A

A'

1 UCEL INGA
WA 7118 11-7-88-23-W6
KB 871.9m TD 1794m

2 ICG ET AL W CACHE
WA 4648 10-27-88-23-W6
KB 826m TD 1674m

3 WAINOCO ET AL CACHE
WA 4141 d-37-L-94-A-11
KB 2733' TD 5416'

4 WOODS FINA BEARBERRY
WA 3974 d-93-L-94-A-11
KB 2566' TD 5209'

5 SECURITY W BUICK
WA4192 d-37-C-94-A-14
KB 769.3m TD 1508.8m

6 SCEPTRE ET AL BUICK
WA 3177 a-83-B-94-A-14
KB 2525' TD 3968'

7 POCO BUICK
WA6659 d-17-H-94-A-14
KB 698.4m TD 1104m

8 CZAR ASHLAND MAPLE
WA 4349 d-33-H-94-A-14
KB 2384' TD 3976'

9 MEDALLION CHARTER RED WILLOW
WA 980 c-64-L-94-A-15
KB 2352' TD 4150'

Ft. St. John Group

Cretaceous

Gething Formation

Cadomin Formation

Jurassic

Fernie Formation

Triassic

Nordegg Formation

Baldonnel Formation

Datum

Bluesky Formation

Bluesky

Gething

Cadomin

Fernie

Nordegg

Baldonnel

Datum

Gething

Fernie

Nordegg

Baldonnel

Vertical Scale

0 — 0
25 — 100
50 — 200
75 — 300
100

Geological Summary

The Cadomin Formation consists of continental clastic sediments derived from a western source as a result of Coniferian uplift and erosion. McLean (1977) suggested that the source area for much of the Cadomin was the Paleozoic carbonate and clastic rocks west of the present day Rocky Mountain Trench. The Cadomin Formation is a fining upward sequence ranging from the erosional edge (where it was truncated by the north flowing Spirit River Channel) east of Ft. St. John, to the feather edge in the Peace River Area. The Formation is comprised of two major depositional cycles (I) between Mt. Belcourt and Onion Creek (I) at the Alberta/B.C. border, and (II) in the Peace River Area. The characteristics of the Cadomin, with sediment analysis indicating only poor to moderate sorting and rounding of the clasts. Clast size is indicative of the high energy environment present during deposition.

Lithology of the Cadomin Formation

The Cadomin Formation is characteristically composed of medium to very coarse grained conglomeratic sands (however, fine sand can also be present) and conglomerate beds with clasts up to 40 cm in diameter. The clasts are of durable material, such as chert, quartz and quartzite, and are well rounded, but most often only subangular. Sorting is poor to medium. The material is cemented commonly by calcite, occasionally with a limy material, and often is unconsolidated.

Distinguishing the Cadomin from the Nikanassin

The Nikanassin Formation consists of sand with grains that are finer, better sorted, and more rounded than the overlying Cadomin. The Nikanassin also contains carbonaceous shale, and often a quartzose sandstone that is close to white in color.

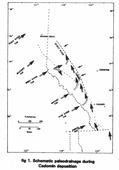


Fig 1. Schematic paleodrainage during Cadomin deposition

Source: McLean, 1977

Distinguishing Cadomin from the Gething

In many localities, there is a distinct contact between the coarse conglomeratic Cadomin and the fine interbedded sands, siltstones, and shales of the Gething. There are, however, areas where the Cadomin is gradational with the Gething. In these areas generalized characteristics often form the basis for distinguishing the Gething from Cadomin; the Gething is finer grained, better sorted, and more rounded (though may be present). The sand grains of the Gething are better sorted, more rounded (evidence of reworking), and the presence of significant coal seams are often also attributed to the Gething.

Stratigraphy of the Cadomin Formation

Stott (1973) describes the Cadomin and Gething as:

> ...facies of one major depositional sequence, separated by a regional unconformity (phase of a marine incursion from the Boreal Regions...".

