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APPENDIX A

SCOPE OF SERVICES

Pipeline Inspections

1. **SUMMARY**

- a. The Contractor shall supply all test equipment required to perform an internal inspection of portions of the pre-stressed concrete pipeline identified in the Scope of Work for each specific project. The purpose of the inspection is to identify, localize, and quantify the presence of broken pre-stressing wires in individual segments of pipe along the pipeline; make repair prioritizations, and locate an astray interconnection. The Contractor shall supply trained technicians, as required, to operate the equipment, perform the inspection, analyze the data, and provide a written report as outlined in the Scope of Work.
- b. If the Contractor's equipment becomes lost or stuck in the County's pipelines or appurtenances, it shall be the responsibility of the contractor to locate and remove the equipment at no cost to the County.

2. **CONTRACTOR RESPONSIBILITIES**

The Contractor shall:

- a. Review all of the information provided by the County regarding the section(s) of pipeline to be inspected.
- b. Expedite deployment of all equipment and crew to perform the service.
- c. Conduct a one (1) day onsite meeting with the County prior to the inspection to evaluate if the insertion sites are sufficiently prepared for equipment insertion and to prepare for logistic coordination.
- d. Specific to the Electromagnetic (EM) and Remote Field Transformer Coupling (RFTC) inspection, do the following:
 - i. Provide all RFTC data collection equipment, tools, and trained technicians, as necessary, to operate the equipment.
 - ii. Collect RFTC data for the identified section(s) of pipeline.
 - iii. Perform a comprehensive review and analysis of the data.
 - iv. During manned EM inspections perform a visual inspection to evaluate each of the pipeline joints in order to determine if any repair is necessary. Concurrently, a sounding inspection shall be performed using a 1/2 -inch steel pipe approximately ten inches shorter than the internal diameter of the pipe with caps at both ends to locate any hollow areas within the lining of the pipeline.

- v. Determine repair priority by performing a preliminary risk analysis for each distressed pipe with a specific design and cover height. The risk curves shall be presented in terms of pressures that produce different limit states for varying effective numbers of broken wires, accounting for uncertainties and expected rate of progression of broken wires based on data that is not site specific.

e. *Specific to the Leak and Air Pocket detection, do the following:*

- i. Provide a list of locations where the equipment will be inserted into the pipeline, as well as minimum clearance requirements for the insertion components that will be utilized.
- ii. Provide a list of locations where additional 2" taps (if necessary) will be required for insertion of the equipment.
- iii. Provide the County with the minimum flow velocity that will be required for the inspection.
- iv. Develop a project plan that is acceptable to all parties.
- v. Provide all Leak and Air Pocket detection location equipment, tools, and trained technicians, as necessary, to operate the equipment.
- vi. Perform a comprehensive review and analysis of the data.
- vii. Mark on the surface of the ground any leaks found and providing an estimate of the size of each leak (small, medium, large).
- viii. Provide GPS coordinates of all leak locations and insertion sites.

f. *Specific to the installation of Acoustic Fiber Optic (AFO) pilot project, do the following:*

- i. Supply, design, install and commission AFO System.
- ii. Provide all AFO equipment, tools, and trained technicians, as necessary, to install and operate the equipment.
- iii. Install AFO to provide near real time monitoring of pipeline 24 hours per day/7 days per week for the period identified by the County.
- iv. Report all wire break activity Monday through Friday during normal business hours.
- v. The Contractor shall retain ownership of the data acquisition system for the AFO pilot project.

g. *Specific to the Leak Detection, do the following:*

- i. Review all the information provided by the County regarding the section(s) of the pipeline to be inspected.
- ii. Provide and expedite all equipment and crew to deliver this service.
- iii. Provide all Leak Detection data collection equipment, tools, and trained technicians to operate the equipment.
- iv. Collect Electromagnetic and Leak Detection data for the identified section(s) of pipeline.
- v. Perform a comprehensive review and analysis of the data.

- h. Render confined space areas safe for the services by providing ventilation and monitoring of air quality; preparing and obtaining entry permits; providing

personnel and equipment for communication and recovery; and meeting the requirements of federal and local government authorities.

- i. Disinfect the equipment and personnel, including subcontractors and divers, as required by the Country and/or local codes and ordinances.
- j. Deliver written Draft and Final Reports that detail the results of the inspection and analysis as defined in the project scope.

3. COUNTY RESPONSIBILITIES

The County will:

- a. Provide information about the pipeline to the Contractor at least two (2) 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, air valves, blow-offs, and main line valves – if available.
- b. Obtain any required legal right-of-entry on the property at no cost to the Contractor.
- c. Provide support personnel during the inspection for locating the access man ways, traffic control, and other support as necessary.
- d. Require a complete drawing review of the pipeline to be performed by the Contractor prior to the inspection to identify any areas of concern. If the drawings do not accurately reflect the pipeline's in-situ condition, and obstacles are encountered that the tool cannot negotiate, the County and the Contractor shall work cooperatively to remove unmanned inspection equipment from the pipeline. Any costs incurred in such efforts shall be limited to the respective domain of the County and the Contractor.
- e. Remove flanges at man way to provide access into the pipeline and maintaining safe access to the man way location throughout the inspection.
- f. Excavate, de-water, shore up, and/or provide scaffolding of job area, all of which will comply with OSHA standards.
- g. Render access locations safe for manned entry, including removing the pipeline from service, as necessary; vector and rodent control; ventilation and monitoring of air quality at specified access locations, if necessary; and meeting the requirements of federal and local government authorities.
- h. Provide all supplies and equipment for disinfecting the pipeline as required by local codes and ordinances.
- i. Provide the Contractor with the minimum and maximum flow velocities and pressures that the pipeline operates at.
- j. Provide a lifting device capable of lifting at least 500 lbs to lower the PipeDiver equipment into and raise the equipment out of the pipeline, if necessary.
- l. Provide and maintain safe and reasonable access to all insertion sites throughout the inspection and obtain public works and/or police permits, as required.

- m. Operate the pipeline in a manner that will achieve the minimum flow velocity indicated in the project plan throughout the inspection.
- n. Render confined space areas safe for the services, including locking and tagging pumps, valves and motors; de-watering areas to permit movement of persons and equipment; and vector and rodent control.
- o. Own the fiber optic cable for the Acoustic Fiber Optic pilot project.
- p. Power and communication to operate the fiber optic data acquisition system in addition to a high speed Internet connection for the AFO pilot project.

4. REPORTS

- a. Draft Report: The Draft Report shall be delivered no later than six (6) weeks after the inspection. The Draft Report shall describe the RFTC technology and its limitations, discuss the project in general terms, identify the segments of pipe within the pipeline that have broken pre-stressing wires and rank these segments in quantitative estimates of broken pre-stressing wires in each pipe segment. The Draft Report shall be delivered in electronic format to the County to review for up to five (5) business days and provide comments to the Contractor Project Manager for inclusion into the Final Report. After five (5) business days, the Draft Report shall be made Final.
- b. Final Report: The Final Report shall be delivered in both electronic and hard copy formats (5 copies of hard-copy format), and if adequate survey coordinates of the structures and pipeline are available or can be obtained during the inspection, it shall include an electronic map of the section of the pipeline inspected.

5. POST PROJECT SUPPORT

The Contractor shall provide support and answer questions regarding the inspection and Final Report for up to thirty (30) days from the date that the Final Report is delivered to the County, at no additional cost.