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July 8, 2016

Alan Rathbun- Director of Pipeline Safety Program
State of Washington Utilities and Transportation Commission
1300 S. Evergreen Park Dr. SW
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State of Washington
UTC
Pipeline Safety Program

Subject: Response to Items 7 and 8 in PG-150120-Stipulated Agreement MAOP Validation Plan Review (Insp. No. 2655)

Dear Mr. Rathbun,

This letter is intended to address items 7 and 8 from the July 7, 2016 Stipulated Agreement MAOP Validation Plan Review letter.

Data Request

7. Staff sent CNGC a letter dated January 12, 2016 confirming that the Automated Ball Indentation (ABI) in-situ technology to determine pipe grade would give accurate and valid results. However, CNGC needs to explain the process of how ABI Services will conduct and document the testing and results. The results will be life of the pipeline documents and must be traceable, verifiable and complete. At a minimum the following questions would need to be answered:

a. What qualifications/certifications does the operator of the device need to conduct testing?

Cascade Response

The technicians are qualified per ABIS training and certification since ABIS invented and developed the ABI® technology. CNGC will obtain a copy of the technician's certification.

b. Does the device need to be calibrated/inspected/certified? If so, on what schedule and is there a manufacturer's recommendation?

Cascade Response

Each device is calibrated and certified at least once a year. ABIS is the manufacturer of the equipment. The Load Cell sensor is calibrated by its Honeywell manufacturer and the device has its internal calibration verification using a shunt calibration resistor and a push-button switch that is used every day prior to the testing. The load cell has a serial number printed on it with the value of the shunt calibration. Also, the calibration certificate is included in the device manual where the technician can check against it at any time. The LVDT (depth transducer) is also calibrated using a NIST-traceable mechanical micrometer. Both the device manual and the ABI Test Method include a section on calibration and verification. CNGC will obtain a copy of calibration and certification records.

- c. What is the output data format and does it require additional time and manipulation/interpretation to give yield strength values (similar to an ILI run)? If so, who does the manipulation/interpretation and what are their qualifications?

Cascade Response

The data format is in Binary and can be converted to a text (ASCII) file if needed. The data analysis is conducted on the binary data immediately after the completion of each test with results generated in a few seconds of all mechanical test results where the grade of the tested section is determined based on the yield strength, ultimate strength, and the ratio of yield to ultimate and compared to the Grade Table of the API 5L Standard Specification. The ABI mechanical properties are measured values and they are not based on any interpretation and are not similar to any ILI analyses (i.e., there is no interpretation or manipulation for any ABI test result). Although the results are provided by the software of the device in both digital and graphical formats and with average and standard deviation values, the technician e-mails the results at the end of each day of testing for a review by the ABIS chief engineer.

- d. How does CNGC know the output results are accurate (i.e. is the device out of calibration)?

Cascade Response

The ABI test results are accurate as a result of the calibration process outlined in response to item b. The ABIS technician is trained to recognize any situation that warrants a calibration check.

- e. Does CNGC propose to conduct destructive yield strength testing commensurate with the ABI in-situ testing to confirm results for locations where CNGC has actual pipe samples available? If not, why not?

Cascade Response

CNGC will perform destructive yield strength testing as pipe samples become available per page 4 (Process to Validate) of the MAOP Validation Plan.

8. Please provide the Parametrix results for all districts where in-situ testing will occur. Staff will also need to know the location of the testing. This can be accomplished as noted in the January 12, 2016 letter by utilizing the daily construction schedule already being submitted to the UTC.

Cascade Response

Parametrix results to determine the number of sampling points for in-situ testing are contained in Attachment A: Parametrix In-Situ Testing Sampling Points. CNGC will provide test locations in the daily construction schedule

CNGC will provide a response to the remaining items by August 12, 2016. Please contact Jeremy Ogden at (509) 734-4509 with questions or comments.

Respectfully Submitted,

p.p.



Eric Martuscelli
Vice President, Operations
Cascade Natural Gas Corporation

Attachment A: Parametrix In-situ Testing Sampling Points

Table 2. Pipeline Sampling Lots and Sample Quantities for Tensile Testing Using ABI.

