Crawford, Denise (UTC)

From: McCallum, Kevin <Kevin.McCallum@cngc.com>
Sent: Thursday, August 11, 2016 5:49 PM
To: Crawford, Denise (UTC)
Cc: Eutsey, Mike; McCallum, Kevin; Woodard, Marina (UTC); Martuscelli, Eric; Sorensen, Renie; Ogden, Jeremy
Subject: CNGC Response to July 7th, 2016 Letter MAOP plan review
Attachments: PG-150120 MAOP Validation Plan Response to July 7 Letter-Insp. No. 2655.pdf

Importance: High

Denise,

Please forward the attached response to Mr. Rathbun, Mr. Subsits, and Mr. Ritter.

Thanks,

Kevin McCallum | Pipeline Safety Specialist

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August 11, 2016

Alan Rathbun- Director of Pipeline Safety Program
State of Washington Utilities and Transportation Commission
1300 S. Evergreen Park Dr. SW
P.O. Box 47250
Olympia, WA 98504-7250

RE: Response to July 7th, 2016 letter; PG-150120 – Stipulated Agreement MAOP Validation Plan Review (Insp. No. 2655)

Dear Mr. Rathbun,

This letter is intended to address Staff's comments regarding CNGC's MAOP Validation Plan (Plan).The Plan was submitted on April 29th, 2016.

COMMENTS

1. The timeframe per Table 6 extends out to 2026.

Comment(s):
CNGC needs to justify why it will take 10 years to complete the validation efforts to confirm MAOP on operating pipelines. Staff does not support a time frame which extends out another 10 years.

Additionally, staff supports your statement on page 6, Prioritization, "In general, precode pipeline segments operating at a greater than 30% SMYS without pressure test records were the highest priorities, with subsequent priorities influenced by the availability of pressure test records". Staff has not attempted to evaluate the prioritization of your mitigation, as those decisions are based on your operational expertise and customer knowledge base.

Cascade Response
The Plan submitted on April 29th, 2016 includes 116 segments of pipe missing critical information to confirm MAOP – nearly 223 miles of pre-code and post-code pipe. As previously mentioned, work on this plan has already commenced.

At a meeting between Staff and CNGC on March 4th, 2016, regarding concerns on our responsiveness, Staff suggested CNGC reference PHMSA's Notice of Proposed Rule Making for 49 CFR Parts 191 and 192 (NPRM) when submitting the next Plan. We utilized the NPRM as a guide for justification in the Action Plan that was submitted and felt a 10 year completion schedule, factoring in the prioritization matrix and the magnitude of the task, was both reasonable and aggressive. For validating MAOP, the NPRM proposes that 50% of the mileage be completed in 8 years and 100% of the mileage within 15 years. As submitted, our Action Plan addresses 50% of the mileage by 2018 and 100% by 2026. More important than just mileage (of pipe) is risk. In the submitted Plan the highest risk segments – 20% SMYS and above – are all due to be completed no later than 2024. Further, all five segments currently operating at 30% SMYS or above are due to be complete by 2017 with four scheduled for completion in 2016 and the one remaining segment due for completion in 2017.

A new development was brought to Staff's attention at a meeting in Olympia on August 5th, 2016. In the April 29th Plan, Table 3 identified nearly 400 Branch Segments as missing critical information to confirm MAOP. These Branch Segments were identified ahead of the Plan submission deadline of April 29th, 2016 but it was recently learned that these segments were not incorporated into the prioritization matrix or included in Table 1. Because of this development the submitted Plan is deemed incomplete for its intended purpose.

Both CNGC and Staff desire to have a comprehensive, complete Plan. Based on this new development CNGC is requesting additional time to incorporate these segments into the prioritization matrix and to incorporate additional resources to this effort for the purpose of achieving the intended results. During this period of additional time CNGC intends to provide periodic progress reports every two weeks beginning August 26th, 2016 until such time that a complete Plan is approved. More specific information regarding the Branch Segments will be provided in the proposed progress reports. Additionally, CNGC is voluntarily adding leak surveys to all lines on Table 1 and Table 3, effectively increasing intervals to 1 survey each quarter per line number. In conjunction with the operating pressures that have already been reduced we feel this is a prudent step to ensure continuing, safe operation.

2. Page 5 of the MAOP Validation Plan, Pressure Testing, CNGC assumes a methodology for pressure testing that is NOT in accordance with Subpart J for areas where it's not feasible (one way feeds, large customer load) to isolate and test.

Comment(s):
The code does not allow for these methodologies. Please explain what CNGC will do to meet current code requirements for pressure testing.

Cascade Response
All pressure tests performed by CNGC will comply with code requirements. Previous reference to "In-service pressure test" in Table 1 – Action Plan has been removed and replaced with "Pressure test per code or replacement". The MAOP Determination & Validation Plan document will reflect these changes in the future.

3. Section 1.ii of the Agreement states CNGC must provide the basis by which CNGC has determined MAOP for precode pipe with unknown characteristics.

Comment(s):
Staffs interpretation for this requirement is for each segment in Table 1, there needs to be a column which lists which of the 192.619 criteria they are using to establish MAOP (i.e.-- 619(a)(l) design pressure, 619(a)(2) pressure test, 619(a)(3) high 5 operating, or 619(c) high 5 grandfather-no other documentation). This information is not listed in Table 1 for each deficient segment. Staff also believes it would be a good idea for post code pipeline segments as well.

Cascade Response
CNGC has updated Table 1 to identify the criteria used for the MAOP determination.

4. Section 6 of the Agreement requires CNGC to take a 20% reduction on the operating pressure on any precode pipeline which has a calculated design pressure over 30% SMYS and which CNGC does not know seam type.

Comment(s):
Seam type is not identified in Table 1 as a critical piece of MAOP confirming documentation. CNGC needs to verify seam type on all segments as part of the validation process.

Staff understands CNGC's commitment and duty to meet customer demand per their operating tariff. However, staff needs more information to understand why CNGC states for the Bellingham HP Line #1, 8 and 12-inch

Bremerton Line #2, and the 8-inch March Point HP Line #2 "that lowering the pressure 20% below MAOP will result in Cascade not being able to supply gas to all customers." **Under what operating conditions would CNGC not be able to supply gas to all its customers and what is that probability of those conditions actually occurring?** Further, staff is not convinced that the current MAOP is a valid operating pressure as CNGC does not have the records to prove legitimacy.

Additionally, the majority of the length falls in Class 3 areas (with the exception of the Lake Terrel Rd Transmission Line #9). For the 8-inch Bellingham HP Line #1, 8-inch Central Whatcom HP Line #3, the 8-inch Anacortes HP Line #1, and the 8-inch March Point HP Line #2, they are missing both critical pipe data to calculate design pressure (wall thickness and pipe grade) and CNGC does not have a pressure test to confirm pipe strength. As such, staff is believes that a pressure reduction should be warranted unless CNGC shows that operating conditions are so grievous that a pressure reduction would be a calamity for its customers.

Cascade Response

Per Section 6 of the Stipulated Agreement, all pre-code pipe calculated at over 30% SMYS, with an unknown seam type, have undergone a 20% pressure reduction. The applicable lines are referenced on page 3 of the Plan document submitted on April 29th, 2016. Additionally, CNGC has referenced 49 CFR 192.113 - Longitudinal joint factor (*E*) for steel pipe - where seam type is unknown. CNGC has used as the most stringent criteria defined in 49 CFR 192.113. Although this same criteria was factored into the April 29th Plan calculations it was not clearly identified. A column identifying longitudinal joint factor has been added to Table 1. CNGC will continue to utilize destructive testing/analysis to verify longitudinal seam type as pipe samples become available.

5. There is a discrepancy for the 8-inch Central Whatcom Transmission Line (Bellingham Line #3).

Comment(s):

The map for Bellingham Line #3 shows the segment number as 14Cl344. Table 6 shows the 8-inch Central Whatcom Transmission Line as segment l4Cl3l4. Please confirm the correct segment number.

