

APPENDIX 2 to EXHIBIT "C"

BP FERNDALE PIPELINE CAPACITY EXPANSION WAIVER  
APPLICATION

Cathodic Protection Readings

Arco Western Gas Pipeline Company - Annual Cathodic Protection Survey  
 16 Pipeline - From Sumas Station to Cherry Point Refinery

NCE Job No. 0-12295-P  
 Sept. 9-10, 1991  
 By: J. Keppler

*J. Keppler*

Station	Description	Type	Sept 9-10/91	Dec 5-8/90	Native Sept 90	Initial Settings
0	IG at USA / Canada border, N of Sumas Station, N c1 Jones Rd.	P/S	1.382	1.665	0.732	2.05
0	MOU 001	P/S	1.887	1.856	1.404	2.12
0	Canada	F/S				
15	TS 15/ S of 16	P/S	1.425	1.714	0.732	
200	Sumas Station, CPU, E side elect rack	P/S	1.140	1.314	0.484	
200	6 in	P/S	1.180	1.326	0.499	
200	8 in	P/S	0.843	1.302	0.494	
200	6 out	P/S	1.132	1.294	0.460	
200	8 out	P/S	1.425	1.641	0.688	1.792
200	launcher 6	P/S	1.414	1.546	0.724	
200	launcher 12	P/S	1.422	1.590		
200	launcher 16	P/S	1.056	1.100	0.771	1.006 Recty. Rect only
200	launcher 16	Off	14.1	13.9		14.1
200	M# CSWSE 24-12 ANS	Volts	1.6	1.4		2.3
200	S# 89C1633	Amps	5.3	6.5		7.6
200	15 Amp/ 50 mV	Shunt	B/5	B/5		B/5
200	Max D/5	Taps	0.3	0.3		0.3
200	1 Bottom	Anode	0.5	0.5		0.6
200	2	Anode	0.3	0.3		0.4
200	3	Anode	0.5	0.5		0.7
200	4	Anode	0.2	0.2		0.3
200	5 Top	Anode	1.8	1.8		2.3
200	CPU	Total (amps)				

S c1 Jones Rd., opposite pump station, E orange tank

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Station	Description	Type	Sept		Native Initial	
			9-10/91	5-8/90	Sept 90	Settings
1754	M/PL	P/S	1.318	1.394	NL	
1754	M/PL	F/S	1.475	1.261	NL	
1800	S c1 Jones Rd., opposite pump station,	P/S	1.323	1.593	NL	
1800	M/PL	F/S	1.132	1.163	NL	
3927	S c1 Jones Rd., opposite pump station, W orange fink	P/S	1.442	1.551	NL	
3927	TMPL	F/S	1.890	1.388	NL	
6736	W c1 Conchman Rd., 25' S TMPL APM 6, TMPL Xing	P/S	1.440	1.572	0.695	
10862	TS along E/W hedgerow, walk north from Reese Hill Rd. Xing					
10862	TMPL Xing	P/S	NL	1.527	0.613	
11371	TS along N/S hedgerow, walk north from Reese Hill Rd. Xing					
11371	TMPL Xing	P/S	NL	1.550	0.595	
12553	W end casing, Reese Hill Rd. Xing, S side rd.					
12553		P/S	1.498	1.548	0.660	
12553		C/S	0.785	0.766	0.776	
12881	TMPL Xing, S c1 Hill View Rd.					
12881		P/S	1.471	1.558	0.660	

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Station	Description	Type	Native Initial		
			Sept 9-10/91	Dec 5-8/90	Sept 90 Settings
TMPL TS (orange/white), 11 c1 Sumas Rd. (dead end)					
14953	100' S pl Xing	P/S	1.460	1.450	0.695
14953	TMPL	F/S	1.911	1.542	1.076
N side Morgan Rd. projected (dirt), E of TMPL Xing, 1/4 mi E of Telegraph Rd					
18646		P/S	1.440	1.544	0.711
24116 Buried casing for proposed Rte 9, no TL, no vents					
E end casing, BNRD, enter S from Morgan Rd.					
24547		P/S	1.400	1.495	0.598
24547		C/S	0.797	0.768	0.750
Valve 1 Station, E c1 Lynden Sumas Rd.					
22529	East	P/S	1.424	1.461	0.732
22539	West	P/S	1.404	1.450	0.734
E end casing, Lynden Sumas Rd.					
22654		P/S	1.452	1.499	0.719
22654		C/S	0.801	0.778	0.766
TS in field, 350' E c1 Van Buren St. casing, Cascade PL Xing					
38042		P/S	1.461	1.551	0.763
E end casing, Van Buren St. at BNRD Xing					
38319		P/S	1.566	1.568	0.792

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			Sept 9-10/91	Dec 5-8/90	Sept 90
38319	C/S		0.633	0.693	0.623
43005	501' E c1 Trap Line Rd. P/S		1.470	1.557	0.747
54166	Valve 2 Station, at Clay Rd., S c1 Haveman Rd. P/S		1.247	1.284	0.665
54176	West P/S		1.247	1.284	0.618
54532	S side Haveman Rd. Xing, "500' W station, CNG Xing P/S		1.428	1.547	0.784
62124	50' N c1 Haveman Rd., 20' E c1 Bloom Rd. P/S		1.451	1.574	0.750
71735	E c1 Benson Rd. P/S		1.439	1.489	0.769
71794	Cascade Natural Gas Rectifier - W c1 Benson Rd. OFF				
77069	E end casing, Meridian Guide Rd. P/S		1.426	1.555	0.724
77069	C/S		0.758	0.766	0.744
81239	W c1 Jackman Rd., 2' S power pole P/S		1.385	1.560	0.708
81291	Valve 3 Station, W c1 Jackman Rd. East P/S		1.343	1.471	0.725

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NCE Job No. 0-12295-D  
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Station	Description	Type	Sept 9-10/91	Dec 5-8/90	Native Sept 90	Initial Settings
81301	West	P/S	1.341	1.477	0.719	
81700	~400' W Valve 3 Station	P/S	1.407	1.543	NL	
87905	E c1 Herdkamp Rd.	P/S	1.470	1.614	0.717	
91289	TS 1' N of fence line corner post, at N end of N flowing section, 2000' E c1 Mark North Rd.	P/S	1.487	1.572	0.772	
92710	647' E c1 Mark North Rd.	P/S	1.444	1.574	0.737	
93335	E c1 Mark North Rd.	P/S	1.438	1.572	0.717	
104657	S c1 W. Badger Rd.	P/S	1.431	1.557	0.734	
107542	Valve 4 Station, E c1 Sunrise Rd.	P/S	1.350	1.506	0.762	
107552	East	P/S	1.336	1.494	0.758	
107580	West	P/S	1.407	1.571	0.734	1.701 Rect only
	E c1 Sunrise Rd.	P/S				
	W c1 Sunrise Rd.	P/S				

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Station	Description	Type	Sept 9-10/91	Dec 5-8/90	Native Sept 90	Initial Settings
107639		P/S	1.403	1.580	0.741	
116100	E c1 Stearn Rd., (N K) 32' N c1 Cascade Pl.	P/S	1.348	1.574	0.736	
120948	E c1 Custer School Rd., 15' S c1/ opposite drive H# 8541	P/S	1.451	1.570	0.752	
126675	200' E c1 Valley View, 25' N 2nd Power pole N c1 Loomis Trl.	P/S	1.370	1.576	0.768	
127318	S c1 Loomis Trl, E c1 Valley View	P/S	1.387	1.571	0.770	
130053	N c1 Valley View, S c1 Loomis Trl., 75' E H# 3501	P/S	1.427	1.562	0.783	
132998	E end casing, I-5, may take ROM from previous point	P/S	1.414	1.558	0.640	
132998		C/S	0.736	0.789	0.665	
134120	N c1 Portal Way, Row from N, 30' E gas meter H# 8210	P/S	1.463	1.586	0.752	
135351	S c1 Portal Way, Cascade Gas Co. ROM Xing	P/S	1.468	1.579	0.762	
136297	N end casing, RR Xing, S c1 Portal Way	P/S	1.396	1.560	0.762	

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Station	Description	Type	Settings		
			Sept 9-10/91	Dec 5-8/90	Native Sept 90
136297		C/S	0.792	0.771	0.754
Valve 5 Station, S cl Birch Bay - Lynden Rd.					
137336	North	P/S	1.360	1.475	0.781
137346	South	P/S	1.366	1.475	0.795
N end RR Xing, 743' N cl Arnie Rd.					
142571		P/S	1.450	1.600	0.765
142571		C/S	0.816	0.804	0.781
M cl Kickerville Rd. Xing					
155263		P/S	1.480	1.622	0.794
E end casing, BMPP, take dirt rd. on W side of tracks S from Bay Rd., private crossover, pl S					
158524		P/S	1.424	1.596	0.789
158524		C/S	0.806	0.812	0.789
M end casing, BMPP					
158620		P/S	1.440	1.630	0.789
158620		C/S	0.790	0.830	0.789
S cl Grandview Rd. Xing					
163295		P/S	1.396	1.588	0.764
ARCO Cherry Point Refy., CPU, electrical rack E of gas manifold					
167380	CPU Cherry Pt.	P/S	1.762	1.646	0.805
167380	Receiver	Off	0.778	1.160	/



