

SPEC Services, Inc. 10540 Talbert Ave., Suite 100 East Fountain Valley, CA 92708 714.963.8077 Fax 714.963.0364 www.specservices.com

May 8th, 2015

Mr. Boramy Ith, Project Manager Southern California Gas Company 555 W. 5th Street Los Angeles, California 90013

Subject: Water usage, Pipeline Safety & Reliability Project

Dear Mr. Ith

Spec Services Incorporated has estimated the total water usage for the above project to be approximately 11,889,000 gallons. That includes 48,000 gallons per work day for unpaved areas for 65 work days, 10,000 gpd for horizontal direction drill (HDD) work areas for 75 days, 5,000 gpd for laydown areas for 16 months, 105,000 total gallons for street work, and a maximum of 4.3MM total gallons for hydrotesting. A total of 1,655,000 gallons is estimated to be needed for three HDDs to hydrotest pipe and use for drilling fluid. These figures are based on the following assumptions:

- Of the entire construction length, 12,000' will be active at any one time in unpaved areas.
- Unpaved areas will be wet down 6 times per day to a depth of 0.05".
- Each water truck holds approximately 3,500 usable gallons of water, so each application of water in unpaved areas would take 4 to 5 trucks per application.
- The pipeline will most likely be hydrotested in seven unequal segments depending on valve locations, elevation differences and other factors. Therefore the water needed for each test may range from as little as 485M gallons to 4.3MM gallons. Water from one test would be re-used in the next test and disposed of after the last test. A short-duration spike test will be included in the test program.
- Water needed for HDD drilling fluid assumes the total volume of the three HDD bore holes with a 0.5 water loss factor.
- HDD pipe will be hydrotested prior to pullback.
- Saw cutting assumes 8 gallons per hour, with 2 saws being operated for each street crew for an average of 4 hours/day for 4 crews multiplied by the average total working days for all street crews.

See table attached for details.

Sincerely, SPEC Services, Inc.

David Andries, P.E. Senior Project Manager

Pipeline Safety & Reliability Project																	
1						E		Usage for Dust C		ting							
						Total	[Active	Active	Depth of	Volume per			Application	No Truck	No	
		Roadway		Construction		Construction	Active Constr	Construction,	Construction	Treatment,	Application,	Applications	Volume, Gal	Rate,	Trips/day @	Construction	Total Volume
Item #	Task	Type	Length, ft	Width, ft	Area, sq ft	Area, Acres	Length, ft	%	Area, Acres	in	gal	per day	or Gal/Day	Gal/Ac/Day	3500 gal ea	Days	Used, Gal
1.0	Street Work	Asphalt					Ĭ				Ť		369	j			104,737
1.1	Pipeline Installation	Asphalt	212,240	20	4,244,800	97	6,000	0.011%	0.01	0.100	28	4	113	10,861	1	325	36,833
1.2	Saw Cutting	Asphalt	212,240										256			265	67,904
2.0 Off-Road Work (Pipe Installation)		Unpaved	27,220	50	1,361,000	31.24	12,000	0.417%	0.13	0.100	8,021	6	48,128	368,979	14	65	3,119,175
3.0 Laydown/Work Areas		Unpaved											15,160				2,746,428
3.1	Laydown #1	Unpaved			51,385	1.18		20%	1.2	0.050	320	1	320	272		416	133,243
3.2	Laydown #2	Unpaved			94,940	2.18		20%	2.2	0.050	592	1	592	272		416	246,186
3.3	Laydown #3	Unpaved			87,138	2.00		20%	2.0	0.050	543	1	543	272		416	225,953
3.4	Laydown #4	Unpaved			217,632	5.00		20%	5.0	0.050	1,357	1	1,357	272		416	564,333
3.5	Laydown #5	Unpaved			88,836	2.04		20%	2.0	0.050	554	1	554	272		416	230,356
3.6	Laydown #6	Unpaved			217,230	4.99		20%	5.0	0.050	1,354	1	1,354	272		416	563,292
3.7	HDD #1 Work Space (Entry)	Unpaved	400	200	80,000	1.84		50%	1.8	0.050	1,247	1	1,247	339		75	93,500
3.8	HDD #1 Work Space (Exit)	Unpaved	200	100	20,000	0.46		50%	0.5	0.050	312	1	312	679		75	23,375
3.9	HDD #1 Work Space (String)	Unpaved	2,000	50	100,000	2.30		50%	2.3	0.050	1,558	1	1,558	679		75	116,875
3.10	HDD #2 Work Space (Entry)	Unpaved	400	200	80,000	1.84		50%	1.8	0.050	1,247	1	1,247	679		75	93,500
3.11	HDD #2 Work Space (Exit)	Unpaved	200	100	20,000	0.46		50%	0.5	0.050	312	1	312	679		75	23,375
3.12	HDD #2 Work Space (String)	Unpaved	3,200	50	160,000	3.67		50%	3.7	0.050	2,493	1	2,493	679		75	187,000
3.13	HDD #3 Work Space (Entry)	Unpaved	400	200	80,000	1.84		50%	1.8	0.050	1,247	1	1,247	679		75	93,500
3.14	HDD #3 Work Space (Exit)	Unpaved	200	100	20,000	0.46		50%	0.5	0.050	312	1	312	679		75	23,375
3.15	HDD #3 Work Space (String)	Unpaved	2,200	50	110,000	2.53		50%	2.5	0.050	1,714	1	1,714	679		75	128,563
4.0	Hydrotesting	'															4,691,960
4.1	Hydrotesting	N/A	86.539		6.6												4.263.355
4.2 HDD Pre-Hydrotest		N/A	8,700		6.6												428,606
5.0 HDD Drilling Fluid		N/A	8,700		12.6												1,226,654
	<u> </u>																
																Total Project	11,888,954
																,	
	Water usage assumptions:																
Water for dust control is predicated on the effectiveness of the applications. The following figures are an estimate of water usage for dust control on a typical project.																	
	Adverse weather conditions could make							Ĭ	71								
Of the entire construction length, 12,000' will be active in unpaved areas.																	
Excavated spoil in paved areas will be wet down 4 times per day to a depth of 0.10" prior to loading into trucks.																	
Each water truck holds approximately 3,500 gallons of water, so each application of water in unpaved areas would take four to five trucks per application.																	
	The construction effort is scheduled to									eous start-up	activities.						
	The pipeline will most likely be hyd	rotested in	seven unec	qual segments	depending o	on elevation, va	alve locations a	and work sites:	_								
	The water needed for test segments may range from 485MM gallons to 4.3MM gallons;																
Every effort will be made to take water from one test and re-use it in the next test; test water will be disposed of after the last test;																	
Water needed for HDD drilling fluid assumes the total volume of the three HDD bore holes with a 0.5 water loss factor.																	
Assumes HDD pipe will be hydrotested prior to pullback.																	
	Saw cutting assumes 8 gallons per hou			ated for each st	reet crew for	an average of /	Lhours/day for /	l 1 crews multiplied	hy the average:	total working	l days for all stre	et crews					
	Saw carting assumes o ganons per nou	i, vitti Z 3dVt	5 being open	ated for each st	I CCI GI CWV I UI	an average of 4	i iloui 3/ uay 101 s	r or evva manupilet	a by the average	cotal working t		Ct GlCVV3.					
		1	1			<u> </u>	<u> </u>	1		1	1	1	1			1	1