Cascade Response

CNGC has confirmed that the correct segment number is 14C1344. All applicable Tables have been updated. See Attachment A: Updated Tables

6. At Staffs request, CNGC submitted mapping showing the HP pipeline segments in each of their operating districts. This mapping has both validated (CNGC has MAOP confirming documentation) and non-validated segments on the same map.

Comment(s):

Staff have reviewed a random sample of validated MAOP confirming documentation for several pipe segments in each of the operating districts. Staff has found the documentation acceptable for verifying the MAOP of the line segment in question. However, staff has not reviewed all line segments or CNGC's process for ensuring quality control. It is expected that if CNGC has validated a segment as having sufficient documentation to confirm MAOP that during future inspections, this information will be readily available to verify the MAOP.

Additionally, PHMSA has published a Notice of Proposed Rule Making for 49 CFR Parts 191 and 192. In this NPRM, PHMSA has proposed language for documentation of MAOP confirming records. "Records must be reliable, traceable, verifiable, and complete", This language has not been defined in terms of prescriptive documentation requirements. Staff believes the regulatory approach to verifying the efficacy of any MAOP confirming documentation will fall on the thoroughness and vigor the operator puts into their pipeline safety records management. If well managed, the ability of the operator to then present, and if necessary, justify the completeness of their records during the inspection would and should be reasonable, efficient and straightforward.

Cascade Response
Staff's expectation is the same expectation of CNGC. As such we have commissioned a new procedure – Company Procedure 820 – dedicated to MAOP Validation. This procedure is expected to define the requirements for sufficiently validating MAOP records per code. CNGC intends to make all MAOP validation documentation readily available for inspection.

7. **Staff sent CNGC a letter dated January 12, 2016 confirming that the Automated Ball Indentation (ABI) insitu technology to determine pipe grade would give accurate and valid results.**

Comment(s):
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?
b. Does the device need to be calibrated/inspected/certified? If so, on what schedule and is there a manufacturer's recommendation?
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?
d. How does CNGC know the output results are accurate (i.e. is the device out of calibration)?
e. Does CNGC propose to conduct destructive yield strength testing commensurate with the ABI insitu testing to confirm results for locations where CNGC has actual pipe samples available? If not, why not?

CNGC will need to document and approve the process for the insitu testing methodology and subsequent results.

Cascade Response
As requested, CNGC provided the above requested information in a letter sent to the WUTC on July 8th, 2016. Additionally, we are providing a copy of the technician certification and a copy of the device calibration/certification records. See Attachment B: Technician Certification and Device Calibration Records

8. **Please provide the Parametrix results for all districts where insitu testing will occur. Staff will also need to know the location of the testing.**

Comment(s):
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
As requested, CNGC provided the above requested information in a letter sent to the WUTC on July 8th, 2016. Additionally, CNGC has been utilizing the daily construction schedule to notify the WUTC.

In summary:

- The current Action Plan work has begun and positive progress is being made. This work will continue as we finalize a comprehensive Plan.
- CNGC is requesting additional time to incorporate Branch Segments into the prioritization matrix.
- CNGC will provide Staff periodic progress reports every two weeks beginning August 26th, 2016.
- Reduced operating pressure in pre-code pipe per section 6 of the Stipulated Agreement.
- Adding additional voluntary leak surveys to all lines on Tables 1 and 3
- Four columns added to Table 1:
    - MOP (psig) – Maximum Operating Pressure
    - Longitudinal Joint Factor
    - % SMYS (MOP) – Maximum Operating Pressure
    - Basis for MAOP

- Copy of the technician certification and a copy of the device calibration/certification records

Cascade is committed to this effort and we look forward to continuing to engage with Staff in this process.

Please contact Mike Eutsey at (509) 734-4576 with questions or comments.