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Station	Description	Type	Sept 9-10/91	Dec 5-8/90	Native Sept 90	Initial Settings	off
167380	Cascade NG IG	F/S	1.195	1.488	0.875	2.461	1.011 off
167380	Cascade NG IG OFF	Other	1.072	1.011			
167400	N end N skid	Other	1.097	1.439	0.623		
167420	S end N skid	Other	1.105	1.368	0.513		
167430	N end S skid	Other	1.128	1.400	0.513		
167450	S end S skid	Other	1.362	1.567	0.643		
167500	IG ARCO Refy	P/S	1.640	1.727	0.790	2.774	.914 off
167500	Refy.	F/S	1.640	1.706	0.825	2.695	.954 off
CPU	M# CSAYSE 40-22 ANS	Volts	8.6	8.8	/	13.58	
CPU	S# 89C1632	Amps	5.7	4.5	/	18.5	
CPU	25 amp / 50 mV	Shunt	17.0	9.8	/	37.0	
CPU	Max D/5	Taps	A/3	A/3	/	A/5	
CPU	1 Bottom	Anode	0.3	0.3	/	0.7	
CPU	2	Anode	0.4	0.3	/	0.7	
CPU	3	Anode	0.5	0.5	/	1.6	
CPU	4	Anode	0.5	0.7	/	2.5	
CPU	5	Anode	0.6	0.7	/	2.4	
CPU	6	Anode	0.7	0.5	/	1.9	
CPU	7	Anode	0.7	0.6	/	1.9	
CPU	8	Anode	0.5	0.5	/	2.1	
CPU	9	Anode	0.5	0.3	/	1.3	
CPU	10 Top	Anode	0.3	0.6	/	2.4	
CPU		Total (amps)	5.0	5.0	/	17.5	

This log is designed to be used with the atlas prints.

ARCO WESTERN GAS PIPELINE COMPANY  
FERNDALE SYSTEM  
8" AND 16" PIPELINE  
ANNUAL CATHODIC PROTECTION SURVEY

STATION NO.	TEST STATION	PREVIOUS READING	P/S	C/S	F/S	CURRENT DATE	P/S	C/S	F/S	LOCATION DISCRPTION	COMMENTS
000+01	003	09/10/91	1.382		1.878	09/26/92	1.325		1.795	MOV 001 IG AT US/CANADA BORDER N.SUMAS STA.	
000+05		09/10/92	1.425			06/26/92	1.395			15 FT SOUTH OF IG	
017+54	NWPL	09/10/91	1.318		1.475	06/18/92	1.253		1.395	S.C/L JONES RD., OPPOSITE PUMP STA., E. ORANGE FINK	NORTHWEST PIPELINE TEST POINT
018+00	NWPL	09/10/91	1.323		1.132	06/18/92	1.081		1.233	S.C/L JONES RD., OPPOSITE PUMP STA., W. ORANGE FINK	NORTHWEST PIPELINE TEST POINT
039+27	TMPL	09/10/91	1.442		1.890	06/18/92	1.498		1.405	S.C/L JONES RD., OPPOSITE PUMP STA., W. FINK	TRANS MOUNTAIN TEST POINT
067+36	006	09/10/91	1.440			06/18/92	1.498			W.C/L CONCHMAN RD., 25 FT. S. TMPL APM 6, TMPL XING	
108+62	009	09/10/91	NL			06/18/92	1.250			ALONG E/W HEDGEROW, WALK N. FROM REESE HILL RD. XING	NO PREVIOUS READING (CROPS)
113+71	012	09/10/91	NL			06/18/92	1.146		1.670	ALONG E/W PROPERTY LINE 1200' EAST FROM C/L SUMAS RD.	SUMAS ENERGY TEST POINT (NEW INSTALLATION)
125+53	015	09/10/91	1.498	0.789		06/18/92	1.250	.785		W. END CASING, REESE HILL RD. XING, S. SIDE OF RD.	
128+81	018	09/10/91	1.471			06/18/92	1.455			TMPL XING, S.C/L HILL VIEW RD.	
149+53	TMPL	09/10/91	1.460		1.911	06/18/92	1.380		1.248	TRANS MOUNTAIN TEST STA., W.C/L SUMAS RD., 100' P/L XING.	
186+46	021	09/10/91	1.440			06/18/92	1.276			N. SIDE MORGAN RD., E. OF TMPL XING, 1/4 MI. E. TELAGRAFH	
245+47	024	09/10/91	1.400	0.797		06/18/92	1.236	.777		E. END CASING BNRR ENTER S. FROM MORGAN RD.	
275+29	EAST	09/10/91	1.424			06/18/92	1.262			VALVE NO. 1 STA. E.C/L SUMAS LINDEN RD.	TEST EAST AND WEST OF VALVE
275+29	WEST	09/10/91	1.404			06/18/92	1.232			VALVE STA. NO. 1 E.C/L SUMAS LINDEN RD.	TEST EAST AND WEST OF VALVE
276+54	027	09/10/91	1.452	0.801		06/18/92	1.287	.776		E. END CASING LINDEN SUMAS RD.	
380+42	030	09/10/91	1.461			07/27/92	1.577			IN FIELD 350' E.C/L VAN BUREN ST. CASING	
383+19	033	09/10/91	1.566	0.633		07/27/92	1.639	.549		E. END CASING, VAN BUREN ST. AT BNRR XING	
430+05	036	09/10/91	1.470			07/27/92	1.562			501' E.C/L TRAPLINE RD.	
541+66	038	09/10/91	1.247			07/27/92	1.351			VALVE STA. NO. 2 AT CLAY RD. S.C/L HAVEMAN RD.	EAST READING
541+66	038	09/10/91	1.247			07/27/92	1.237			VALVE STA. NO. 2 AT CLAY RD., S.C/L HAVEMAN RD.	WEST READING
545+32	039	09/10/91	1.428			07/27/92	1.620			S. SIDE HAVEMAN RD. XING, 500' W. STA., CASCADE XING	
521+24	042	09/10/91	1.451			07/27/92	1.612			50' N.C/L HAVEMAN RD., 20' C/L BLOOM RD.	

ARCO WESTERN GAS PIPELINE COMPANY  
 FERNDALE SYSTEM  
 8" AND 16" PIPELINE  
 ANNUAL CATHODIC PROTECTION SURVEY

STATION NO.	TEST STATION	PREVIOUS READING	P/S	C/S	F/S	CURRENT DATE	P/S	C/S	F/S	LOCATION DESCRIPTION	COMMENTS
717+35	045	09/10/91	1.499			07/28/92	1.637			E.C/L BENSON RD.	
770+69	048	09/10/91	1.426	0.758		07/28/92	1.616	.716		E.END CASING GUIDE MERIDIAN RD.	
112+44	051	09/10/91	1.385			07/28/92	1.600			W.C/L JACKMAN RD., 2' S.POWER POLE	
112+91	053	09/10/91	1.343			07/28/92	1.512			VALVE STA. NO.3 W.C/L JACKMAN RD.	EAST READING
113+01	053	09/10/91	1.341			07/28/92	1.404			VALVE STA. NO.3 W.C/L JACKMAN RD.	WEST READING
117+00	054	09/10/91	1.407			07/28/92	1.635			400' W.VALVE STA. NO. 3	
179+05	057	09/10/91	1.470			07/29/92	1.596			E.C/L WEIDKAMP RD.	
112+89	060	09/10/91	1.487			07/29/92	1.573			2000' E.C/L MARK WORTH RD.1' N.OF FENCE LINE CORNER	
127+10	063	09/10/91	1.444			07/29/92	1.620			647'E.C/L MARK WORTH RD.	
133+35	066	09/10/91	1.438			07/29/92	1.589			E.C/L MARK WORTH RD.	
.013+83	067	/ /	NA			07/29/92	1.580			MILE POST 19 /3300' NORTH FROM WEST BADGER RD.	CASCADE P/L CROSSING
.046+57	069	09/10/91	1.431			07/29/92	1.557			S.C/L W.BADGER RD.	
075+42	EAST	09/10/91	1.350			06/19/92	1.339			VALVE STA. NO.4 E.C/L SUNRISE RD.	EAST READING
075+52	WEST	09/10/91	1.336			06/19/92	1.346			VALVE STA. NO.4, E.C/L SUNRISE RD.	WEST READING
075+80	072	09/10/91	1.407			06/19/92	1.377			E.C/L SUNRISE RD.	1.701 REFY. RECT ONLY
076+39	075	09/10/91	1.403			06/19/92	1.362			W.C/L SUNRISE RD.	
161+00	078	09/10/91	1.348			06/19/92	1.420			E.C/L STEIN RD.,(N K) 32' N.C/L CASCADE PL.	
197+61	079	/ /	NA			06/19/92	1.219			EAST C/L CUSTER SCHOOL RD.INSIDE HORSE CORREL	
209+48	081	09/10/91	1.451			06/19/92	1.287			E.C/L CUSTER SCOODL RD.,15'S.C/L OPPOSITE DR.# 8541	
266+75	084	09/10/91	1.370			06/19/92	1.278			200'E.C/L VALLY VIEW,25'N.2ND POWER POLE W.C/L LOOMIS TRL.	
273+18	087	09/10/91	1.387			06/19/92	1.212			S.C/L LOOMIS TRL, E.C/L VALLEY VIEW.	
300+53	090	09/10/91	1.427			06/19/92	1.290			W.C/L VALLEY VEIV, S.C/L LOOMIS TRL.,75' E.# 3501	
329+98	093	09/10/91	1.414	0.796		06/19/92	1.279	.763		E.END CASING,1-5,TAKE R.O.W. FROM PRI.POINT.	NATIVE CASE/SOIL 0.665