District Line	Approx. Length (feet)	Approx. Number of 40' Lengths	Number of Tests per 49 CFR 192
Bellingham District			
8" Bellingham HP Line #1 (pipe lengths in original line)	15,205	380.1	39
8" Lake Terrell Road Transmission Line #9 (pipe lengths in original line)	10,330	258.3	26
8" Central Whatcom HP Line #3 (pipe lengths in rerouted line)	53,839	1346.0	135
16" Squalicum HP Line #21 (pipe lengths in line installed under Work Order 41508)	2,597	64.9	13
8" Bellingham HP Distribution System #2 (pipe lengths in original line)	16,433	410.8	42
10" Bellingham HP Distribution System #2 (pipe lengths in original line)	16,301	407.5	41
Mt. Vernon District			
8" March Point HP Line #2 (pipe lengths in original line)			
0.188 Wall Thickness	8,172	204.3	21
0.250 Wall Thickness	814	20.4	10
8" Anacortes HP Line #1 (pipe lengths in original line)	104,344	2608.6	261
	Total Number of Tests		588

Table 3. Fitting and Elbow Sampling Lots and Sample Quantities for Tensile Testing Using ABI.

District Line		Number of Fittings/Elbows in Lot	Number of Tests per 49 CFR 192
Bellingham District			
8" Central Whatcom HP Line #3 (fittings in re-routed line installed under Work Order 40855 [Cordata Parkway to Waldron & Aldrich])	Fittings	12	10
Mt. Vernon District			
16" Fredonia Transmission Line #14 (elbows and fittings in original line)	Fittings	74	15
	Elbows	35	10
16" March Point Transmission Line #16 (elbows and fittings in original line)	Fittings	2	2
	Elbows	12	10
Total Number of Tests		Fittings	27
		Elbows	20

Pipeline Set 2 -- Table 1. Pipeline Sampling Lots and Sample Quantities for Tensile Testing Using ABI.

District Line	Approximate Length (ft)	Approx. Number of 40' Lengths	Number of Tests per 49 CFR 192
Bremerton District			
8" Bremerton Transmission Line #2 (pipe lengths in original line)	2,789	69.7	14
Aberdeen/Bremerton District			
8" Kitsap HP Line #1 (valve assembly installed under Work Order T0022504)	158	8	8
Longview District			
12" Longview-Kelso HP Distribution Line #1 (pipe lengths in original line)	20,341	508.5	51
8" Kalama HP Line #8			
8" Kalama HP Line #8 (pipe lengths installed under Work Order 51820)	7,219	180.5	20
8" Kalama HP Line #8 (pipe lengths installed to cross Kalama River)	1,684	42.1	10
Wenatchee District			
6" and 8" Moses Lake HP Line #1 (WenL1-1 and WenL1-2)	16,687	417.2	42
Yakima District			
6" Toppenish-Zillah HP Line #5 (pipe lengths in original line)	32,311	807.8	81
8" Yakima HP Line #1 (pipe lengths in original line)			
Installed under Work Order 40C4357	4,863	121.6	20
Installed from 8" Terrace Heights to R-5	3,300	82.5	17
Kennewick District			
8" Attalia HP Line #1 (pipe lengths in original line, installed under Work Order 01C4776)	78,256	1956.4	196
	Total Number of Tests		429

Pipeline Set 2 -- Table 2. Fitting and Elbow Sampling Lots and Sample Quantities for Tensile Testing Using ABI.

District Line	Number of Fittings/Elbows in Lot	Number of Tests per 49 CFR 192
Longview District		
12" South Longview HP Line #7 (fittings installed under Work Order 43600)	Fittings	16
	10	
	Total Number of Tests	
	Fittings	10
	Elbows	0

Pipeline Set 3 -- Table 1. Pipeline Sampling Lots and Sample Quantities for Tensile Testing Using ABI.

