by-pipe GIS display and dispatches a notification to the client.

This precise and prompt knowledge of wire break deterioration on individual pipes within a pipeline will allow the City to focus response actions on pipes trending to failure, thereby optimizing your capital budget and maximizing the life of linear assets. Near-real-time data collection will empower the City to proactively manage assets with greater confidence, reducing the risk of dangerous and expensive failures resulting in loss of service to critical customers and unplanned operational expenses.

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Implementing the SoundPrint AFO monitoring system features two distinct project phases:

1. Furnishing and Installation of the system, often paired with an electromagnetic inspection to establish the existing baseline of deterioration, will typically take from three to six months from the notice to proceed and will conclude with the system commissioning.
2. Monitoring and Warranty will commence once the system is commissioned and will continue for as long as the operator desires the service.

SoundPrint AFO System Deployment

System Installation

Planning and Mobilization

Once a notice to proceed is received, Pure Technologies will begin an iterative design process to optimize the AFO system for the given pipelines.

The planning process is an integral part of our work. It allows Pure Technologies to identify features of the site and/or the pipeline to ensure a successful installation and mitigate any potential risk. Pure Technologies will require all documents and drawings to assist in the planning and site reconnaissance phase. Based on this information and site visits, we will provide the City with a detailed Project Planning Document prior to commencing work for review and feedback - followed by an in-person Workshop.

The planning process will include the following:

- Review of all available information on the pipeline and layout a preliminary design.
- Performing a site visit to review suitability of critical locations and meeting with the City operations staff to discuss any additional considerations.
- Revise system design and develop drawing package and installation plan.
- Submit planning document to the City for review and comment.
- Incorporate comments and hold in-person Workshop to finalize the planning document.

The Project Planning Document will describe execution of the installation process and any necessary support (equipment and personnel) needed to ensure the safe deployment of the AFO system.

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The Planning Document improves preparation and communications with all involved parties and is an important aspect of a successful project. Pure Technologies is dedicated to exceeding the City's requirements and expectations and will work with the City to fulfill all submittal requirements.

A system drawing package will also be provided. The system drawing package will include the location of the DAQ and each splice point along the pipeline. These splice points will be detailed in the drawing package, showing any required appurtenance modifications and equipment that will be installed at that location.

The City shall review and provide comments or approval of the Project Planning Document and System Drawing Package prior to mobilization.

Soundprint AFO System Installation Approach

The AFO cable can be installed in either a fully dewatered pipeline or into a flowing and operational pipeline.

As described further herein, a dewatered installation will require an extended outage in each of the pipelines, along with confined space oversight. However, the dewatered installation will also accommodate a manned electromagnetic (EM) inspection combined with a comprehensive visual and sounding inspection of the pipeline that includes photographic and video documentation. The dry installation also will allow Pure Technologies to install protective sleeves around the cable in locations of concern where the cable may rub against the pipe wall or be affected by flows at large openings.

Alternatively, the AFO cable can be installed under fully flowing and operational conditions and a baseline EM inspection performed using Pure Technologies' free-swimming PipeDiver delivery platform.

However, at some point in the immediate future, it will be necessary to access the pipeline under localized de-watered conditions to install stainless steel sleeves to protect the AFO cable from rubbing on the pipeline at selected locations. This is especially important where there are large laterals or outlets, as they would typically need to be addressed within a month or so after commissioning.

Both installation options are further detailed on the following pages.

Dewatered ("Dry") Installation Methodology

The AFO cable will be installed once the pipe has been removed from service and completely dewatered. The AFO cable is manually laid in the pipe in multiple runs. Run boundaries are determined by valve locations on the pipeline and maximum distance criteria. The points between the runs of cable are called "splice points".

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The AFO cable is spliced together outside of the pipeline and the splices are housed in junction boxes in a chamber.

The spool of fiber is staged at one splice point then manually deployed through the pipe by Pure Technologies' personnel to the next splice point. The cable is unanchored in the pipe except where pipeline geometry requires internal anchoring and/or protective stainless steel sleeves to protect the cable. Features that could potentially damage the cable include large outlets, offset bends, mitered bends over 45 degrees and WYES or TEES.