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FERNDALE SYSTEM  
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1341+20	096	09/10/91	1.463			06/11/92	0.940			N. C/L PORTAL WAY, R.O.W FROM N. 30'E GAS METER H# 8210	
1353+51	099	09/10/91	1.468			06/11/92	1.284			S.C/L PORTAL WAY, CASCADE GAS CO. R.O W. XING	
1362+97	102	09/10/91	1.396	0.792		06/11/92	1.150	0.744		N END CASING, RR XING, S. C/L PORTAL WAY	
1373+36	103	09/10/91	1.360			06/11/92	1.280			VALVE STA. NO. 5, S. C/L BIRCH BAY LYNDEN RD.	NORTH READING
1373+46	103	09/10/91	1.366			06/11/92	1.222			VALVE STA. NO. 5, S. C/L BIRCH BAY-LYNDEN RD.	SOUTH READING
1425+71	105	09/10/91	1.450	0.816		06/11/92	1.250	0.732		N. END RR XING, 743' N. C/L ARNIE RD.	0.781 CASE PIPE/SOIL READING
1552+63	108	09/10/91	1.480			06/11/92	1.309			W. C/L KICKERVILLE RD. XING.	
1585+16	111	09/10/91	1.424	0.806		06/11/92	1.229	0.785		BNRR E. END CASING TAKE DIRT RD. W. OF TRACKS S. FROM BAY RD.	INITIAL SETTING 1.91 REF. REC.
1536+46	114	09/10/91	1.440	0.790		06/11/92	1.250			BNRR W. END CASING	
1633+83	117	09/10/91	1.396			06/11/92	1.209			S. C/L GRANDVIEW RD. XING.	
002+00	203	09/10/91	1.302			07/16/92	1.386			INTALCO TS NORTH	
009+60	206	09/10/91	1.150	0.780		07/16/92	1.218	0.761		RR SPUR, NORTH END CASING	CASING NATIVE 0.735
019+87	209	09/10/91	0.949			07/16/92	1.098			NORTH C/L ROAD NORTH OF INTALCO	
021+81	212	09/10/91	0.949	0.800		07/16/92	1.140	0.763		NE END CASING, INTALCO RR SPUR, 100' N C/L ROAD	CASE NATIVE 0.735
105+51	215	09/10/91	1.090	0.532		07/16/92	1.456	0.489		EAST END CASING, BNRR XING, NORTH C/L HENRY ROAD.	CASE NATIVE 0.435
186+41	218	09/10/91	1.533	0.783		07/16/92	1.718	0.770		NORTH END CASING, BNRR, NORTH C/L ALDERGROVE ROAD.	CASE NATIVE 0.729
036+42	221	09/10/91	1.575			07/16/92	1.570			CHERRY POINT REFINERY MANIFOLD	TS SOUTH WIRE (GREEN)

**Report Banner**  
**Survey Report**  
**ARCO Westen Gas Pipeline Company**

**Options:**

Include Survey Header Information

**Filters:**

1. Survey Date {01/01/1993} to {12/31/2002}

**Selections:**

PACIFIC NORTHWEST

FERNDALE

MAINLINE

250A; Ferndale Pipeline System

**ARCO Western Gas Pipeline Company**  
P/S Survey Report  
PACIFIC NORTHWEST; FERNDALE; MAINLINE; 250A  
Filters: 1. Survey Date {01/01/1993} to {12/31/2002};  
Options: Include Survey Header Information

Surveyor: Meter:  
Soil Conditions: Reference:

Survey Date	Relative Location #	Location Code	Location	Facility	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
<b>Region PACIFIC NORTHWEST</b>													
<b>System: FERNDALE</b>													
<b>Assets: MAINLINE</b>													
<b>Facility 250A</b>													
01/01/1993	0+01	001	Mov 001 IG at US/CANADA border North Sumas Sta.	Ferndale Pipeline System	-0.850	-1.412		-1.302					
01/01/1994		001			-0.850	-1.427		-1.415					F P/S Native -1.401
01/01/1995		001			-0.850	-1.473		-1.667					
07/23/1996		001			-1.079	-1.374		-1.145					
08/06/1997		001			-1.070	-1.432		-1.212					
08/12/1998		001			-1.162	-1.550		-1.238					
09/30/1999		001			-0.865	-1.438		-1.423					
10/16/2000		001			-0.869	-1.412		-1.393					
10/17/2001		001			-0.892	-1.422		-1.380					
11/02/2002		001			-0.892	-1.422		-1.380					
01/01/1993	0+05	003	TS 003; 15 ft. South of IG		-0.850	-1.446		-1.399					
01/01/1994		003			-0.850	-1.455		-1.388					
01/01/1995		003			-0.850	-1.473		-1.356					
07/23/1996		003			-1.076	-1.375		-1.489					
08/06/1997		003			-1.068	-1.425		-1.149					
08/12/1998		003			-1.157	-1.553		-1.207					
09/30/1999		003			-1.243	-1.574		-1.246					
10/16/2000		003			-1.222	-1.559		-1.181					
10/17/2001		003			-1.222	-1.564		-1.187					
11/02/2002		003			-1.231	-1.374		-1.192					
01/01/1993	7+40	SEPL	TS SEPL; 10 ft. North of C/L Jones Rd.; East of Station Dr.		-0.850	-1.620		-0.993					

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01/01/1994		SEPL		-0.850	-1.526		-1.698					Sumas Energy PL Co.; TS White-AWGPL;Blue-SEPL;BI ack-Anode
01/01/1995		SEPL		-0.850	-1.474		-1.738					Sumas Energy PL Co.; TS White-AWGPL;Blue-SEPL;BI ack-Anode
07/23/1996		SEPL		-1.070	-1.359	-1.139	-1.675	-1.675				SEPL vs wht-AWGPL,blu-SEPL,blk-anode
08/06/1997		SEPL		-1.056	-1.371	-1.165	-1.636	-1.636				
08/12/1998		SEPL		-1.157	-1.433	-1.126	-1.534	-1.567				
09/30/1999		SEPL		-1.232	-1.373	-0.991	-1.458	-1.458				
10/16/2000		SEPL		-1.199	-1.462	-1.113	-1.360	-1.360				
10/17/2001		SEPL		-1.203	-1.552	-1.199	-1.319	-1.318				
11/02/2002		SEPL		-1.239	-1.266	-0.877	-1.549	-1.550				
01/01/1993	8+60	SEPL	TS SEPL; 20 ft. South of C/L Jones Rd.; Opposite ARCO Meter Sta.	-0.850	-1.668		-1.257					
01/01/1994		SEPL		-0.850	-1.667		-1.781					Sumas Energy PL Co.; TS White-AWGPL;Blue-SEPT;BI ack-Anode
01/01/1995		SEPL		-0.850	-1.492		-1.760					Sumas Energy PL Co.; TS White-AWGPL;Blue-SEPT;BI ack-Anode
07/23/1996		SEPL		-1.063	-1.392	-1.179	-1.693	-1.696				SEPL/swht-AWGPL,blu-SEP L,blk-anode
08/07/1997		SEPL		-1.061	-1.441	-1.230	-1.679	-1.678				
09/18/1998		SEPL		-1.175	-1.494	-1.169	-1.664	-1.668				
09/30/1999		SEPL		-1.236	-1.542	-1.156	-1.599	-1.602				
10/16/2000		SEPL		-1.199	-1.579	-1.230	-1.486	-1.485				

