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**SUPPLEMENTAL DIRECT TESTIMONY OF
DEANNA HAINES**

I. PURPOSE

The purpose of my supplemental direct testimony on behalf of Southern California Gas Company (SoCalGas) and San Diego Gas & Electric Company (SDG&E) is to respond to the request in the Assigned Commissioner’s Scoping Memo and Ruling (Scoping Memo) dated May 5, 2014 for additional testimony to address safety in support of the North-South Pipeline Project (Project) as proposed in Application (A.)13-12-013.¹ In particular the Scoping Memo requests that SoCalGas and SDG&E address the following safety-related and records-related questions:

- Will the North-South Pipeline meet or exceed all applicable state and federal safety regulations, rules and requirements?²
- Will the North-South Pipeline management procedures and processes for the construction project provide public and worker safety during all phases of the project including, but not limited to, trenching, construction/fabrication, testing, and initial operation?
- Will there be adequate management procedures and processes for fully documenting, and retaining records and documents related to all aspects of the project including, but not limited to, initial design, materials procurement, employee and contractor operator qualifications, construction, testing, and initial operation?³

¹ As described by the Testimony of David Buczkowski, the North-South Pipeline Project consists of three major components; the Adelanto-Moreno Pipeline, the Adelanto Compressor Station, and the Moreno-Whitewater Pipeline.

² The Scoping Memo provided the following examples in a footnote: “For example: are there automated valves designed and installed to isolate damaged segments within the same time parameters included in SoCalGas and SDG&E’s Pipeline Safety Enhancement Plan, if crossing any earthquake faults; and, are there additional design measures (i.e., increased depth, monitoring equipment, greater wall thickness, etc.) if any, which would exceed the minimum requirements of General Order 112-E and 49CFR Part 192 (adopted by reference in GO 112-E).” Scoping Memo at 13 (fn. 6).

³ Scoping Memo, pages 13-14.

1 In the discussions below, I address how SoCalGas and SDG&E are committed to meeting
2 and exceeding safety requirements, protecting the safety of workers and the public, and assuring
3 that adequate records are maintained and retained with respect to the Project.

4 **II. THE NORTH-SOUTH PIPELINE PROJECT WILL MEET OR EXCEED ALL**
5 **APPLICABLE STATE AND FEDERAL SAFETY REGULATIONS**

6 The first Scoping Memo question asks:

7 *Will the North-South Pipeline meet or exceed all applicable state*
8 *and federal safety regulations, rules and requirements?*

9 The answer to the question is “yes.” SoCalGas/SDG&E will, at a minimum, meet the
10 applicable federal and state safety regulations, rules, and requirements and will, in many cases,
11 exceed these requirements. Table 1 below provides a summary of where the proposed North-South
12 Project will meet or exceed the primary applicable state and federal safety regulations, rules, and
13 requirements, including: the governing state pipeline safety code General Order (GO) 112E, “Rules
14 Governing Design, Construction, Testing, Maintenance and Operation of Utility Gas Gathering,
15 Transmission and Distribution Piping Systems” from the California Public Utilities Commission
16 (CPUC) and Federal Pipeline Safety Code 49 Code of Federal Regulations (CFR) Part 191
17 “Transportation of Natural and other Gas by Pipeline; Annual Reports, Incident Reports, and
18 Safety-Related Condition Reports,” and Part 192, “Transportation of Natural and other Gas by
19 Pipeline: Minimum Federal Safety Standards.” 40 CFR Part 68 – Chemical Accident Prevention
20 Provisions, California Code of Regulations. Title 19, Division 2, Chapter 4.5 – California
21 Accidental Release Prevention (CalARP) and the Occupational Safety and Health Act (OSHA).

1 Table 1 also includes a brief explanation of where SoCalGas and SDG&E plan to exceed the code
 2 requirements.⁴

TABLE 1					
North-South Project					
Where SoCalGas/SDG&E Plan to Meet or Exceed Primary Applicable State and Federal Regulations					
Code	Section	Title	Requirement	Meet or Exceed	If exceeding, how?
CPUC General Order (GO) 112-E					
Subpart B – REPORTS	122	Gas Incident Reports		Meet	
Subpart B – REPORTS	123	Annual Reports		Meet	
Subpart B – REPORTS	124	Reporting Safety – Related Conditions		Meet	
Subpart B – REPORTS	125	Proposed Installation Report		Meet	
49 Code of Federal Regulations (CFR) Part 191					
Reports	§191.5	Immediate notice of certain incidents		Meet	
Reports	§191.7	Report submission requirements		Meet	
Reports	§191.15	Transmission systems; gathering systems; and liquefied natural gas facilities: Incident report.		Meet	
Reports	§191.17	Transmission systems; gathering systems; and liquefied natural gas facilities: Annual report		Meet	
Reports	§191.23	Reporting safety-related conditions		Meet	
Reports	§191.25	Filing safety-related condition reports		Meet	
49 Code of Federal Regulations (CFR) Part 192					
Subpart A— GENERAL	192	General		Meet	
Subpart B— MATERIALS	§192.53	General		Meet	

⁴ When the word “code” is used in Table 1, it means 49 CFR Part 192, which governs nearly all aspects of the design, inspection, and testing of a pipeline and its appurtenances.