Normal graded bedding (with an abrupt lower contact) is common in the Cadomin (McLean, 1977), and often the basal contact with the underlying Nikanassin/Gething difficult. The erosional relief can be great. In many localities, the Cadomin is, therefore, often unconformable with the Fernie. In the Peace River region, small lenticular conglomeratic beds of the Cadomin are often included in the Gething. In the Peace River region, commonly consists of two conglomeratic units separated by a zone of fine to medium sandstone and, or shale (Stott, 1968). Isolated and recessive beds of fine grained sandstone and siltstone are also common in some localities. The Cadomin Formation is considered by Stott (1968) to be representative of the pre-Cadomin unconformity that cuts across progressively older beds to the east.

A note with regard to the naming of the Cadomin Formation in the Buick Creek area: Lithologically and stratigraphically, there is strong evidence that the Cadomin Formation and the overlying Gething Member Formations, the latter being, simply, a local name. The regional name 'Cadomin' will be used here to identify the formation locally as named 'Buick Creek'.

References

Gibson, D.W., 1992. Stratigraphy, Sedimentology, Coal Geology and Depositional Environment of the Lower Cretaceous Luscar Group, South-Central Foothills of Columbia and West-Central Alberta. Geol. Surv. of Canada, Bull. 431.

McLean, J.R., 1977. The Cadomin Formation: Stratigraphy, Sedimentology, and Tectonic Implications. Bulletin of Canadian Petroleum Geology, Vol. 25, No. 4.

Smith, P.S., C.E. Dorn and W.M. Sneddon, 1994. The Paleogeography of the Lower Cretaceous of Western Alberta and Northeastern British Columbia in and Adjacent to the Peace River Arch of the Ellerslie Area. AAPG Memoir 59, p.79.

Stott, D.F., 1968. Lower Cretaceous Bullhead and Fort St. John Groups, between Smoky and Peace rivers, Foothills and Plains, Rocky Mountain and British Columbia. Geol Surv. of Canada, Bull. 152.

Stott, D.F., 1973. Lower Cretaceous Bullhead Group between Bullmoose Mountain and Tetsa River, Rocky Mountain Foothills, Northeastern British Columbia. Geol. Surv. of Canada, Bull. 219.

Accessories

Sand Color

Shale Color

Lithology

Accessories:

x - chert (lt)
x - chert (dk)
G - glauconite
B - bentonite
Q - quartzose
Fe - ironstone

Lithology:

Conglomeratic

Sand: coarse
coarse to med
medium
med. to fine
fine
coarse to fine

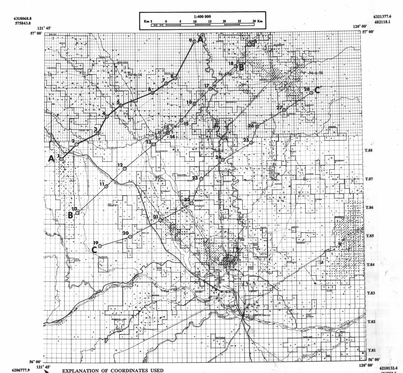
Silty Sand

Siltstone

Carbonates

Shale

Coal: major
minor



EXPLANATION OF COORDINATES USED

LATITUDES AND LONGITUDES (LATITUDES AND LONGITUDES)

NAD-83 UTM COORDINATES (NORTHING / EASTING)

This map includes Universal Transverse Mercator (UTM) coordinates based on the North American Datum of 1983 (NAD 83). Advances in survey technology have enabled a redefinition of the datum upon which the coordinates are based. The latitude and longitude coordinates shown are approximate.

NOTE: All of the NAD-83 UTM coordinates shown on this map are within UTM grid zone 10.

