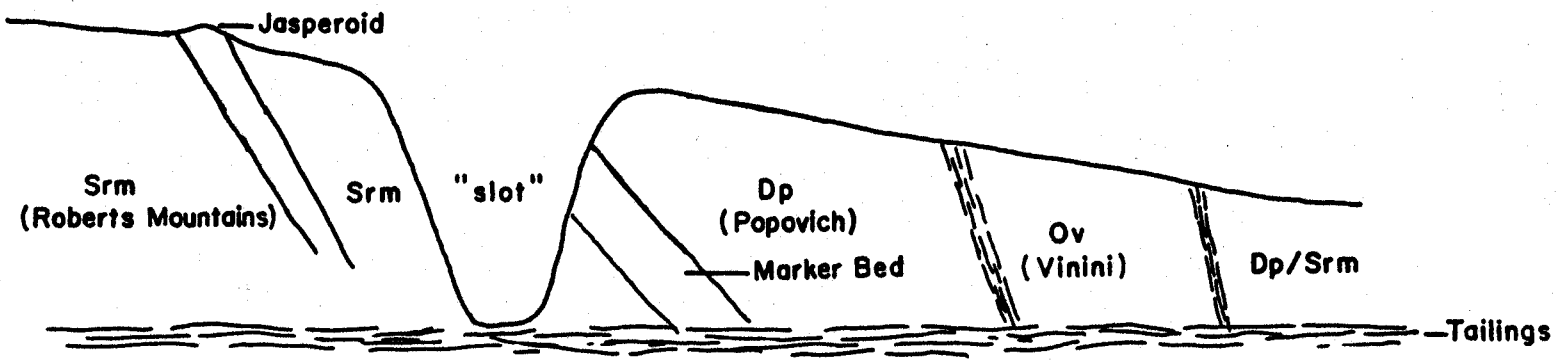
2940 0102

SELF-GUIDED CARLIN MINE TOUR
GSN SYMPOSIUM FIELD TRIP

STOP 1

You are presently standing along the western flank of the Carlin mine "Island"; a non-mineralized area separating Carlin's Main pit from Carlin's West pit. Structurally, the area is bounded to the east by the Hardie-Mill fault system, and to the west by northwest faults which also controlled mineralization in the west pit.



Stop I. Generalized View. West Wall, Carlin's West Pit (looking west)

In the immediate foreground you can see the west wall of Carlin's west pit. The above generalized sketch is intended to aid you in locating and identifying various lithologic and structural features.

Proceeding from left to right (south to north); you will observe the light tan weathering, variably oxidized Roberts Mountains Formation (Srm). The dark chocolate brown colored unit is cherty replacement along bedding of Roberts Mountains Formation. The jasperoid outcrop exhibits several silicification features, ranging from massive cherty replacement to passive replacement with near-perfect preservation of lithologic features. Other alteration features include cross-cutting quartz veinlets, seams, quartz lenses, minor inclusions of hydrothermal barite, and micro-crystalline quartz coatings along fractures. Hydrothermal brecciation, as well as silicified fault brecciation are also present.

To the right (north) of the slot area maroon colored bed visible above the tailings is the marker bed between Silurian Roberts Mountains Formation and the Devonian Popovich Formation, (Dp).

Progressing northward, a faulted sliver of Ordovician Vinini Formation (Ov) is readily apparent by a marked color contrast (dark red brown against light tan).

Looking northwest you are able to see from Carlin to Dee mine along the Carlin trend. The mine complex visible immediately behind the tailings dam is the former Universal Gas operation, currently under Westmont's supervision. The large hill with a haul road visible along its northern flanks is the site of Bluestar, the actual pit location is hidden behind the hill. Dumps high up the hill are Bluestar dumps. Genesis is locatable by the dumps somewhat lower in the valley just north of Bluestar. The next area of mine workings visible are Barrick Goldstrike's Post, Gold Strike, and Bazza deposits. In the far background both Bootstrap and Dee mines are visible. Bootstrap is identifiable by the sliced-off hill side, while the large dumps near the skyline mark Dee mine's location.

