



- ### 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 GPC SP-2888.
  - 7) THE SUBSTANTIAL CONSTRUCTION COMPLETION DATE, BASED ON CALIPER PIG RUN, WAS AUGUST 07, 2009 FOR M.P. 168.73 TO M.P. 195.68 AND SEPTEMBER 01, 2009 FOR M.P. 195.68 TO M.P. 218.50.
  - 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 9038+16 AND DIVIDE BY 5280.

### OPERATING AND TEST PRESSURE

1. THE MAXIMUM OPERATING PRESSURE (MOP) IS 1440 PSIG.
2. THE MINIMUM TEST PRESSURE WAS 1601 PSIG.

### BILL OF MATERIALS (3D)

ITEM NO.	DESCRIPTION	QUANTITY
2	30" O.D. X 0.386" W.T. API-5LX-70 W/FBE COATING	6.95E
3	30" O.D. X 0.516" W.T. API-5LX-70 W/FBE COATING & ABRASION RESISTANT OVERCOAT	807
414	LUDDEN PUMP STATION ASSEMBLY (+300')	
1038	30" x 45" 3 DIA RAD WELD FITTING 0.429" W.T., Y-70	1 EA
103C	30" x 45" 3 DIA RAD WELD FITTING 0.429" W.T., Y-70	1 EA
	PIPELINE MARKERS	0 EA
	PIPELINE WARNING SIGNS	5 EA
	CATHODIC TEST STATION	1 EA
	AERIAL MARKER	1 EA

### REFERENCE DRAWINGS

REF. NO.	DRAWING NO.	REV. NO.	DRAWING TITLE
414	1832-01-ML-03-114	6	LUDDEN PUMP STATION
	1832-01-ML-03-115	0	LUDDEN PUMP STATION
	1832-01-ML-03-116	0	LUDDEN PUMP STATION

### REVISIONS

NO.	DATE	REV. BY	CHECKED BY	APPROVED BY	DESCRIPTION
1	5/17/09	UEI	RDG	LAG	ISSUED FOR CONSTRUCTION
2	10/17/09	UEI			ISSUED FOR AS-BUILT
					1831-03-ML-02-019
					REPLACES COVERAGE OF IFC DRAWINGS
					1831-03-ML-02-030
					1831-03-ML-02-031

### ENGINEERING RECORDS

DRAWN BY	INITIAL	DATE	ENY. APPRD.	INITIAL	DATE
UEI		10/01/25			

### PROFESSIONAL ENGINEER

NAME	STATE	LIC#	REV#	DATE
LOYS A. GRAY, III	ND	PE5714		

SCALE: 0 125 250 500 Feet

**TransCanada**  
In business to deliver

KEYSTONE MAINLINE (NPS 30 2008) FORT RANSOM SECTION

F#F	1831	SPREAD 2A	DISCIPLINE 03
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### AS-BUILT ALIGNMENT

M.P. 215.53 TO M.P. 216.93  
SHEET 19 OF 19 SHEETS  
STA. 2342+00 TO STA. 2415+57 (3D)

DRAWING NO. 1831-03-ML-02-019 REV. 2

- ### LEGEND
- KEYSTONE PIPELINE
  - STATE BOUNDARY
  - COUNTY/TOWNSHIP
  - SECTIONS
  - NATIONAL OR STATE RESERVATION BOUNDARY
  - PROPERTY LINE
  - FENCE
  - EXCLUSIONARY FENCE
  - POWER LINE
  - TELEPHONE LINE
  - BURIED CABLE
  - WATER LINE
  - SANITARY SEWER LINE
  - STORM SEWER / DRAIN
  - FOREIGN PIPELINE
  - RAILROAD
  - HIGHWAY / ROAD
  - STREAM / DITCH
  - WETLAND
  - INTERSTATE ROUTE
  - U.S. ROUTE
  - STATE ROUTE
  - POINT OF INTERSECTION (PI)
  - PIPELINE MILEPOST
  - DIRECTION OF FLOW
  - HOUSE
  - BUILDING
  - WATER WELL
  - MAINLINE VALVE

- ### PIPELINE SCHEMATIC
- HEAVY WALL PIPE
  - WELD FITTING
  - TRANSITION PIECE
  - CASING PIPE
  - CONCRETE COATING
  - SET ON WELDS
  - PIPELINE WARNING SIGN
  - PIPELINE MARKER
  - MATERIAL ITEM
  - GROUNDING MAT
  - 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

- ### ENVIRONMENTAL MITIGATION/RECLAMATION STATIONS (2D)
- TOPSOIL SALVAGE METHOD
  - STREAMS
  - WETLANDS
  - TIMING CONSTRAINTS
  - MONITORING
  - RECLAMATION
  - SPECIAL CONSIDERATIONS

- ### STATIONS (3D)
- PIPELINE DATA
  - STATION DESCRIPTION
  - PIPELINE PROFILE REPRESENTATION
  - STATION REPRESENTATION

- ### PIPELINE PLAN (SCALE 1" = 500')
- FOR CONTINUATION SEE DWG. 1831-03-ML-02-018
- MATCHLINE 2340+00
- FOR CONTINUATION SEE DWG. 1832-03-ML-02-001
- MATCHLINE 2413+49

- ### RIGHT-OF-WAY HORIZONTAL REPRESENTATION (2D)
- TRACT NUMBER
- LENGTH APPLICABLE DWG. NO.
- LAND USE

- ### PIPELINE PROFILE
- HORIZ: 1"=500' VER: 1"=100'
- HORIZONTAL REPRESENTATION (2D)

- ### TEST SECTIONS (3D)
- TEST SECTION 2A-3 ILO-023-2010

- ### GENERAL NOTES

- ### BILL OF MATERIALS (3D)

- ### REFERENCE DRAWINGS

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