TABLE 1
North-South Project
Where SoCalGas/SDG&E Plan to Meet or Exceed Primary Applicable State and Federal Regulations

Code	Section	Title	Requirement	Meet or Exceed	If exceeding, how?
Subpart B— MATERIALS	§192.55	Steel pipe	Comply with American Petroleum Institute's (API) 5L "Specification for Line Pipe." Minimum impact of toughness of 30 ft-lbs. Minimum seam weld toughness is 20 ft-lbs.	Exceed	SoCalGas/SDG&E will exceed API5L by requiring greater pipe impact toughness and seam weld toughness of 80 ft-lbs and 66 ft-lbs respectively for the 36" diameter pipe and a more stringent chemical composition to comply with qualified welding procedures.
Subpart B— MATERIALS	§192.65	Transportation of pipe	Comply with API5L recommended practice RP5L1 and RP5LW	Exceed	SoCalGas/SDG&E also require compliance with API recommended practice RP5LT, for Truck Transportation of Line Pipe
Subpart C—PIPE DESIGN	§192.103	General		Meet	
Subpart C—PIPE DESIGN	§192.105	Design formula for steel pipe		Meet	
Subpart C—PIPE DESIGN	§192.109	Nominal wall thickness (t) for steel pipe		Meet	
Subpart C—PIPE DESIGN	§192.111	Design factor (F) for steel pipe	Classes 1, 2 and 3 locations require 0.72, 0.6, and 0.5 Design Factors, respectively.	Exceed	A 0.5 Design Factor, which is only required in Class 3 locations, will be used for all locations, resulting in significantly higher safety factors than required in Class 1 and 2 locations.
Subpart C – PIPE DESIGN	§192.115	Temperature Derating Factor (T) for Design of Steel Pipe		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.143	General requirements		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.144	Qualifying metallic components		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.145	Valves		Meet	

TABLE 1
North-South Project
Where SoCalGas/SDG&E Plan to Meet or Exceed Primary Applicable State and Federal Regulations

Code	Section	Title	Requirement	Meet or Exceed	If exceeding, how?
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.147	Flanges and flange accessories		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.150	Passage of internal inspection devices		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.153	Components fabricated by welding		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.155	Welded branch connections		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.159	Flexibility		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.161	Supports and anchors		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.163	Compressor stations: Design and construction		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.165	Compressor stations: Liquid removal		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.167	Compressor stations: Emergency shutdown		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.169	Compressor stations: Pressure limiting devices		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.171	Compressor stations: Additional safety equipment		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.173	Compressor stations: Ventilation		Meet	

TABLE 1

North-South Project

Where SoCalGas/SDG&E Plan to Meet or Exceed Primary Applicable State and Federal Regulations

Code	Section	Title	Requirement	Meet or Exceed	If exceeding, how?
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.179	Transmission line valves	The required spacing between Main Line Valves is 20 miles in Class 1, 15 miles for Class 2, and 8 miles for Class 3 locations. Each section of a transmission line must have a blow down valve with enough capacity to blow down a line as rapidly as practicable.	Exceed	The pipeline is planned to have 5-mile Main Line Valve spacing which is shorter valve spacing than is required by code for all locations.
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.183	Vaults: Structural design requirements		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.185	Vaults: Accessibility		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.187	Vaults: Sealing, venting, and ventilation		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.189	Vaults: Drainage and waterproofing		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.195	Protection against accidental over pressuring	Each pipeline that is connected to a gas source so that the maximum allowable operating pressure could be exceeded as the result of pressure control failure or of some other type of failure, must have pressure relieving or pressure limiting devices that meet the requirements of §§192.199 and 192.201	Exceed	Installation of pressure transponders and other monitoring capabilities will help protect against pipeline over pressurization.

TABLE 1
North-South Project
Where SoCalGas/SDG&E Plan to Meet or Exceed Primary Applicable State and Federal Regulations

Code	Section	Title	Requirement	Meet or Exceed	If exceeding, how?
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.199	Requirements for design of pressure relief and limiting devices		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.201	Required capacity of pressure relieving and limiting stations		Meet	
Subpart D— DESIGN OF PIPELINE COMPONENTS	§192.203	Instrument, control, and sampling pipe and components		Meet	
Subpart E— WELDING OF STEEL IN PIPELINES	§192.225	Welding procedures		Meet	
Subpart E— WELDING OF STEEL IN PIPELINES	§192.227	Qualification of welders	American Petroleum Institute (API) 1104, "Welding of Pipelines and Related Facilities"	Exceed	SoCalGas/SDG&E require welders to perform an additional overhead weld for qualification that is not required by API 1104.
Subpart E— WELDING OF STEEL IN PIPELINES	§192.229	Limitations on welders		Meet	
Subpart E— WELDING OF STEEL IN PIPELINES	§192.231	Protection from weather		Meet	
Subpart E— WELDING OF STEEL IN PIPELINES	§192.235	Preparation for welding	American Petroleum Institute (API) 1104, "Welding of Pipelines and Related Facilities" allows misalignment of 1/8"	Exceed	SoCalGas/SDG&E require more precise alignment by limiting misalignment to 3/32".
Subpart E— WELDING OF STEEL IN PIPELINES	§192.241	Inspection and test of welds		Meet	.

TABLE 1
North-South Project
Where SoCalGas/SDG&E Plan to Meet or Exceed Primary Applicable State and Federal Regulations

Code	Section	Title	Requirement	Meet or Exceed	If exceeding, how?
Subpart E— WELDING OF STEEL IN PIPELINES	§192.243	Nondestructive testing	Code requires 10% and 15% of welds in Class 1 and 2 locations respectively, that are not in highway or railroad right-of-ways to be non-destructively tested.	Exceed	100% of welds in Class 1 and 2 locations not in highway or railroad right-of-ways will be non-destructively tested.
Subpart E— WELDING OF STEEL IN PIPELINES	§192.245	Repair or removal of defects	American Petroleum Institute (API) 1104, “Welding of Pipelines and Related Facilities” allows repair of rejected first time repair.	Exceed	SoCalGas/SDG&E do not allow subsequent repair of a rejected first-time repair.
Subpart G— GENERAL CONSTRUCTION REQUIREMENTS FOR TRANSMISSION LINES AND MAINS	§192.305	Inspection: General		Meet	
Subpart G— GENERAL CONSTRUCTION REQUIREMENTS FOR TRANSMISSION LINES AND MAINS	§192.307	Inspection of materials		Meet	
Subpart G— GENERAL CONSTRUCTION REQUIREMENTS FOR TRANSMISSION LINES AND MAINS	§192.309	Repair of steel pipe		Meet	
Subpart G— GENERAL CONSTRUCTION REQUIREMENTS FOR TRANSMISSION LINES AND MAINS	§192.313	Bends and elbows		Meet	