STOP 2

Here you are looking east along the axis of Carlin's Main pit. Overall length of Carlin's workings from west highwall (West pit) to east wall (East pit) is approximately 1 1/2 miles. The old style sheave-wheel bucket shovel is located at the approximate eastern pit limits. Lithologically, the south highwall consists entirely of Roberts Mountains Formation, while the north highwall exposes Vinini, Popovich, and Roberts Mountains Formations. A better structural overview will be seen at stop 7.

STOP 3

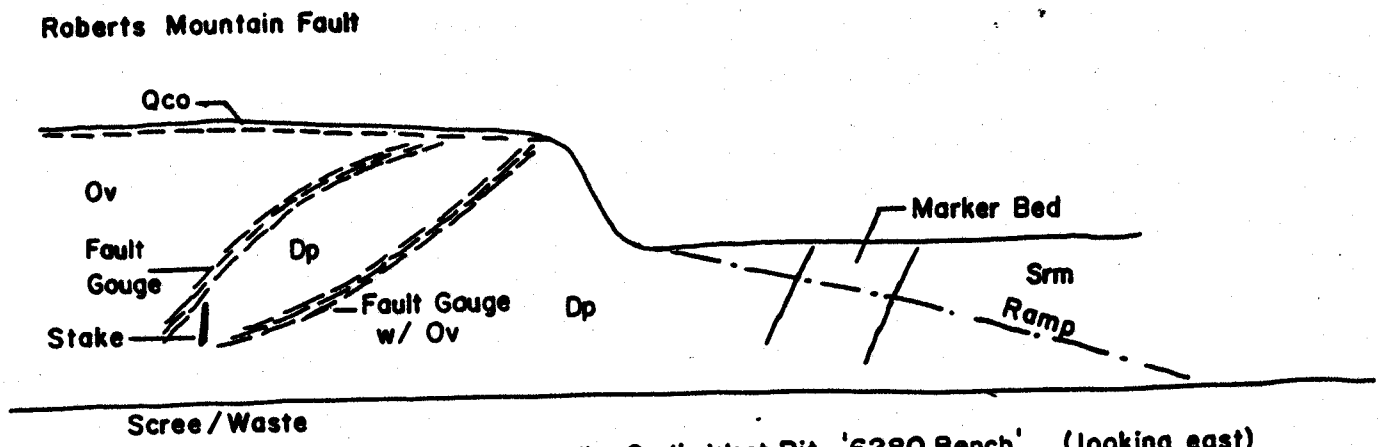
Medium-grained, thinly-bedded, laminated, partially silicified, recrystallized Vinini quartz arenite. Texturally, the unit is difficult to distinguish from recrystallized, silicified, sandy textured Roberts Mountains Formation.

TRAVERSE FROM POINT 3 TO POINT 4

Traverse parallels trace of Roberts Mountains Fault. Formation exposed in road cut is thin-bedded siliceous Vinini cherts with clay shale partings. Oxidation is primarily due to weathering along structures.

