## GEOLOGIC COLUMN AND UNIT DESCRIPTION

AGE	ROCK UNIT	LITHOLOGY; THICKNESS WHERE KNOWN	UNIT DESCRIPTION
QUATERNARY	Alluvium	Sand, clay and gravel; thickness less than 10 meters	Alluvium consisting of sand, clay and gravel, is distributed in the drainage basins of the Nen Chiang[嫩 江], the Kan Ho[甘 河], and their tributaries, covering the low terrace remnants and flood plains. It locally contains placer gold.
TERTIARY	Neogene formation	Sandstone, shale and gravel; thickness more than 100 m	The Neogene formation is distributed along the Nen Chiang, the Ku-li Ho[古 里 河]and the Na-tu-li Ho[郡 郡 里 河]. It consists of soft false-bedded sandstone, clayey shale, and gravel. Lithologically the formation resembles the Pleistocene deposit (Qd in the Blagoveshchensk, NM 52-4, adjacent on the east), but is harder than the latter. The meandering narrow gorge of the Nen Chiang flanked by steep cliffs 100 to 150 m in relative height exemplifies the hardness of the formation. The formation at Nan-kou-chin-ch'ang[南 溝 全 廠], Ch'i-chan[七
	Paleogene basalt	Augite-olivine basalt and olivine dolerite; thickness more than 130 m	The Paleogene basalt, exposed along the Ou-k'en Ho[欧 肯 河], the Ta-pu-k'u-erh Ho[多 布 庫 爾 河]and the Ku-li Ho, forms a large gently undulating lava plateau. The rock is generally dark gray to black, porous or dense, hard, vitreous, fine- to medium-grained, and contains chalcedony. It is locally associated with nonporous olivine dolerite. The basalt and the Cretaceous granite are cut by a northeast-trending fault overthrust to the southeast. Therefore, the basalt might have effused during the pre-Miocene epoch prior to the fault.
MESOZOIC	Cretaceous granite	Biotite granite, two-mica granite, hornblende-biotite granite and aplite	Cretaceous granite is widely exposed in the western half of the map area. It includes biotite granite, two-mica granite, hornblende-biotite granite, and aplite. Its eastern margin may have been thrust upon the Paleo-gene basalt on the east by a NNE fault. The alluvial deposits in the Cretaceous granite region is characteristically destitute of placer gold.
	Jura-Cretaceous(?) formation	Sandstone and clay slate; thickness unknown	The Jura-Cretaceous(?) formation is exposed in a small area near Kuruchi along the Kan Ho. It consists of an alternation of reddish brown sandstone and clay slate. It strikes N 30° E and dips 40° SE.
	Jurassic volcanic complex (Greenstone complex)	Diorite porphyry, andesite porphyry, diabase porphyry, propylite, tuff and breccia; thickness unknown	The Jurassic volcanic complex, or "greenstone complex", is exposed in the vicinity of Liu-chia-tien[劉 家 店].  It is a complicated assemblage of greenish dark colored igneous intrusives and extrusives, comprising diorite porphyry, andesite porphyry, diabase porphyry, propylite, and their pyroclastic tuff and breccia.
	/////// EFFUSIVE	Biotite granite, gneissose granite, two-mica granite, hornblende-biotite granite, micrographic granite and leucocratic granite	The pre-Jurassic granite is widely exposed in the eastern half of the map area. The rock is light gray, reddish gray or reddish green, medium- to coarse-grained biotite granite, locally associated with gneissose granite, two-mica granite, hornblende-biotite granite, micrographic granite and leucocratic granite. Under a microscope the hornblende-biotite granite consists of orthoclase, plagioclase, hornblende, biotite, and a small amount of quartz, with apatite, magnetite, titanite, and rarely zircon as accessory minerals. The granite is locally intruded by many gold-bearing quartz veins of post-Jurassic age. Placer gold in the Quaternary deposits (Qal) and the Neogene formation (Tu) may have been derived from these auriferous quartz veins.
	(0	Column not drawn to scale	

## REFERENCES

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