

**SAN DIEGO GAS & ELECTRIC COMPANY
SOUTHERN CALIFORNIA GAS COMPANY
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)
(A.15-09-013)
(DATA REQUEST ED-04)
Date Requested: June 22, 2016
Date Responded: June 28, 2016**

QUESTION 1:

The response from ED DR (6-2-2016) question 1 states that San Diego County is completely reliant on the Moreno Compressor Station. Is there an existing compressor station at Rainbow? Was it taken out of service and when? Can it be brought back into service or upgraded to provide additional capacity to San Diego County? How long would it take and how much would it cost?

RESPONSE 1:

There is an existing compressor station at Rainbow, but it has not been used for operational purposes since 2007 and would need substantial upgrades to be made ready for continuous service.

The Rainbow Compressor Station's need has been diminished after Line 1600 was derated to 640 psig. The Rainbow Compressor station does not and has not ever substituted for the Moreno Compressor Station. The Rainbow station's only value was to provide a relatively small level of throughput to replenish SDG&E line-pack during high send-out conditions when Line 1600 operated at 800 psig. In order to substitute for Moreno, a new compressor station would have to be built at Rainbow Meter Station, compressing into Line 3010 with a higher level of installed compression than currently exists at Moreno Compressor Station to account for pressure losses from Moreno to Rainbow on the SoCalGas system.

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QUESTION 2:

Response to question 2 from ED DR (6-2-2016) provides information for a MAOP of 320 psig. Please provide a table showing capacity impact at graduated pressure of 40 psig increments. See example table below:

MAOP (psig)	Capacity (MMcfd)
640	100
600	
560	
520	
.....etc	
320	60

RESPONSE 2:

The requested data is provided below. Note the table included in Question 2 erroneously shows “100 MMcfd” as the “capacity” of Line 1600. Line 1600’s nominal contribution to system capacity is 100 MMcfd at 640 psig, and 60 MMcfd at 340 psig is the loss to the system capacity at that pressure; it is not the capacity of Line 1600 at 340 psig. Operating Line 1600 at 640 psig reflects current operating conditions and therefore has no impact to SDG&E system capacity. Further, lowering the operating pressure of Line 1600 results in a capacity **loss**, which is represented by negative numbers below. Finally, to clarify, Line 1600 cannot operate above 320 psig without a pressure test as the requirements of PUC Section 958 and D.11-06-017 still apply at pressures above 320 psig. Either the line will be pressure tested to the current 640 psig or de-rated (as proposed in this Application) to 320 psig to remove it from transmission service.

It should be noted that SoCalGas and SDG&E have previously informed the Energy Division that Line 1600 is safe to operate at 640 psig but are recommending its transmission function be replaced with a new pipe and the existing line be repurposed to distribution as the best overall solution to comply with the requirements of PUC Code Section 958 and D.11-06-017, as well as meet the long term goal of the Commission and utilities to reduce system risk. Assessment data from both ILI technologies demonstrate that for the remaining anomalies in Line 1600, adequate safety margins exist and the line is safe for operation at its current maximum allowable operating pressure (MAOP) of 640 psig, which equates to a stress level of 39% of the specified minimum yield strength (SMYS) of the original 1949 vintage 16-inch diameter pipe. The current MAOP at 640 psig reflects that fact that in 2011, the Utilities proactively reduced the pressure on Line 1600 to 80% of the historic MAOP of 800 psig (a 10% SMYS drop from the historic

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operating stress of 49% SMYS at 800 psig) in order to increase the margin of safety on the line. The pressure reduction and resulting increased margin of safety serve as the basis for the confidence in the current integrity of the pipeline. SoCalGas and SDG&E have addressed this issue in more detail in the Line 1600 Fit for Service Report created in response to SED DR 3.

L1600 MAOP (psig)	Impact to SDG&E System Capacity (MMcfd)
640	0 (base)
600	-10
560	-20
520	-30
480	-40
440	-45
400	-50
360	-55
320	-60

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QUESTION 3:

Without considering the need to engineer hydro-testing on Line 1600, how long would it take to ensure reliability if Line 1600 were immediately de-rated to 320 psig and the steps required.

RESPONSE 3:

If Line 1600 were de-rated to 320 psig immediately, reliability would be impaired until a new transmission pipeline is installed. The steps required and timeframe for completing this work are anticipated to be similar to that associated with the pipeline proposed in this Application. To ensure reliability, the new pipeline would not only need to replace Line 1600's transmission function, but also address the reliability concerns with the existing system. The new pipeline would be properly sized, such as the Proposed Project, to provide the desired levels of reliability and capacity needed to serve customers today and into the future by providing redundancy in case of a Line 3010 outage and flexibility to meet intra-day demands. Such a pipeline would also reduce operational costs at the Moreno compressor station and provide environmental benefits there as well.

An initial cursory review also reveals other issues that must be considered before Line 1600 could be immediately de-rated to 320 psig:

- It should be noted that Line 1600 currently serves as an integral part of SDG&E's transmission system. In that role, it not only provides capacity to move gas into SDG&E's service territory, but is also directly connected to SDG&E's high pressure distribution feeder system which generally operates at 400 psig along the Line 1600 corridor. These interconnections are designed to flow gas with Line 1600 as the high pressure source feeding the 400 psig system. Before Line 1600 could be de-rated, system modifications would need to be constructed to prevent flow reversal from the 400 psig system back into the de-rated (320 psig) Line 1600 resulting in over-pressurization.
- Line 1600 is also directly connected to Line 1601 which operates at transmission level pressures. A new pressure limiting station would need to be constructed to prevent transmission level pressure gas from free flowing back into the de-rated Line 1600 from Line 1601 resulting in over-pressurization of Line 1600.
- Additionally, de-rating Line 1600 to 320 psig would cause capacity impacts to the 400 psig distribution loop system in the Mira Mesa area, triggering the need to re-construct a larger feed from L3010 to make up for the loss of the high pressure feed from Line 1600.

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- Other impacts may also exist, but due to the cursory nature of this review, they may not be evident at this time.
 - At least two high pressure customers served directly off of Line 1600 would be adversely affected (see Data Request ED 2, Question 4)