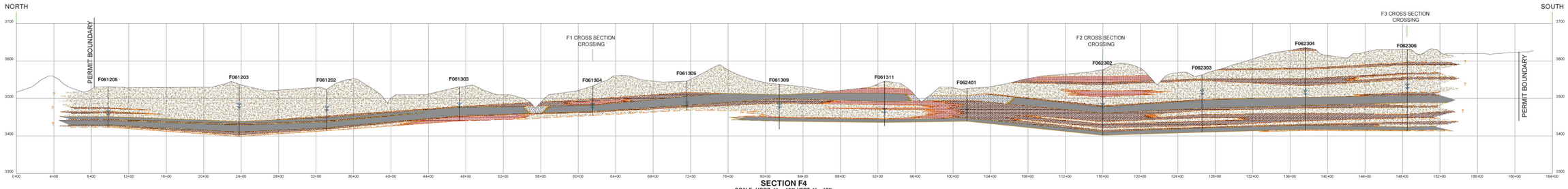
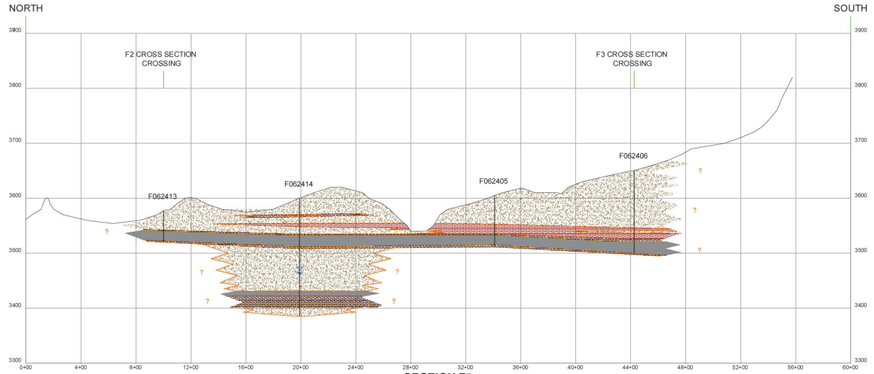


SECTION F4
SCALE: HORZ. 1" = 400', VERT. 1" = 100'



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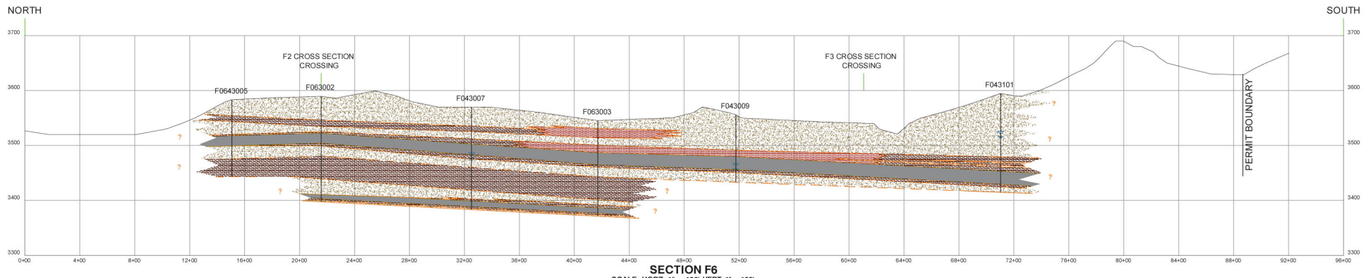