Respectfully Submitted,

Eric Martuscelli
Vice President, Operations
Cascade Natural Gas Corporation

Attachment A: Updated Tables

Table 1 – Summary of HP Distribution and Transmission Pipelines

HP Line #	HP Line Name	MAOP (psig)	MOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Length (Ft.)	Wall Thickness (in.)	Yield Strength (psi)	Longitudinal Joint Factor	Test Pressure (psig)	% SMYS (MAOP)	% SMYS (MOP)	Under Rated Fitting Present	Basis for MAOP	Action Plan
Bellingham District																
1	8" Bellingham Transmission Line	380	304	Line 1-1	1956	8.625	15,086	0.188	24,000	0.8	No Test	36.32%	29.06%	N/A	No Basis	In situ test, pressure test per code, replace section on James St.
2	Bellingham H.P. Distribution System	150	150	fish-1	1956	8.625	16,475	0.188	24,000	0.8	No Test	14.34%	14.34%	N/A	No Basis	Replacement
				fish-2	1956	10.75	15,630	0.188	24,000	0.8	No Test	17.87%	17.87%	N/A	No Basis	Replacement
				10c1315	1958	4.5	927	0.156	24,000	0.6	No Test	9.01%	9.01%	N/A	No Basis	Replacement
				10c1559	1958	4.5	520	0.156	24,000	0.6	No Test	9.01%	9.01%	N/A	No Basis	Replacement
				10c3298	1960	4.5	1,448	0.156	24,000	0.6	No Test	9.01%	9.01%	N/A	No Basis	Replacement
				10c4799	1962	2.375	221	0.154	24,000	0.6	No Test	4.82%	4.82%	N/A	No Basis	Replacement
				10c5321	1963	2.375	1,505	0.154	24,000	0.6	No Test	4.82%	4.82%	N/A	No Basis	Replacement
				10c8241	1964	4.5	2,356	0.188	35,000	0.6	No Test	5.13%	5.13%	N/A	No Basis	Pressure test per code
				10c9683	1965	6.625	988	0.188	35,000	0.8	No Test	7.55%	7.55%	N/A	No Basis	Replacement
				11480-1	1966	6.625	1,577	0.188	35,000	0.8	No Test	7.55%	7.55%	N/A	No Basis	Replacement
				11480-2	1966	8.625	396	0.188	35,000	0.8	No Test	9.83%	9.83%	N/A	No Basis	Replacement
				10c9831	1966	2.375	1,309	0.154	24,000	0.6	No Test	4.82%	4.82%	N/A	No Basis	Replacement
				13150	1967	2.375	2,025	0.154	35,000	0.6	No Test	3.30%	3.30%	N/A	No Basis	Downrate to distribution pressure
				20564-1	1972	4.5	219	0.156	24,000	0.6	225	9.01%	9.01%	N/A	192.619(a)(2)	Replacement
				20564-2	1972	6.625	113	0.188	24,000	0.8	225	11.01%	11.01%	N/A	192.619(a)(2)	Replacement
				20752	1972	4.5	63	0.188	35,000	0.6	100	5.13%	5.13%	N/A	No Basis	Replacement
				21298	1973	4.5	12	0.188	35,000	0.6	No Test	5.13%	5.13%	N/A	No Basis	Replacement
3	8" Central Whatcom Transmission Line	380	270	16c1344	1957	8.625	57,437	0.188	24,000	0.8	No Test	36.32%	25.81%	N/A	No Basis	In situ test, pressure test per code
				40855 (Transition fittings)	1993	8.625	10,579	0.188	24,000	0.8	680	36.32%	25.81%	N/A	192.619(a)(2)	In situ test fittings
4	4" South Lynden H.P. Line	250	250	Line 4-1	1961	4.5	35,441	0.156	24,000	0.6	No Test	15.02%	15.02%	N/A	No Basis	In situ test, pressure test per code or replacement
8	2" Nooksack H.P. Distribution System	250	250	16C7000	1963	2.375	732	0.154	24,000	0.6	No Test	8.03%	8.03%	N/A	No Basis	In situ test, pressure test per code
				20048	1972	2.375	737	0.154	35,000	0.6	300	5.51%	5.51%	N/A	No Basis	Pressure test per code
				20519	1972	2.375	490	0.154	35,000	0.6	300	5.51%	5.51%	N/A	No Basis	Pressure test per code
9	8" Lake Terrell Rd Transmission Line	380	270	18734-1	1965	8.625	10,314	0.188	24,000	0.8	569	36.32%	25.81%	N/A	192.619(a)(2)	In situ test
10	16" N. Whatcom Transmission Line	600	535	18794	1971	16	143,907	0.250	52,000	1 (ERW)	926	36.92%	32.92%	Yes	192.619(a)(2)	Expose and verify or replace plugs in vault
12	4" North Lynden H.P. Line	400	400	25773	1978	4.5	8,161	0.188	35,000	0.6	600	13.68%	13.68%	Yes	192.619(a)(2)	Expose and verify or replace caps on Sav-a-Valves
21	16" Squalicum Transmission Segment	250	250	41508	1993	16	2,600	0.281	24,000	1 (ERW)	620	29.66%	29.66%	N/A	192.619(a)(2)	In situ test
Aberdeen District																
1	8" Kitsap Line (Phase 1)	499	399	20C6308-3	1963	8.625	35,770	0.188	46,000	0.8	750	24.88%	19.90%	Yes	192.619(a)(2)	Expose and verify or replace caps on Sav-a-Valves
3	4" McCleary H.P. Line	150	150	79C6323	1963	4.5	225	0.156	24,000	0.6	No Test	9.01%	9.01%	N/A	No Basis	Line retired as part of gate replacement project in 2015
8	4" Montesano H.P. Distribution System	135	135	77C6321	1964	4.5	1,645	0.188	35,000	0.6	No Test	4.62%	4.62%	N/A	No Basis	Pressure test per code or replacement
9	2" Elma Rendering Plant H.P. Line	150	150	78C7902-1	1964	2.375	5,280	0.154	35,000	0.6	No Test	3.30%	3.30%	N/A	No Basis	Pressure test per code, replace upstream section
				78C7902-2	1964	4.5	252	0.156	24,000	0.6	No Test	9.01%	9.01%	N/A	No Basis	Replacement
12	2" Elma (R.H.D.) H.P. Line	100	100	25775	1978	2.375	1,307	0.154	35,000	0.6	100	2.20%	2.20%	N/A	No Basis	Downrate to IP use existing 100 psi test
15	12" Kitsap H.P. Line	499	499	44000	1995	12.75	34,782	0.312	52,000	1 (ERW)	1080	19.61%	19.61%	Yes	192.619(a)(2)	Expose and verify or replace caps on Sav-a-Valves
Bremerton District																
2	8" & 12" Bremerton Transmission Line	499	399	BremertonL2-1	1963	8.625	2,843	0.188	24,000	0.8	750	47.69%	38.14%	N/A	192.619(a)(2)	In situ test
6	4" Olympic View H.P. Line	499	399	20387	1973	4.5	14,540	0.188	42,000	0.6	750	14.22%	11.37%	Yes	192.619(a)(2)	Replace plugs on next valve maintenance
11	8" Bremerton H.P. Line	144	144	20C6316	1964	8.625	4,510	0.188	46,000	0.8	No Test	7.18%	7.18%	N/A	No Basis	Pressure test per code or replacement
				18522	1971	8.625	2,863	0.188	35,000	0.8	No Test	9.44%	9.44%	N/A	No Basis	
Mount Vernon District																
1	8" Anacortes Transmission Line	360	288	MTVL1-1	1957	8.625	102,813	0.188	24,000	0.8	No Test	34.41%	27.53%	Yes	No Basis	In situ test 11 miles, replace 9 miles, pressure test per code 8 of 11 miles that were in situ tested, lower pressure on last 2.25 miles, expose and verify line stopper fittings at V-3 valve station
				18191	1972	8.625	80	0.188	35,000	0.8	No Test	23.59%	18.88%	N/A	No Basis	Replacement
2	8" March Point Transmission Line	360	288	11C1144-1	1957	8.625	8,134	0.188	24,000	0.8	No Test	34.41%	27.53%	N/A	No Basis	In situ test, pressure test per code between V-4 and R-89, replace north of R-89.
				11C1144-2	1957	8.625	814	0.250	24,000	0.8	No Test	25.88%	20.70%	N/A	No Basis	In situ test, pressure test per code.
				11C5628	1963	8.625	285	0.188	24,000	0.8	No Test	34.41%	27.53%	N/A	No Basis	Replacement
3	Anacortes H.P. Distribution System	105	105	MTVL3-1	1956	6.625	5,102	0.188	24,000	0.8	No Test	7.71%	7.71%	N/A	No Basis	Replacement
				MTVL3-2	1956	8.625	4,675	0.188	24,000	0.8	No Test	10.04%	10.04%	N/A	No Basis	Replacement
				11C1491	1958	2.375	3	0.154	24,000	0.6	No Test	3.37%	3.37%	N/A	No Basis	Retire
				11C2330	1959	2.375	70	0.154	24,000	0.6	No Test	3.37%	3.37%	N/A	No Basis	Retire
				11C2626	1959	2.375	127	0.154	24,000	0.6	No Test	3.37%	3.37%	N/A	No Basis	Replacement
				09801	1966	2.375	112	0.154	24,000	0.6	No Test	3.37%	3.37%	N/A	No Basis	Replacement
				14373	1968	2.375	1	0.154	35,000	0.6	100	2.31%	2.31%	N/A	No Basis	Retire
				15973	1973	2.375	25	0.154	35,000	0.6	100	2.31%	2.31%	N/A	No Basis	Replacement
4	4" Mount Vernon H.P. Line	250	250	MTVL4-1	1957	4.5	23,760	0.156	24,000	0.6	400	15.02%	15.02%	N/A	192.619(a)(2)	In situ test
5	3" Burlington H.P. Line	249	249	211220	1957	3.5	5,769	0.156	24,000	0.6	No Test	11.64%	11.64%	N/A	No Basis	Replacement
7	4" North Texas Rd H.P. Line	250	250	11C2775	1960	2.375	914	0.154	24,000	0.6	No Test	8.03%	8.03%	N/A	No Basis	Replacement
				29320	1981	2.375	83	0.154	35,000	0.6	100	5.51%	5.51%	N/A	No Basis	Replacement
8	4" Arlington H.P. Line	249	249	Fish 18C4272	1961	4.5	10,177	0.156	24,000	0.6	No Test	14.96%	14.96%	N/A	No Basis	Replacement
10	4" Sedro-Woolley H.P. Line	100	100	14788	1968	4.5	1,880	0.188	35,000	0.6	No Test	3.42%	3.42%	N/A	No Basis	Pressure test per code
12	6" North Oak Harbor H.P. Line	400	400	17206	1972	6.625	19,048	0.188	42,000	0.8	675	16.78%	16.78%	Yes	192.619(a)(2)	Expose and verify fittings replace if needed
14	16" Fredonia Transmission Line	500	500	30636 (1) (Transition Fittings and Elbows)	1983	16	64,426	0.281	24,000	0.8	750	59.30%	59.30%	N/A	192.619(a)(2)	Expose and in situ test
16	16" March Point Transmission Line	500	500	40000 (Transition Fittings and Elbows)	1992	16	43,344	0.281	24,000	0.8	750	59.30%	59.30%	N/A	192.619(a)(2)	Expose and in situ test