To exit the pipeline, the cable must extend to the crown of the pipe and out of the access provided. The cable is protected through this transition into the access using flexible stainless-steel tubing. On exiting the access, the cable is anchored and sealed from the pressure of the pipe in a plumbing stack that incorporates a blowout preventer (BOP), that employs a pinch valve that does not damage the cable.

On exiting the plumbing stack, the cable is spliced to the cable extending from the adjacent portion of the pipeline and the additional cable is coiled and placed in a junction box. The splice points and associated junction boxes are typically mounted to the wall of the vaults or chambers at the access location. The junction boxes have two compartments: an inner compartment to protect the splices and stripped fibers, and an outer compartment to protect and store the additional AFO cable required to allow splicing to be completed outside of the chamber.

Live Installation Methodology

With a fully operating pipeline, the live installation method allows the line to remain in service and does not require confined space certified personnel to enter the pipeline. However, the method may not be used in extremely high or low flow conditions, in pipelines with numerous bends, or where chambers are not suitable or cannot be modified for wet installation.

Additional clearance considerations are required to mount temporary pressure stacks for the installation equipment on top of the AFO plumbing stacks. These consist of 3-inch diameter Victaulic pipes mounted to a Victaulic nipple on top of the BOP. Typically, ten (10) feet of overhead clearance from the top of the BOP is required to accommodate the necessary piping and hardware to accommodate insertion of the AFO cable under live conditions. As most vaults or chambers in which the access is located may not have sufficient clearance due to the vault or chamber lid, either the lids will need to be removed or an 8-inch core through the chamber lid centered directly above the BOP will be required.

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Installing and extracting fiber optic cable into and out of a live pipeline is a complex task with many elements, including:

Inserting a parachute attached to a tag line into the live pipeline at the upstream end of a cable run.

Allowing the flow of the water to carry the parachute downstream where it can be retrieved and pulled out at run's extraction site.

Catching and extracting the parachute downstream.

Attaching the AFO cable to the tag line at the upstream location.

Setting up a hydraulic winch downstream, known as a capstan, to attach to the tag line and pull the cable into and through the pipeline run.

System Calibration and Commissioning

The SoundPrint AFO system determines the location of an acoustic event based on its distance along the AFO cable from the Data Acquisition System (DAQ). Commissioning impacts are performed to calibrate locations to a specific pipeline station and pipe stick. Performing commissioning impacts involves striking a known location, typically at each BOP wiper and other intermediate appurtenances, and recording its distance from the DAQ. Each commissioning impact requires a minimum of five strikes at each location, to provide redundancy and to eliminate extraneous results. At a minimum, impacts are conducted at all splice points. Whenever possible, commissioning impacts are completed at a maximum distance of 2,500 feet apart to ensure reporting accuracy within the system.

Each DAQ is built and tested in Pure Technologies' AFO production facility prior to delivering on site, then disassembled to ship the sensitive components. Onsite, technicians will remount all the DAQ hardware on the rack and connect the wiring harnesses and the newly installed fiber optic cable. Once assembled and started up, the monitoring specialist team will remotely test and calibrate the full system to monitor the connected AFO cable.

As the AFO cable is only anchored at the splice points, any additional slack that remained in the cable due to friction during the installation will slowly shift downstream with the flow of water. This slack will negatively affect the map accuracy, as well as introduce the risk of cable movement wearing the cable jacket at a higher rate. To address this slack, Pure Technologies will remobilize approximately four (4) weeks following commissioning of the system to pull out the slack and re-tension the cable. Additional impact testing will be performed and the web-based pipe-by-pipe GIS map updated. The slack and cable tension will also

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be assessed and corrected as part of an annual maintenance program offered by Pure Technologies herein.

Soundprint AFO Monitoring, Notifications and Reporting

Monitoring

Once installed and commissioned, the AFO system will commence monitoring the pipeline. This is facilitated by a team of Monitoring Specialists and Data Analysts working together to ensure that the system is performing to the expected standards and delivering actionable data back to the City.