Peace River Area, British Columbia

Cadomin / Buick Creek Subsurface Correlation
Stratigraphic Cross Section A-A'

No Horizontal Scale	Datum: Top Bluesky / Gething
Interpreted by: T. Rudolph	Draughted by: T. R.
Compiled by: T. Rudolph	August , 1992

Petroleum Geology Special Paper 1992-2, T.Rudolph

F.S. 1992-2

B

B'

10	11	12	13	14	15	16	17	18
FOSSIL PAC IMP COPLIN WA 933 7-16-86-23-W6 KB 2534' TD 7497'	OIL ET AL SATURN WA 5739 16-10-87-22-W6 KB 808.7m TD 2100m	POOC CAEL TEAL WA 3083 10-32-87-21-W6 KB 2693' TD 6515'	CZAR DOME ET AL BUICK WA 4519 10-29-88-20-W6 KB 755m TD 1854m	SIERRA BUICK WA 3169 c-36-I-94-A-11 KB 2237' TD 3555'	HUBER BUICK WA 4147 b-90-L-94-A-10 KB 2206' TD 3600'	WOODS BUICK WA 4073 b-44-D-94-A-15 KB 2222' TD 3552'	TEXEX ET AL BEAVERTAIL WA 4091 c-97-C-94-A-15 KB 2224' TD 4240'	PCI SCURRY W PEEJAY WA 6588 d-76-G-94-A-15 KB 696.7m TD 1210m

Cretaceous
- Ft. St. John Group
- Gething Formation
- Cadomin Formation
- Nikanassin Formation

Jurassic
- Fernie Formation

Triassic
- Nordegg Formation
- Baldonnel Formation

Datum

Bluesky Formation

Bluesky

Gething

Cadomin

Fernie

Nordegg

Baldonnel

Poor Quality Sample

Vertical Scale

0 — 25 — 50 — 75 — 100

0 — 100 — 200 — 300

Geological Summary

The Cadomin Formation consists of continental clastic sediments derived from a western source as a result of Cordilleran uplift and erosion. McLean (1977) postulates that the source of the chert clasts in the Cadomin is the Devonian Misinchinka Group exposed west of the present day Rocky Mountain Trench. The formation strikes NNW / SSE and increases in thickness from the erosional edge (where it was truncated by the north flowing Spirit River Channel) east of Ft. St. John, to over 100 m in the Pouce Coupe area. The Cadomin Formation is comprised of two major depositional tongues: 1) between Mt. Babcock and Onion Creek ; 2) at the Peace River (Bowl, 1973) (see fig 1). Such alluvial fans are characteristic of the Cadomin, with sediment analysis indicating only poor to moderate sorting and rounding of the clasts. Clast size is indicative of the high energy environment present during deposition.

Lithology of the Cadomin Formation

The Cadomin Formation is characteristically composed of medium to very coarse grained conglomeratic sands (however, fine sand can also be present) with pebbles ranging from 2 mm to over 10 cm in diameter. The clasts are of durable material, typically quartz and chert, and may be angular to rounded, but most often only subangular. Sorting is poor to medium. The material is cemented commonly with SiO2, occasionally with a limy material, and often i unconsolidated.

Distinguishing the Cadomin from the Nikanassin

The Nikanassin Formation consists of sand with grains that are finer, better sorted, and more rounded than the overlying Cadomin. The Nikanassin also contains considerably less chert, and is often a quartzose sandstone that is clean to white in color.

Distinguishing Cadomin from the Gething

In many localities, there is a distinct contact between the coarse conglomeratic Cadomin and the fine interbedded sands, siltstones, and shales of the Gething. There are, however, areas where the Cadomin grades upward into the Gething. The following generalized criteria are useful in the task of distinguishing the Gething from Cadomin: the Gething is less cherty (although thin, cherty conglomeratic beds may be present); the sand grains of the Gething are better sorted, more rounded (evidence of reworking), and finer; coal seams of significant size are often quite abundant in the Gething.

Stratigraphy of the Cadomin Formation

Stott (1973) describes the Cadomin and Gething as:

> "...facies of one major depositional sequence related to the initial transgressive phases of a marine incursion from the Boreal Regions..."