STOP 4

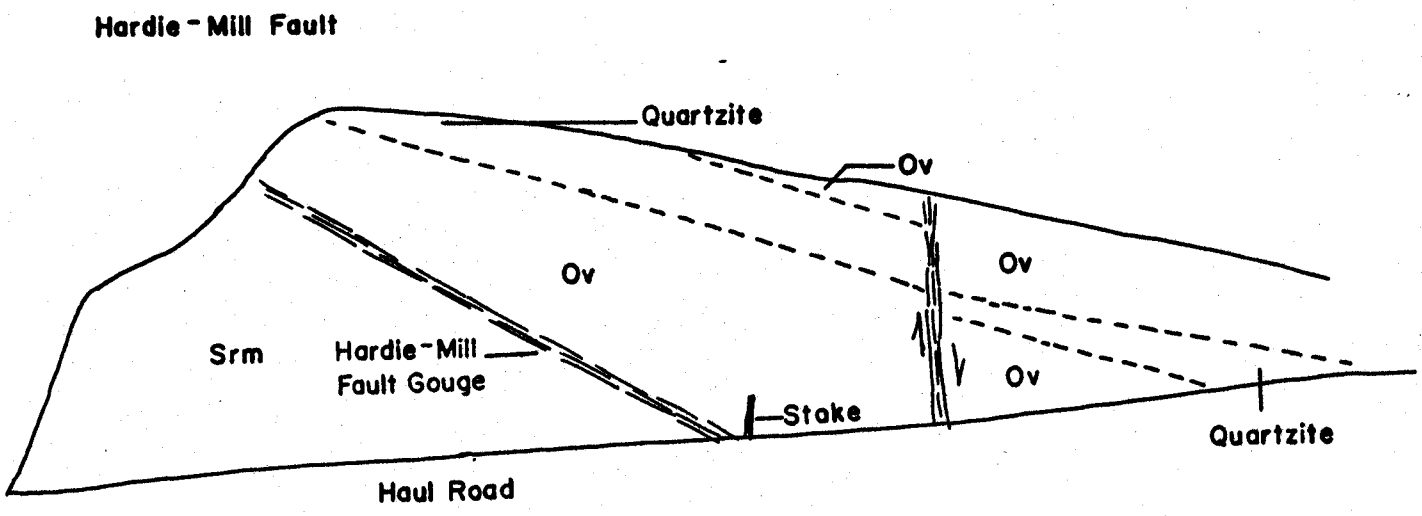
For general orientation purposes, you are 60 feet below and slightly south of stop 1. As you look east towards the highwall, you see one of the better exposures of the Roberts Mountains Fault. The accompanying diagram is to help distinguish various structural and lithologic features visible along the bench.



Stop 4. Generalized View. East Wall, Carlin West Pit '6280 Bench' (looking east)

STOP 5

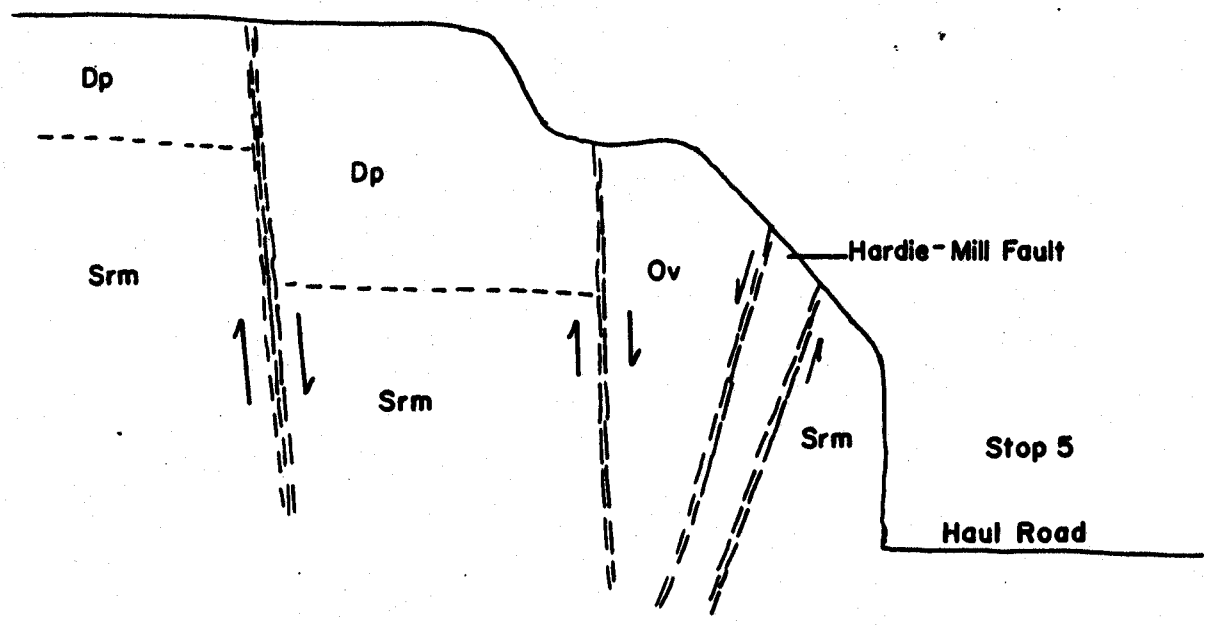
At this point you are looking west at the trace of the Hardie-Mill fault. As in previous stops, the accompanying diagram (below), is to help locate and identify various lithologic and structural features. One unit of interest is a massive quartzite in the Hardie-Mill hanging wall. Typically, these quartzites appear to be localized along major structures, predominately the Hardie-Mill fault system.



