DRA DATA REQUEST
DRA-SCG-033-DAO
SOCALGAS 2012 GRC – A.10-12-006
SOCALGAS RESPONSE
DATE RECEIVED: FEBRUARY 2, 2011
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Exhibit Reference: SCG-5, DIMP Driven Activities, GIS

Subject: GIS System Model Consolidation, Page 58 of the Workpapers

Please provide the following:

1. On page 58 of the workpapers, SCG shows the calculations for the total project cost of $1,650,000 for GIS System Model Consolidation. Please provide the following with regard to this project:
    a. (1) A detailed explanation of how high pressure distribution data was stored and maintained prior to DIMP regulations being in effect, (2) a detailed explanation of how high pressure distribution data is currently stored and maintained in order to be in compliance with DIMP, and (3) a comparison of the differences.
    b. For each year from 2005-2009, provide the annual labor and non-labor expenses associated with high pressure distribution data storage and maintenance prior to DIMP regulations being in effect. Please also identify the account tracking these expenses.
    c. With regard to the statement, "Ongoing maintenance of high pressure distribution data in both systems is time consuming and will likely cause reporting inconsistencies in the future," please explain how SCG determined that this will happen. Is ongoing maintenance of high pressure distribution data in both systems a specific requirement of DIMP?

SoCalGas Response:

a. (1) Historically, high pressure distribution piping data have been stored and maintained in a number of various database/application systems (legacy systems). These different systems were created, over time, in response to existing and ongoing business needs. Each one was developed and maintained by the department that created them. For example, two of the more prominent legacy systems are atlas sheet maps and the NASA modeling system. Both of these systems included locations for pipeline assets as well as duplicate information on pipe size and material and length. Each system was developed to meet different needs. The atlas sheet is used to primarily depict pipe locations relative to street and property line locations and aid with routine O&M activities. The NASA model was developed support system pressure and consumption modeling.

a. (2) One of the primary tenets of the DIMP rule is to "Know your system". In support of that requirement, SoCalGas embarked on a program to consolidate the various distribution legacy systems into a comprehensive enterprise GIS system. Currently, during these consolidation and conversion processes, data must be maintained in the legacy systems as well as the evolving GIS system until all of the necessary processes (conversion, implementation, QC, training, etc) are complete and the legacy systems can be retired. At that time, all of the distribution piping, both medium pressure systems and high pressure systems can be managed within the distribution enterprise GIS application.

Response to Question 1 (continued)

The complexity of this issue arises because there are a number of SoCalGas' distribution lines that, due to their operating characteristics, fall under the requirements of the TIMP rules and must be managed accordingly. These pipelines are physically managed, operated and maintained by the Distribution Operations organization, are an integrated part of the distribution piping system, as well as integrated into the analysis tools used for developing piping system modifications and improvements. In other words, for all of the master planning and other O&M-type management activities, the data for these pipelines must reside in the distribution enterprise GIS system. However, to be appropriately managed within the TIMP rules some of the data, the distribution high pressure data, must also reside in the TIMP database/GIS system. The TIMP database and associated GIS were developed to specifically manage the Utilities DOT transmission piping systems under the TIMP rules.

By nature, distribution piping systems are typically constructed as a network (or many connected networks) of smaller diameter pipe, traversing up and down neighborhood streets, with many interties at intersections, hence the term network. Transmission piping systems, on the other hand, are typically installed as long, large diameter pipelines, traveling tens or hundreds of miles to move gas from a source to large users or to feed distribution systems.

Historically, modeling these two different piping configurations in GIS systems have been developed and commercially available in distinctly different manners. Linear modeling is used to manage the long-line, large diameter transmission systems. This model is based on appurtenances and pipe characteristics/properties and their changes along the pipeline (e.g. diameter, grade, coating type, valves, tees, etc.). These features are identified by the stationing or milepost locations along the pipeline. Stationing would typically start at the beginning of a pipeline at zero-feet and continue on, foot by foot to the end of the pipeline.

The second common model is a "network" model. This model is used primarily in distribution systems where smaller diameter piping is installed up and down neighborhood streets and connected to itself in numerous locations (intersections). Features and appurtenances in a network model are not referenced by stationing but rather by location, compared to its spatial position relative to the overlaid landbase (property lines, street locations, etc).

The circumstance of two disparate models is what leads to the need of having the high pressure distribution data residing in the two separate and distinct GIS systems, requiring duplicate data entry and maintenance.

This DIMP-Driven request of $1,650,000 for GIS Model Consolidation is to address this issue of disparate models and develop a solution that allows for their integration into a single GIS solution. This will provide for more robust and comprehensive data analysis as well as reduce the risk of data errors by eliminating duplicative data entry.