To ensure that the SoundPrint AFO monitoring system is functioning properly, several automated system tests are incorporated into the standard operation of the system. First, a component within the DAQ plays the recorded sound of an actual wire break every hour. The sound file includes a distinctive feature at the end that ensures the event is not mistakenly classified as a wire break. This simulated wire break can be set to a variety of total energy sizes to test and optimize the sensitivity of the system based on the site specific pipeline noise conditions.

The location of events is determined using an optical time-domain reflectometry (OTDR) technique. This technique, utilizing an ultra-high-speed A/D conversion, allows location resolution within 3 feet.

Given the sensitivity of the system, processing and analysis of data is accomplished in two phases. The first phase is automated and takes place within the DAQ system, whereby hardware and software filters are applied to incoming raw data. By analyzing the characteristics of events of interest, the filters can be configured to reject most acoustic events that are not of interest. This reduces the quantity of data requiring secondary processing. Secondary processing utilizes a combination of automated and manual analysis and classification.

The DAQ uses the AFO cable to identify acoustic events along the AFO cable, saves the event data, and transfers relevant data to Pure Technologies via the internet for analysis. When an event has been analyzed and classified as a wire break, an email notification is sent to concerned parties with the time and location information. The data will also be available on a secure website, accessible only to the City.

Notifications and Reporting

Daily communications regarding the extent of data collected each day are transmitted to assigned parties via e-mail the next business day. Should a wire break event occur, designated individuals will be notified immediately via e-mail and/or text message. The notification will identify on which pipe the wire break

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occurred and time of occurrence. The wire break will also be updated on the web-based monitoring site.

Notification and communication protocols will be determined and documented in the Operations Manual delivered at the end of the installation phase. Typically, designated personnel within the City will receive e-mail notifications of wire breaks the following business day. The wire break will also be posted on the AFO website.

Standard notifications include wire break alerts, three pipe alarm, and finite element analysis alarm:

Wire Break Alert Emails provide the details of a wire break event and include snapshots from the AFO website showing information for the affected pipe. All the information from the email is immediately available on the website by clicking on the link at the bottom of the email and logging in.

The Three Pipe Alarm is generated when three wire breaks are identified and reported on any of three adjacent pipes within 24 hours. This is meant to identify concerning activity in a concentrated area.

A Finite Element Analysis Alarm is generated when a Structural Pipe Performance Risk Curve exists for the class of pipe and the total number of wire breaks exceeds 80% of yield limit at operating pressure.

Pipe sections that are highly distressed or have seen an increase in the rate of wire breaks can be classified as a pipe of concern. The pipe continues to be monitored at regular intervals, but if any wire breaks are detected there is additional communication to the City, typically via telephone communications to designated individuals within the City.

Web-Based Portal

Hosted by Pure Technologies, the AFO website is securely accessible through a web browser and provides four main menu options:

- View pipeline location and wire break activity in GIS map
- Provide comprehensive information for a Pipeline, and its pipe sections
- Query pipe information by pipeline, by time or by a user specified watch list
- Search pipe numbers to quickly locate information

Using proprietary analysis software, a detailed pipe-by-pipe GIS map is built from plan and profile drawings, pipe manufacturer's lay sheets, electromagnetic inspection results and in-pipe measurement. The locations gathered during the commissioning impacts will be used to calibrate the map. Pipeline acoustic event locations are linearly interpolated between the impact locations. AFO web

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includes details on each specific pipe sticks including the number of wire breaks from previous EM inspections as well as those detected by AFO.

Pipe Performance Risk Curves developed using 3D FEA analysis are also incorporated into the web-based data to identify and rank the risk associated with the likelihood of failure (LoF) associated with each individual pipe.