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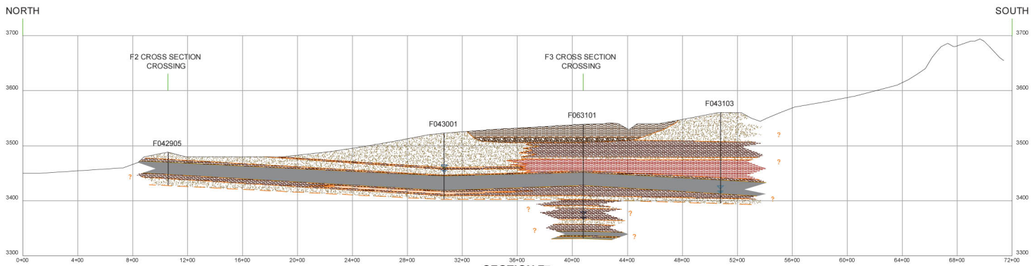

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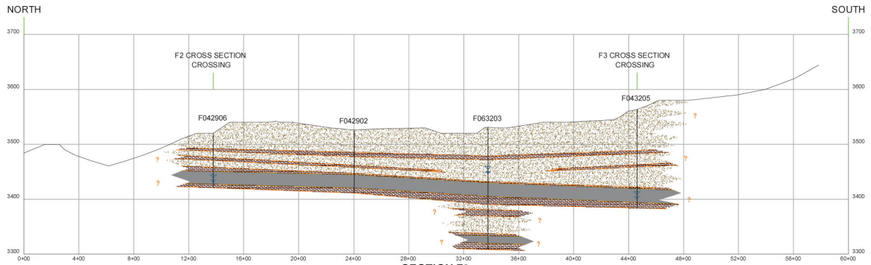

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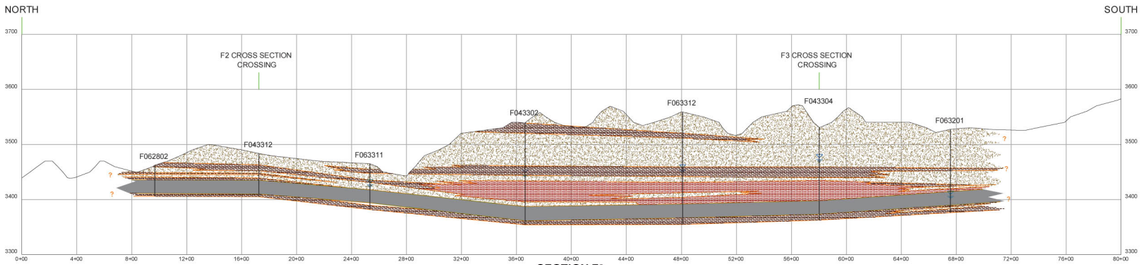

SECTION F9
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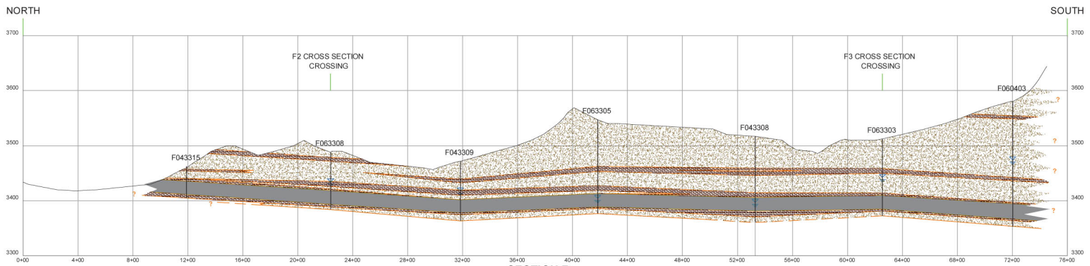
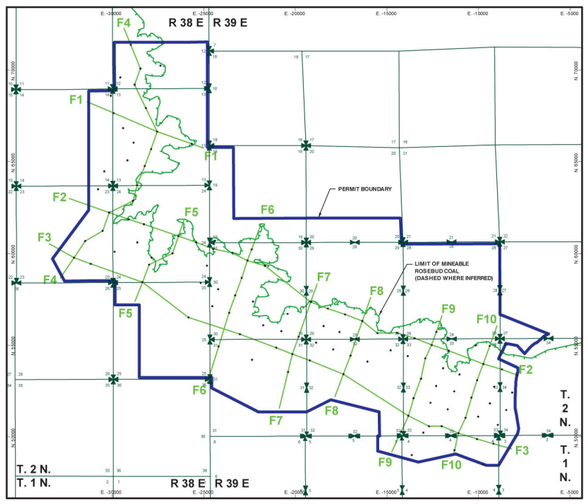