TABLE 1
North-South Project
Where SoCalGas/SDG&E Plan to Meet or Exceed Primary Applicable State and Federal Regulations

Code	Section	Title	Requirement	Meet or Exceed	If exceeding, how?
Subpart G— GENERAL CONSTRUCTION REQUIREMENTS FOR TRANSMISSION LINES AND MAINS	§192.317	Protection from hazards		Meet	
Subpart G— GENERAL CONSTRUCTION REQUIREMENTS FOR TRANSMISSION LINES AND MAINS	§192.319	Installation of pipe in a ditch		Meet	
Subpart G— GENERAL CONSTRUCTION REQUIREMENTS FOR TRANSMISSION LINES AND MAINS	§192.323	Casing	Code does not require coating or cathodic protection of casing pipe.	Exceed	All casing pipe will be coated and cathodically protected regardless of outside agency requirements.
Subpart G— GENERAL CONSTRUCTION REQUIREMENTS FOR TRANSMISSION LINES AND MAINS	§192.325	Underground clearance		Meet	
Subpart G— GENERAL CONSTRUCTION REQUIREMENTS FOR TRANSMISSION LINES AND MAINS	§192.327	Cover	Class 1 locations require 30" of soil cover above the pipe. Class 2 and 3 locations require 36" cover.	Exceed	Soil cover will be specified as 42" minimum unless constraints prevent the extra cover.
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.453	General		Meet	
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.455	External corrosion control: Buried or submerged pipelines installed after July 31, 1971		Meet	

TABLE 1
North-South Project
Where SoCalGas/SDG&E Plan to Meet or Exceed Primary Applicable State and Federal Regulations

Code	Section	Title	Requirement	Meet or Exceed	If exceeding, how?
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.459	External corrosion control: Examination of buried pipeline when exposed		Meet	
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.461	External corrosion control: Protective coating		Meet	
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.463	External corrosion control: Cathodic protection		Meet	
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.465	External corrosion control: monitoring		Meet	
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.467	External corrosion control: Electrical isolation		Meet	
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.469	External corrosion control: Test stations		Meet	
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.471	External corrosion control: Test leads		Meet	
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.473	External corrosion control: Interference currents		Meet	
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.475	Internal corrosion control: General requirements		Meet	
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.476	Internal corrosion control: Design and construction of transmission line.		Meet	
Subpart I— REQUIREMENTS FOR CORROSION CONTROL	§192.479	Atmospheric corrosion control: General requirements		Meet	
Subpart J—TEST REQUIREMENTS	§192.503	General requirements		Meet	

TABLE 1
North-South Project
Where SoCalGas/SDG&E Plan to Meet or Exceed Primary Applicable State and Federal Regulations

Code	Section	Title	Requirement	Meet or Exceed	If exceeding, how?
Subpart J—TEST REQUIREMENTS	§192.505	Strength test requirements for steel pipeline to operate at a hoop stress of 30 percent or more of SMYS	Tests in Class 1 require a test to a pressure of 1.1 x Maximum Allowable Operating Pressure (MAOP); For Class 2 - 1.25 x MAOP; and Class 3 - 1.5 x MAOP.	Exceed	Where possible the pipeline will be tested to 90% of its Yield Pressure (YP) including at least a 5% pressure spike. This will result in a test that is almost 2 x MAOP, which exceeds the testing requirement for all locations.
Subpart J—TEST REQUIREMENTS	§192.515	Environmental protection and safety requirements		Meet	
Subpart J – TEST REQUIREMENTS	192.517	Test Documentation		Meet	
Subpart L – OPERATIONS	192.605	Procedural Manual for operations, maintenance, and emergencies		Meet	
Subpart L— OPERATIONS	§192.613	Continuing surveillance		Meet	
Subpart L— OPERATIONS	§192.614	Damage prevention program	Each operator of a buried pipeline must carry out, in accordance with this section, a written program to prevent damage to that pipeline from excavation activities.	Exceed	Additional pipeline cover is being provided to aid in damage prevention. See 192.327 for "cover" details and 192.705 additional monitoring.
Subpart L— OPERATIONS	§192.615	Emergency plans		Meet	
Subpart L— OPERATIONS	§192.616	Public awareness		Meet	
Subpart L— OPERATIONS	§192.619	Maximum allowable operating pressure (MAOP): Steel pipeline	The MAOP is the lowest of the following: 1. Design Pressure of the weakest component; 2. Pressure obtained by dividing the test pressure divided by a factor based on Class Location.	Exceed	The pipeline will be operating at a much lower pressure than the code allows in Class 1 and 2 locations due to designing the entire pipeline for a Class 3 location and testing to a much higher pressure than required as stated in sections 192.505 and 192.619.

TABLE 1
North-South Project
Where SoCalGas/SDG&E Plan to Meet or Exceed Primary Applicable State and Federal Regulations

Code	Section	Title	Requirement	Meet or Exceed	If exceeding, how?
Subpart L— OPERATIONS	§192.625	Odorization of gas	Odorizing is required for Class 3 and 4 locations.	Exceed	SoCalGas/SDG&E transmission pipelines are odorized regardless of location. This is a major safety enhancement as it will assist in detecting a leak.
Subpart L— OPERATIONS	§192.629	Purging of pipelines		Meet	
Subpart M— MAINTENANCE	192.705	Transmission lines: Patrolling	The requirement for the frequency of patrolling varies from 2 - 4 times per year depending on the location.	Exceed	Fiber-optic right-of-way continuous intrusion monitoring is planned to be installed on this pipeline to provide early threat warning, in alignment with our Pipeline Safety Enhancement Plan (PSEP).
Subpart M— MAINTENANCE	§192.706	Transmission lines: Leakage surveys	Leakage surveys must be conducted at intervals of 7.5 - 15 months depending on Class Location.	Exceed	Real-time methane detection will be installed on select segments of the pipeline identified by risk analysis in alignment with our PSEP for right-of-way (ROW) leak monitoring, exceeding any regulatory requirements.
Subpart M – MAINTENANCE	192.707	Line Markers		Meet	
Subpart M – MAINTENANCE	192.731	Compressor stations: Inspection and testing of relief devices		Meet	
Subpart M – MAINTENANCE	192.735	Compressor Station Storage of combustible materials		Meet	
Subpart M – MAINTENANCE	192.736	Compressor Station: Gas Detection		Meet	
Subpart M – MAINTENANCE	192.743	Pressure Limiting and regulating stations; Capacity of relief devices		Meet	