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10/17/2001		SEPL		-1.202	-1.617	-1.265	-1.384	-1.381				
11/02/2002		SEPL		-1.231	-1.261	-0.880	-1.550	-1.588				
01/01/1993	8+80	CGPLC	TS CGPLC; 10 ft. South of C/L Jones Rd.; 40 ft. West from SEPL Test Sta.	-0.850								
01/01/1994		CGPLC		-0.850	-1.604		-0.717					Cascade Gas Co. PL Xing Installed late 1993
01/01/1995		CGPLC		-0.850	-1.496		-1.693					Cascade Gas Co. PL Xing Installed late 1993
07/23/1996		CGPLC		-1.070	-1.391	-1.171	-1.624	-1.631				CNGPL xing
08/07/1997		CGPLC		-1.053	-1.434	-1.231	-1.432	-1.354				
09/18/1998		CGPLC		-1.166	-1.479	-1.163	-1.484	-1.411				
09/30/1999		CGPLC		-1.235	-1.528	-1.143	-1.482	-1.421				
10/16/2000		CGPLC		-1.201	-1.585	-1.234	-1.303	-1.239				
10/17/2001		CGPLC		-1.200	-1.594	-1.244	-1.466	-1.443				
11/02/2002		CGPLC		-1.458	-0.305	-0.913	-1.288	-1.283				
01/01/1993	17+54	NWPL	TS NWPL; South C/L Jones Rd.; Opposite Pump Sta. East Orange Frink	-0.850	-1.318		-1.475					
01/01/1994		NWPL		-0.850	-1.413		-1.358					Northwest PL TS
01/01/1995		NWPL		-0.850	-1.200		-1.450					Black-ARCO; White-NWPLC
07/23/1996		NWPL		-1.055	-1.100	-0.895	-1.297	-1.297				Northwest PL TS
08/07/1997		NWPL		-1.055	-1.219	-1.014	-1.330	-1.326				Black-ARCO; White-NWPLC
09/18/1998		NWPL		-1.110	-1.256	-0.996	-1.325	-1.325				NWPLts
09/30/1999		NWPL		-1.230	-1.304	-0.924	-1.369	-1.367				bk-AWGPL; wnt-NWPL
10/16/2000		NWPL		-1.203	-1.378	-1.025	-1.366	-1.365				
10/17/2001		NWPL		-1.206	-1.422	-1.066	-1.386	-1.384				



Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
11/02/2002	18+00	NWPL	TS NWPL; South C/L Jones Rd.; Opposite Pump Sta.	-1.246	-1.223	-0.827	-1.233	-1.235				
01/01/1993		NWPL	West Orange Fink	-0.850	-1.212		-1.300					
01/01/1994		NWPL		-0.850	-1.318		-1.285					Northwest PL TS
01/01/1995		NWPL		-0.850	-1.147		-1.402					Black-ARCO;White-NWPLC
07/23/1996		NWPL		-1.052	-1.070	-0.868	-1.268	-1.268				Northwest PL TS
08/07/1997		NWPL		-1.852	-1.960	-0.958	-1.268	-1.269				Black-ARCO;White-NWPLC
09/18/1998		NWPL		-1.126	-1.192	-0.916	-1.259	-1.259				NWPL ts
09/30/1999		NWPL		-1.234	-1.316	-0.932	-1.266	-1.262				bk-AWGPL,wit-NWPL
10/16/2000		NWPL		-1.195	-1.322	-0.977	-1.311	-1.313				
10/17/2001		NWPL		-1.201	-1.344	-0.993	-1.300	-1.302				
11/02/2002		NWPL		-1.248	-1.176	-0.778	-1.185	-1.184				
01/01/1993	39+27	TMPL	TS TMPL; South C/L Jones Rd.; Opposite Pump Sta.	-0.850	-1.503		-1.542					
01/01/1994		TMPL	West Orange Fink	-0.850	-1.653		-1.436					Transmountain TS
01/01/1995		TMPL		-0.850	-1.437		-1.517					#1A-5.58F;
												FL-2-AWGPL;TM-Transmountain
												Transmountain TS
												#1A-5.58F;
												FL-2-AWGPL;TM-Transmountain
07/23/1996		TMPL		-1.062	-1.373	-1.161	-0.999	-0.998				TMPL vs
08/07/1997		TMPL		-1.062	-1.415	-1.203	-1.072	-1.068				#1A-5.58F(FL-2-AWGPL) TM
												TMPL

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
09/18/1998		TMPL		-1.162	-1.528	-1.216	-1.145	-1.124				
09/30/1999		TMPL		-1.233	-1.486	-1.103	-0.875	-0.867				
10/16/2000		TMPL		-1.201	-1.546	-1.195	-0.681	-0.679				
10/17/2001		TMPL		-1.210	-1.558	-1.198	-1.471	-1.461				
11/02/2002		TMPL		-1.239	-1.307	-0.918	-1.585	-1.579				
01/01/1993	67+36	006	TS 006; West C/L Conchman Rd. ; 25 ft. South TML APM 6 TMPL Xing	-0.850	-1.469							
01/01/1994		006		-0.850	-1.558							Transmountain PL Xing-No foreign test leads
01/01/1995		006		-0.850	-1.422							Transmountain PL Xing-No foreign test leads
07/23/1996		006		-1.070	-1.350	-1.130						TMPL vs no foreign test leads
08/07/1997		006		-1.057	-1.386	-1.179						TMPL vs no foreign test leads
09/18/1998		006		-1.165	-1.514	-1.199						Test leads damaged by farmer
09/30/1999		006		-1.165								Test leads damaged by farmer
10/16/2000		006		-1.165								Repaired test leads 10/31/01
10/31/2001		006		-1.212	-1.371	-1.009						
11/02/2002		006		-1.247	-1.268	-0.871						
01/01/1993	108+62	009	TS 009; Along E.W. Hedgerow; walk North from Reese Hill Rd. Xing	-0.850	-1.494							
01/01/1994		009		-0.850	-1.523							Transmountain PL Xing-No foreign test leads
01/01/1995		009		-0.850	-1.327							Transmountain PL Xing-No foreign test leads
07/23/1996		009		-1.060	-1.320	-1.110						TMPL leads are located on SEPL vs TMPL- white SEPL
08/06/1997		009		-1.076	-1.383	-1.157	-1.104	-1.098				

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09/18/1998		009		-1.173	-1.512	-1.189	-1.062	-1.012				
10/04/1999		009		-1.301	-1.622	-1.171	-0.936	-0.927				
10/16/2000		009		-1.197	-1.540	-1.193	-1.249	-1.245				
10/17/2001		009		-1.141	-1.389	-1.098	-1.444	-1.437				
11/02/2002		009		-1.292	-1.513	-1.071	-1.662	-1.652				
01/01/1993	113+71	SEPL	TS SEPL: On Corner of Hedgerow and property line, 100 ft. West from ARCO TS #009	-0.850	-1.495		-1.033					
01/01/1994		SEPL		-0.850	-1.513		-1.683					Sumas Energy PL Co.; TS White-AWGPL;Blue-SEPL;BI ack-Anode
01/01/1995		SEPL		-0.850	-1.368		-1.698					Sumas Energy PL Co.; TS White-AWGPL;Blue-SEPL;BI ack-Anode
07/23/1996		SEPL		-1.055	-1.357	-1.152	-1.657	-1.658				SEPL v/s wht-AWGPL,blu-SEPL,blk-anode
08/06/1997		SEPL		-1.045	-1.373	-1.178	-1.634	-1.633				Test station is damaged used test terminals on previous v/s
09/18/1998		SEPL		-1.157	-1.510	-1.203	-1.613	-1.617				
10/04/1999		SEPL		-1.231	-1.474	-1.093	-1.556	-1.559				
10/16/2000		SEPL		-1.205	-1.568	-1.213	-1.341	-1.339				
10/17/2001		SEPL		-1.085	-1.256	-1.021	-1.303	-1.300				
11/02/2002		SEPL		-1.244	-1.459	-1.065	-1.580	-1.582				
01/01/1993	125+53	015	TS 015, West end casing Reese Hill Rd, King, South side of rd.	-0.850	-1.450							-0.781

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01/01/1994		015		-0.850	-1.518				-0.762			
01/01/1995		015		-0.850	-1.420				-0.780			C P/S Native -0.776
07/23/1996		015		-1.048	-1.343				-0.756			
08/06/1997		015		-1.047	-1.322				-0.771			CLEAR
08/12/1998		015		-1.080	-1.306				-0.753			CLEAR
10/04/1999		015		-1.309	-1.696				-0.728			CLEAR
10/16/2000		015		-1.378	-1.547				-0.709			Clear
10/17/2001		015		-1.184	-1.482				-0.700			CLR
11/02/2002		015		-1.230	-1.295				0.665			CLR
01/01/1993	128+81	018	T/S 018: TMPL Xing South; Center Line Hill View Rd.	-0.850	-1.490							
01/01/1994		018		-0.850	-1.526							Transmountain PL Xing-No foreign test leads
01/01/1995		018		-0.850	-1.396							Transmountain PL Xing-No foreign test leads
07/23/1996		018		-0.850	-1.327				-1.128			TMPL Xing no foreign test leads
08/06/1997		018		-1.043	-1.332				-1.139			
08/12/1998		018		-1.234	-1.590				-1.206			
10/04/1999		018		-1.290	-1.668				-1.228			leads damaged by farmer
10/16/2000		018		-1.290	-1.668				-1.228			Repaired test leads 10/31/01
10/31/2001		018		-1.190	-1.461				-1.121			
11/02/2002		018		-1.234	-1.312				-0.928			
01/01/1993	149+53	TMPL	T/S TMPL: TMPL Test Sta. West Center Line Sumas Rd., 100 ft. Pipeline Xing	-0.850								-1.801
01/01/1994		TMPL		-0.850	-1.518							-1.455
01/01/1995		TMPL		-0.850	-1.370							-1.430

