

Section 19 - Condition Assessment Protocol for Repaired or Abandoned Pipelines

- A. Introduction - One of the elements of the HRSD's Management, Operation, and Maintenance (MOM) per Environmental Protection Agency (EPA) involves collection of condition assessment information on HRSD's active and planned to be abandoned force mains and gravity sewer mains. HRSD has developed procedures for collecting limited information on pipelines taken out of service either temporarily for repair / rehabilitation or for abandonment. This Section will detail the desired condition assessment program on repaired or abandoned pipelines of the types in HRSD's system as part of the construction bid documents.

- B. Condition Assessment Plan during PER phase. The FIRM will coordinate with HRSD's Asset Management Division of the Engineering Department during the PER phase of a project to develop a Condition Assessment Plan for the existing HRSD infrastructure to be impacted by the rehabilitation, replacement, or new infrastructure project(s) This Condition Assessment Plan will be incorporated into the final PER.

- C. Technical Specification - A Master Technical Specification Section 02774 – Condition Assessment Data Collection for Pipelines Being Repaired or to be Abandoned was developed for insertion into HRSD administered construction projects along with a data collection form to be filled out and submitted by the Contractor to HRSD.

- D. Checklist - In addition, a checklist that is included with this Section was developed to assist the Professional Services firms (FIRM) with modifying the Master Technical Specification Section 02774 for the specific project to be constructed.

Condition Assessment Data Collection Checklist

Pipeline Description:

	<p><u>General Data Each Site, All Pipelines</u></p> <ol style="list-style-type: none"> 1. Line identification number (HRSD assigned facility ID Number) 2. Street or other location identification. 3. Pipe material 4. Where appropriate and available, record pipe class. 5. Pipeline inner diameter. 6. Presence and type of external coating or wrap 7. Presence and type of interior liner, coating 8. Indicate the reason for the inspection, whether the result of a pipe failure, a scheduled pipe repair or a capital improvement project. 9. Photograph of inspection site and if a repair, photograph of failure section
	<p><u>Coupon Data</u></p> <ol style="list-style-type: none"> 1. GPS coordinates of coupon location to 0.1 foot accuracy. The vertical datum must include the pipe crown elevation at the site of the coupon, regardless of where the coupon was taken from the pipe wall. 2. The clock position of the center of the coupon or section taken from the pipe. The clock reference should be when looking downstream. 3. Coupon thickness, taken at a minimum of 3 locations 4. General condition of coupon especially interior wall. Note presence and extent of corrosion, pitting or tuberculation. 5. Take photographs of the coupon, including one photograph of the exterior of the coupon, one of the interior and one close-up of the coupon on edge. 6. A sturdy tag will be affixed to each coupon, providing the General Data specified above. The coupon will be assigned a unique ID number which shall be printed on the tag. The coupon ID number shall be the HRSD facility ID number. An additional digit will be added at the end to indicate where multiple coupons or samples were taken from a pipeline with the same HRSD facility ID. All accompanying photos and videos shall bear this unique ID number. 7. The coupons or samples shall be turned over to HRSD or to the FIRM as directed, with affixed data tag, and any accompanying photographs or videos.
	<p><u>For All Pipelines</u></p> <ol style="list-style-type: none"> 1. Unless otherwise directed by the HRSD, insert CCTV equipment and conduct a visual inspection of the pipeline and record the inspection electronically. The CCTV inspection should extend as far as is practicable for the equipment. 2. Where directed by the HRSD, conduct a visual inspection of the open ends of the pipeline and record observations of interior conditions. Note instances of corrosion or wall loss, pitting or tuberculation on the pipe interior.
	<p><u>For Ferrous Pipelines</u></p> <ol style="list-style-type: none"> 1. Where access to interior of the pipeline is feasible, take wall thickness measurements around the exposed pipe ends in at least the four quadrants (crown, invert and both springlines). 2. Where access to the interior of the ferrous pipeline is not feasible, conduct external wall thickness testing using ultrasonic testing (UST) equipment as specified in Section 2773. UST wall thickness tests should be conducted at as many locations around the pipe perimeter as time permits with a minimum of at least three locations at the pipe crown, and once at each of the springline locations.
	<p><u>For Asbestos Cement Pipelines</u></p> <ol style="list-style-type: none"> 1. Visually inspect the condition of interior wall of the pipe and note areas of softness and depth of soft material.

Condition Assessment Data Collection Checklist

Pipeline Description:

	<p><u>For Reinforced Concrete Pipe</u></p> <ol style="list-style-type: none"> 1. Visually inspect the condition of interior wall of the pipe and note areas of softness and depth of soft material. 2. The coupon/sample thickness dimensions should include the thickness of the concrete material over the reinforcing steel on both the interior and exterior sides of the steel reinforcing.
	<p><u>For Prestressed Concrete Cylinder Pipe</u></p> <ol style="list-style-type: none"> 1. Visually inspect the condition of interior wall of the pipe and note areas of softness and depth of soft material. 2. The coupon/sample thickness dimensions should include the thickness of each layer of the composite pipe including the interior mortar layer, the steel cylinder thickness, the mortar layer between the steel cylinder and the prestressing wires (for embedded PCCP only) and the exterior concrete layer. Where there is not cementitious layer between the cylinder and wire, record as a lined cylinder PCCP.
	<p><u>For All Plastic Pipe</u></p> <ol style="list-style-type: none"> 1. Where plastic pipelines (HDPE, PVC or GRP) are being repaired or abandoned, only coupons or sample wall sections will be needed as indicated above. No additional internal inspection tests will be required.
	<p style="text-align: center;">DATA MANAGEMENT</p> <p>All coupons with tags attached, all photographs, videos and recorded visual observations shall be provided to HRSD or to the FIRM.</p>

End of Section