Critical Missing Information

Post Code Missing Pressure test

Insufficient Test Pressure Recorded

Table 1 – Summary of HP Distribution and Transmission Pipelines

HP Line #	HP Line Name	MAOP (psig)	MOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Length (Ft.)	Wall Thickness (in.)	Yield Strength (psi)	Longitudinal Joint Factor	Test Pressure (psig)	% SMYS (MAOP)	% SMYS (MOP)	Under Rated Fitting Present	Basis for MAOP	Action Plan
Longview District																
1	Longview-Kelso Transmission Segments and H.P. Distribution Line	250	250	Pre-CNGC-L1-1	1957	12.75	23,205	0.250	24,000	0.8	400	26.56%	26.56%	N/A	192.619(a)(2)	Replacement
				Pre-CNGC-L1-2	1957	4.5	4,964	0.156	24,000	0.6	392	15.02%	15.02%	N/A	192.619(a)(2)	Operate assuming most stringent criteria
				82C8335-2	1965	2.375	521	0.154	24,000	0.6	No Test	8.03%	8.03%	N/A	No Basis	Replacement
				82C8335-3	1965	4.5	152	0.156	24,000	0.6	No Test	15.02%	15.02%	N/A	No Basis	Replacement
				28621	1980	12.75	990	0.250	52,000	0.8	No Test	12.26%	12.26%	N/A	No Basis	Pressure test per code
2	4" Kalama H.P. Line	300	300	24676	1976	4.5	8,234	0.188	35,000	0.6	No Test	10.26%	10.26%	N/A	No Basis	Replacement
3	4" Dike Road H.P. Line (Longview)	80	80	82C8335	1965	4.5	6,463	0.156	24,000	0.6	No Test	4.81%	4.81%	N/A	No Basis	Replacement
7	12" South Longview H.P. Line	499	499	43600 (1) (Transition Fittings)	1995	12.75	18,373	0.312	24,000	0.8	1080	42.50%	42.50%	N/A	192.619(a)(2)	In situ test
8	8" Kalama Transmission Line	300	300	51820 (1)	1996	8.625	2,049	0.332	46,000	0.8	750	8.47%	8.47%	N/A	192.619(a)(2)	In situ test
				51820 (2)	1997	8.625	6,577	0.188	24,000	0.8	750	28.67%	28.67%	N/A	192.619(a)(2)	In situ test
				51820 (3)	1997	8.625	550	0.250	24,000	0.8	750	21.56%	21.56%	N/A	192.619(a)(2)	In situ test
				51820 (4)	1997	8.625	550	0.250	46,000	0.8	750	11.25%	11.25%	N/A	192.619(a)(2)	In situ test
Yakima (Sunnyside) District																
1	3" Sunnyside H.P. Line	200	200	Fish-L1-1	1956	3.5	4,494	0.156	24,000	0.6	No Test	9.35%	9.35%	N/A	No Basis	Replacement
				15420	1969	3.5	42	0.156	24,000	0.6	150	9.35%	9.35%	N/A	No Basis	Replacement
				21440	1973	4.5	58	0.188	35,000	0.6	No Test	6.84%	6.84%	N/A	No Basis	Replacement
2	2" South Sunnyside H.P. Line	200	200	42C2530	1959	2.375	4,018	0.154	24,000	0.6	No Test	6.43%	6.43%	N/A	No Basis	Replacement
3	4" Grandview H.P. Line	250	250	Fish-L2-1	1956	4.5	4,736	0.156	24,000	0.6	No Test	15.02%	15.02%	N/A	No Basis	Replacement occurred in 2015
4	3" Prosser H.P. Line	250	250	YakimaL4-1	1956	3.5	5,832	0.156	24,000	0.6	No Test	11.69%	11.69%	N/A	No Basis	Extend Line #13 to gate and R-1, retire line
				47c8256	1964	4.5	309	0.188	35,000	0.6	No Test	8.55%	8.55%	N/A	No Basis	Extend Line #13 to gate and R-1, retire line
5	6" Toppenish-Zillah Transmission Line	400	400	YakimaL5-1	1956	6.625	32,566	0.188	24,000	0.8	No Test	29.37%	29.37%	N/A	No Basis	Pressure test per code or replacement
6	3" Zillah H.P. Line	400	400	fish-L6-1	1956	3.5	873	0.156	24,000	0.6	No Test	18.70%	18.70%	N/A	No Basis	Replacement
7	4" Wapato H.P. Line	152	152	fish-L7-1	1956	4.5	33,284	0.156	24,000	0.6	No Test	9.13%	9.13%	N/A	No Basis	In situ test, pressure test per code or replacement
8	3" South Toppenish H.P. Line	175	175	fish-L8-1	1956	3.5	6,161	0.156	24,000	0.6	No Test	8.18%	8.18%	N/A	No Basis	Replacement
9	3" Granger H.P. Line	175	175	fish-L9-1	1956	3.5	31,347	0.156	24,000	0.6	No Test	8.18%	8.18%	N/A	No Basis	Replacement
Yakima District																
1	8" Yakima H.P. Line	200	200	Fish_968	1956	8.625	3,032	0.188	24,000	0.8	No Test	19.12%	19.12%	N/A	No Basis	Replacement
				FISH_968_Lat_26	1956	8.625	695	0.500	24,000	0.8	No Test	7.19%	7.19%	N/A	No Basis	Replacement
				40C4357	1961	8.625	4,891	0.188	24,000	0.8	350	19.12%	19.12%	N/A	192.619(a)(2)	In situ test
				20375	1973	8.625	1,585	0.250	46,000	0.8	No Test	7.50%	7.50%	N/A	No Basis	Retire or pressure test per code
Wenatchee District																
1	6" & 8" Moses Lake H.P. Line	250	250	WenL1-1	1957	6.625	509	0.188	24,000	0.8	No Test	18.35%	18.35%	N/A	No Basis	Replacement
				WenL1-2	1957	8.625	15,956	0.188	24,000	0.8	No Test	23.89%	23.89%	N/A	No Basis	Replacement
				29378	1981	8.625	30	0.188	35,000	0.8	No Test	16.38%	16.38%	N/A	No Basis	Replacement
				60390	1981	4.5	2,041	0.156	24,000	0.6	375	15.02%	15.02%	N/A	192.619(a)(2)	In situ test
2	2" Wheeler H.P. Line	250	250	WenL2-2	1962	2.375	2,375	0.154	24,000	0.6	No Test	8.03%	8.03%	Yes	No Basis	Replacement
				S8C5745	1962	2.375	179	0.154	24,000	0.6	No Test	8.03%	8.03%	N/A	No Basis	Replacement
3	4" Othello Transmission Segment and HP Line	400	400	59c7038	1963	4.5	62,441	0.188	25,000	0.6	390	19.15%	19.15%	N/A	No Basis	Replace 1.82 miles, pressure test per code remainder of line
				18998	1971	6.625	191	0.188	35,000	0.8	531	20.14%	20.14%	N/A	No Basis	UT for Wall thickness; if .188 replace, if greater pressure test per code
6	4" South Moses Lake H.P. Line	250	250	14455	1968	4.5	2,927	0.188	35,000	0.6	No Test	8.55%	8.55%	N/A	No Basis	Pressure test per code
12	6" Wenatchee H.P. Line	225	225	2912 fish	1956	6.625	31,812	0.188	24,000	0.8	No Test	16.52%	16.52%	N/A	No Basis	Pressure test per code or replacement
Kennewick District																
1	8"Attalla Transmission Line	300	300	O1C4776	1958	8.625	78,449	0.188	24,000	0.8	No Test	28.67%	28.67%	Yes	No Basis	In situ testing, add second gate to loop system, pressure test per code, expose and verify fittings and replace fittings if needed
				54C2565	1959	2.375	2	0.154	24,000	0.6	No Test	9.64%	9.64%	N/A	No Basis	
				14375 (1)	1968	8.625	49	0.188	35,000	0.8	No Test	19.66%	19.66%	Yes	No Basis	
				14375 (2)	1968	12.75	183	0.250	35,000	0.8	No Test	21.86%	21.86%	N/A	No Basis	
				14375 (3)	1968	12.75	42	0.375	35,000	0.8	No Test	14.57%	14.57%	N/A	No Basis	
				14375 (4)	1968	12.75	25	0.330	35,000	0.8	No Test	16.56%	16.56%	N/A	No Basis	
				14375 (5)	1968	12.75	111	0.250	52,000	0.8	No Test	14.71%	14.71%	N/A	No Basis	
3	4" East Finley H.P. Line	250	250	12614	1967	4.5	2,498	0.188	35,000	0.6	No Test	8.55%	8.55%	N/A	No Basis	Pressure test per code
				16256	1969	2.375	365	0.154	24,000	0.6	No Test	8.03%	8.03%	N/A	No Basis	Replacement
4	Pasco H.P. Distribution System	300	300	KennL4-1	1960	4.5	10,125	0.156	24,000	0.6	450	18.03%	18.03%	N/A	192.619(a)(2)	In situ test
5	4" Northwest Pasco H.P. Line	300	300	11097 (1)	1966	4.5	2,847	0.188	35,000	0.6	No Test	10.26%	10.26%	N/A	No Basis	Pressure test per code
6	4" Glade Road H.P. Line	150	150	11097 (2)	1966	4.5	2,052	0.188	35,000	0.6	No Test	5.13%	5.13%	N/A	No Basis	Pressure test per code
7	2" Burbank H.P. Line	158	158	12301	1967	2.375	3,520	0.154	35,000	0.6	100	3.48%	3.48%	N/A	No Basis	Pressure test per code or replacement
8	4" Finley H.P. Line	200	200	53C2527	1959	4.5	12,391	0.156	24,000	0.6	No Test	12.02%	12.02%	N/A	No Basis	In situ test, pressure test per code
11	4" Plymouth H.P. Line	400	400	28141,D0069144, 28330	1980	4.5	4,112	0.188	35,000	0.6	600	13.68%	13.68%	Yes	192.619(a)(2)	Expose and verify fittings replace if needed
Walla Walla District																
1	8" Walla Walla H.P. Line	150	150	WWL1-1	1956	8.625	4,595	0.188	24,000	0.8	No Test	14.34%	14.34%	N/A	No Basis	In situ test, pressure test per code or replacement
2	3" College Place H.P. Line	150	150	WWL2-1	1956	3.5	2,474	0.156	24,000	0.6	No Test	7.01%	7.01%	N/A	No Basis	Retire

