

**GEOLOGI DAN KENDALI FASIES BATUGAMPING
TERHADAP KUALITAS SEMEN DI DAERAH PAGER
KIDUL DAN SEKITARNYA, KECAMATAN SUDIMORO,
KABUPATEN PACITAN, PROVINSI JAWA TIMUR**

SARI

Lokasi penelitian ini secara administrasi berada di daerah Desa Pager Kidul, Kecamatan Sudimoro, Kabupaten Pacitan, Provinsi Jawa Timur. Secara geografis daerah penelitian terletak pada X= 534500mE- 539500mE dan Y= 9086000mN-9091500mN. Luas daerah penelitian dengan luas 5 km x 5,5 km dengan skala 1:12.500.

Daerah penelitian terdiri atas 4 bentukan asal dan 9 bentuklahan. Bentuk asal struktural terdiri dari satuan bentuklahan gawir garis sesar (S1) dan perbukitan struktural (S2). Bentuk asal karst terdiri dari satuan bentuklahan perbukitan karst (K1) dan lembah karst (K2). Bentuk asal fluvial terdiri dari satuan bentuklahan tubuh sungai (F1), dataran limpah banjir (F2), dan dataran aluvial (F3). Bentuk asal marine terdiri atas satuan bentuklahan pantai landai (M1) dan pantai terjal (M2). Stratigrafi di daerah penelitian berdasarkan kesatuan ciri litologi yang dominan daerah penelitian dapat dikelompokkan menjadi lima satuan tak resmi. Dari tua ke muda yaitu Satuan batupasir- tufan Arjosari (Oligosen Akhir- Miosen Awal, Samodra, 1992), Satuan breksi Mandalika (Oligosen Akhir- Miosen Awal, Samodra, 1992), Satuan batugamping Wonosari (MiosenTengah- Miosen Akhir) dan satuan endapan alluvial (Holosen).

Daerah penelitian terdiri atas 19 litofasies yaitu *large foraminifera packstone* (Pl), *algae floatstone* (Oa), *lithoclast floatstone* (Oc), *branching coral bafflestone* (Lb), *benthic foraminifera grainstone* (Gt), *large foraminifera floatstone* (Ol), *mollusca packstone* (Pm), *benthic foraminifera wackestone* (Wt) *benthic foraminifera miliolid packstone* (mdPt), *planktonic foraminifera miliolid wackestone* (mdWk), *massive head coral miliolid framestone* (mdFh), *branching coral miliolid bafflestone* (mdLb), *benthic foraminifera miliolid wackestone* (mdWt), *algae framestone* (Fa), *massive head coral framestone* (Fh), *platy coral bindstone* (Bp) *lithoclast grainstone* (Gc), *large foraminifera grainstone* (Gl) dan *algae packstone* (Pa). Litofasies tersebut terkumpul pada 4 asosiasi fasies yaitu, *reef flat*, *reef flat lagoon*, *reef growth* dan *reef sedimen slope*, sehingga Satuan batugamping Wonosari terendapkan pada *middle shelf patch reef complex*.

Asosiasi fasies dapat dijadikan kendali dalam menentukan kualitas semen. Pada daerah penelitian batugamping dengan kualitas cukup baik berada pada asosiasi fasies *reef sediment slope* dengan kadar CaO 51,8%- 53,3% dan MgO 0,25%- 0,59%. Batugamping dengan kualitas baik berada pada asosiasi fasies *reef flat* dengan kadar CaO 52,6%- 53,3% dan MgO 0,3%- 0,43%. Batugamping dengan kualitas sangat baik berada pada asosiasi *reef growth* dengan kadar CaO 52,7%- 54,7% dan MgO 0,2%- 0,42%.

**GEOLOGY AND CONTROL OF LIMESTONE FACIES TO
CEMENT QUALITY ON PAGER KIDUL AND
SURROUNDING AREA, SUDIMORO SUB-DISTRICT,
PACITAN DISTRICT, EAST JAVA PROVINCE**

Abstract

Research area administrative are located in Pager Kidul Village, Sudimoro sub-district , Pacitan district, East Java Province. Geographically, the study area is located at X = 534500mE- 539500mE and Y = 9086000mN- 9091500mN. The research area are about 5 km x 5.5 km at a scale of 1: 12,500.

The study area consists of four formations of origin and 9 landforms. Notching origin consisting of structural units of landforms escarpment fault line (S1) and the hills of structural (S2). Origin karst formations consist of karst landform unit (K1) and karst valleys (K2). Notching unit consists of fluvial origin landform river body (F1), overflow flood plains (F2), and alluvial plains (F3). Formation of marine origin consisting of gently sloping beach landform units (M1) and the rugged coastline (M2). Stratigraphy in the study area based on the unity of the dominant lithology characterize the study area can be grouped into five units unofficial. From old to young is tuffaceous- sandstone Arjosari Unit (Oligocene Early Miocene Finally, Samodra, 1992), Unit breccia Mandalika (Oligocene Early Miocene Finally, Samodra, 1992), Unit limestones Wonosari (Middle Miosen- Late Miocene) and units of alluvial deposits (Holocene).

The study area consists of 19 litofasies namely large foraminifera packstone (Pl), algae floatstone (Oa), lithoclast floatstone (Oc), branching coral bafflestone (Lb), benthic foraminifera grainstone (Gt), large foraminifera floatstone (Ol), molusca packstone (Pm), benthic foraminifera wackestone (Wt) benthic foraminifera miliolid packstone (mdPt), planktonic foraminifera miliolid wackestone (mdWk), massive head corals miliolid framestone (mdFh), branching coral miliolid bafflestone (mdLb), benthic foraminifera miliolid wackestone (mdwt), framestone algae (Fa), massive coral head framestone (Fb), platty coral bindstone (Bp) lithoclast grainstone (Gc), large foraminifera grainstone (Gl) and algae packstone (Pa). Litofasies are collected in four facies, namely, reef flat, flat reef lagoon, reef growth and reef slope sediments, thus Wonosari Unit limestones deposited on the middle shelf patch reef complex.

Facies can be used as control in determining the quality of cement. In the research area of limestone with good enough quality to be in the reef facies sediment slope with CaO content of 51.8% - 53.3% and MgO 0.25% - 0.59%. Limestone with good quality are on the reef flat facies with CaO content of 52.6% - 53.3% and MgO 0.3% - 0.43%. Limestones with very good quality reef growth are in association with CaO content of 52.7% - 54.7% and MgO 0.2% - 0.42%.