Normal graded bedding (with an abrupt lower contact) is common in the Cadomin (McLean, 1977), and often this grading makes the distinction from overlying Gething difficult. Where the Cadomin is exposed (as in many foothills), the Cadomin is thicker, often interpreted as basal Gething. In the north of the region, small lenticular conglomeratic beds of the Cadomin are often included in the Gething. In the south, the Cadomin commonly consists of two conglomeratic beds separated by tens of feet of Gething. Locally, thin coaly beds, thin limestones and recessive beds of fine grained sandstone and siltstone are also common in some localities. The abrupt lower contact mentioned above by McLean is representative of the pre-Cadomin unconformity that cuts across progressively older beds to the east.

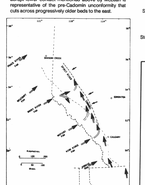


fig 1. Schematic paleodrainage during Cadomin deposition

Source: McLean, 1977

A note with regard to the naming of the Cadomin Formation in the Buick Creek area: Lithologically and stratigraphically, there is strong evidence that the Cadomin Formation is equivalent to the Buick Creek Member of the Gething Formation. For this report, the regional name 'Cadomin' will be used here to identify the formation locally so named 'Buick Creek'.

References

Gibson, D.W., 1992. Stratigraphy, Sedimentology, Coal Geology and Depositional Environment of the Lower Cretaceous Gething Formation, Northeastern British Columbia and West-Central Alberta. Geol. Surv. of Canada, Bull. 431.

McLean, J.R., 1977. The Cadomin Formation: Stratigraphy, Sedimentology, and Tectonic Implications. Bulletin of Canadian Petroleum Geology, v.25, no.4, p.791-827.

Smith, P.G., C.E. Zorn and R.M. Snelsler, 1984. The Paleogeography of the Lower Cretaceous of Western Alberta and Northeastern British Columbia in and Adjacent to the Area of the Elmworth Area. AAPG, Memoir 38, p.79-114.

Stott, D.F., 1968. Lower Cretaceous Bullhead and Fort St. John Groups, between Smoky and Peace rivers, Rocky Mountain Foothills, Alberta and British Columbia: Geol. Surv. of Canada, Bull.152.

Stott, D.F., 1973. Lower Cretaceous Bullhead Group between Bullmoose Mountain and Tetsa River, Rocky Mountain Foothills, Northeastern British Columbia: Geol. Surv. of Canada, Bull. 216.

Accessories

Sand Color

Shale Color

Lithology

Accessories:

x - chert (tr)
x - chert (dk)
G - glauconite
B - bentonite
Q - quartzose
Fe - ironstone

Lithology:

Conglomeratic

Sand: coarse
coarse to med.
medium
med. to fine
fine
coarse to fine

Silty Sand

Siltstone

Carbonates

Shale

Coal: major
minor

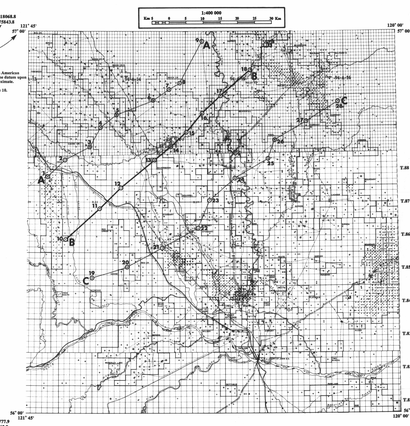
EXPLANATION OF COORDINATES USED

NAD-83 UTM COORDINATES= NORTHING / EASTING

LATITUDE AND LONGITUDE COORDINATES ARE APPROXIMATE

This map includes Universal Transverse Mercator (UTM) coordinates based on the North American Datum of 1983 (NAD-83). Advances in survey technology have enabled a redefinition of the datum upon which the coordinates are based. The latitude and longitude coordinate shown are approximate.