TM T/S #1-A7.18; No 1993  
 rdg; TL dngd & rep.  
 10/07/93; F P/S Nat-1.8  
 Transmountain T/S #1-A7.18;  
 No 1993 rdg; TL damaged &

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07/23/1996		TMPL		-1.044	-1.346	-1.152	-1.005	-1.002				
08/04/1997		TMPL		-1.044	-1.346	-1.152	-1.089	-1.087				TMPL t/s#1A-7-18
09/18/1998		TMPL		-1.180	-1.534	-1.204	-1.067	-1.054				
10/04/1999		TMPL		-0.861	-1.166	-1.177	-0.918	-0.910				
10/16/2000		TMPL		-1.210	-1.511	-1.151	-0.631	-0.630				
10/17/2001		TMPL		-1.183	-1.461	-1.128	-1.401	-1.397				
11/02/2002		TMPL		-1.224	-1.305	-0.931	-1.557	-1.549				
01/01/1993	186+46	021	TS 021: North Side Morgen Rd.; East of TMPL Xing. 1/4 mile East Telegraph	-0.850	-1.386							
01/01/1994		021		-0.850	-1.515							Transmountain PL Xing-No foreign test leads
01/01/1995		021		-0.850	-1.355							Transmountain PL Xing-No foreign test leads
07/23/1996		021		-0.850	-1.138	-1.126						Transmountain pipeline crossing no foreign test leads
08/04/1997		021		-1.038	-1.356	-1.168						
09/18/1998		021		-1.177	-1.461	-1.134						
10/04/1999		021		-1.357	-1.698	-1.191	-0.914	-0.910				
10/16/2000		021		-1.198	-1.519	-1.171	-0.635	-0.632				
10/18/2001		021		-1.216	-1.478	-1.112	-1.410	-1.408				
11/02/2002		021		-1.230	-1.302	-0.922	-1.559	-1.556				
01/01/1993	245+47	024	TS 024: East End Casing BNR: Enter South from Morgan Rd.; Cascade Xing 150 ft. East of RR C/L	-0.850	-1.350							
01/01/1994		024		-0.850	-1.482							C P/S Native -0.750

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01/01/1995		024		-0.850	-1.274	-1.066			-0.711	-0.701	CLEAR	
07/23/1996		024		-1.030	-1.246	-1.066			-0.704	-0.689	CLEAR	Cascade crossing 150 ft. east of railroad c/l
08/04/1997		024		-1.030	-1.283	-1.103			-0.689	-0.689	CLEAR	
09/18/1998		024		-1.179	-1.352	-1.023			-0.592	-0.592	CLEAR	
10/04/1999		024		-1.305	-1.483	-1.028			-0.577	-0.526	CLEAR	
10/16/2000		024		-1.204	-1.461	-1.107			-0.613	-0.613	Clear	
10/18/2001		024		-1.201	-1.472	-1.121			-0.594	-0.593	CLR	
11/02/2002		024		-1.272	-1.459	-1.037			-0.616	-0.617	CLR	
01/01/1993	275+29	MLV1E	TS East: Mainline Valve No. 1 East C/L Sumas Lynden Rd.	-0.850	-1.352							
01/01/1994		MLV1E		-0.850	-1.490							East Rdg.
01/01/1995		MLV1E		-0.850	-1.350							East Rdg.
07/23/1996		MLV1E		-0.850	-1.300	-1.140						EAST READING
08/04/1997		MLV1E		-1.020	-1.329	-1.159						
09/18/1998		MLV1E		-1.146	-1.461	-1.165						
10/07/1999		MLV1E		-1.306	-1.645	-1.189						
10/16/2000		MLV1E		-1.169	-1.506	-1.187						
10/18/2001		MLV1E		-1.154	-1.473	-1.169						
11/02/2002		MLV1E		-1.062	-1.169	-0.957						
01/01/1993	275+39	MLV1W	TS West: Mainline Valve No. 1 West C/L Sumas Lynden Rd.	-0.850	-1.357							
01/01/1994		MLV1W		-0.850	-1.514							West Rdg.
01/01/1995		MLV1W		-0.850	-1.360							West Rdg.
07/23/1996		MLV1W		-0.850	-1.301	-1.128						WEST READING
08/04/1997		MLV1W		-1.017	-1.324	-1.157						
09/18/1998		MLV1W		-1.149	-1.436	-1.137						
10/07/1999		MLV1W		-1.302	-1.633	-1.181						

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
10/16/2000		MLV/W		-1.164	-1.495	-1.181						
10/18/2001		MLV/W		-1.140	-1.441	-1.151						
11/02/2002		MLV/W		-1.009	-1.132	-0.973						
01/01/1993	276+54	027	TS 027; East End Casing Sumas Lynden Rd.; Cascade Xing 75 ft. and 350 ft. West of Sumas/Linden Rd. C/L	-0.850	-1.363				-0.777			
01/01/1994		027		-0.850	-1.521				-0.770			C P/S Native -0.766
01/01/1995		027		-0.850	-1.360				-0.780			
07/23/1996		027		-1.032	-1.305	-1.123			-0.764	-0.764	CLEAR	Cascade crossing 75ft. and 350ft. West of Sumas Linden Rd. c/l
08/04/1997		027		-1.028	-1.351	-1.173			-0.784	-0.786	CLEAR	
09/18/1998		027		-1.179	-1.445	-1.116			-0.780	-0.781	CLEAR	
10/07/1999		027		-1.333	-1.656	-1.173			-0.739	-0.742	CLEAR	
10/16/2000		027		-1.201	-1.535	-1.184			-0.762	-0.762	Clear	
10/18/2001		027		-1.157	-1.427	-1.120			-0.765	-0.766	CLR	
11/02/2002		027		-1.172	-1.255	-0.933			-0.767	-0.769	CLR	
01/01/1993	380+42	030	TS 030; In Field 350 ft. East C/L Van Buren St.	-0.850	-1.460							
01/01/1994		030		-0.850	-1.475							Cascade Xing-No foreign test leads
01/01/1995		030		-0.850	-1.337							Cascade Xing-No foreign test leads
07/23/1996		030		-0.850	-1.344	-1.172						
08/04/1997		030		-1.040	-1.382	-1.192						Cascade crossing no foreign test leads
08/28/1998		030		-1.175	-1.502	-1.177						
10/07/1999		030		-1.392	-1.749	-1.207						
10/16/2000		030		-1.212	-1.563	-1.201						

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
10/18/2001		030		-1.209	-1.491	-1.132						
11/02/2002		030	TS 033; East End Casing	-1.221	-1.367	-0.996						
01/01/1993	383+19	033	Van Buren St. BNRX Xing	-0.850	-1.445				-0.480			
01/01/1994		033		-0.850	-1.489				-0.411			C P/S Native -0.623
01/01/1995		033		-0.850	-1.372				-0.410			
07/23/1996		033		-1.015	-1.348	-1.183			-0.382		CLEAR	
08/06/1997		033		-1.022	-1.363	-1.191			-0.396		CLEAR	
08/28/1998		033		-1.172	-1.528	-1.206			-0.381		clear	
10/07/1999		033		-1.391	-1.740	-1.199			-0.343		CLEAR	
10/16/2000		033		-1.226	-1.574	-1.198			-0.376		verify	
10/18/2001		033		-1.210	-1.516	-1.156			-0.369		CLR	
11/02/2002		033		-1.229	-1.381	-1.002			-0.377		CLR	
01/01/1993	430+05	036	TS 036; 501ft East Center Line Trapline Rd.	-0.850	-1.453							
07/23/1996		036		-1.006	-1.360	-1.204			-1.138			
08/04/1997		036		-1.010	-1.344	-1.184			-1.383			cascade crossing / cascade-org. leads, ARCO-red leads
08/28/1998		036		-1.176	-1.483	-1.157			-1.516			
10/07/1999		036		-1.403	-1.755	-1.202			-1.659			
10/16/2000		036		-1.210	-1.559	-1.199			-1.399			
10/18/2001		036		-1.213	-1.486	-1.123			-1.522			
11/02/2002		036		-1.227	-1.369	-0.992			-1.415			
01/01/1993	541+66	MLVZE	TS 038; Mainline Valve No. 2 at Clay and Haveman Rd.	-0.850	-1.251							
01/01/1994		MLVZE		-0.850	-1.300							East Rdg.
01/01/1995		MLVZE		-0.850	-1.252							East Rdg.
07/23/1996		MLVZE		-0.850	-1.263	-1.151						
08/04/1997		MLVZE		-0.961	-1.241	-1.130						East Reading



Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
08/28/1998		MLV2E		-1.082	-1.369	-1.137						
10/07/1999		MLV2E		-1.263	-1.601	-1.188						
10/16/2000		MLV2E		-1.131	-1.422	-1.141						
10/18/2001		MLV2E		-1.133	-1.400	-1.117						
11/02/2002		MLV2E		-1.132	-1.292	-1.010						
01/01/1993	541+76	MLV2W	TS 038; Mainline Valve No. 2 at Clay and Haveman Rd.	-0.850	-1.092							
01/01/1994		MLV2W		-0.850	-1.145							West Rdg.
01/01/1995		MLV2W		-0.850	-1.510							West Rdg.
07/23/1996		MLV2W		-0.850	-1.183	-1.088						
08/04/1997		MLV2W		-0.939	-1.134	-1.045						West Reading
08/28/1998		MLV2W		-1.044	-1.273	-1.079						
10/07/1999		MLV2W		-1.197	-1.460	-1.113						
10/16/2000		MLV2W		-1.082	-1.321	-1.089						
10/18/2001		MLV2W		-1.087	-1.293	-1.056						
11/02/2002		MLV2W		-1.098	-1.212	-0.964						
01/01/1993	545+32	MLV2W	TS 039; Southside Haveman Rd.; 500 ft Mainline Valve No. 2; Cascade PL Xing	-0.850	-1.457							
01/01/1994		039		-0.850	-1.503							Cascade Xing-No foreign test leads
01/01/1995		039		-0.850	-1.326							Cascade Xing-No foreign test leads
07/23/1996		039		-0.850	-1.370	-1.228						
08/04/1997		039		-0.993	-1.300	-1.157						Cascade crossing no foreign leads
08/28/1998		039		-1.165	-1.402	-1.087						
10/07/1999		039		-1.418	-1.820	-1.252						
10/15/2000		039		-1.224	-1.577	-1.203						
10/18/2001		039		-1.220	-1.511	-1.141						



Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
08/04/1997		048		-0.980	-1.345	-1.215			-0.590	-0.584	CLEAR	
09/17/1998		048		-1.211	-1.563	-1.202			-0.597	-0.595	CLEAR	
10/07/1999		048		-1.455	-1.846	-1.241					CLEAR	
10/16/2000		048		-1.232	-1.575	-1.193			-0.542	-0.542	Clear	
10/18/2001		048		-1.227	-1.518	-1.141			-0.542	-0.537	CLR	
11/02/2002		048		-1.221	-1.480	-1.109			-0.566	-0.566	CLR	
01/01/1993	812+44	051	TS 051; 50 ft. West C/L Jackman Rd.; 2 ft. South Power Pole	-0.850	-1.337							
01/01/1994		051		-0.850	-1.407							
01/01/1995		051		-0.850	-1.316							
07/23/1996		051		-0.850	-1.352	-1.238						
08/07/1997		051		-0.979	-1.407	-1.278						
09/17/1998		051		-1.221	-1.527	-1.156						
10/11/1999		051		-1.485	-1.854	-1.219						
10/16/2000		051		-1.231	-1.540	-1.159						
11/10/2001		051		-1.201	-1.463	-1.112						
11/02/2002		051		-1.240	-1.462	-1.072						
01/01/1993	812+91	MLV3E	TS 053; Mainline Valve No. 3; West C/L Jackman Rd.	-0.850	-1.229							
01/01/1994		MLV3E		-0.850	-1.270							
01/01/1995		MLV3E		-0.850	-1.230							East Rdg.
07/23/1996		MLV3E		-0.850	-1.230	-1.141						East Rdg.
08/07/1997		MLV3E		-0.946	-1.268	-1.172						East Reading
09/17/1998		MLV3E		-1.100	-1.291	-1.041						
10/11/1999		MLV3E		-1.328	-1.582	-1.104						
10/16/2000		MLV3E		-1.151	-1.412	-1.111						
11/10/2001		MLV3E		-1.132	-1.341	-1.059						
11/02/2002		MLV3E		-1.158	-1.317	-1.009						

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
01/01/1993	813+01	MLV3W	TS 053; Mainline Valve No. 3; West C/L Jackman Rd.	-0.850	-1.163							
01/01/1994		MLV3W		-0.850	-1.195							West Rdg.
01/01/1995		MLV3W		-0.850	-1.168							West Rdg.
07/23/1996		MLV3W		-0.850	-1.233	-1.143						
08/07/1997		MLV3W		-0.944	-1.281	-1.187						West Reading
09/17/1998		MLV3W		-1.022	-1.223	-1.051						
10/11/1999		MLV3W		-1.336	-1.619	-1.133						
10/16/2000		MLV3W		-1.147	-1.419	-1.122						
11/10/2001		MLV3W		-1.130	-1.341	-1.061						
11/02/2002		MLV3W		-1.162	-1.349	-1.037						
01/01/1993	817+00	054	TS 054; 400 ft. West Mainline Valve No. 3; Cascade Xing 800 ft. West of TS 054	-0.850	-1.340							
01/01/1994		054		-0.850	-1.412							Cascade Xing 800 ft. West of TS 054
01/01/1995		054		-0.850	-1.359							TS 054
07/23/1996		054		-0.850	-1.352	-1.239						Cascade Xing 800 ft. West of TS 054
08/07/1997		054		-0.978	-1.422	-1.294						West of TS 054
09/17/1998		054		-1.220	-1.584	-1.214						
10/11/1999		054		-1.497	-1.875	-1.228						
10/16/2000		054		-1.234	-1.556	-1.172						
11/10/2001		054		-1.201	-1.485	-1.134						
11/02/2002		054		-1.232	-1.474	-1.092						
01/01/1993	879+05	057	TS 057; East C/L Weidkamp Rd.	-0.850	-1.366							
01/01/1994		057		-0.850	-1.562							

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
01/01/1995		057		-0.850	-1.410	-1.297						
07/23/1996		057		-0.850	-1.402	-1.326						
08/07/1997		057		-0.971	-1.447	-1.229						
09/17/1998		057		-1.224	-1.603	-1.295						
10/11/1999		057		-1.494	-1.939	-1.247						
10/16/2000		057		-1.231	-1.628	-1.172						
11/10/2001		057		-1.207	-1.529	-1.121						
11/02/2002		057		-1.251	-1.522							
01/01/1993	912+89	060	TS 060: 2000ft. East C/L Markworth Rd. 1 ft. North of fence line corner	-0.850	-1.333							
01/01/1994		060		-0.850	-1.552							Cascade Xing-No foreign test leads
01/01/1995		060		-0.850	-1.367							Cascade Xing-No foreign test leads
07/23/1996		060		-0.850	-1.379	-1.274						Cascade Crossing No foreign Test Leads
08/07/1997		060		-0.970	-1.437	-1.317						
09/17/1998		060		-1.234	-1.601	-1.217						
10/11/1999		060		-1.524	-1.935	-1.261						
10/17/2000		060		-1.524	-1.636							
11/10/2001		060		-1.208	-1.512	-1.154						
11/02/2002		060		-1.241	-1.500	-1.109						
01/01/1993	927+10	063	TS 063: 647 ft. East C/L Markworth Rd.	-0.850	-1.324							
01/01/1994		063		-0.850	-1.561							Cascade Xing-No foreign test leads
01/01/1995		063		-0.850	-1.401							Cascade Xing-No foreign test leads
07/23/1996		063		-0.850	-1.412	-1.311						

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
08/07/1997		063		-0.978	-1.445	-1.317						Cascade Crossing No Foreign Test Leads
09/17/1998		063		-1.236	-1.588	-1.202						
10/11/1999		063		-1.515	-1.939	-1.274						
10/17/2000		063		-1.242	-1.617	-1.225						
11/10/2001		063		-1.207	-1.501	-1.144						
11/02/2002		063		-1.238	-1.491	-1.103						
01/01/1993	933+35	066	TS 066: E C/L Markworth Rd.	-0.850	-1.317							
01/01/1994		066		-0.850	-1.544							
01/01/1995		066		-0.850	-1.368							
07/23/1996		066		-0.850	-1.410	-1.308						
08/07/1997		066		-0.966	-1.441	-1.325						
09/17/1998		066		-1.234	-1.566	-1.182						
10/11/1999		066		-1.518	-1.900	-1.232						
10/17/2000		066		-1.238	-1.602	-1.214						
11/10/2001		066		-1.213	-1.492	-1.129						
11/02/2002		066		-1.245	-1.484	-1.089						
01/01/1993	1013+83	067	TS 067: Mile Post 19: 3300 ft. North from West Badger Rd.	-0.850	-1.304							
01/01/1994		067		-0.850	-1.555							Cascade Xing-No foreign test leads
01/01/1995		067		-0.850	-1.402							Cascade Xing-No foreign test leads
07/23/1996		067		-0.850	-1.450	-1.340						Cascade Crossing No Foreign Test Leads
08/07/1997		067		-0.959	-1.434	-1.325						
08/18/1998		067		-1.203	-1.579	-1.226						
10/11/1999		067		-1.527	-1.931	-1.254						
10/17/2000		067		-1.252	-1.678	-1.276						

