

BART Agreement Number: 6M8123

Approval Date: 8/15/18

Work Plan No. B.08 - M&E Corrosion Engineering Services at ORY, OCY, OBY, and OKS

Scope:

The scope of service requested is to provide the following:

- **Document Review:** BART will provide for review yard trackwork configuration, geotechnical information, as-built plans and specifications for pipelines, and other pertinent information. The location of existing gas lines at each location will be confirmed based on the reference materials.
- **Site Specific Work Plan:** V&A will prepare a SSWP for each facility. An electronic copy of the draft SSWP will be submitted for review. Comments will be incorporated and a final electronic copy submitted.
- **Initial Field Testing for Natural Gas Pipes:**
 - **In-Situ Soil Resistivity Testing:** Measure soil resistivity using the Wenner four- electrode method along existing piping alignments in the yard. The resistivity testing will be conducted to a depth of 10 feet below grade.
 - **Natural Gas Piping Electrical Continuity/Current Requirement Testing:** Some of the piping is called out on the drawings as being plastic. It is unknown how much metallic piping is installed. For metallic piping, V&A will perform measurements to determine whether the gas piping is electrically continuous along the length. Stray current testing will be performed at two locations at each facility with a 24- hour recording voltmeter. V&A will also determine whether piping is electrically continuous with the buildings that it is servicing. Pipe-to-soil potential testing will be performed to determine if the piping is cathodically protected. A current requirement test will be performed which will be used for designing a cathodic protection system. Testing will also be performed at the PG&E connection to the yard piping to verify electrical isolation. If piping is electrically continuous with the building that it is servicing, the possibility of installing insulating joints will be evaluated. Installing insulating joints and electrically isolating the buried piping from buildings is out of V&A's scope and shall be done by others.
 - **Leak Detection:** For the natural gas pipelines at each yard, leak detection from the buried piping will be performed by MBS Engineering.
- **Technical Assistance and Meetings:** Up to 50 hours of technical assistance and participation in conference calls and meetings will be provided, as required.

Prime: STV

Subconsultant	Amount	DBE (Y/N)	SBE (Y/N)
V&A Engineering	\$215,114	Y	Y

Total Work Plan Value: \$250,389