TABLE 1
North-South Project
Where SoCalGas/SDG&E Plan to Meet or Exceed Primary Applicable State and Federal Regulations

Code	Section	Title	Requirement	Meet or Exceed	If exceeding, how?
Subpart M – MAINTENANCE	192.751	Compressor stations: Prevention of accidental ignition		Meet	
Subpart N— QUALIFICATION OF PIPELINE PERSONNEL	§192.801	Scope		Meet	
Subpart N— QUALIFICATION OF PIPELINE PERSONNEL	§192.803	Definitions		Meet	
Subpart N— QUALIFICATION OF PIPELINE PERSONNEL	§192.805	Qualification program		Meet	
Subpart N— QUALIFICATION OF PIPELINE PERSONNEL	§192.807	Recordkeeping		Meet	
Subpart N— QUALIFICATION OF PIPELINE PERSONNEL	§192.809	General		Meet	
Subpart O—GAS TRANSMISSION PIPELINE INTEGRITY MANAGEMENT	§192.939	What are the required reassessment intervals	Operators are required to only perform a lesser confirmatory reassessment every 7 years if a longer reassessment period has been obtained.	Exceed	SoCalGas/SDG&E will be performing full integrity reassessments of the pipeline with internal inspection devices called smart pigs at a maximum interval of 7 years.

1 In addition to the summary provided in Table 1, SoCalGas and SDG&E provide the
2 following supplemental explanation regarding the applicable code requirements the Project will
3 meet or exceed.

4 **A. Subpart B - MATERIALS §192.55 “Steel Pipe”**

5 SoCalGas/SDG&E utilize greater pipe base metal and weld toughness than API5L. API5L
6 requires the steel pipe to have a minimum impact toughness of 30 ft-lbs whereas SoCalGas/SDG&E
7 utilize over 80 ft-lbs. Minimum weld toughness by API5L is 20 ft-lbs but SoCalGas/SDG&E

1 utilize a minimum of 66 ft-lbs. SoCalGas/SDG&E also utilize a more stringent chemical
2 composition to comply with qualified welding procedures. By exceeding the API5L requirements,
3 the Project is designed to provide greater resistance to propagating cracks and increased the pipe's
4 resistance to third party damage.

5 **B. Subpart C - PIPE DESIGN §192.111 “Design factor (F) for Steel pipe”**

6 The design factor of a pipe segment establishes the safety margin against pipe yielding from
7 its internal pressure.⁵ For example, a pipeline in a Class 3 location is required to have a design
8 factor of 0.5 or lower. This limits a maximum pressure in a pipe segment to half of its yield
9 pressure, which is equivalent to having a safety factor of 2, based on yield. Table 2 illustrates the
10 following code requirements for design factors based on the location of a pipe segment.

TABLE 2		
Class Location	Description of Class Location	Design Factor
1	10 or fewer buildings intended for human occupancy	0.72
2	More than 10 but fewer than 46 buildings intended for human occupancy.	0.60
3	46 or more buildings intended for human occupancy, or an area where the pipeline lies within 100 yards of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period.	0.50
4	Where buildings with four or more stories above ground are prevalent	0.40

11 This Project will have Class 1, 2 and 3 locations, but will not have any Class 4 locations.
12 However, SoCalGas/SDGE will design the entire length of pipeline to Class 3 significantly
13 exceeding code requirements.

⁵ For clarity, the term yielding does not mean the pipe ruptures but rather it will be permanently deformed. Pipe has additional strength beyond its yield point.

1 and depressurization of segments of a pipeline.⁶ All Main Line Valves (MLVs) installed on this
2 Project will have capabilities for remote operation by the SoCalGas/SDG&E Gas Control Center
3 and/or automatic closure, without operator intervention in the event of a significant failure. Further,
4 valves on selected taps, crossovers and bridle assemblies will be equipped with remote control
5 capabilities to support operation of the pipeline and prevention of back-flow.

6 MLVs will have actuators that reside above ground or be buried within a concrete vault.
7 The actuator will operate using gas pressure provided from the pipeline, supported by pneumatic
8 and electronic controls. The MLVs will be 36-inch, full-opening, to allow for the passage of
9 internal inspection devices. Each MLV location would have a blow down valve installed on each
10 side of the MLV to allow for depressurization of either of the adjoining pipe segments.

11 Remote Control Valves will also be installed at interconnect locations, the compressor
12 station and at the following Pressure Limiting Stations:

- 13 • Adelanto
- 14 • Moreno Valley
- 15 • Whitewater
- 16 • Shaver Summit
- 17 • Desert Center

18 Some valve actuators at the compressor station will have electric actuators, where valve
19 modulation may be necessary to control flow rates.

20 The Project is planned to have a maximum spacing between MLVs of 5 miles unless other
21 physical constraints requires spacing more than 5 miles apart. Five mile spacing exceeds code
22 requirements for all locations, which specifies a maximum valve spacing of 20, 15, and 8 miles for

⁶ A.11-11-002, Amended Testimony of Southern California Gas Company and San Diego Gas & Electric Company in Support of Proposed Natural Gas Pipeline Safety Enhancement Plan, Chapter V, Proposed Valve Enhancement Plan, dated December 2, 2011, <http://www.socalgas.com/regulatory/documents/r-11-02-019/Amended%20Testimony-12.2.11.pdf>.