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Response to Question 1 (continued)

a. (3) The differences referenced from Questions 1a(1) and 1a(2) are that the many legacy systems that are currently managed in various electronic and paper formats will be consolidated into a single enterprise GIS system for the distribution system. This will afford efficiency gains for analyzing and maintaining the distribution piping data. However, as noted previously, once this conversion process and GIS development is complete, SoCalGas will be maintaining the high pressure distribution pipeline data in two separate systems. This request, GIS Model Consolidation, is for funds aimed at solving this dilemma and creating a single integrated system GIS model for use across all of SoCalGas' piping systems. This will further enable comprehensive system management to the TIMP and DIMP rules from a single data base system.

b. Due to the nature of the historical storage and maintenance of the distribution data in various applications and paper products, there is no separate accounting to specifically track the number of personnel or amount of time spent to maintain this set of data.

c. This statement is based on experience and the common understanding that mistakes (keystroke errors for example) can be made during data entry processes. Limiting the number of times the same data is entered into different databases will limit the number of potential errors.
Duplicate maintenance of the distribution data is not an explicit requirement of DIMP. However, the spirit of the DIMP is contrary to duplicative entry because of the possibility of data errors. This is the primary reason why SoCalGas is requesting the funding for this project, to eliminate the need for storing and maintaining the data in two separate data bases.

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2. A detailed showing, including all calculations and documents used, to determine that SCG will need 6 FTEs as Project Managers for the GIS System Model Consolidation. Also, provide a copy of the job descriptions for the 6 FTEs.

SoCalGas Response:

Based on SoCalGas' experience with both the Transmission GIS and the ongoing Distribution GIS solutions, including involvement with software vendors, consultants, and contractors the attached provides details on the project scope, background, assumptions and estimation methodology for the GIS model consolidation project.

Gas Consolidation Project Plan v2.xls

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3. A detailed showing, including all calculations and documents used, to determine that the GIS System Model Consolidation will be a four year process and that it will begin in 2012.

SoCalGas Response:

The GIS model consolidation project will entail harmonizing the Gas Distribution and Gas Transmission data models as well as the existing applications and various reports currently generated from each. This effort has been estimated to require four years to complete. The major activities and year of occurrence are shown below:

Year 1 - Project requirements analysis and further development as needed, contracting – Initiating the necessary contracted activities, develop prototype of new model;
Year 2 - Data Conversion process development, Develop new processes for data entry, storage and management in new environment, Initiate software builds;
Year 3 - Data conversion production phase, software testing, training development;
Year 4 - New model and process deployment and Training. This is based on the assumption that system development will occur primarily in the current DIMP system.

This estimate is based on SoCalGas' experience with both the Transmission GIS and the ongoing Distribution enterprise GIS solutions, including involvement with software vendors, consultants, and contractors. The attachment included in Question 2 shows the assumptions used during the development of the project and provides details on the project scope, background, assumptions and estimation methodology for the GIS model consolidation project.

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4. A detailed explanation, including a copy of all supportive documents and/or calculations used, to determine that SCG will need 1 external contractor for project management. Also include a copy of the job description for this position. Please compare and explain how this position will be different or complementary to the 6 FTEs who are also project managers in question 2 above.

SoCalGas Response:

Since there is no commercially available solution for the integration of linear (transmission) and network (distribution) modeling, SoCalGas has determined that the upfront involvement of an industry expert with experience with both gas transmission and gas distribution GIS systems development is crucial for the success of the endeavor. SoCalGas does not currently have the necessary experience in-house.

The difference between the external contractor and the project manager positions are that the contractor will help drive the conceptual development of the solution through to a working prototype. The project managers are more specialized in particular aspects of the process as outlined in the task descriptions identified on the attachment to Question 2. The project managers work with the external contractor to advance project concepts, leading to the working prototype and final production model.

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5. A detailed explanation, including a copy of all supportive documents and/or calculations used, to determine that SCG will need 3 FTE, and that they will be from Miner & Miner Consultant at a cost of $200,000 each.

SoCalGas Response:

During the recent and ongoing development of the distribution enterprise GIS model, SoCalGas has had the opportunity to work with a number of contractors and consultants. Based on the contributions that Miner and Miner have made to the current successful GIS project, it was felt that they could also be relied on to provide the same professional efforts to the model consolidation project.

The number of required FTEs is based on SoCalGas' assessment of the amount of work that will be required and the four year timeframe anticipated for the project. This estimate is based on SoCalGas' experience and actual invoiced costs with both the Transmission GIS and the ongoing Distribution enterprise GIS solutions, including involvement with software vendors, consultants, and contractors. The attachment included in Question 2 shows the assumptions used during the development of the project and provides details on the project scope, background, assumptions and estimation methodology for the GIS model consolidation project.

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6. A detailed explanation, including a copy of all supportive documents and/or calculations used, to determine that SCG will need $225,000 for "Avineon/Infotech, Consultant" for this project.

SoCalGas Response:

During the recent and ongoing development of the distribution enterprise GIS model, SoCalGas has had the opportunity to work with a number of contractors and consultants. Based on the contributions that Avineon/Infotech has made to the current successful GIS project, it was felt that they could also be relied on to provide the same professional efforts to the model consolidation project.

This estimate is based on SoCalGas' experience and actual invoiced costs with both the Transmission GIS and the ongoing Distribution enterprise GIS solutions, including involvement with software vendors, consultants, and contractors. The attachment included in Question 2 shows the assumptions used during the development of the project and provides details on the project scope, background, assumptions and estimation methodology for the GIS model consolidation project.