West Orange County Water Board

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To: Honorable Chair and Board Members:
From: John Poehler, General Manager
By: Mark Lewis and Jamie Fagnant, Ardurra Group

SUBJECT: OC 9 & OC 35 Pipeline Condition Assessments

During 2025, the two subject pipelines were evaluated for condition utilizing a screening condition assessment tool called p-CAT by Hydromax. Both pipelines have been in place for several decades without experiencing any leaks or other deficiencies on the mainline. While p-CAT is a screening tool and not a precise pin point accuracy tool of every foot of the pipe, it provides valuable data to consider for planning purposes for future capital improvements.

On December 27, 2025, Ardurra submitted the condition assessment report summarizing the p-CAT inspections performed on the OC-9 and OC-35 pipelines (attached herein). This report includes not only the data and output analysis but also recommendations for near-term and long-term capital improvement project planning.

In the near term, Ardurra recommends five locations be scheduled for destructive testing. This will entail replacing, with new AWWA C200 concrete mortar lined and coated steel pipeline, between 65 to 200 linear feet of pipeline per location (see Figure 1) as outlined below:

Sections recommended for repair/testing on OC-9:

- Approximately 65 LF of 28” Dia steel pipe Along Dale Street
- Approximately 170 LF of 26” Dia steel pipe Along Newland Street

Sections recommended for repair/testing on OC-35:

- Approximately 120 LF of 36” steel pipe Along Katella Avenue
- Approximately 170 LF of 36” steel pipe Along Katella Avenue
- Approximately 200 LF of 36” steel pipe Along Knott Avenue

Total combined linear footage recommended for removal and replacement is approximately 725’ for both pipelines.

A portion of the pipe from each location is proposed to be analyzed to confirm the pipe condition and structural composition (steel and lining thicknesses, etc.). This will both mitigate the areas of the pipelines identified by the p-CAT condition assessment screening process as being most at risk of potential pipeline degradation and provide

valuable information that can be utilized to fine tune future assessments and recommendations. The engineer's opinion of probable construction cost for the destructive testing is $620,000. With the information obtained from this removal and replacement of sections of pipe together with the destructive testing analysis, further refinement of the data collected during the field observations can be updated. Hydromax has verbally committed to performing this updated analysis at no additional cost.

Cathodic protection, which was a strategy originally contemplated for OC-9, is not recommended for the OC-9 pipeline due to the small diameter (24"-28" and 16" in some locations near valves) which poses a risk to construction personnel entering such small diameter pipelines. Cathodic protection is a sound strategy to extend the life cycle of steel pipelines. It involves the welding across pipe joints to make the pipeline "electrically continuous". It is this continuity that slows any degradation and extends the life cycle of the pipe.
Cathodic protection may be an option for the OC-35 pipeline. However, Ardurra noted that there were two potential pipeline types, both with cement mortar lining and coating and a steel pipe "can" noted in the record drawings. One of these potential pipeline types includes a bar wrapped circumferentially around the pipeline. From the sections of pipeline recommended for removal and destructive testing, the exact material type of the pipeline that exists can be determined. If it is determined that bar wrapped pipe exists, cathodic protection would not be recommended. This is because, although, the steel pipe "can" might be protected from corrosion, the bar wrapping would not be protected.

Long-term recommendations include reinspection of the pipelines every five years and an assumed repair and/or destructive testing with a cost in the range of $620,000 every other testing period, or every ten years. In 2025 dollars, these subsequent reinspections and repairs would total $4.4M through 2050, as compared to complete replacement cost of both pipes of $80.7M.