1 Class 1, 2, and 3 locations, respectively. The closer valve spacing will enable a faster blow down
2 time for all pipe sections than would be achieved if the less stringent valve spacing requirements of
3 the code were followed.

4 **E. Subpart E - WELDING OF STEEL IN PIPELINES §192.241 “Inspection and**
5 **test of welds”**

6 The current code requires non-destructive testing for pipelines constructed in Class 1 and 2
7 locations that are not in highway or railroad right-of-ways on 10% and 15% of welds, respectively.
8 SoCalGas/SDG&E will exceed the requirement by non-destructive testing of 100% of the welds and
9 non-destructive examination by dye penetrant of branch connections for pipelines in these areas.

10 **F. Subpart G - GENERAL CONSTRUCTION REQUIREMENTS FOR**
11 **TRANSMISSION LINES AND MAINS §192.317 “Protection from hazards”**

12 The Project will be routed to avoid where practicable the number of major active earthquake
13 faults it will traverse. Where fault crossings are unavoidable, the Project will be designed to
14 accommodate the maximum probable displacement of the fault. A number of techniques will be
15 considered for a fault crossing design.

16 Maximizing the fault movement capacity of the Project will be done by minimizing the
17 longitudinal, lateral, and uplift resistance between the surrounding soil and the pipe. Minimal soil
18 restraint will be achieved by burying the pipeline in a shallow, oversized and/or sloped-sided trench
19 with loose or uncompact granular backfill. Friction between the pipeline and surrounding soil will
20 be further reduced by wrapping geotextile fabrics around the circumference of the pipe, while still
21 providing cathodic protection to the pipeline.

22 Pipe may be selected that exceeds the requirements in non-fault crossing areas that have the
23 following characteristics:

1 Greater wall thickness to prevent both excessive stresses and the potential for
2 buckling.

3 Greater ductility (ratio of rupture strain to elastic limit strain).

4 Higher ultimate strength to yield strength ratio.

5 The engineering design and installation will help:

6 Assure development of gross section yielding of the pipe cross-section at girth
7 welds.

8 Avoid pipe branches, angle points or pipe fittings that could anchor the pipeline
9 against axial movement.

10 Avoid alignments that would place the pipeline in compression, since pipelines in
11 tension have greater capacity to resist movement than those in compression.

12 Optimize fault-crossing angles to take into account the dip of the fault and the fault
13 plane and the expected type of movement.

14 Additionally, automated control valves will be designed and installed on either side of major
15 fault crossings to quickly isolate any damaged pipe segment should the actual displacement exceed
16 the anticipated movement.

17 **G. Subpart J - TEST REQUIREMENTS §192.505 “Strength test requirements for**
18 **steel pipeline to operate at a hoop stress of 30 percent or more of SMYS”**

19 The Project will be traversing Class 1, 2 and 3 locations. However, the entire pipeline will
20 be designed to the more rigorous requirements for populated areas defined as Class 3 locations. As
21 a result, the pipeline will have greater strength and safety margins than is required by the code in
22 these areas. Another safety factor to be incorporated into the design is at the pressure testing phase.
23 The pipe is planned to be tested to almost twice the MAOP, which provides an additional 33%
24 safety factor beyond even the more rigorous testing requirements for Class 3 locations. The

1 pressure testing will also include a short-term pressure spike to provide an additional factor of
2 safety.

3 **H. Subpart L - OPERATIONS §192.625 “Odorization of gas”**

4 The entire North-South Pipeline will be odorized even though the requirement is to only
5 odorize pipelines in Class 3 and 4 locations. Odorization of these lines will enhance the ability to
6 detect leaks.

7 **I. Subpart M - MAINTENANCE §192.705 “Transmission lines: Patrolling”**

8 In alignment with SoCalGas/SDG&E’s PSEP, the Project will be equipped throughout its
9 routing with an advanced right-of-way intrusion detection/monitoring systems to provide early
10 warning when digging, drilling, boring, cutting, compacting or where unplanned vehicle operations
11 by third parties pose a threat to pipeline integrity. The system(s) will also continuously monitor for
12 ground movement and temperature gradients associated with an unplanned release of gas from the
13 pipeline. This monitoring will employ the use of fiber optic cabling buried above and/or adjacent to
14 the pipeline during construction and system monitoring stations co-located with Supervisory
15 Control and Data Acquisition and control assets at up to four (4) mainline valve locations.

16 **J. Subpart M - MAINTENANCE §192.706 “Transmission lines: Leakage
17 surveys”**

18 To further support the early detection and management of unplanned gas releases, gas
19 detection sensors will be employed at key locations along the pipeline routing, including near
20 earthquake faults and where the pipeline is routed in proximity to facilities which pose special
21 consideration for evacuation and/or commerce impact in the event of a pipeline incident. Numerous
22 monitoring locations will be installed along the pipeline route. The systems will provide near-real
23 time alarm notification to operations personnel when gas concentration levels indicate a potential
24 gas release.

1 **K. 40 CFR Part 68 - CHEMICAL ACCIDENT PREVENTION PROVISIONS;**
2 **AND CALIFORNIA CODE OF REGULATIONS, TITLE 19, DIV 2,**
3 **CHAPTER 4.5 - CALIFORNIA ACCIDENTAL RELEASE PREVENTION**

4 SoCalGas/SDG&E will institute a risk management plan which will be prepared and
5 maintained in accordance with the Federal Risk Management Plan (RMP) and CalARP Program.
6 The Federal RMP and CalARP Programs were established to prevent accidental releases of
7 substances determined to potentially pose the greatest risk of immediate harm to the public and the
8 environment. The CalARP Program incorporates requirements by the Federal RMP Program,
9 established by Section 112(r) of the Clean Air Act and the United States Environmental Protection
10 Agency (EPA) in Part 68 of the CFR. The CalARP Program has additional requirements found in
11 the California Health and Safety Code, Chapter 6.95, Article 2, Sections 25531-25543.3 and
12 Chapter 4.5, Division 2, Title 19, California Code of Regulations (CCR). The EPA is responsible
13 for overseeing the Federal RMP program. A Certified Unified Program Agency is the local
14 administering agency responsible for overseeing the implementation of the CalARP Program.