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
11/10/2001		067		-1.205	-1.501	-1.146						
11/02/2002		067		-1.204	-1.496	-1.142						
01/01/1993	1046+57	069	TS 069: South C/L West Badger Rd.	-0.850	-1.310							
01/01/1994		069		-0.850	-1.388							Cascade Xing-No foreign test leads
01/01/1995		069		-0.850	-1.371							Cascade Xing-No foreign test leads
07/23/1996		069		-0.850	-1.466	-1.370						Cascade Crossing No Foreign Test Leads
08/07/1997		069		-0.953	-1.530	-1.427						
08/18/1998		069		-1.212	-1.603	-1.241						
10/14/1999		069		-1.380	-1.729	-1.199						
10/17/2000		069		-1.257	-1.677	-1.270						
11/10/2001		069		-1.213	-1.491	-1.128						
11/02/2002		069		-1.242	-1.485	-1.093						
01/01/1993	1075+42	MLV4E	TS East: Mainline Valve No. 4: East C/L Sunrise Rd.	-0.850	-1.228							
01/01/1994		MLV4E		-0.850	-1.510							
01/01/1995		MLV4E		-0.850	-1.370							
07/23/1996		MLV4E		-0.850	-1.422	-1.339						
08/07/1997		MLV4E		-1.116	-1.474	-1.208						
08/18/1998		MLV4E		-1.178	-1.573	-1.245						
10/14/1999		MLV4E		-1.336	-1.694	-1.208						
10/17/2000		MLV4E		-1.237	-1.655	-1.268						
11/10/2001		MLV4E		-1.188	-1.488	-1.150						
11/02/2002		MLV4E		-1.213	-1.481	-1.118						
01/01/1993	1075+52	MLV4W	TS West: Mainline Valve No. 4: East C/L Sunrise Rd.	-0.850	-1.215							
01/01/1994		MLV4W		-0.850	-1.502							

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
01/01/1995		MLV4W		-0.850	-1.358							
07/23/1996		MLV4W		-0.850	-1.410	-1.328						
08/07/1997		MLV4W		-1.116	-1.467	-1.201						
08/18/1998		MLV4W		-1.181	-1.577	-1.246						
10/14/1999		MLV4W		-1.322	-1.697	-1.225						
10/17/2000		MLV4W		-1.232	-1.644	-1.262						
11/10/2001		MLV4W		-1.187	-1.488	-1.151						
11/02/2002		MLV4W		-1.221	-1.466	-1.095						
01/01/1993	1075+80	072	TS 072; East C/L Sunrise Rd.	-0.850	-1.320							
01/01/1994		072		-0.850	-1.522							
01/01/1995		072		-0.850	-1.382							
07/23/1996		072		-0.850	-1.441	-1.354						
08/07/1997		072		-1.243	-1.496	-1.103						
08/18/1998		072		-1.211	-1.593	-1.232						
10/14/1999		072		-0.866	-1.177	-1.193						
10/17/2000		072		-1.202	-1.618	-1.266						
11/10/2001		072		-1.214	-1.508	-1.144						
11/02/2002		072		-1.244	-1.477	-1.083						
01/01/1993	1076+39	075	TS 075; West C/L Sunrise Rd.	-0.850	-1.320							
01/01/1994		075		-0.850	-1.541							
01/01/1995		075		-0.850	-1.397							
07/23/1996		075		-0.850	-1.447	-1.352						
08/07/1997		075		-1.135	-1.497	-1.212						
08/18/1998		075		-1.214	-1.615	-1.251						
10/14/1999		075		-1.376	-1.763	-1.237						
10/17/2000		075		-1.273	-1.685	-1.262						

Cascade Xing-No foreign test leads  
 Cascade Xing-No foreign test leads  
 Cascade Crossing No Foreign Test Leads



Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
11/10/2001		075		-1.219	-1.496	-1.127						
11/02/2002		075		-1.244	-1.489	-1.095						
01/01/1993	1161+00	078	TS 078: East C/L Stein Rd.; (N K) 32 ft. North C/L Cascade Place	-0.850	-1.310							
01/01/1994		078		-0.850	-1.534							Cascade Xing-No foreign test leads
01/01/1995		078		-0.850	-1.403							Cascade Xing-No foreign test leads
07/23/1996		078		-0.850	-1.449	-1.366						Cascade Crossing No Foreign Test Leads
08/07/1997		078		-1.149	-1.464	-1.165						
08/18/1998		078		-1.229	-1.597	-1.218						
10/14/1999		078		-1.388	-1.761	-1.223						
10/17/2000		078		-1.256	-1.640	-1.234						
11/10/2001		078		-1.227	-1.504	-1.127						
11/02/2002		078		-1.219	-1.460	-1.091						
01/01/1993	1197+61	079	TS 079: East C/L Custer School Rd.; inside horse corral	-0.850	-1.330							
01/01/1994		079		-0.850	-1.550							
01/01/1995		079		-0.850	-1.320							
07/23/1996		079		-0.850	-1.338	-1.260						
08/07/1997		079		-1.165	-1.402	-1.087						
08/18/1998		079		-1.231	-1.572	-1.191						
10/14/1999		079		-1.404	-1.799	-1.245						
10/17/2000		079		-1.260	-1.648	-1.238						
11/10/2001		079		-1.232	-1.474	-1.092						
11/02/2002		079		-1.257	-1.556	-1.149						
08/07/1997	1209+48	081	TS 081: East C/L Custer School Rd.; 15ft South C/L	-1.060	-1.171	-1.381						Cascade Crossing No Foreign Test Leads

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
08/18/1998		081	opposite drive, house No. 8541	-1.236	-1.233	-1.619						Cascade Crossing No Foreign Test Leads
10/14/1999		081		-1.413	-1.784	-1.221						
10/17/2000		081		-1.265	-1.658	-1.243						
11/10/2001		081		-1.227	-1.497	-1.120						
11/02/2002		081		-1.248	-1.526	-1.128						
01/01/1993	1266+75	084	TS 084: 200 ft. C/L Valley View Rd.; 25 ft. North, 2nd power pole; North C/L Loomis Trail	-0.850	-1.347							
01/01/1994		084		-0.850	-1.389							Cascade Xing-No foreign test leads
01/01/1995		084		-0.850	-1.260							Cascade Xing-No foreign test leads
07/23/1996		084		-0.850	-1.163	-1.089						Cascade Crossing No Foreign Test Leads
08/07/1997		084		-1.169	-1.357	-1.038						
08/18/1998		084		-1.237	-1.661	-1.274						
10/14/1999		084		-1.360	-1.683	-1.173						
10/17/2000		084		-1.262	-1.663	-1.251						
11/10/2001		084		-1.234	-1.446	-1.062						
11/02/2002		084		-1.265	-1.556	-1.141						
01/01/1993	1273+-18	087	TS 087: South C/L Loomis Trail; East C/L Valley View; Cascade Xing 200 ft. East from TS 084	-0.850	-1.270							
01/01/1994		087		-0.850	-1.525							Cascade Xing 200 ft. East from TS 084

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
01/01/1995		087		-0.850	-1.290							
07/23/1996		087		-0.850	-1.363	-1.291						Cascade Xing 200 ft. East from TS 084
08/07/1997		087		-1.138	-1.303	-1.015						Cascade Crossing 200ft. East From T/S 084
08/18/1998		087		-1.222	-1.653	-1.281						
10/14/1999		087		-1.309	-1.677	-1.218						
10/17/2000		087		-1.276	-1.653	-1.227						
11/10/2001		087		-1.245	-1.456	-1.061						
11/02/2002		087		-0.863	-1.152	-1.139						
01/01/1993	1300+53	090	TS 090: West C/L Valley View: South C/L Loomis Trail; 75 ft. East, house no. 3501	-0.850	-1.320							
01/01/1994		090		-0.850	-1.449							Cascade Xing-No foreign test leads
01/01/1995		090		-0.850	-1.340							Cascade Xing-No foreign test leads
07/23/1996		090		-0.850	-1.404	-1.335						Cascade Crossing No Foreign Test leads
08/07/1997		090		-1.117	-1.303	-1.036						
08/18/1998		090		-1.236	-1.668	-1.282						
10/14/1999		090		-1.332	-1.709	-1.227						
10/17/2000		090		-1.270	-1.628	-1.208						
11/10/2001		090		-1.238	-1.467	-1.079						
11/02/2002		090		-1.259	-1.536	-1.127						
01/01/1993	1329+98	093	TS 093: East End casing; L-5 - ROW from Pri. point	-0.850	-1.360							
01/01/1994		093		-0.850	-1.512							C P/S Native -0.655
01/01/1995		093		-0.850	-1.292							