NOTE: All of the NAD-83 UTM coordinates shown on this map are within UTM grid zone 10.



Peace River Area, British Columbia

Cadomin / Buick Creek Subsurface Correlation
Stratigraphic Cross Section B-B'

No Horizontal Scale	Datum: Top Bluesky / Gething
Interpreted by: T. Rudolph	Draughted by: T. R.
Compiled by: T. Rudolph	August , 1992

Petroleum Geology Special Paper 1992-2, T.Rudolph

2 GSP 1992-2

C

C'

19
CHEROKEE ET AL W GOOSE
WA 5146 6-8-85-22-W6
KB 752.4m TD 1720m

20
BLUESKY ET AL RED CREEK
WA 5032 7-20-85-21-W6
KB 747m TD 1708m

21
SCURRY ET AL W STODDART
WA 5437 16-5-86-20-W6
KB 777.5m TD 2005m

22
FOCUS ET AL STODDART
WA 4520 6-28-86-19-W6
KB 734.7m TD 1863m

23
TOTAL CEGO SQUIRREL
WA 5448 6-24-87-19-W6
KB 738m TD 1500m

24
MURPHY RYERSON RIGEL
WA 7627 8-10-88-18-W6
KB 667.5m TD 1375m

25
ENCOR TEXCAN RIGEL
WA 7459 16-27-88-17-W6
KB 720.5m TD 1360m

26
IOE FINA N RIGEL
WA 1537 d-57-I-94-A-10
KB 2486' TD 4458'

27
LADD W CURRANT
WA 5271 d-15-D-94-A-16
KB 722.2m TD 1235m

28
UNOCAL PEEJAY
WA 6893 d-73-C-94-A-16
KB 756.1m TD 1227m

Vertical Scale
0 — 0
25 — 100
50 — 200
75 — 300
100

Datum

Bluesky Formation

Bluesky
Gething
Cadomin
Fernie
Nordegg
Baldonnel

Ft. St. John Group

Cretaceous

Gething Formation

Cadomin Formation

Jurassic

Fernie Formation

Nikanassin Formation

Nordegg Formation

Triassic

Baldonnel Formation

EXPLANATION OF COORDINATES USED

NAD 83 UTM COORDINATES — NORTHING / EASTING

LATITUDE AND LONGITUDE COORDINATES ARE APPROXIMATE

This map includes Universal Transverse Mercator (UTM) coordinates based on the North American Datum of 1983 (NAD 83). Advances in survey technology have enabled a redefinition of the datum upon which the coordinates are based. The latitude and longitude coordinates shown are approximate.

NOTE: All of the NAD 83 UTM coordinates shown on this map are within UTM grid zone 10.

4210968.8 / 577843.8

4203377.4 / 603119.1

4206777.9 / 777862.9

4219132.4 / 604762.3

120° 00' / 57° 00' / 55° 00' / 121° 45'

Scale 1:400 000

Geological Summary

The Cadomin Formation consists of continental clastic sediments shifted from a western source as a result of Cordilleran tectonic activity. It is probable that the source of the chert clasts in the Cadomin was the Paleozoic carbonate and clastic rocks west of the present day Rocky Mountain Trench. The formation strikes NW-SE and increases in thickness and coarseness of clastics from southeast to the north flowing Spirit River Channel east of Ft. St. John, to 3500' in the foothills. In NE B.C., the Cadomin conformably overlies the Nikanassin and is overlain by (1) bioturbated Gething and Cadomin equivalent strata in Peace River (Stott, 1973)(see fig 1). Such alluvial fans are characteristic of the Cadomin, with sediment analysis indicating only poor to moderate sorting and rounding of the clasts. Chert size is indicative of the high energy environment present during deposition.