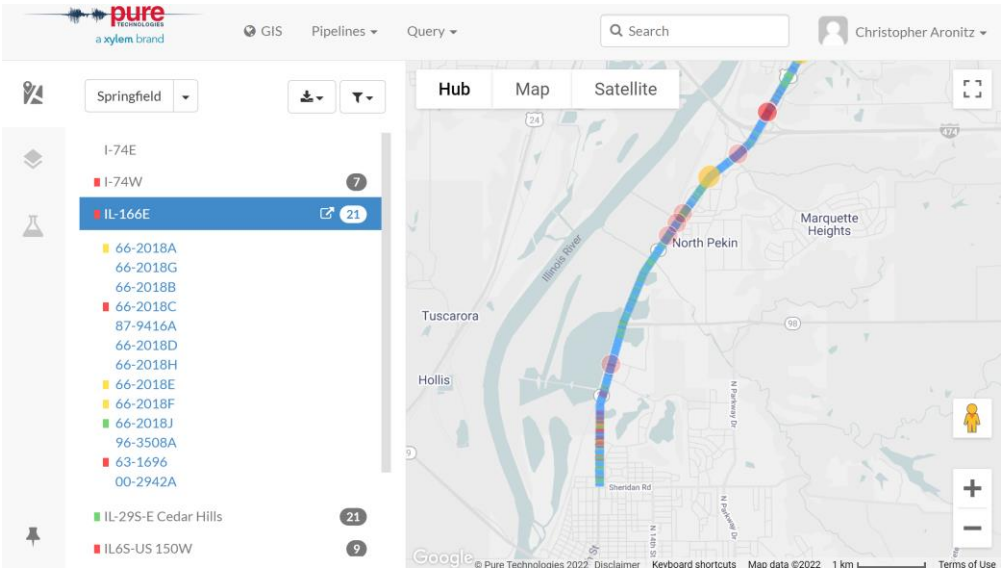
If requested, Pure Technologies can also incorporate our proprietary RiskView® asset management program that will incorporate a Consequence of Failure (CoF) component to establish a comprehensive risk ranking associated with each pipe.

The web-based portal offers display, reporting and alert options to the City. Pure Technologies would be pleased to present a live demonstration of the web-based portal on request.

The AFO website is a user-friendly pipeline data management tool that provides a pipeline GIS (geographic information system) that includes such data as baseline condition, rate of deterioration, design specifications, laying schedule, pressure, FEA performance curves, etc.

Information on pipe properties is also included and any FEA performance curves that have been performed for classes of pipe along the pipeline are included with the number of wire breaks reflected. Transient pressure data can also be integrated and displayed on the Web Portal.

Samples of a digital interface screenshots from the wed-based portal are displayed below.



Web Portal Screenshot Examples

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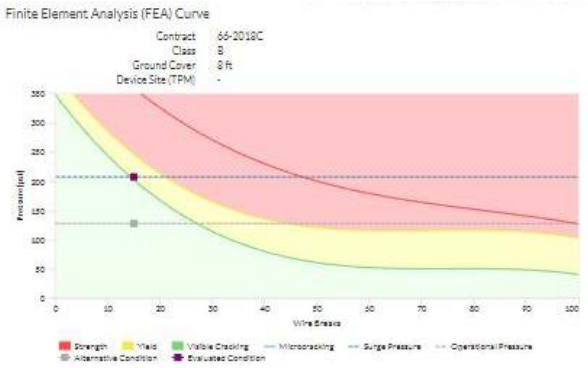

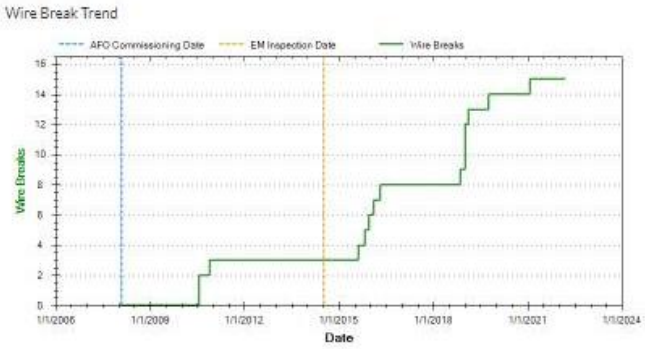

SoundPrint AFO Warranty & Maintenance

System warranties are provided for the first year of operation with the option to extend long term. The warranty allows Pure Technologies to respond rapidly to onsite equipment issues, and ensure system longevity via regular preventative maintenance and as needed upgrades.