15 In addition to safety areas discussed above, SoCalGas/SDG&E design their facilities in
16 accordance with recommended practices, codes and standards to ensure safe operations. A list of
17 other applicable design recommended practices, codes and standards is included in Table 3 below.
18 This list is not all-inclusive and additional recommended practices, codes and standards will be
19 applied to the design as the design progresses.

TABLE 3	
Document Title	Title of Code Section
API RP500	Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class 1, Division 1 and Division 2
International Society of Automation (ISA) 84.00.01 P1, P2, P3	Functional Safety: Safety Instrumented Systems for the Process Industry Sector
API 616	Gas Turbines for the Petroleum, Chemical, and Gas Industry Services
API 661	Air-Cooled Heat Exchangers for General Refinery Services
National Fire Protection Agency (NFPA) 37	Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines. This standard establishes criteria for minimizing the hazards of fire related to the installation and operation of stationary combustion engines and stationary gas turbines that are fueled by liquid or gaseous fuels and are used as prime movers for emergency generators, fire pumps, and stand-by and peak power systems.
NFPA 54	National Fuel Gas Code
NFPA 400	Hazardous Material Code

1 **III. THE NORTH-SOUTH PROJECT IS COMMITTED TO THE SAFETY OF ITS**
2 **EMPLOYEES AND THE PUBLIC**

3 The second Scoping Memo question asks:

4 *Will the North-South Pipeline management procedures and*
5 *processes for the construction project provide public and worker*
6 *safety during all phases of the project including, but not limited to,*
7 *trenching, construction/fabrication, testing, and initial operation?*

8 The answer to the question is “yes.” SoCalGas/SDG&E follow California Occupational
9 Health and Safety requirements under Title 8 of the CCR and have numerous procedures that
10 provide guidelines which company personnel and their agents are required to follow when
11 performing specific duties when installing or repairing pipeline systems, including pipeline
12 facilities. These policies meet or exceed regulatory and local government requirements, and are in
13 line with the industry standards. Such policies ensure the integrity of the pipeline and the duties are

1 performed in a way that is safe for the public, company and contractor employees. Table 4 contains
2 examples of key safety program/guidelines areas to protect the public, employees and their agents.

TABLE 4
Management Procedure/Processes/Requirement
Contracting Transmission Pipeline Construction
Contractor Safety Observation Areas
Contractor Safety Program
Employee Safety Training
General Construction Requirements - Steel Transmission System
General Construction Requirements for Distribution Mains and Service Lines
Pedestrian Path of Travel and Accessibility
Pipeline/Facilities Testing
Prevention of Damage to Subsurface Installations
Qualification of New Construction Contractors
Traffic Control Plans

3 **A. Contractors/Contractor Employees**

4 Contractors working for SoCalGas/SDG&E are required to comply with all federal, state
5 and local laws, ordinances and regulations and ensure the safety compliance of their employees, as
6 well as ensuring their operations do not impact the safety of SoCalGas/SDG&E employees and the
7 public. SoCalGas/SDGE work collaboratively to ensure a safe work environment for all workers
8 and prior to commencement of work, contractors and the SoCalGas/SDG&E representative review
9 project scope and determine specific relevant health, safety, and environmental requirements. At a
10 minimum, contractors are required to:

- 11 • Abide by all applicable federal, state, and local environmental, health, and safety laws and
12 regulations.
- 13 • Have a written Injury and Illness Prevention Plan (IIPP) meeting the requirements of Title 8,
14 CCR, Section 3203.

1 **B. Department of Transportation (DOT)-Covered Functions**

2 If performing DOT-covered functions, contractors must ensure that its employees adhere to
3 all Operator Qualification requirements in CFR 49, section 192 and those set forth in SoCalGas
4 standard 167.0100 – Operator Qualification Program. In addition, contractors must have a qualified
5 Anti-Drug and Alcohol Misuse Prevention Program either self-administered, or administered by a
6 qualified third party consortium. Contractors must ensure its program includes random testing of
7 contractor’s DOT-covered employees in accordance with the DOT CFR, Title 49 CFR, Part 40 and
8 Part 199 regulated by the Pipeline & Hazardous Materials Safety Administration. If contractor
9 employees operate commercial motor vehicle(s), contractors must also have a Drug & Alcohol
10 Misuse Prevention Program that conforms to the DOT Federal Motor Carrier Safety
11 Administration’s 49 CFR, Part 382 regulations.

12 Prior to commencement of covered safety-sensitive functions, contractors will be required to
13 register with the SoCalGas/SDG&E service agent, Veriforce LLC, to initiate review and approval of
14 the contractor’s Operator Qualification program and Anti-Drug and Alcohol Misuse Prevention
15 Program. Contractors will be required to submit requested compliance documentation to
16 SoCalGas/SDG&E’s service agent. Furthermore, contractors must submit to unannounced job site
17 inspections by SoCalGas/SDG&E field personnel, and allow Veriforce LLC access to property and
18 records in accordance with Part 199 and Part 382, for comprehensive record audits of contractor’s
19 Anti-Drug Abuse Prevention Programs and Alcohol Misuse Prevention Programs.

20 When requested, contractors must also provide statistical data on all drug testing conducted
21 in accordance with Title 49, Part 40, Part 199 and/or Part 382, and per the schedule set forth by
22 Veriforce LLC and the company administrator. Each contractor is, in all respects, responsible for
23 maintaining a DOT compliance program for work under DOT-covered functions.