Stop 5. Generalized View. East Flank, Island Area (looking west)

STOP 6

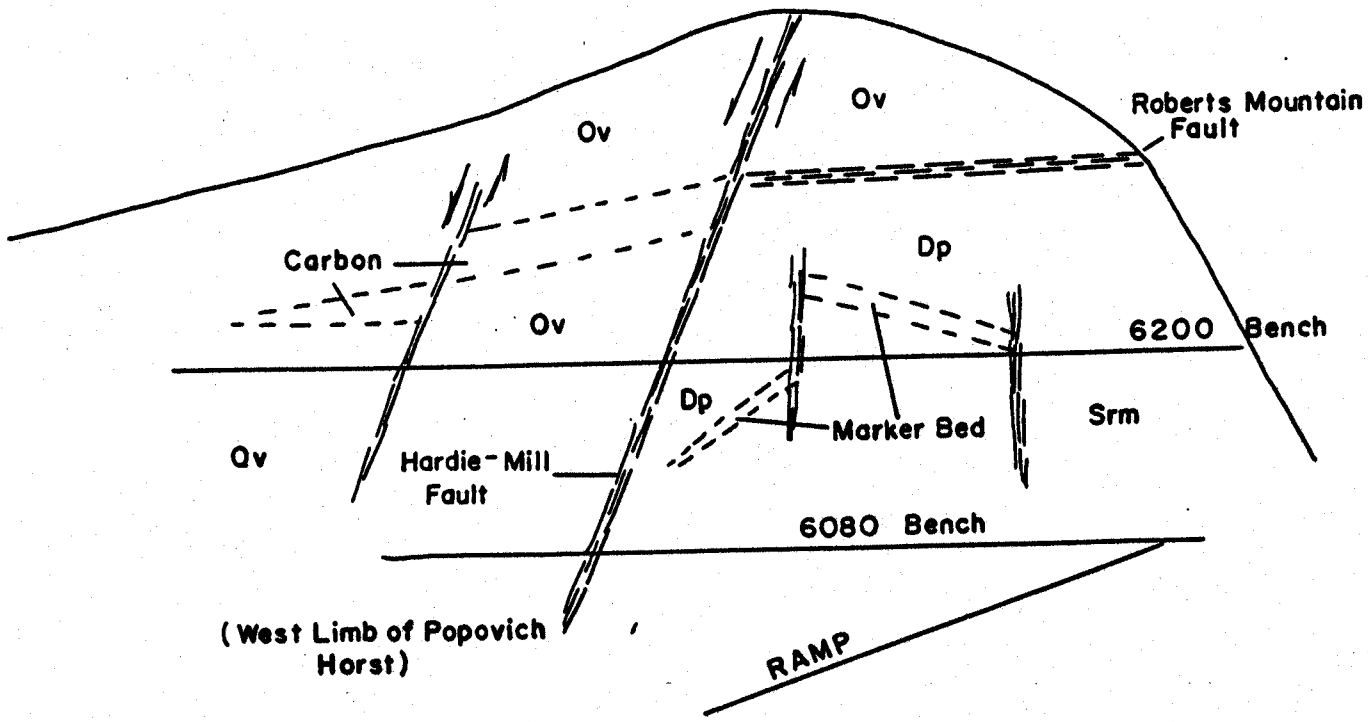
Looking north back to stop 5, you are looking down the general trace of the Hardie-Mill structural zone. As is readily apparent strong deformation is present throughout the zone. Looking south from this point, the highly iron-stained horsetail zone of the Hardie-Mill system is exposed. It is now thought that the horsetail zone results from intersections of major fault systems.