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
07/23/1996		093		-0.914	-1.343	-1.279			-0.670	-0.660	CLEAR	
08/07/1997		093		-1.220	-1.344	-0.974			-0.611	-0.611	CLEAR	
08/18/1998		093		-1.243	-1.726	-1.333			-0.778	-0.784	CLEAR	
10/14/1999		093		-1.343	-1.744	-1.251			-0.642	-0.631	CLEAR	
10/19/2000		093		-1.256	-1.572	-1.166			-0.506	-0.506	CLEAR	
11/10/2001		093		-1.234	-1.412	-1.028			-0.535	-0.532	CLR	
11/02/2002		093		-1.137	-1.374	-1.087			-0.610	-0.610	CLR	
01/01/1993	1341+20	096	TS 096; North C/L Portal Way ROW from North 30 ft, East Gas meter, house no. 8210	-0.850	-1.360							
01/01/1994		096		-0.850	-1.262							4" Cascade Xing-No foreign test leads
01/01/1995		096		-0.850	-1.310							4" Cascade Xing-No foreign test leads
07/23/1996		096		-0.850	-1.290	-1.221						4" Cascade Crossing No Foreign Test Leads
08/08/1997		096		-1.125	-1.258	-0.983						
08/18/1998		096		-1.240	-1.589	-1.199						
10/14/1999		096		-1.266	-1.686	-1.270						
10/19/2000		096		-1.261	-1.559	-1.148						
11/10/2001		096		-1.250	-1.502	-1.102						
01/01/1993	1353+51	099	TS 099; South C/L Portal Way; Cascade Gas Co. ROW Xing	-0.850	-1.250							
01/01/1994		099		-0.850	-1.284							Cascade Xing-No foreign test leads
01/01/1995		099		-0.850	-1.306							Cascade Xing-No foreign test leads
07/23/1996		099		-0.850	-1.421	-1.360						

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
08/08/1997		099		-1.156	-1.316	-1.010						Cascade Crossing No Foreign Test Leads
08/18/1998		099		-1.244	-1.662	-1.268						
10/14/1999		099		-1.336	-1.723	-1.237						
10/19/2000		099		-1.261	-1.559	-1.148						
11/10/2001		099		-1.241	-1.452	-1.061						
11/02/2002		099		-1.264	-1.544	-1.130						
01/01/1993	1362+97	102	TS102; North End casing RR Xing; South C/L Portal Way	-0.850	-1.310				-0.780			
01/01/1994		102		-0.850	-1.369				-0.703			C P/S Native -0.754
01/01/1995		102		-0.850	-1.266				-0.732			
07/23/1996		102		-0.910	-1.161	-1.101			-0.487	-0.488	CLEAR	
08/08/1997		102		-1.191	-1.313	-0.972			-0.664	-0.666	CLEAR	
08/18/1998		102		-1.247	-1.730	-1.333			-0.762	-0.760	CLEAR	
10/14/1999		102		-1.372	-1.705	-1.183			-0.573	-0.570	CLEAR	
10/19/2000		102		-1.259	-1.582	-1.173			-0.622	-0.621	Clear	
11/10/2001		102		-1.251	-1.482	-1.081			-0.599	-0.595	CLR	
11/02/2002		102		-1.269	-1.580	-1.161			-0.616	-0.612	CLR	
01/01/1993	1373+36	MLV5E	TS 103; Mainline Valve No. 5; South C/L Birch Bay Lynden Rd. North	-0.850	-1.240							
01/01/1994		MLV5E		-0.850	-1.413							
01/01/1995		MLV5E		-0.850	-1.307							
07/23/1996		MLV5E		-0.850	-1.367	-1.312			-0.487	-0.488	CLEAR	
08/08/1997		MLV5E		-1.132	-1.302	-1.020			-0.664	-0.666	CLEAR	
08/18/1998		MLV5E		-1.195	-1.518	-1.173			-0.762	-0.760	CLEAR	
10/14/1999		MLV5E		-1.320	-1.629	-1.159			-0.573	-0.570	CLEAR	
10/19/2000		MLV5E		-1.194	-1.492	-1.148			-0.622	-0.621	Clear	
11/10/2001		MLV5E		-1.189	-1.341	-1.002			-0.599	-0.595	CLR	
11/02/2002		MLV5E		-1.201	-1.468	-1.117			-0.616	-0.612	CLR	

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
01/01/1993	1373+48	MLV5W	TS 103; Mainline Valve No. 5; South C/L Birch Bay Lynden Rd. South	-0.850	-1.240							
01/01/1994		MLV5W		-0.850	-1.440							
01/01/1995		MLV5W		-0.850	-1.285							
07/23/1996		MLV5W		-0.850	-1.340							
08/08/1997		MLV5W		-1.131	-1.291							
08/18/1998		MLV5W		-1.193	-1.512							
10/14/1999		MLV5W		-1.299	-1.656							
10/19/2000		MLV5W		-1.194	-1.502							
11/10/2001		MLV5W		-1.220	-1.404							
11/02/2002		MLV5W		-1.204	-1.444							
01/01/1993	1425+71	105	TS 105; North RR Xing; 743 ft. North C/L Amie Rd.	-0.850	-1.310							
01/01/1994		105		-0.850	-1.440							
01/01/1995		105		-0.850	-1.298							
07/23/1996		105		-0.914	-1.430							
08/08/1997		105		-0.991	-1.137							
08/19/1998		105		-1.268	-1.601							
10/14/1999		105		-1.334	-1.719							
11/10/2001		105		-1.251	-1.513							
11/02/2002		105		-1.269	-1.586							
01/01/1993	1552+63	108	TS 108; West C/L Kickerville Rd. Xing	-0.850	-1.380							
01/01/1994		108		-0.850	-1.500							
01/01/1995		108		-0.850	-1.430							
07/23/1996		108		-0.850	-1.443							
08/08/1997		108		-1.163	-1.205							
08/19/1998		108		-1.289	-1.712							
10/14/1999		108		-1.337	-1.701							

C P/S Native -0.781

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
10/19/2000	1585+16	108	TS 111: BNR East End casing; Take dirt rd. West of tracks from Bay Rd.	-1.300	-1.726	-1.276			-0.790		CLEAR	C P/S Native -0.789
11/10/2001	108	-1.271		-1.602	-1.181						CLEAR	
11/02/2002	108	-1.312		-1.686	-1.224						CLEAR	
01/01/1993	1585+16	111		-0.850	-1.360						CLEAR	
01/01/1994		111		-0.850	-1.460				-0.736		CLEAR	
01/01/1995		111		-0.850	-1.360				-0.770		CLEAR	
07/23/1996		111		-0.914	-1.444	-1.380			-0.764	-0.760	CLEAR	
08/08/1997		111		-1.230	-1.464	-1.084			-0.739	-0.743	CLEAR	
08/19/1998		111		-1.298	-1.602	-1.154			-0.728	-0.727	CLEAR	
10/14/1999		111		-1.321	-1.651	-1.180			-0.770	-0.770	CLEAR	
10/19/2000		111		-1.317	-1.671	-1.204			-0.735	-0.733	CLEAR	
11/10/2001		111		-1.278	-1.553	-1.125			-0.734	-0.734	CLR	
11/02/2002		111		-1.256	-1.582	-1.176			-0.726	-0.726	CLR	
01/01/1993	1585+87	114	TS 114: BNR West End casing	-0.850	-1.350							
01/01/1994		114		-0.850	-1.521							Cascade Xing-No foreign test leads
01/01/1995		114		-0.850	-1.380							Cascade Xing-No foreign test leads
07/23/1996		114		-0.850	-1.452	-1.400						Cascade Crossing No Foreign Test Leads
08/08/1997		114		-1.181	-1.423	-1.092						
08/19/1998		114		-1.297	-1.629	-1.182			-0.756	-0.756	CLEAR	
10/14/1999		114		-1.344	-1.617	-1.123			-0.748	-0.748	CLEAR	
10/19/2000		114		-1.303	-1.701	-1.248			-0.762	-0.764	Clear	
11/10/2001		114		-1.280	-1.582	-1.152			-0.757	-0.757	CLR	
11/02/2002		114		-1.264	-1.606	-1.192						
01/01/1993	1633+83	117	TS 117: South C/L Grandview Rd. Xing	-0.850	-1.320							

Survey Date	Relative Location #	Location Code	Location	Target P/S	Struc P/S	Struc IRF	Foreign P/S	Foreign IRF	Casing P/S	Casing IRF	Casing Status	Survey Remarks
01/01/1994		117		-0.850	-1.512							Cascade Xing-No foreign test leads
01/01/1995		117		-0.850	-1.350							Cascade Xing-No foreign test leads
07/23/1996		117		-0.850	-1.442	-1.375						Cascade Crossing No leads
08/08/1997		117		-1.274	-1.492	-1.068						Foreign Test Leads
08/18/1998		117		-1.295	-1.585	-1.140						
10/14/1999		117		-1.321	-1.548	-1.077						
10/19/2000		117		-1.333	-1.662	-1.179						
11/10/2001		117		-1.284	-1.545	-1.111						
11/02/2002		117		-1.266	-1.562	-1.146						
Totals for Facility Code: 250A				Totals for Facility Name: Ferndale Pipeline System				Records: 582				

Totals for System: FERNDALE      Totals for Assets: MAINLINE      Records: 582

Totals for Region: PACIFIC NORTHWEST      Records: 582