1 **C. Pre-Work Meetings**

2 Pre-work meetings will be held to discuss specific environmental, safety, and/or health
3 issues for the job or facility. The following are examples of the information that will be discussed:

4 *Hazard Communication:* Specific hazards at SoCalGas/SDG&E facilities and procedures
5 that have the potential to impact contractors' employees are communicated to contractors. These
6 hazards may include, but are not limited to: asbestos, lead, confined spaces, equipment operation,
7 energized electrical and gas systems, fall hazards, specific hazardous substances, etc. Contractors
8 must share and communicate hazard information covered in this meeting with all contractor
9 employees and subcontractors before work begins. Contractors who utilize non-English speaking
10 workers on site are required to have English speaking and reading interpreters with them at all
11 times.

12 *Hazardous Materials:* Prior to the start of a job or project, contractors are required to
13 disclose any and all hazardous materials they plan to use to the SoCalGas/SDG&E representative
14 who will then inform contractors if (1) the use of the hazardous materials is allowed, (2) the use of
15 certain hazardous materials is prohibited, or (3) the use of a certain hazardous material is not
16 prohibited, but requires either supervision, recordkeeping, reporting, or the use of safety procedures.

17 *Prohibited Materials:* No materials containing detectable amounts of asbestos may be used
18 for construction or otherwise used at SoCalGas/SDG&E sites. No Proposition 65 listed chemicals
19 may be introduced at SoCalGas/SDG&E-controlled sites unless the contractor provides adequate
20 warning to SoCalGas/SDG&E and other persons who may be exposed.

21 *Handling and Disposal of Contractor's Hazardous Materials:* Contractors must ensure
22 proper handling and disposal of hazardous materials brought on-site, including primary and
23 secondary chemical labeling, location of Material Safety Data Sheets, disposal, and recycling.

1 *Handling and Disposal of Hazardous Waste:* When waste is generated during construction
2 activities, contractors must contact the SoCalGas/SDG&E representative or Field Environmental
3 Specialist. All utility generated waste must be disposed of at an approved SoCalGas/SDG&E
4 disposal site.

5 *Specific safety rules and requirements:* To ensure safe work practices are followed
6 according to this Contractor Safety Program and any SoCalGas/SDG&E practices that are required
7 by contract specific safety rules and requirements are discussed with contractors.

8 *Reporting of Incidents:* Contractors are required to immediately and properly report any
9 fires, hazardous situations, hazardous substance releases, incidents, OSHA recordable injuries and
10 illnesses, injury or property damage involving the public.

11 *Enforcement and Reporting of Post-Accident Testing:* Proper review, reporting and
12 enforcement of drug and/or alcohol testing of incidents meeting the post-accident criteria of CFR
13 Title 49, Part 40, Part 199 and Part 382.

14 *Emergency Response:* Emergency response such as evacuation alarms, routes, assembly
15 areas, and interaction with emergency services will be discussed.

16 **D. Non-Compliance with Safety and Health Requirements**

17 SoCalGas/SDG&E reserves the right to intervene on issues of imminent danger and anytime
18 throughout any construction project. Quality assurance is achieved through observations of the
19 work and routine monitoring. While enforcement of a contractor's safety program is the
20 responsibility of the contractor, SoCalGas/SDG&E identifies hazards and unsafe actions and
21 communicates them to the contractor's superintendent or safety representative, when noted through
22 routine monitoring of the construction activities or when reported by others. These observations
23 and discussions with the contractor's personnel are documented and filed with the contractor safety

1 notice. The SoCalGas/SDG&E representative is responsible for holding contractors accountable for
2 quality and safety relative to the contract.

3 SoCalGas/SDG&E reserve the right to take action which includes warnings up to
4 termination of contract in the event a contractor has any non-compliance with environmental, safety
5 and health requirements or observed safety hazards.

6 **E. SoCalGas/SDG&E Employees**

7 Employees follow the IIPP of each individual company. At SDG&E this can be found in the
8 Employee Safety Handbook. At SoCalGas it is found in section one of the IIPP Manual. Each
9 contains the required seven elements of Title 8 §3203 along with action steps to implement each
10 element.

11 Beyond the IIPP, additional safety direction is provided within the Employee Safety
12 Handbook (SDG&E) and the IIPP Manual (SoCalGas). Included therein are Employee
13 Responsibilities, Supervisor Responsibilities, Personal Protective Equipment, Basic Safety Rules,
14 Codes of Safe Practices, and Incident Reporting (injuries, near misses/close calls, and motor vehicle
15 incidents). Additionally, safety procedures are included where necessary in SoCalGas/SDG&E
16 policies and procedures.

17 **F. Employee Training**

18 SoCalGas/SDG&E are committed to ensuring that its employees perform their job duties
19 safely and in compliance with all applicable safety laws, rules, regulations, permit requirements,
20 company standards, and the IIPP. Providing and documenting employee safety training is an
21 integral part of the company's safety compliance efforts.

22 All SoCalGas/SDG&E employees who perform job duties that are governed by federal,
23 state, and local safety regulations, statutes, company and corporate policies, and the IIPP must
24 complete all applicable mandatory safety training courses. In some cases, employees may not be

1 allowed to perform affected job duties prior to completion of mandatory training. Supervisors are
2 responsible for ensuring that their employees receive all applicable mandatory safety training.

3 When an employee is unable to attend training on the scheduled date, arrangements must be made
4 for the employee to complete the training. Employees who miss the mandatory safety training are
5 not qualified to perform tasks covered by the training until training is completed.

6 Although not required by regulation, both utilities train employees who operate motor
7 vehicles in the *Smith System® of Space Cushion Driving*. This defensive driving system has greatly
8 reduced the number and severity of motor vehicle incidents as well as enhanced the protection of
9 the employees, our customers, and the general public. Every trained employee is required to
10 complete refresher training annually.