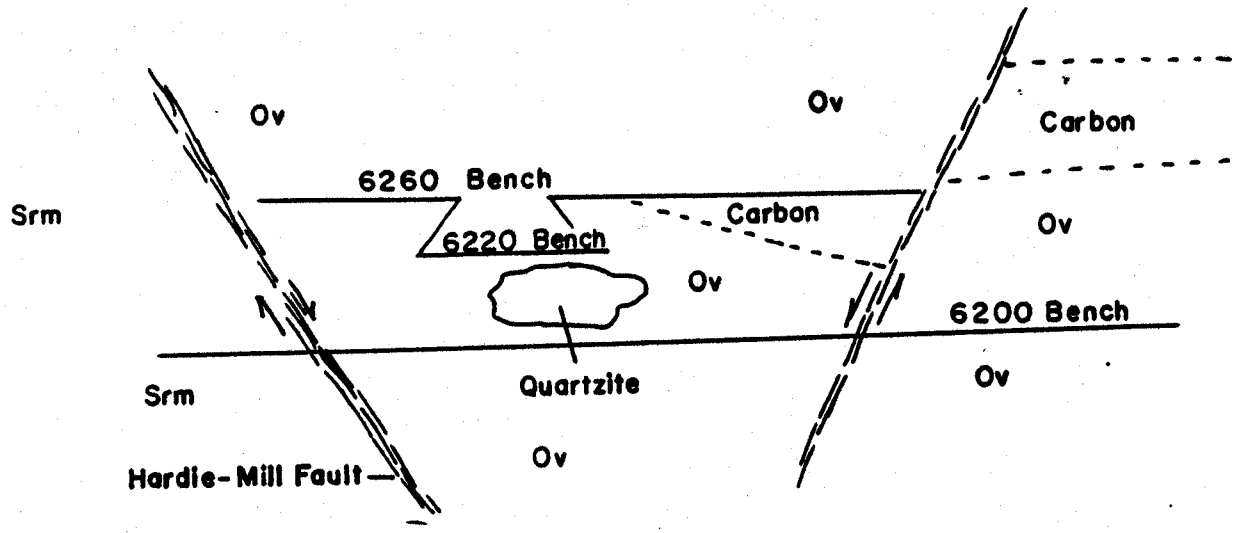
Stop 6. Generalized View. Hardie-Mill Fault System South Flank, Island Area (looking north)

STOP 7

Here you are looking north to the structurally complex north highwall. Many of the major structural features of the Carlin deposit are visible from this point. The diagramatic sketch below is intended to aid in locating and identifying most of the features visible on the highwall. From here we will walk along the 6200 bench and give you an opportunity to look closely at features, as well as beat on some rocks.