Critical Missing Information

Post Code Missing Pressure test

Insufficient Test Pressure Recorded

Table 2 - Pipeline Segments Reclassified as Transmission

HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Wall Thickness (in.)	Yield Strength (psi)	% SMYS
Bellingham District								
1	8" Bellingham Transmission Line	380	Line 1-1	1956	8.625	0.188	24,000	36.32%
3	8" Central Whatcom Transmission Line	380	14c1344	1957	8.625	0.188	24,000	36.32%
			40855 (Transition fittings)	1972	4.5	0.156	24,000	36.32%
21	16" Squalicum Transmission Segment	250	41508	1993	16	0.281	24,000	29.66%
Mount Vernon District								
1	8" Anacortes HP Line	360	MTVL1-1	1957	8.625	0.188	24,000	34.4%
			18191	1972	8.625	0.188	35,000	23.6%
2	8" March Point H.P. Line	360	11C1144	1957	8.625	0.188	24,000	34.4%
			11C1144	1957	8.625	0.25	24,000	25.9%
			11C56.28	1963	8.625	0.188	24,000	34.4%
Longview District								
1	Longview-Kelso H.P. Distribution Line	250	Pre-CNGC-L1-1	1957	12.75	0.25	24,000	26.6%
8	8" Kalama H.P. Line	300	51820(1)	1996	8.625	0.322	46,000	8.5%
			51820(2)	1997	8.625	0.188	24,000	28.7%
			51820(3)	1997	8.625	0.25	24,000	21.6%
			51820(4)	1997	8.625	0.25	46,000	11.3%
Yakima District (Sunnyside)								
5	6" Toppenish-Zillah H.P. Line	400	YakimaL5-1	1956	6.625	0.188	24,000	29.4%
Wenatchee District								
1	6" & 8" Moses Lake H.P. Line	250	WenL1-1	1957	6.625	0.188	24,000	18.4%
			WenL1-2	1957	8.625	0.188	24,000	23.9%
			60390	1981	4.5	0.156	24,000	15.0%
3	4" Othello Transmission Line	400	18998	1971	6.625	0.188	35,000	20.1%
Kennewick								
1	8"Attalia H.P. Line	300	O1C4776	1958	8.625	0.188	24,000	28.7%
			14375 (1)	1968	8.625	0.188	35,000	19.7%
			14375 (2)	1968	12.75	0.25	35,000	21.9%
			14375 (3)	1968	12.75	0.375	35,000	14.6%
			14375 (4)	1968	12.75	0.33	35,000	16.6%
			14375 (5)	1968	12.75	0.25	52,000	14.7%

Critical Missing Information

Table 5 - Pre-Code Pipelines without Pressure Test

HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Length (Ft.)	Wall Thickness (in.)	Yield Strength (psi)	Test Pressure (psig)	% SMYS	Design Pressure (psig)
Bellingham District											
1	8" Bellingham Transmission Line	380	Line 1-1	1956	8.625	15,086	0.188	24,000	No Test	36.32%	419
2	Bellingham H.P. Distribution System	150	fish-1	1956	8.625	16,475	0.188	24,000	No Test	14.34%	335
			fish-2	1956	10.75	15,630	0.188	24,000	No Test	17.87%	269
			10c1315	1958	4.5	927	0.156	24,000	No Test	9.01%	399
			10c1559	1958	4.5	520	0.156	24,000	No Test	9.01%	399
			10c3298	1960	4.5	1,448	0.156	24,000	No Test	9.01%	399
			10c4799	1962	2.375	221	0.154	24,000	No Test	4.82%	747
			10c5321	1963	2.375	1,505	0.154	24,000	No Test	4.82%	747
			10c9831	1966	2.375	1,309	0.154	24,000	No Test	4.82%	747
3	8" Central Whatcom Transmission Line	380	14c1344	1957	8.625	57,437	0.188	24,000	No Test	36.32%	419
4	4" South Lynden H.P. Line	250	Line 4-1	1961	4.5	35,441	0.156	24,000	No Test	15.02%	499
8	2" Nooksack H.P. Distribution System	250	16C7000	1963	2.375	732	0.154	24,000	No Test	8.03%	934
Aberdeen District											
3	4" McCleary H.P. Line	150	79C6323	1963	4.5	225	0.156	24,000	No Test	9.01%	499
			78C7902-2	1964	4.5	252	0.156	24,000	No Test	9.01%	499
Mount Vernon District											
1	8" Anacortes Transmission Line	360	MTVL1-1	1957	8.625	102,813	0.188	24,000	No Test	34.41%	419
2	8" March Point Transmission Line	360	11C1144-1	1957	8.625	8,134	0.188	24,000	No Test	34.41%	419
			11C1144-2	1957	8.625	814	0.250	24,000	No Test	25.88%	557
			11C5628	1963	8.625	285	0.188	24,000	No Test	34.41%	419
3	Anacortes H.P. Distribution System	105	MTVL3-1	1956	6.625	5,102	0.188	24,000	No Test	7.71%	545
			MTVL3-2	1956	8.625	4,675	0.188	24,000	No Test	10.04%	419
			11C1491	1958	2.375	3	0.154	24,000	No Test	3.37%	934
			11C2330	1959	2.375	70	0.154	24,000	No Test	3.37%	934
			11C2626	1959	2.375	127	0.154	24,000	No Test	3.37%	934
			09801	1966	2.375	112	0.154	24,000	No Test	3.37%	934
5	3" Burlington H.P. Line	249	211220	1957	3.5	5,769	0.156	24,000	No Test	11.64%	642
7	4" North Texas Rd H.P. Line	250	11C2775	1960	2.375	914	0.154	24,000	No Test	8.03%	934
8	4" Arlington H.P. Line	249	Fish 18C4272	1961	4.5	10,177	0.156	24,000	No Test	14.96%	499
Longview District											
1	Longview-Kelso Transmission Segments and H.P. Distribution Line	250	82C8335-2	1965	2.375	521	0.154	24,000	No Test	8.03%	934
			82C8335-3	1965	4.5	152	0.156	24,000	No Test	15.02%	499
3	4" Dike Road H.P. Line (Longview)	80	82C8335	1965	4.5	6,463	0.156	24,000	No Test	4.81%	499
Yakima (Sunnyside) District											
1	3" Sunnyside H.P. Line	200	Fish-L1-1	1956	3.5	4,494	0.156	24,000	No Test	9.35%	642
			15420	1969	3.5	42	0.156	24,000	150	9.35%	642
2	2" South Sunnyside H.P. Line	200	42C2530	1959	2.375	4,018	0.154	24,000	No Test	6.43%	934
3	4" Grandview H.P. Line	250	Fish-L2-1	1956	4.5	4,736	0.156	24,000	No Test	15.02%	499
4	3" Prosser H.P. Line	250	YakimaL4-1	1956	3.5	5,832	0.156	24,000	No Test	11.69%	642
5	6" Toppenish-Zillah Transmission Line	400	YakimaL5-1	1956	6.625	32,566	0.188	24,000	No Test	29.37%	545
6	3" Zillah H.P. Line	400	fish-L6-1	1956	3.5	873	0.156	24,000	No Test	18.70%	642
7	4" Wapato H.P. Line	152	fish-L7-1	1956	4.5	33,284	0.156	24,000	No Test	9.13%	499
8	3" South Toppenish H.P. Line	175	fish-L8-1	1956	3.5	6,161	0.156	24,000	No Test	8.18%	642
9	3" Granger H.P. Line	175	fish-L9-1	1956	3.5	31,347	0.156	24,000	No Test	8.18%	642