Lithology of the Cadomin Formation

The Cadomin Formation is characteristically composed of medium to very coarse grained conglomeratic sandstone. Pebble to cobble beds are frequently present, and conglomeratic beds with clasts up to 40 cm in diameter. The clasts are of durable material, typically quartz and chert, and may be angular to rounded, but most often only subangular. Sorting is usually poor to medium. The matrix is cemented commonly with SiO2, occasionally with a limy material, and often is unconsolidated.

Distinguishing the Cadomin from the Nikanassin

The Nikanassin Formation consists of sand with grains of chert, but is usually finer grained and cleaner than the overlying Cadomin. The Nikanassin also contains considerably less chert, and is often a quartzose sandstone that is clear to white in color.

Distinguishing Cadomin from the Gething

In many localities, there is a distinct contact between the coarse conglomeratic Cadomin and fine interbedded sands, siltstones, and shales of the Gething. There are, however, cases where the Cadomin grades upward into the Gething. The following criteria are considered helpful in the field for distinguishing the Gething from Cadomin: the Gething is less cherty (although thin, cherty conglomeratic beds may be present); the sand grains of the Gething are better sorted, more rounded (evidence of reworking), and finer; coal seams of significant size are often quite abundant in the Gething.

Stratigraphy of the Cadomin Formation

Stott (1973) describes the Cadomin and Gething as:

"...facies of one major depositional sequence related to the initial transgressive phase of a marine incursion from the Boreal Ocean."

Normal graded bedding (with an abrupt lower contact) is common in the Cadomin (McLean, 1977), and often this grading makes the distinction from overlying Gething difficult, thus arbitrary picks must be used. The Cadomin is thought to be largely of fluvial origin. Interpreted as basal Gething, in the north of the region, small lenticular conglomeratic beds of the Cadomin are often included in the Gething. In the south, the Cadomin commonly consists of two conglomeratic units separated by a unit of sand, sandstone and/or shale(Stott, 1968). This coal seams and recessive beds of fine grained sandstone and siltstone are also common in some localities. The abrupt Lower contact mentioned above by McLean is representative of the pre-Cadomin unconformity that cuts across progressively older beds to the east.

A note with regard to the naming of the Cadomin Formation in the Buick Creek area: Lithologically and stratigraphically, there is strong evidence that the Cadomin Formation is equivalent to the Buick Creek Formation, the latter being, simply, a local name. The informal name 'Cadomin' will be used here to identify the formation locally so named 'Buick Creek'.

References

Gibson, D.W., 1992. Stratigraphy, Sedimentology, Coalification and Depositional Environments of the Lower Cretaceous Gething Formation, Northeastern British Columbia and West-Central Alberta: Geol. Surv. of Canada, Bull. 431.

McLean, J.R., 1977. The Cadomin Formation: Stratigraphy, Sedimentology, and Tectonic Implications: Bulletin of Canadian Petroleum Geology, v.25, no.4, p.792-827.

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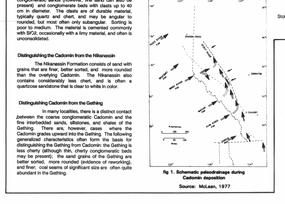

Fig 1. Schematic paleodrainage during Cadomin deposition

Source: McLean, 1977

Accessories

Sand Color

Shale Color

Lithology

Accessories:

x - chert (lt)
X - chert (dk)
G - glauconite
B - bentonite
Q - quartzose
Fe - ironstone

Lithology:

Conglomeratic

Sand: coarse
coarse to med.
medium
med. to fine
fine
coarse to fine

Silty Sand

Siltstone

Carbonates

Shale

Coal: major
minor

Peace River Area, British Columbia

Cadomin / Buick Creek Subsurface Correlation
Stratigraphic Cross Section C-C'

No Horizontal Scale	Datum: Top Bluesky / Gething
Interpreted by: T. Rudolph	Draughted by: T. R.
Compiled by: T. Rudolph	August , 1992

Petroleum Geology Special Paper 1992-2, T.Rudolph

1992-2 (GS) P # #