SECTION F10
SCALE: HORZ. 1" = 400', VERT. 1" = 100'



AREA F
CROSS SECTION LOCATION MAP
SCALE: HORZ. 1" = 3000'

LEGEND

Quaternary Fill - Fine
Soil/Silty Clay - Valley Fill Alluvium, Colluvium, and occasional eolian surficial materials. Typically light buff to brown.

Quaternary Fill - Coarse
Gravelly Sand - Sandy Gravel Alluvial Valley Fill Fine to coarse, poorly sorted, subrounded to angular sandy gravel layers. Frequently contains ironstone and clinker fragments and may contain perched groundwater.

Fort Union Formation - Sandstone
Predominantly light yellow-brown where weathered to grey and light grey where unweathered. Fine to very fine grained silty sandstones. Frequently massive where numerous crossbedded channel sequences are stacked and interbedded. May contain pyrite or hematite concretions and disseminated pyrite.

Fort Union Formation - Mudstone with Thin Sandy Interbeds
Predominantly sandy mudstone with thin bands to lenses of intercalated very fine sand material representing transition from lower energy to higher energy deposits.

Fort Union Formation - Mudstone
Predominately grey to dark grey, silty to sandy claystone with sparse to moderate carbonaceous content. Commonly includes dark to very dark carbonaceous clay intervals with notable pyrite content.

Fort Union Formation - Coal (Rosebud and McKay Beds)
Predominantly hard, brittle, dull, subbituminous coal with some mudstone beds and laminations. Sparse to abundant secondary pyrite, most common near top and bottom contacts with enclosing sediments. "Where burned near outcrops forms baked and fused material in overlying units." Often poor and soft where exposed to oxidation by near surface weathering.

Water levels depicted were obtained from written drill logs provided by Pronghorn Geological Services, where available. Please note that water levels indicated may not be static, but only indicate apparent water encountered at the time of drilling.

Note: Cross sections are generated using generalized interpretations of both written lithologic logs and electric logs, where available. The sections show simplified relationships inferred from the available information. All units are complexly interbedded and laterally heterogeneous to a degree not practical to depict on these exhibits. Units less than five feet in thickness are not frequently shown to allow reasonable simplification of the information. Thin soil and residuum, common at the ground surface, has been omitted to assist with this simplification.

CERTIFICATE OF ENGINEER

I, Dale E. Brown, hereby certify that this drawing was prepared by myself or by engineers under my direct supervision and is correct and show to the best of my knowledge and belief all the information required by the mining laws of this state.

SUBSCRIBED AND SWORN TO BEFORE ME THIS
DAY OF
NOTARY PUBLIC
RESIDING IN Sheridan, Wyoming
MY COMMISSION EXPIRES January 22, 2015

HEIDI ROBINSON — NOTARY PUBLIC — County of Sheridan — State of Wyoming — My Commission Expires January 22, 2015

MONTANA — DALE E. BROWN — No. 17836 — LICENSED PROFESSIONAL ENGINEER

REVISIONS	DESCRIPTION	DATE	CAD DESIGNER	CHECKER
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Western Energy Company
P.O. 99 Colstrip, MT 59323 (406)748-5100

AREA F — EXHIBIT Q3

GEOLOGIC CROSS SECTIONS (F4 THROUGH F10)

GRAPHICS DESIGNER: DCJ	DATE COMPLETED: 10-23-11
DESIGNED BY: DEB	Base: Premine
SCALE: AS SHOWN	Date Approved: -
CAD DRAWING: EXHIBIT_Q_GEO_XSEC_2001111026.dwg	