Critical Missing Information

Insufficient Test Pressure Recorded

Table 5 - Pre-Code Pipelines without Pressure Test

HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Length (Ft.)	Wall Thickness (in.)	Yield Strength (psi)	Test Pressure (psig)	% SMYS	Design Pressure (psig)
Yakima District											
1	8" Yakima H.P. Line	200	Fish_968	1956	8.625	3,032	0.188	24,000	No Test	19.12%	419
			FISH_968_Lat_26	1956	8.625	695	0.500	24,000	No Test	7.19%	1113
Wenatchee District											
1	6" & 8" Moses Lake H.P. Line	250	WenL1-1	1957	6.625	509	0.188	24,000	No Test	18.35%	545
			WenL1-2	1957	8.625	15,956	0.188	24,000	No Test	23.89%	419
2	2" Wheeler H.P. Line	250	WenL2-2	1962	2.375	2,375	0.154	24,000	No Test	8.03%	934
			58C5745	1962	2.375	179	0.154	24,000	No Test	8.03%	934
12	6" Wenatchee H.P. Line	225	2912 fish	1956	6.625	31,812	0.188	24,000	No Test	16.52%	545
Kennewick District											
1	8"Attalia Transmission Line	300	O1C4776	1958	8.625	78,449	0.188	24,000	No Test	28.67%	419
			54C2565	1959	2.375	2	0.154	24,000	No Test	9.64%	934
3	4" East Finley H.P. Line		16256	1969	2.375	365	0.154	24,000	No Test	8.03%	934
8	4" Finley H.P. Line	200	53C2527	1959	4.5	12,391	0.156	24,000	No Test	12.02%	499
Walla Walla District											
1	8" Walla Walla H.P. Line	150	WWL1-1	1956	8.625	4,595	0.188	24,000	No Test	14.34%	419
2	3" College Place H.P. Line	150	WWL2-1	1956	3.5	2,474	0.156	24,000	No Test	7.01%	642

Critical Missing Information **Insufficient Test Pressure Recorded**

Table 6 - Time Frames for Completion

HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Length (Ft.)	Action Plan	Year Action Plan Begins	Year Action Plan Completed
Bellingham District							
1	8" Bellingham Transmission Line	380	Line 1-1	15,086	In situ test, isolate and pressure test, replace section on James St.	2016	2017
2	Bellingham H.P. Distribution System	150	fish-1	16,475	Replacement	2019	2022
			fish-2	15,630	Replacement	2019	2022
			10c1315	927	Replacement	2019	2022
			10c1559	520	Replacement	2019	2022
			10c3298	1,448	Replacement	2019	2022
			10c4799	221	Replacement	2019	2022
			10c5321	1,505	Replacement	2019	2022
			10c8241	2,356	Isolate and pressure test	2022	2022
			10c9683	988	Replacement	2019	2022
			11480-1	1,577	Replacement	2019	2022
			11480-2	396	Replacement	2019	2022
			10c9831	1,309	Replacement	2019	2022
			13150	2,025	Downrate to distribution pressure	2017	2017
			20564-1	219	Replacement	2019	2022
			20564-2	113	Replacement	2019	2022
			20752	63	Replacement	2019	2022
			21298	12	Replacement	2019	2022
3	8" Central Whatcom Transmission Line	380	14c1344	57,437	In situ test, isolate and pressure test	2017	2018
			40855 (Transition fittings)	10,579	In situ test fittings	2018	2018
4	4" South Lynden H.P. Line	250	Line 4-1	35,441	In situ test, in-service pressure test	2020	2021
8	2" Nooksack H.P. Distribution System	250	16C7000	732	In situ test, in-service pressure test	2022	2023
			20048	737	In-service pressure test	2023	2023
			20519	490	In-service pressure test	2023	2023
9	8" Lake Terrell Rd Transmission Line	380	18734-1	10,314	In situ test	2018	2018
10	16" N. Whatcom Transmission Line	600	18794	143,907	Expose and verify or replace plugs in vault	2016	2016
12	4" North Lynden H.P. Line	400	25773	8,161	Expose and verify or replace caps on Sav-a-Valves	2016	2016
21	16" Squalicum Transmission Segment	250	41508	2,600	In situ test	2022	2022
Aberdeen District							
1	8" Kitsap Line (Phase 1)	499	20C6308-3	35,770	Expose and verify or replace caps on Sav-a-Valves	2016	2016
3	4" McCleary H.P. Line	150	79C6323	225	Line retired as part of gate replacement project in 2015	2015	2015
8	4" Montesano H.P. Distribution System	135	77C6321	1,645	In-service pressure test	2019	2019
9	2" Elma Rendering Plant H.P. Line	150	78C7902-1	5,280	Isolate and pressure test, replace upstream section	2020	2020
			78C7902-2	252	Replacement	2020	2020
12	2" Elma (R.H.D.) H.P. Line	100	25775	1,307	Downrate to IP use existing 100 psi test	2018	2018
15	12" Kitsap H.P. Line	499	44000	34,782	Expose and verify or replace caps on Sav-a-Valves	2016	2016
Bremerton District							
2	8" & 12" Bremerton Transmission Line	499	BremertonL2-1	2,843	In situ test	2016	2016
6	4" Olympic View H.P. Line	499	20387	14,540	Replace plugs on next valve maintenance	2016	2016
11	8" Bremerton H.P. Line	144	20C6316	4,510	In-service pressure test	2024	2024
			18522	2,863		2024	2024
Mount Vernon District							
1	8" Anacortes Transmission Line	360	MTVL1-1	102,813	In situ test 11 miles, replace 9 miles, isolate and pressure test 8 of 11 miles that were in situ tested, lower pressure on last 2.25 miles, expose and verify line stopper fittings at V-3 valve station	2016	2018
			18191	80	Replacement	2017	2017
2	8" March Point Transmission Line	360	11C1144-1	8,134	In situ test, isolate and pressure test between V-4 and R-89, replace north of R-89.	2016	2017
			11C1144-2	814	In situ test, isolate and pressure test.	2016	2017
			11C5628	285	Replacement	2017	2017
3	Anacortes H.P. Distribution System	105	MTVL3-1	5,102	Replacement	2016	2020
			MTVL3-2	4,675	Replacement	2016	2020
			11C1491	3	Retire	2016	2020
			11C2330	70	Retire	2016	2020
			11C2626	127	Replacement	2016	2020
			09801	112	Replacement	2016	2020
			14373	1	Retire	2016	2020
			15973	25	Replacement	2016	2020
4	4" Mount Vernon H.P. Line	250	MTVL4-1	23,760	In situ test	2021	2021
5	3" Burlington H.P. Line	249	211220	5,769	Replacement	2016	2016
7	4" North Texas Rd H.P. Line	250	11C2775	914	Replacement	2024	2024
			29320	83	Replacement	2024	2024
8	4" Arlington H.P. Line	249	Fish 18C4272	10,177	Replacement	2021	2021
10	4" Sedro-Woolley H.P. Line	100	14788	1,880	In-service pressure test	2025	2025
12	6" North Oak Harbor H.P. Line	400	17206	19,048	Expose and verify fittings replace if needed	2017	2017
14	16" Fredonia Transmission Line	500	30636 (1) (Transition Fittings and Elbows)	64,426	Expose and in situ test	2016	2016
16	16" March Point Transmission Line	500	40000 (Transition Fittings and Elbows)	43,344	Expose and in situ test	2016	2016