11 **IV. SOCALGAS AND SDG&E ARE COMMITTED TO A COMPLETE**
12 **RECORDKEEPING OF ALL ASPECTS OF THE NORTH-SOUTH PROJECT**

13 The third Scoping Memo question asks:

14 *Will there be adequate management procedures and processes for*
15 *fully documenting, and retaining records and documents related to*
16 *all aspects of the project including, but not limited to, initial*
17 *design, materials procurement, employee and contractor operator*
18 *qualifications, construction, testing, and initial operation?*

19 The answer to the question is “yes.” SoCalGas/SDG&E have established policies and
20 procedures to support a comprehensive management system for traceable, verifiable and complete
21 recordkeeping for all aspects of a project such as initiation, scoping, engineering design and
22 material procurement, construction, strength testing and close-out. SoCalGas/SDG&E summarizes
23 the primary policies in Table 5 below which includes, but is not limited to, standards for project
24 record management and operator qualifications.

TABLE 5
Management Procedure/Processes
Records Management and Retention
Map Maintenance for High Pressure Pipelines
Documentation Traceability of Pipeline Materials
As-Built Surveys for Construction of High Pressure Pipelines and Pipeline Facilities
Data Gathering and Integration
Operator Qualification Program

1 The SoCalGas/SDG&E record management system is a process of gathering, organizing,
2 reviewing, storing and sharing documents, enhancing the ability to collaborate, retrieve, and share
3 information across the project team and, eventually, for the life of the facility. During document
4 generation there is version control and various approval processes, including quality assurance and
5 quality control (QA/QC) before a document is considered issued for review, approval and/or
6 construction. A similar QA/QC process is implemented post-construction in order to incorporate
7 construction drawing redlines and produce the final completion drawings.

8 **A. Project Management**

9 SoCalGas/SDG&E utilizes hardcopy and electronic records systems that document a
10 project’s scope development, construction and commissioning, and close-out. The
11 SoCalGas/SDG&E record management system includes software systems specifically designed to
12 manage and retain project records for the life of the asset. SoCalGas/SDG&E’s systems include
13 tools such as SharePoint, Computer Aided Design (CAD)/Geographic Information System (GIS),
14 Pipeline Document Management System, Network Servers and SAP modules and other company
15 databases that link to company-defined record systems and databases. SoCalGas/SDG&E’s project
16 record management systems also include various business controls that manage the financial,
17 contractual and general project management governance that support the project.

1 **B. Engineering & Design**

2 Typically the format for document distribution is in electronic format and within a CAD
3 system. SoCalGas/SDG&E’s engineering and design process includes drawing and design
4 specifications, GIS, mapping and surveying standards, QA/QC prior to issuance and an approval
5 process before a design is released to construction. Post-construction Global Position System
6 (GPS) data is validated to be transferred into SoCalGas/SDG&E GIS system and construction
7 redlines are integrated into the final completion drawings. An additional QA/QC is completed to
8 assure the GIS system matches the final completion drawings.

9 **C. Material Procurement**

10 Material procurement is a function of SoCalGas/SDG&E’s supply management process that
11 includes checkpoints for engineering approval of manufacturer specifications and material testing
12 requirements. Material procurement includes site surveillance at the manufacturer or vendor’s
13 initiation point in order to witness identified key material generation activities by certified
14 inspectors representing SoCalGas/SDG&E.

15 Material traceability documentation, such as the Mill Test Report or Certificate of
16 Compliance, is managed through SoCalGas/SDG&E’s inventory system, where the material is
17 verified at construction staging and at installation. Material inspection can be performed by supply
18 management at the construction staging location or at the SoCalGas inspection department at the
19 Pico Rivera storeroom. Interim material traceability documentation is verified at this point.
20 Additional verification is performed during fabrication, prior to installation and during the Project
21 close-out process.

22 **D. Construction Management**

23 SoCalGas/SDG&E manages field changes of construction drawings through the appropriate
24 approval process, when required, in the format of change orders, Request for Information,

1 engineering review and approval and other identified processes. GIS mapping and surveying occurs
2 during construction and the GPS data is reconciled with field changes, engineering re-designs,
3 inspector drawing redlines and other approved field changes.

4 Construction inspectors document field changes in daily inspection reports and redline
5 changes on the construction drawings. The construction inspector also verifies operator
6 qualifications for contractors through hardcopy cards or the SoCalGas/SDG&E enterprise system.
7 A construction inspector documents material installed, monitors and inspects the installation
8 process, including, but not limited to, fabrication, non-destructive examinations, strength testing and
9 field coating.

10 **E. Project Turnover and Close-out**

11 The Project close-out process includes the reconciliation of any approved engineering
12 revisions, field changes and final surveying data which will lead to the final completion drawings
13 and upload of data into SoCalGas/SDG&E enterprise systems for records management. Pipeline
14 asset and related records are retained for the life of the asset within the company-defined asset
15 management system. Turnover of project records includes initiation of operating and maintenance
16 service orders of installed pipeline and other compliance activities. Project close-out includes a
17 QA/QC of all defined project compliance records that will be retained through the life of the asset.

18 **V. CONCLUSION**

19 With respect to SoCalGas/SDG&E's proposed North-South Pipeline Project, the utilities are
20 committed to meeting and exceeding safety requirements, protecting the safety of workers and the
21 public, and assuring adequate records and retention with respect to the Project.

22 **VI. QUALIFICATIONS**

23 My name is Deanna Haines. My business address is 555 W. Fifth St., Los Angeles,
24 California, 90013. My current position is Director of Gas Engineering. I joined SoCalGas in 1988

1 and have held various positions of increasing responsibility in the Transmission, Engineering,
2 Customer Service, and Environmental departments of SoCalGas. I have been in my current
3 position at SoCalGas since December 2013. I have a Bachelor of Science Degree in Chemical
4 Engineering from University of Southern California and a Masters in Business Administration from
5 University of Redlands.

6 I have previously testified before the Commission.

7 This concludes my supplemental prepared direct testimony.