



PIPELINE SCHEMATIC	HORIZONTAL STATIONS (2D)	STATION DESCRIPTION	SLOPE STATIONS (3D)
HEAVY WALL PIPE	1174+13 P.I. 05'31.53' RT.	MATCHLINE 1170+00	
MILD STEEL FITTING	1174+57 P.I. 08'00'17' RT.		
TRANSITION PIECE	1176+00 BEGIN DRAIN		
CASING PIPE	1176+48 END DRAIN		
CONCRETE COATING	1176+52 P.I. 02'43'17' LT.		
SET-ON WEIGHTS	1176+56 P.I. 02'43'17' LT.		
PIPELINE WARNING SIGN	1176+58 P.I. 02'43'17' LT.		
PIPELINE MARKER	1176+64 P.I. 02'43'17' LT.		
MATERIAL ITEM	1176+64 P.I. 02'43'17' LT.		
GROUNDING MAT	1180+48 6.0 C.V.R.		
ZINC RIBBON			
AERIAL MARKER			
CATHODIC TEST STATION			
MAINLINE VALVE			
CHECK VALVE			
OPEN CUT			
BORE			
DRINKING WATER USA			
ECOLOGICAL USA			
HIGHLY POPULATED AREA			
OPERATOR (KEYSTONE) DEFINED			
OTHER POPULATED AREA			
SOURCE WATER PROTECTION AREA			
WELLHEAD PROTECTION AREA			

TEST SECTIONS (3D)	ENVIRONMENTAL MITIGATION/RECLAMATION STATIONS (2D)
TEST SECTION 2A-4 ILTO-024-2010	TOPSOIL SALVAGE METHOD
	STREAMS
	WETLANDS
	TIMING CONSTRAINTS
	STATIONS
	MONITORING
	RECLAMATION
	SPECIAL CONSIDERATIONS

- GENERAL NOTES**
- 1) ALL CHAINAGES ARE IN FEET UNLESS OTHERWISE SPECIFIED.
 - 2) DATUM ELEVATION AND PROJECTION ARE BASED ON MEAN SEA LEVEL AND NAD 83.
 - 3) FIELD PIPE LOCATING REQUIRED TO DETERMINE PLACEMENT OF PIPELINE WITHIN PERMANENT EASEMENT.
 - 4) UNLESS OTHERWISE NOTED, 48 INCHES MINIMUM COVER EXCEPT 36 INCHES IN AREAS OF CONSOLIDATED ROCK.
 - 5) NO ACTUAL AS-BUILT GROUND SHOTS WERE TAKEN AT THIS LOCATION. THE PROFILE REPRESENTS A PROJECTION FROM SHOTS TAKEN AT 150' TO 250' INTERVALS.
 - 6) THE TYPE OF COATING APPLIED TO THE FIELD WELDS DURING THE ORIGINAL CONSTRUCTION WAS TWO COMPONENT LIQUID EPOXY. THE COATING PRODUCTS USED WERE DENSO 7200 OR SPC SP-2888.
 - 7) THE SUBSTANTIAL CONSTRUCTION COMPLETION DATE, BASED ON CALIPER PIG RUN, WAS SEPTEMBER 01, 2009 FOR M.P. 195.68 TO M.P. 218.50, SEPTEMBER 02, 2009 FOR M.P. 218.50 TO M.P. 259.00 AND OCTOBER 08, 2009 FOR M.P. 259.21 TO M.P. 301.75.
 - 8) ORIGINAL IN-SERVICE DATE OF THE KEYSTONE PIPELINE (PHASE 1): JUNE 30, 2010.
 - 9) CPS CALCULATION DATE: MAY 2010.
 - 10) ORION STATION SERIES NUMBER: 1182700.
 - 11) TO DETERMINE THE MILE POST AT A GIVEN LOCATION, ADD THE 3D STATION NUMBER FROM THIS SEGMENT TO STATION NUMBER 11453+73 AND DIVIDE BY 5280.

OPERATING AND TEST PRESSURE

1. THE MAXIMUM OPERATING PRESSURE (MOP) IS 1400 PSIG.
2. THE MINIMUM TEST PRESSURE WAS 160 PSIG.

BILL OF MATERIALS (3D)

ITEM NO.	DESCRIPTION	QUANTITY
1	30" O.D. X 0.438" W.T. API-6LX-70 W/FBE COATING	167'
2	30" O.D. X 0.386" W.T. API-6LX-70 W/FBE COATING	12,469'
3	30" O.D. X 0.516" W.T. API-6LX-70 W/FBE COATING & ABRASION RESISTANT OVERCOAT	346'
415	MAINLINE VALVE ASSEMBLY LUDE+23 8-A0-MLV-001 (+25)	1 EA
	PIPELINE MARKERS	0 EA
	PIPELINE WARNING SIGNS	6 EA
	CATHODIC TEST STATION	3 EA
	AERIAL MARKER	1 EA

REFERENCE DRAWINGS

REF. NO.	DRAWING NO.	REV. NO.	DRAWING TITLE
415	1832-01-ML-03-118	6	MAINLINE VALVE LUDE+23 8-A0-MLV-001
	1832-01-ML-03-119	0	MAINLINE VALVE LUDE+23 8-A0-MLV-001

REVISIONS

NO.	DATE	REV. BY	CHECKED BY	APPROVED BY	DESCRIPTION
1	5/17/08	UEI	RDG	LAG	ISSUED FOR CONSTRUCTION
2	8/17/08	UEI	RDG	LAG	CORRECTED TRACT NUMBER ISSUED FOR AS-BUILT
3	9/17/08	UEI	RDG	LAG	REPLACES COVERAGE OF IFC DRAWINGS 1832-03-ML-02-015, 1832-03-ML-02-016, 1832-03-ML-02-016, 1832-03-ML-02-017

ENGINEERING RECORDS

DRAWN BY	INITIAL	DATE	ENY. APPRD.	INITIAL	DATE
UEI		10/02/01			

PROFESSIONAL ENGINEER

NAME	STATE	LIC#	REV#	DATE
LOYS ALVIN GRAY, III	SD	CE9004		

SCALE: 0 125 250 500 Feet

TransCanada
In business to deliver

KEYSTONE MAINLINE (NPS 30 2008) LUDEN SECTION

AS-BUILT ALIGNMENT
M.P. 239.10 TO M.P. 241.56
SHEET 10 OF 19 SHEETS
STA. 1170+71 TO STA. 1300+78 (3D)

DRAWING NO. 1832-03-ML-02-010 REV: 3

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