Table 6 - Time Frames for Completion

HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Length (Ft.)	Action Plan	Year Action Plan Begins	Year Action Plan Completed
Longview District							
1	Longview-Kelso Transmission Segments and H.P. Distribution Line	250	Pre-CNGC-L1-1	23,205	Replacement	2017	2021
			Pre-CNGC-L1-2	4,964	Operate assuming most stringent criteria	2016	2016
			82C8335-2	521	Replacement	2017	2021
			82C8335-3	152	Replacement	2017	2021
			28621	990	Isolate and pressure test	2021	2021
2	4" Kalama H.P. Line	300	24676	8,234	Replacement	2024	2024
3	4" Dike Road H.P. Line (Longview)	80	82C8335	6,463	Replacement	2025	2025
7	12" South Longview H.P. Line	499	43600 (1) (Transition Fittings)	18,373	In situ test	2017	2017
8	8" Kalama Transmission Line	300	51820 (1)	2,049	In situ test	2021	2021
			51820 (2)	6,577	In situ test	2021	2021
			51820 (3)	550	In situ test	2021	2021
			51820 (4)	550	In situ test	2021	2021
Yakima (Sunnyside) District							
1	3" Sunnyside H.P. Line	200	Fish-L1-1	4,494	Replacement	2023	2023
			15420	42	Replacement	2023	2023
			21440	58	Replacement	2023	2023
2	2" South Sunnyside H.P. Line	200	42C2530	4,018	Replacement	2024	2024
3	4" Grandview H.P. Line	250	Fish-L2-1	4,736	Replacement occurred in 2015	2015	2015
4	3" Prosser H.P. Line	250	YakimaL4-1	5,832	Extend Line #13 to gate and R-1, retire line	2022	2022
			47c8256	309	Extend Line #13 to gate and R-1, retire line	2022	2022
5	6" Toppenish-Zillah Transmission Line	400	YakimaLS-1	32,566	In situ test, in-service pressure test	2019	2020
6	3" Zillah H.P. Line	400	fish-L6-1	873	Replacement	2021	2021
7	4" Wapato H.P. Line	152	fish-L7-1	33,284	In situ test, in-service pressure test	2023	2024
8	3" South Toppenish H.P. Line	175	fish-L8-1	6,161	Replacement	2024	2024
9	3" Granger H.P. Line	175	fish-L9-1	31,347	Replacement	2026	2026
Yakima District							
1	8" Yakima H.P. Line	200	Fish_968	3,032	Replacement	2021	2021
			FISH_968_Lat_26	695	Replacement	2021	2021
			40C4357	4,891	In situ test	2021	2021
			20375	1,585	Retire or isolate and pressure test	2021	2021
Wenatchee District							
1	6" & 8" Moses Lake H.P. Line	250	WenL1-1	509	Replacement	2018	2018
			WenL1-2	15,956	Replacement	2018	2018
			29378	30	Replacement	2018	2018
			60390	2,041	In situ test	2020	2020
2	2" Wheeler H.P. Line	250	WenL2-2	2,375	Replacement	2025	2025
			58C5745	179	Replacement	2025	2025
3	4" Othello Transmission Segment and HP Line	400	59c7038	62,441	Replace 1.82 miles, isolate and pressure test remainder of line	2023	2024
			18998	191	UT for Wall thickness; if .188 replace, if greater isolate and pressure test	2023	2024
6	4" South Moses Lake H.P. Line	250	14455	2,927	Isolate and pressure test	2017	2017
12	6" Wenatchee H.P. Line	225	2912 fish	31,812	In situ test, in-service pressure test	2021	2022
Kennewick District							
1	8"Attalla Transmission Line	300	O1C4776	78,449	In situ testing, add second gate to loop system, isolate and pressure test, expose and verify fittings and replace fittings if needed	2018	2023
			54C2565	2		2018	2023
			14375 (1)	49		2018	2023
			14375 (2)	183		2018	2023
			14375 (3)	42		2018	2023
			14375 (4)	25		2018	2023
			14375 (5)	111		2018	2023
3	4" East Finley H.P. Line	250	12614	2,498	Isolate and pressure test	2023	2023
			16256	365	Replacement	2023	2023
4	Pasco H.P. Distribution System	300	KennL4-1	10,125	In situ test	2023	2023
5	4" Northwest Pasco H.P. Line	300	11097 (1)	2,847	Isolate and pressure test	2017	2017
6	4" Glade Road H.P. Line	150	11097 (2)	2,052	Isolate and pressure test	2017	2017
7	2" Burbank H.P. Line	158	12301	3,520	In-service pressure test	2017	2017
8	4" Finley H.P. Line	200	53C7527	12,391	In situ test, isolate and pressure test	2022	2023
11	4" Plymouth H.P. Line	400	28141,D0069144, 28330	4,112	Expose and verify fittings replace if needed	2017	2017
Walla Walla District							
1	8" Walla Walla H.P. Line	150	WWL1-1	4,595	In situ test, in-service pressure test	2020	2021
2	3" College Place H.P. Line	150	WWL2-1	2,474	Retire	2019	2019

Attachment B: Technician Certification and Device Calibration Records

ABI Services, LLC

Certificate of Training & Instruction

in

Safety Training

and the Use of the Stress-Strain Microprobe® (SSM) Systems

This is to certify that

Wayne Warner

has successfully completed annual safety training and the use of the patented SSM Systems and ABI Software.

Safety training includes instruction and testing in general construction safety and housekeeping, scaffolding, excavation and trenching, falls, lifting, personal protection, and eye protection. SSM training includes the theory of mechanical testing, ball indentation testing, and a practical demonstration of laboratory and field testing using the SSM Systems and the ABI® Software.

Date: January 25, 2016

Signed,

Fahmy M. Haggag

Fahmy M. Haggag
President
ABI Services, LLC

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Oak Ridge, TN 37830 USA
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ANNUAL LOAD CELL CALIBRATION

Date	Original Calibration Date	Manufacturer
June 30, 2016	June 3, 2003	Sensotec
Model	**Serial Number**	**Capacity**
41/0571-02	961578	250 lb
Shunt Cal Factor MV/V	**Calibration Factor MV/V**	**SSM Shunt Cal Value**
1.485	2.984	124.4 ±0.2
SSM System Number	**Cable Length**	
201004	10 ft	
Shunt Value Reading 1	124.4	
Shunt Value Reading 2	124.3	

Certified by: Fahmy M. Haggag
Fahmy Haggag, Chief Engineer

SENSOTEC
2080 ARLINGATE LANE COLUMBUS, OHIO 43228 (614) 850 - 5000
INTERNET URL http://www.sensotec.com

CERTIFICATE OF CALIBRATION

MODEL: 41/0571-02
ORDER CODE: AL111CN
SERIAL NUMBER: 961578-
CALIBRATION DATE: Jun 03/2003
INPUT RESISTANCE: 388.Ω
OUTPUT RESISTANCE: 352.Ω
LEAKAGE: ∞

WIRING CODE

CAPACITY: 250 LBS TENSION
CALIBRATED AT: 250 LBS
EXCITATION: 10.0 VDC
CALIBRATION FACTOR: 2.984 MV/V
SHUNT RESISTOR: 59kΩ
SHUNT CAL FACTOR: 1.485 MV/V

