

**DETAILS OF PETROGRAPHIC STUDIES OF BOREHOLE CORE SAMPLES OF DHRANG BLOCK, DISTRICT - KACHCHH, GUJARAT**

| Sl. No. | Sample Number | Texture  | Mineral Composition                 |   |                  | Description  |
|---------|---------------|--|-------------------------------------|---|------------------|--|
|         |               |  | Major<br>>5%                        | Minor<br><5%->1%                            | Accessory<br><1% |  |
| 1       | MBD/P/01      | It is a fine to medium grained rock showing granular texture.  | Quartz<br>Ferruginous matter        | Feldspar<br>Lithic fragments                | Clay<br>minerals | Quartz occurs as fine sand to very coarse sand sized subrounded to subangular clasts floating over reddish ferruginous matrix. Grains are poorly sorted and loosely packed. Feldspar occurs as medium to fine subangular clasts altering to clay minerals. Lithic fragments are present as fine to medium well rounded clasts, mostly quartzitic in nature. The specimen is a <b>quartz wacke (ferruginous sand stone)</b> .   |
| 2       | MBD/P/02      | It is a light grey coloured weathered and altered rock showing pores, cavities, whitish patches and pisolites. | Boehmite/ Gibbsite<br>Clay minerals | Carbonates<br>Ferruginous<br>matter Opaques | ....             | The specimen is mostly made up of very fine micro-crystalline aggregates of boehmite/ gibbsite. Gibbsite also seen present as fine pisolites and subhedral prismatic grains in dissemination. Medium to moderately coarse patches and pisolites are common in the specimen, comprising very fine clay particles. Carbonates have seen intruded as thin to moderately thick patches and fillings. Ferruginous matter occurs as very fine amorphous aggregates and reddish patches in areas. Opaques are noted as very fine specks and anhedral grains. The specimen is a <b>bauxite</b> . |

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|         |               |   | Major<br>>5%  | Minor<br><5%->1%                            | Accessory<br><1% |  |
| 3       | MBD/P/03      | It is a brick red coloured weathered and altered rock showing whitish grey coloured patches and pisolites.        | Clay minerals<br>Ferruginous matter<br>Boehmite/ Gibbsite | Carbonates<br>Opaques                       |                  | Clay minerals are seen present as medium to moderately coarse patches and pisolites. Ferruginous matter occurs as reddish very fine amorphous aggregates, segregating into patches. Boehmite/ gibbsite are present as medium to fine pisolites comprising very fine micro-crystalline aggregates, often rimmed by very fine fillings of carbonates. Carbonates are also seen present as very fine dendritic fillings throughout the specimen. Opaques are noted as very fine relicts within ferruginous patches. The specimen is a <b>bauxite bearing laterite</b> . |
| 4       | MBD/P/04      | It is a light grey coloured weathered and altered rock showing pores, cavities and whitish patches and pisolites. | Clay minerals<br>Gibbsite/ Boehmite                       | Opaques<br>Ferruginous matter<br>Carbonates | ....             | The specimen is composed of segregated patches of very fine clay minerals. Gibbsite/ boehmite occur as fine to medium pisolites and cavity fillings comprising very fine to fine granular/ prismatic aggregates. Opaques are noted as very fine specks, often seen segregated in pockets. Reddish ferruginous patches are seen present in areas. Carbonates have seen intruded as very fine fillings. The specimen is a <b>bauxite bearing clay stone</b> .  |
| 5       | MBD/P/05      | It is a very fine grained mafic rock showing porphyritic texture.   | Plagioclase<br>Augite<br>Opaques                          | Biotite/ Chlorite                           | ....             | Plagioclase occurs as medium to fine subhedral prismatic phenocrysts. It also occurs as very fine laths in groundmass. Augite is present as very granular dissemination in groundmass. Opaques occur as very fine subhedral grains in dissemination. Biotite/ chlorite are seen present as fine patches comprising very fine amorphous aggregates, possible derived from devitrification of glass. The specimen is a <b>porphyritic basalt</b> .   |