During the regular monitoring of the site, the AFO Monitoring Specialists may identify issues requiring an onsite presence. After exhausting possibilities for identifying and resolving the issues remotely, the Monitoring Specialist will request a qualified technician to visit the site for troubleshooting and remediation.

On an annual basis, Pure Technologies will coordinate with the City to schedule a maintenance visit. At a minimum, the maintenance for each AFO system addresses the following items:

Maintenance of the DAQ unit to include inspection, testing, and upgrades as required for all DAQ components.

AFO cable integrity checks that includes fiber optic cable testing with optical time domain reflectometer to identify light loss which can negatively affect the monitoring.

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Maintenance of hardware including inspection of the BOP and plumbing stacks for leaks and corrosion.

Remove slack from the AFO cable if present.

Re-calibrate the system using impact testing to verify the pipeline mapping is accurate to ensure quality location information.

City of Denton Responsibilities

It is expected that the activities and logistical support listed below will be provided by the City. **Where noted (^), Pure Technologies can performance said tasks as an Optional Service.** Requirements will be determined in more detail during the inspection planning process.

General

Provide information about the pipelines at least four (4) weeks prior to the inspection date including, but not limited to, plan and profile drawings, lay sheets, shop drawings, manufacturing details, and details of access structures and appurtenances – if available.

Designate a site for the DAQ unit with access to the transmission main and electrical supply and provide access to the DAQ site during the monitoring period

Furnish traffic control as necessary. ^

Perform valve assessments in advance and operate valves as required to accommodate the applicable installation methodology. ^

Manage pump operations accommodate the applicable installation methodology, maintaining the required flow velocities as may be required for a wet installation.

Provide and maintain safe and reasonable access to all work sites throughout the installation and obtain permits as required. ^

Prepare and/or modify existing pipeline fittings and structures as indicated by Pure Technologies to accommodate installation of the equipment as outlined in the Planning Document and system drawing package. ^

Provide a minimum of 36" clearance in the manway or ARV chambers above the access flange on which the upstream plumbing and BOP stack is attached and a minimum of 54-inch clearance for the downstream plumbing and BOP stack.

Ensure the access chambers are available for the duration of the monitoring period.

Obtain any required legal right-of-entry on the property and notify landowners of access required.

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Provide support personnel during the inspection for locating the access structures, traffic control, valve operation, pump operation, and other support as necessary. ^

Provide and maintain safe and reasonable access to all work sites throughout the inspection and obtain permits as required.

Render confined space areas safe for the services, including lockout tagout of pumps, valves, and motors; dewatering chambers and vaults to permit movement of persons and equipment; and vector and rodent control as necessary. ^

Excavate, dewater, shore up, and/or provide scaffolding of job area and other civil activity as necessary in compliance with OSHA/local standards and regulations. ^

Operate the pipeline in a manner that will achieve the required flow velocity indicated in the Planning Document throughout the inspection.

Conduct any civil activities required to provide access into the pipeline, including, but not limited to excavation, tapping, shoring, valve and pump operation, maintenance of traffic, provisions for rope support, as well as other activities providing access to the necessary valves and appurtenances identified as being critical to the performance of the project. In the instance these services cannot be carried out by the City, Pure Technologies can procure these additional services on your behalf. ^

Live Installation

Manage pump operations to provide an acceptable and consistent flow velocity for deployment of the tag line under fully flowing conditions.

Provide Pure Technologies with the typical flow velocities and pressures for pipeline operation, and the expected minimum and maximum values for each. If this data is unavailable, Pure Technologies would like the opportunity to verify flow velocities recommended prior to performing the inspection.

Provide adequate overhead clearance above access valve for the BOP stacks. May require removal of the access vault lid or coring a hole through the vault lid.