$\frac{1.485}{2.984} \times 250 = 124.4$

SENSOTEC

UNAMP#2,4-COND,6-PIN	
PIN	DESIGNATION
A	(+)EXCITATION
B	(+)EXCITATION
C	(-)EXCITATION
D	(-)EXCITATION
E	(-)OUTPUT
F	(+)OUTPUT

001-0333-02

Accepted and Certified by: Michael A Stanley

Date Printed: 6/4/2003

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ANNUAL LOAD CELL CALIBRATION

Date	Original Calibration Date	Manufacturer
June 30, 2016	February 6, 2012	Honeywell/Sensotec
Model	**Serial Number**	**Capacity**
41/0571-02	1374130	250 lb
Shunt Cal Factor mV/V	**Calibration Factor mV/V**	**SSM Shunt Cal Value**
1.1014	3.004	91.7 ±0.2
SSM System Number	**Cable Length**	
201004	10 ft	
Shunt Value Reading 1	91.8	
Shunt Value Reading 2	91.7	

Certified by: Fahmy M. Haggag
Fahmy Haggag, Chief Engineer

Honeywell

2080 Arlingate Lane
Columbus, Ohio 43228 U.S.A.
Phone: 614-850-5000
Toll free: 800-848-6564
Fax: 614-850-1111
www.honeywell.com/sensotec
sensotec.service@honeywell.com

CERTIFICATE OF CALIBRATION

Product Identification

Product Type:	LOAD	Customer Name:	N/A
Model:	41	Customer PO:	N/A
Serial No.*:	1374130	Order Code:	AL111CN,1A,2U,6A,15A
Part No.:	060-0571-02	Instrument Serial No.:	N/A

* A letter at the end of the serial number indicates the associated bridge.

Product Specifications

Capacity:	250lbs	Excitation:	10.0 Vdc
Calibrated At:	250.00lbs	Amplifier Output:	N/A
Direction / Type:	Tension	Electrical Leakage:	∞ MegΩ

Wiring Code

UNAMP#2,4-COND,6-PIN

PIN	DESIGNATION
A	(+)EXCITATION
B	(+)EXCITATION
C	(-)EXCITATION
D	(-)EXCITATION
E	(-)OUTPUT
F	(+)OUTPUT

001-0333-02

$\frac{1.1014}{3.0041} \times 250 = 91.66$

This unit has been calibrated using standards whose accuracies are traceable to the National Institute of Standards and Technology (NIST). Units are calibrated based upon ANSI/NCSL Z540 on equipment whose accuracies are within a 4:1 ratio unless otherwise indicated. Reported values may be scaled due to limitations of test equipment such as dead weight increments or local barometric pressure. This certificate of calibration shall not be reproduced in any form, except in full, without the expressed written consent of Honeywell. If you have any questions concerning this certificate of calibration, please call our service department at (614) 850-5000.

Derek W. Drabanstadt, Quality Manager

PRINT DATE: 2/6/2012

Certificate No
1374130--001

Document No. 086-1000-09

Calibration Data

Input Resistance: 351 Ω
Output Resistance: 261 Ω

Calibration Factor: 3.0041mV/V
Operator(s): Steve Escoffier
Calibration Date: 02/04/2012

Calibration Procedure: 072-LC75-10, Rev C, Date 04/20/2011

% Capacity	Load (lbs)	Raw (mV/V)	Normalized (mV/V)
0	0.00	0.0108	0.0000
50	125.00	1.5134	1.5026
100	250.00	3.0145	3.0037
50	125.00	1.5143	1.5035
0	0.00	0.0113	0.0005

$\frac{1.1014}{3.0041} \times 250 = 91.66$

Shunt Calibration Data

Line No.	Shunt Resistor	Shunt Sense	Zero	Shunt Zero	Shunt Cal	Shunt Cal. Capacity
1	59kΩ	N/A	N/A	N/A	1.1014 mV/V	N/A

Calibration Standards

NIST Traceable #	Inst. ID#	Description	Model	Cal Date	Date Due
4591694	100635	DEADWEIGHT TEST STAND	1000 LBS.	10/28/2010	10/28/2013
5108348	100859	DIGITAL MULTIMETER	34401A	05/05/2011	05/05/2012
5106590	7241228	DECADE RESISTOR	0-10M OHMS	05/04/2011	05/04/2012

Environmental Data

Temperature: 74 °F
Humidity: 18 %RH
Pressure: 14.41 psiA

Certificate No
1374130--001

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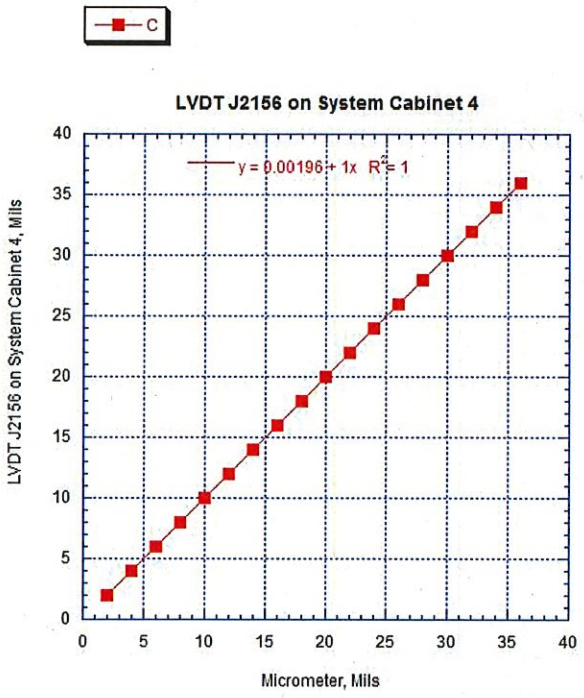
ANNUAL LVDT CALIBRATION

Date	Original Calibration Date	Manufacturer
June 30, 2016	October 30, 2002	Schaevitz Sensors
Model	**Serial Number**	**Capacity**
LBB-315-PA-020	J2156	±0.0200"
SSM System Number	**Cable Length**	
201004	10 ft	



Certified by: Fahmy M. Haggag

Fahmy Haggag, Chief Engineer

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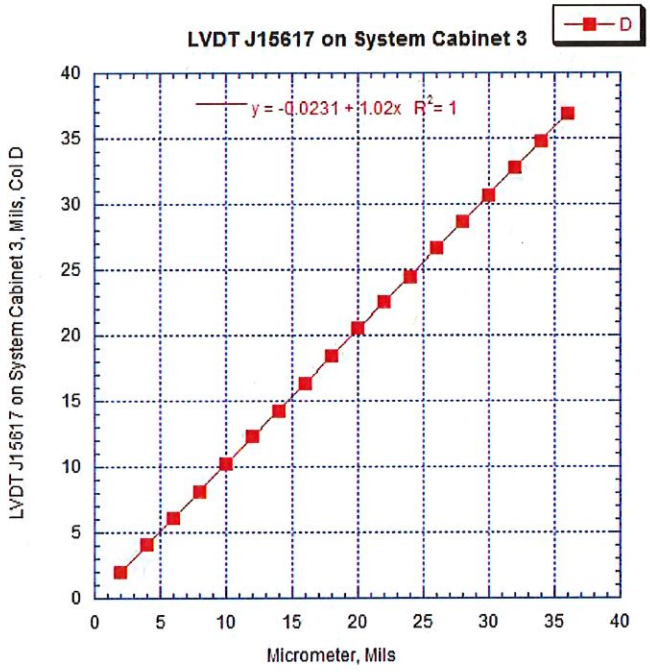
ANNUAL LVDT CALIBRATION

Date	Original Calibration Date	Manufacturer
June 30, 2016	April 15, 2010	Schaevitz Sensors
Model	**Serial Number**	**Capacity**
LBB-315-TA-020	J15617	±0.0200"
SSM System Number	**Cable Length**	
201003	10 ft	



Certified by: Fahmy M. Haggag
Fahmy Haggag, Chief Engineer