District Line Segment	Approximate Length (feet)	Approx. Number of 40' Lengths	Number of Tests per 49 CFR 192
Bellingham District			
Bellingham HP Distribution System #2			
A. WO#/Segment 10C1315 (4.5 dia)	931	23.3	10
B. WO#/Segment 10C1559 (4.5 dia)	421	10.5	10
C. WO#/Segment 10C3298 (4.5 dia)	1,079	27.0	10
D. WO#/Segment 10C4799 (2.375 dia)	94	2.4	3
E. WO#/Segment 10C5321 (2.375 dia)	1,520	38.0	10
F. WO#/Segment 10C9831 (2.375 dia)	1,270	31.8	10
G. WO#/Segment 20564-1 (4.5 dia)	203	5.1	6
H. WO#/Segment 20564-2 (6.625 dia)	118	3.0	3
4" South Lynden H.P. Line #4 (Original Line, 4.5 dia)	40,432	1010.8	102
2" Nooksack H.P. Distribution System Line #8 (16C7000, 2.375 dia)	732	18.3	10
Aberdeen District			
2" Elma Rendering Plant H.P. Line #9 (78C7902-2, 4.5 dia)	252	6.3	7
Mt Vernon District			
Anacortes H.P. Distribution System Line #3			
A. Original Line 518 Hillcrest Dr. to R-32 (6.625 dia)	5,135	128.4	20
B. Original Line R-31 to 518 Hillcrest Dr. (8.625 dia)	4,731	118.3	20
C. WO#/Segment 11C2330 (2.375 dia)	70	1.8	2
D. WO#/Segment 11C2626 (2.375 dia)	134	3.4	4
E. WO#/Segment 09801 (2.375 dia)	112	2.8	3
4" Mount Vernon H.P. Line #4 (Original Line, 4.5 dia)	29,681	742.0	75
4" North Texas Rd H.P. Line #7 (11C2775, 2.375 dia)	921	23.0	10
4" Arlington H.P. Line #8 (Fish 18C4272, 4.5 dia)	10,765	269.1	27
4" Sedro-Woolley H.P. Line #10 (14788, 4.5 dia)	1,901	47.5	10

Pipeline Set 3 -- Table 1. Pipeline Sampling Lots and Sample Quantities for Tensile Testing Using ABI.

District Line Segment	Approximate Length (feet)	Approx. Number of 40' Lengths	Number of Tests per 49 CFR 192
Longview District			
Longview-Kelso HP Distribution Line #1			
A. Pre-CNGC-L1-2 (4.5 dia)	3,139	78.5	16
B. 82C8335-2 (2.375 dia)	516	12.9	10
C. 82C8335-3 (4.5 dia)	151	3.8	4
4" Dike Road H.P. Line #3 (4.5 dia)	6,345	158.6	20
Yakima (Sunnyside) District			
3" Sunnyside H.P. Line #1			
A. Original Line (3.5 dia)	4,492	112.3	20
B. 15420 (3.5 dia)	42	1.1	2
2" South Sunnyside H.P. Line #2 (42C2530, 2.375 dia)	3,972	99.3	20
3" Prosser H.P. Line #4 (Original Line, 3.5 dia)	5,821	145.5	20
3" Zillah H.P. Line #6 (Original Line, 3.5 dia)	829	20.7	10
4" Wapato H.P. Line #7 (Original Line, 4.5 dia)	32,877	821.9	83
3" South Toppenish H.P. Line #8 (Original Line, 3.5 dia)	6,145	153.6	20
3" Granger H.P. Line #9 (Original Line, 3.5 dia)	31,464	786.6	79
Wenatchee District			
6" & 8" Moses Lake HP Line #1 (60390, 4.5 dia)	2,031	50.8	11
2" Wheeler H.P. Line #2			
A. Original Line (2.375 dia)	3,972	99.3	20
B. 58C5745 (2.375 dia)	210	5.3	6
6" Wenatchee H.P. Line #12 (Original Line, 6.625 dia)	32,219	805.5	81

Pipeline Set 3 -- Table 1. Pipeline Sampling Lots and Sample Quantities for Tensile Testing Using ABI.

District Line Segment	Approximate Length (feet)	Approx. Number of 40' Lengths	Number of Tests per 49 CFR 192
Kennewick District			
4" East Finley H.P. Line #3 (16256, 2.375 dia)	365	9.1	10
Pasco H.P. Distribution System Line #4 (Original Line, 4.5 dia)	10,713	267.8	27
4" Finley H.P. Line #8 (Original Line, 4.5 dia)	10,329	258.2	26
Walla Walla District			
8" Walla Walla H.P. Line #1 (Original Line, 8.625 dia)	5,462	136.6	20
3" College Place H.P. Line #2 (Original Line, 3.5 dia)	2,660	66.5	14
Total Length	264,256	Total Tests	871