For live installation provide Pure Technologies with the typical flow velocities and pressures for pipeline operation, and the expected minimum and maximum values for each. If this data is unavailable, Pure Technologies would like the opportunity to verify flow velocities recommended prior to performing the installation.

Operate the pipeline in a manner that will achieve the minimum required flow velocity indicated in the Planning Document throughout the inspection.

Furnish and install scaffolding to provide safe access when inserting and extracting the tag line and AFO cable at each end of the runs. ^

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Dry Installation

If a dry installation of the AFO cable is to be performed, completely de-water the pipelines. ^

Render confined space areas safe for the services, including lockout tagout of pumps, valves, and motors; dewatering chambers and vaults to permit movement of persons and equipment. ^

Prepare and post confined space permit. Provide personnel that are OSHA and Confined Space Certified to provide top side confined space support (Supervisor and two Attendants). ^

Confirmations | Clarifications | Submittals per RFP Requirements:

Pure Technologies AFO Monitoring System provides continuous, twenty-four (24) hour monitoring of acoustic events of the City of Denton' pipeline at the specified site.

Pure Technologies AFO Monitoring System will remain operational for a period of not less than 95% aggregate time on an annual basis, excluding power outages or other events outside the control of the vendor. System uptime is to be calculated as the successful percentage of the simulated verifications captured that are played by the system once per hour each day.

Pure Technologies AFO Monitoring System will allow remote operation of the AFO System to enable continuous recording of acoustic events.

Operation of the AFO System will include hourly simulated verifications, daily remote site checks, and an annual site visit.

Pure Technologies AFO Monitoring System will provide continuous downloading of data to a Vendor-based central server. All data will be downloaded the following business day.

Pure Technologies will provide continuous event processing by our data processing department as long as internet connection to the system is available.

Pure Technologies will include monitoring and warranty with each system as presented in the proposed fees.

Pure Technologies AFO Monitoring System will detect and locate wire breaks that emit a signal greater than 10 kHz, to a degree of accuracy within plus or minus three (3) feet.

The City of Denton will be notified of wire breaks by email within one (1) business day of the event occurring.

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Notification of the location and extent of any abnormal activity detected within the monitoring system will be provided to the City of Denton within one (1) business day of the occurrence.

Pure Technologies will provide remote support to City of Denton Utilities for onsite activities during the identification and repair or replacement of pipe sections, including the necessary remapping of the AFO cable, in accordance with the proposed fees.

Pure Technologies will furnish and install software upgrades for the AFO System as they become available.

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EXHIBIT G

CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a) and by City of Denton Ethics Code, Ordinance 18-757.
By law this questionnaire must be filed with the records administrator of the local government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

PURE TECHNOLOGIES US INC.

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____
Name of Officer

Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relations hip with the local government officer. This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4 ☒ **I have no Conflict of Interest to disclose.**

5 DocuSigned by:
Mike Garaci
7A576A7CD4F8404...
Signature of vendor doing business with the governmental entity

5/8/2023
Date

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CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/ Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(A) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

City of Denton Ethics Code Ordinance Number 18-757

Definitions:

Relative: a family member related to a City Official within the third 3rd degree of affinity (marriage) or consanguinity (blood or adoption)

City Official: for purpose of this article, the term consists of the Council Members, Department Heads, or member of the Board of Ethics, Planning and zoning Commission Members, Board of Adjustment, Historic Landmark Commission, or Public Utilities Board

Vendor: a person who provides or seeks to provide goods, services, and/or real property to the City in exchange for compensation. This definition does not include those property owners from whom the City acquires public right-of-way or other real property interests for public use.

Per the City of Denton Ethics Code, Section 2-273. – Prohibitions

(3) It shall be a violation of this Article for a Vendor to offer or give a Gift to City Official exceeding fifty dollars ($50.00) per gift, or multiple gifts cumulatively valued at more than two hundred dollars ($200.00) per a single fiscal year.

Per the City of Denton Ethics Code, Section 2-282. – Disposition (b), (5) Ineligibility

If the Board of Ethics finds that a Vendor has violated this Article, the Board may recommend to the City Manager that the Vendor be deemed ineligible to enter into a City contract or other arrangement for goods, services, or real property, for a period of one (1) year.