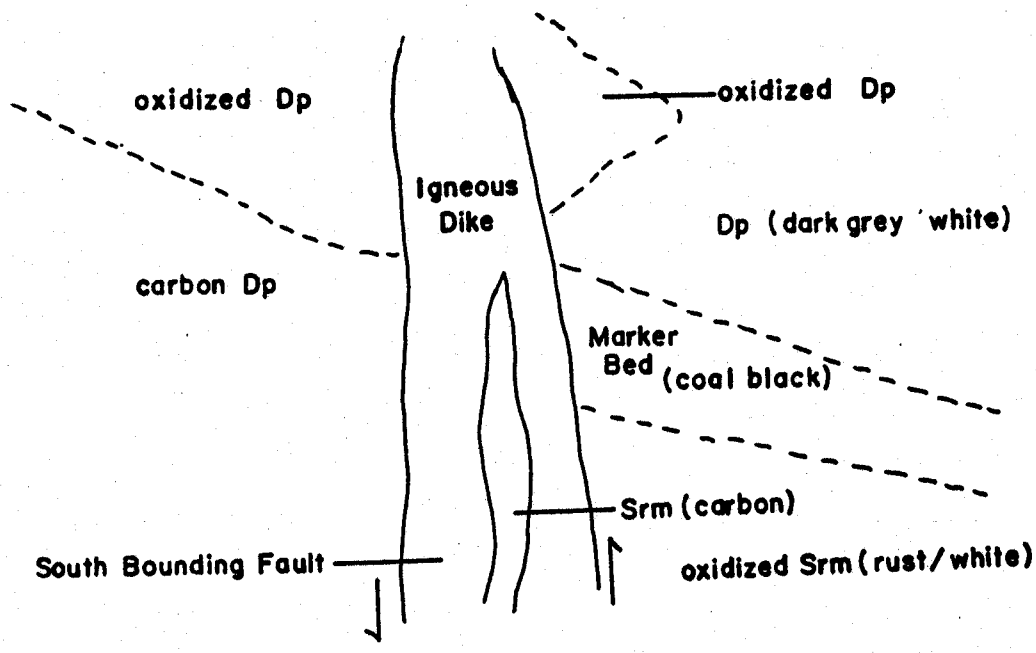
Stop 7. Generalized View. North High Wall Carlin Main Pit (looking north)



Stop 7. Generalized View. West High Wall Carlin Main Pit (looking west to northwest)

STOP 8

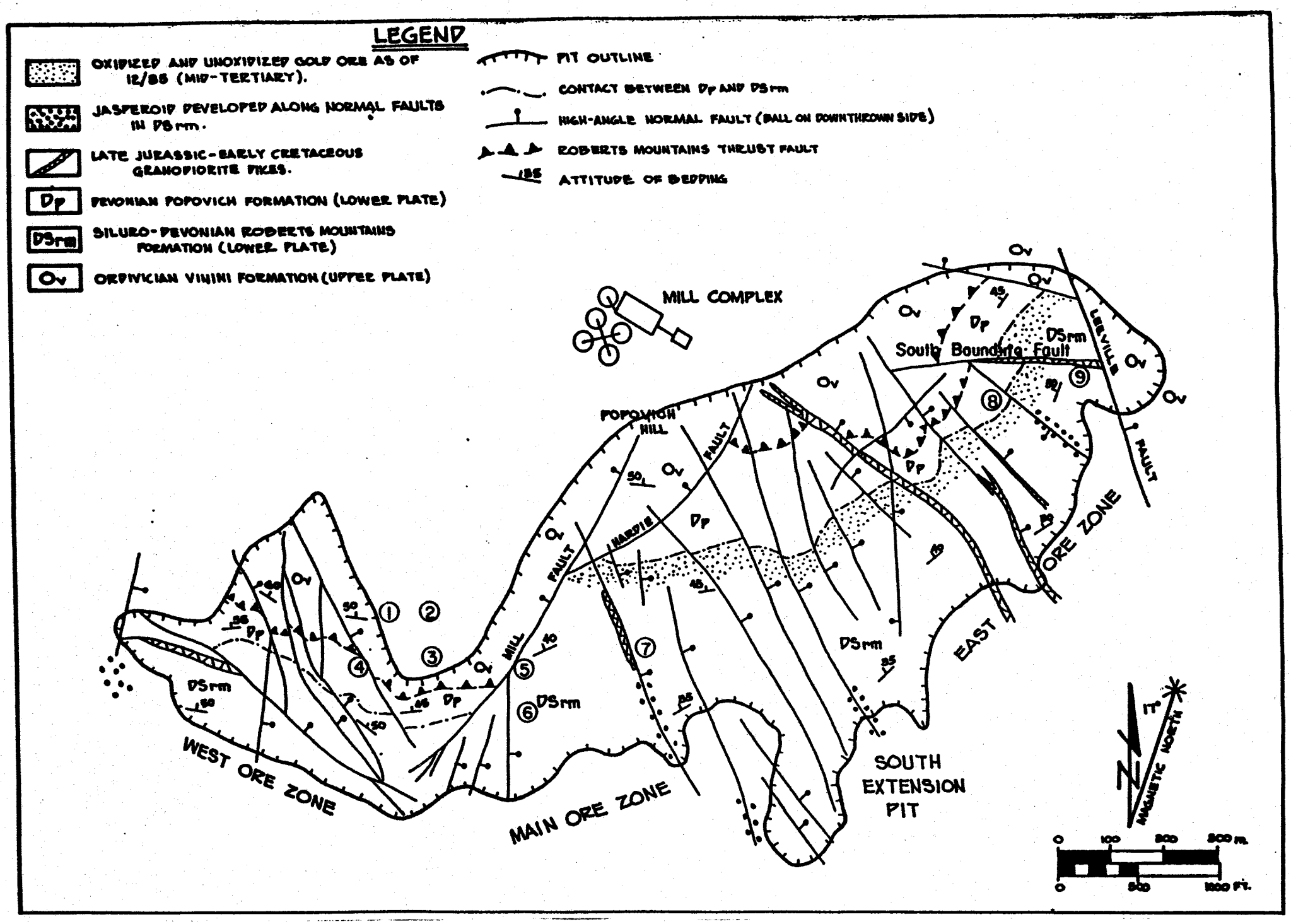
Scenically, you are looking west along the pit axis back to where you were earlier. Exposed on the west wall is the dike-filled South-Bounding fault. Ore grade mineralization occurs to the north, or right, of the fault. Waste rock, which is completely indistinguishable from ore, occurs to the south, or left, of the fault.