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| 6       | MBD/P/06      | It is a reddish brown coloured weathered and altered rock showing pores, cavities and fine whitish pisolites. | Opakes<br>Carbonates<br>Ferruginous matter<br>Cliachite | Gibbsite/<br>Boehmite<br>Clay minerals        | ....             | Opakes occurs as coarse to medium anhedral patches associating reddish ferruginous patches and stains with it. Carbonates are present as patches and fine cavity fillings. Cliachite is noted as very fine to fine pisolites. Gibbsite/ boehmite and clay minerals are seen present as fine pisolites and moderately coarse patches in areas but are mostly masked by reddish ferruginous stains. The specimen is a <b>bauxite bearing laterite</b> .  |
| 7       | MBD/P/07      | It is a whitish grey coloured weathered and altered rock showing fine pisolites and reddish patches.          | Cliachite<br>Clay minerals<br>Gibbsite/ Boehmite        | Ferruginous<br>matter<br>Carbonates<br>Opakes | ....             | Cliachite occurs as fine to medium pisolites, often being replaced gibbsite/ boehmite and are set in clayey matrix. Clay minerals are very fine dirty and semi-opaque in nature. Gibbsite/ boehmite are also seen present as anhedral patches and cavity fillings comprising very fine to fine granular/ prismatic aggregates. Reddish ferruginous patches and stains are common in the specimen. Carbonates have mostly seen intruded as very fine to fine cavity fillings. Opakes are noted as very fine specks and anhedral patches. Cliachite occurs as fine to medium pisolites, often being replaced gibbsite/ boehmite and are set in clayey matrix. Clay minerals are very fine dirty and semi-opaque in nature. Gibbsite/ boehmite are also seen present as anhedral patches and cavity fillings comprising very fine to fine granular/ prismatic aggregates. Reddish ferruginous patches and stains are common in the specimen. Carbonates have mostly seen intruded as very fine to fine cavity fillings. Opakes are noted as very fine specks and anhedral patches. The specimen is a clay rich <b>bauxite</b> . |

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| 8       | MBD/P/08      | It is a whitish grey coloured weathered and altered rock showing pores, cavities, fine pisolites and reddish patches. | Gibbsite<br>Ferruginous matter<br>Opaques          | Carbonates<br>Cliachite | ....             | Gibbsite occurs as segregated patches comprising very fine to fine prismatic aggregates. Ferruginous matter occurs as reddish amorphous aggregates, patches and stains. Opaques occur as fine bladed dissemination, subhedral grains, anhedral patches and fine fillings. Carbonates have seen intruded as thin to moderately thick patchy fillings in areas. Cliachite is noted as fine traces of pisolites being replaced by gibbsite. The specimen is a <b>bauxite</b> .   |
| 9       | MBD/P/09      | It is a very fine grained melanocratic massive rock showing pores, vesicles and amygdaloids.                          | Plagioclase<br>Augite<br>Volcanic glass<br>Opaques | Chert<br>Calcite        | Chlorite         | Plagioclase occurs as very fine prismatic laths and as very occasional fine to medium prismatic phenocrysts. Augite is present as very fine subhedral to anhedral grains. Fine to medium subrounded volcanic glass are found abundant in the specimen mostly brownish/ reddish in colour and often seen being replaced by patchy chlorite. Opaques occur as very fine aggregates and as segregated patches in dissemination. Vesicles are often seen filled by very fine micro-crystalline chert and micrite. The specimen is a <b>vesicular basalt</b> . |
| 10      | MBD/P/10      | It is a very fine grained melanocratic massive rock showing pores, vesicles and amygdaloids.                          | Augite<br>Plagioclase<br>Opaques<br>Volcanic glass | Calcite                 | Biotite          | Augite occurs as very fine subhedral/ granular aggregates. Plagioclase is present as very fine prismatic laths. Opaques occur as very fine bladed, skeletal and patchy grains in dissemination. Fine subrounded volcanic glasses are seen present in the specimen, showing compositional zoning in areas. Pores and vesicles are often seen filled up by secondary calcite fillings. Biotite is seen replacing volcanic glasses in areas. The specimen is a <b>vesicular basalt</b> .   |