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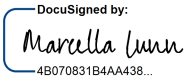
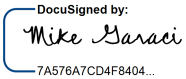
Certificate Of Completion

Envelope Id: FAB79C57358B44AFB519265884F2EF32
Status: Sent
Subject: Please DocuSign: City Council Contract 8181 Transmission Mains Condition Assessment
Source Envelope:
Document Pages: 128
Signatures: 4
Certificate Pages: 6
Initials: 1
AutoNav: Enabled
EnvelopeId Stamping: Enabled
Time Zone: (UTC-06:00) Central Time (US & Canada)

Envelope Originator:
Crystal Westbrook
901B Texas Street
Denton, TX 76209
crystal.westbrook@cityofdenton.com
IP Address: 198.49.140.10

Record Tracking

Status: Original
5/4/2023 10:43:48 AM
Holder: Crystal Westbrook
crystal.westbrook@cityofdenton.com
Location: DocuSign

Signer Events	Signature	Timestamp
Crystal Westbrook crystal.westbrook@cityofdenton.com Senior Buyer City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 198.49.140.10	Sent: 5/4/2023 10:49:18 AM Viewed: 5/4/2023 10:50:21 AM Signed: 5/4/2023 10:51:35 AM
Lori Hewell lori.hewell@cityofdenton.com Purchasing Manager City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	 Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.104	Sent: 5/4/2023 10:51:40 AM Viewed: 5/5/2023 10:37:00 AM Signed: 5/5/2023 10:39:40 AM
Marcella Lunn marcella.lunn@cityofdenton.com Mack Reinwand City Attorney City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	 Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 5/5/2023 10:39:45 AM Viewed: 5/5/2023 5:35:02 PM Signed: 5/5/2023 5:38:42 PM
Mike Garaci mike.garaci@xylem.com Director, Business Development Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 5/8/2023 8:03:08 AM ID: 32a9da97-28a6-4500-a1b2-4811086bfcf6	 Signature Adoption: Pre-selected Style Using IP Address: 99.224.44.6	Sent: 5/5/2023 5:38:46 PM Viewed: 5/8/2023 8:03:08 AM Signed: 5/8/2023 8:05:34 AM

Signer Events	Signature	Timestamp
Stephen D. Gay stephen.gay@cityofdenton.com Director, Security Level: Email, Account Authentication (None)	DocuSigned by: 9EBFF5658E56492... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 5/8/2023 8:05:40 AM Viewed: 5/8/2023 8:16:07 AM Signed: 5/8/2023 8:25:35 AM
Electronic Record and Signature Disclosure: Accepted: 5/8/2023 8:16:07 AM ID: 0c126b13-c544-4250-b0bd-35c581c68b6a		
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None)		Sent: 5/8/2023 8:25:40 AM
Electronic Record and Signature Disclosure: Not Offered via DocuSign		
Sara Hensley sara.hensley@cityofdenton.com Security Level: Email, Account Authentication (None)		
Electronic Record and Signature Disclosure: Not Offered via DocuSign		
Jesus Salazar jesus.salazar@cityofdenton.com Security Level: Email, Account Authentication (None)		
Electronic Record and Signature Disclosure: Accepted: 5/5/2023 6:59:14 PM ID: 05778190-ddf5-4769-9e02-141f24d5bb62		

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None)	COPIED	Sent: 5/4/2023 10:51:40 AM
Electronic Record and Signature Disclosure: Not Offered via DocuSign		

Carbon Copy Events	Status	Timestamp
Gretna Jones gretna.jones@cityofdenton.com Legal Secretary City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 5/8/2023 8:25:40 AM Viewed: 5/8/2023 11:58:34 AM
City Secretary Office citysecretary@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Tyler Dawson tyler.dawson@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 5/1/2023 10:18:02 AM ID: ed6e348e-80d0-4226-b553-800f5064c01e		
Jewel Lanning jewel.lanning@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	5/4/2023 10:49:19 AM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

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Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	•Allow per session cookies •Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection

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