Stop 8. Generalized View. West High Wall Carlin East Pit (looking west)

STOP 9

A strongly broken, brecciated, shattered zone marks the general trace of the Leeville fault system which appears to truncate eastern portions of Carlin's orebody. The high-angle normal fault juxtaposes Ordovician siliceous sediments against Devonian and Silurian calcareous sediments. The steep east-dipping structure is down-dropped to the east. Moving uphill along the haul road you will observe strongly sheared and deformed Vinini formation sediments. Such deformation is what is typically expected to occur in the Roberts Mountains Thrust proximal to the thrust plane.


LEGEND
OXIDIZED AND UNOXIDIZED GOLD ORE AS OF 12/85 (MID-TERTIARY).
JASPEROID DEVELOPED ALONG NORMAL FAULTS IN DSrm.
LATE JURASSIC-EARLY CRETACEOUS GRANODIORITE DIKES.
Dp DEVONIAN POPOVICH FORMATION (LOWER PLATE)
DSrm SILURO-DEVONIAN ROBERTS MOUNTAINS FORMATION (LOWER PLATE)
Ov ORDIVICIAN VININI FORMATION (UPPER PLATE)
PIT OUTLINE
CONTACT BETWEEN Dp AND DSrm
HIGH-ANGLE NORMAL FAULT (BALL ON DOWNTHROWN SIDE)
ROBERTS MOUNTAINS THRUST FAULT
ATTITUDE OF BEDDING
MILL COMPLEX
South Boundary Fault
LEEVILLE FAULT
POPOVICH HILL
HARDIE FAULT
MILL FAULT
WEST ORE ZONE
MAIN ORE ZONE
EAST ORE ZONE
SOUTH EXTENSION PIT
MAGNETIC NORTH
17°
0 100 200 300 m.
0 500 1000 Ft.

Generalized Geology
6200 Bench
Carlin Pit
West and North Walls