**SITAPUR G-3 BLOCK**

**PETROGRAPHIC STUDY RESULTS**

| **Sl. No.** | **Sample**  **Number & Location** | **Texture** | **Mineral Composition** | | | **Description** |
| --- | --- | --- | --- | --- | --- | --- |
| **Major**  **>5%** | **Minor**  **<5%->1%** | **Accessory**  **<1%** |
| 1 | MSCB/PET01 | It is a reddish brown coloured weathered and altered rock showing pores, cavities and fine whitish pisolites. | Ferruginous matter  Gibbsite  Opaques | Boehmite  Cliachite | Clay minerals | The specimen is mostly made up of reddish ferruginous patches showing colloform texture in areas. Gibbsite and boehmite occur as fine pisolites and cavity fillings comprising very fine granular aggregates. Opaques are present as patches and patchy relicts set within reddish ferruginous patches. Fine cliachite pisolites are noted, associating very fine dirty clay minerals and is seen being replaced by gibbsite and boehmite from core.  The specimen is a **bauxite bearing laterite.** |
| 2 | MSCB/PET02 | It is a fine grained rock showing schistosity. | Quartz  Sericite | Opaques | Ferruginous matter | Quartz occurs as fine subrounded and lensoidal clasts and as very fine crushed grains showing parallel alignment. It also occurs as moderately coarse lensoidal porphyro-clasts showing recrystallization. Sericite is present as very fine flakes and flaky aggregates, often segregating into thick zones and showing parallel alignment. Opaques occur as anhedral patches and fillings aligned along the schistosity. Reddish ferruginous fillings and stains are observed in areas.  The specimen is **quartz-sericite schist/ (mylonite?).** |
| 3 | MSCB/PET03 | It is a greenish grey coloured fine to medium grained rock showing granular texture. | Hornblende  Actinolite  Plagioclase  Epidote | Opaques  Chlorite  Quartz  Sericite | …. | Hornblende occurs as fine to medium subhedral prismatic and rhombic grains. Actinolite is present as fine flaky/ platy aggregates replacing hornblende. Plagioclase is present as subhedral prismatic grains and turbid patches showing saussuritization. Epidote occurs as very fine to fine granular aggregates developing after plagioclase alterations. Epidote is also seen intruded as thin veinlets/ fillings. Opaques occur as fine subhedral to anhedral and skeletal grains in dissemination. Chlorite is present as pseudomorphic patches replacing amphiboles. Quartz is present as fine anhedral grains, lenses and intrusive patches. Sericite occurs as very fine flakes developing after plagioclase alterations.  The specimen is an **amphibolite.** |
| 4 | MSCB/PET04 | It is a light grey coloured medium to coarse grained rock showing tight interlocking texture. | Quartz | Orthoclase | Biotite  Epidote | The specimen is monomineralic, composed of medium to coarse anhedral patchy and ribbon shaped grains showing high optical stain, undulose extinction, tight interlocking contacts and traces of recrystallization. Orthoclase occurs as fine to medium subhedral grains intruded as patchy fillings. Biotite is seen present as very fine fillings. Epidote is noted as very fine granular aggregates along fractures as fillings.  The specimen is a **vein quartz.** |
| 5 | MSCB/PET05 | It is a medium to coarse grained rock showing gneissosity. | Plagioclase  Quartz  Microcline/ Orthoclase  Biotite | Sericite  Epidote  Chlorite | Sphene  Apatite | Plagioclase occurs as medium to moderately coarse subrounded patches, subhedral grains and lensoidal clusters showing intense sericitization and parallel alignment. Quartz occurs as fine to medium anhedral grains and lensoidal clusters showing recrystallization and parallel alignment. Microcline/ orthoclase are present as medium subhedral prismatic grains aligned along the foliation. Biotite is present as fine flaky segregations and patchy fillings showing parallel alignment. Sericite occurs as very fine flaky aggregates developing after plagioclase alterations. Epidote occurs as fine to very fine subhedral to anhedral grains developing after plagioclase alterations. Chlorite is present as flakes and patches being interleaved with biotite and seen replacing it. Sphene occurs as fine to very fine wedges and streaks. Apatite is noted as fine to very fine subrounded grains in accessories.  The specimen is a **granodiorite gneiss.** |
| 6 | MSCB/PET06 | It is a greenish grey coloured fine to medium grained rock showing granular texture. | Actinolite  Hornblende  Plagioclase  Epidote | Sphene  Opaques  Quartz | Chlorite  Ferruginous matter | Actinolite occurs as fine to medium subhedral prismatic aggregates showing relicts of prismatic and rhombic hornblende in areas. Plagioclase is present as fine to medium subhedral prismatic grains, turbid patches and as clustered pockets. Epidote occurs as fine to very fine subhedral grains, clustered pockets and as intrusive veins/ fillings and patches. Sphene is present as fine to medium anhedral patches and wedges showing relicts of opaques within it. Opaques are also seen present as fine to medium subhedral to anhedral and skeletal grains. Quartz has intruded as veins/ veinlets and patches and also noted as fine lenses. Chlorite occurs as pseudomorphic patches replacing amphiboles. Reddish ferruginous fillings have seen intruded in areas.  The specimen is an **amphibolite.** |
| 7 | MSCP-01  (BH.No. MSC-01 @88.0-88.10m) | It is a medium grained rock showing gneissosity. | Plagioclase  Orthoclase/ Microcline  Quartz  Biotite  Epidote | Sericite  Sphene | Opaques  Apatite  Chlorite  Zircon | Plagioclase occurs as medium to moderately coarse subhedral grains, turbid patches and lensoidal grains showing intense saussuritization. Orthoclase/ microcline are seen present as medium subhedral to anhedral grains and as fine to very fine crushed grains. Quartz occurs as fine anhedral and elongated grains showing parallel alignment and often clustering in pockets. Biotite occurs as fine to medium flaky aggregates, segregating in zones and showing parallel alignment. Epidote is present as very fine to fine granular aggregates developing after plagioclase alterations and also occurs as medium patches and fine fillings. Sericite occurs as very fine flaky aggregates developing after plagioclase alterations. Sphene occurs as fine wedges and anhedral patches. Opaques occur as fine anhedral grains and patches in pockets. Apatite is noted as fine subrounded grains in accessories. Chlorite is found present as fine patches and flaky aggregates replacing biotite in areas. Zircon occurs as very fine inclusions within biotite, around which pleochroic haloes are observed.  The specimen is a **granodiorite gneiss.** |
| 8 | MSCP-02  (BH.No. MSC-02- 139-139.10m) | It is a medium grained rock showing gneissosity. | Plagioclase  Quartz  Microcline/ Orthoclase  Epidote  Biotite | Sericite  Sphene | Apatite  Opaques  Zircon | Plagioclase occurs as turbid patches showing intense saussuritization. Quartz occurs as anhedral grains, often clustering in pockets and showing crude alignment. Microcline/ orthoclase are present as medium to fine subhedral grains and as very fine crushed grains. Epidote and sericite together seen present as very fine aggregates developing after plagioclase alterations. Epidote and biotite also together occur as fine to medium subhedral aggregates, often segregating in zones and showing parallel alignment. Sphene occurs as fine disseminated wedges. Apatite is seen present as fine subrounded grains in accessories. Opaques are noted as very fine specks and as relicts within sphene. Zircon is found present as very fine inclusions within biotite, around which pleochroic haloes are observed.  The specimen is a **granodiorite gneiss.** |
| 9 | MSCP-03  (BH.No. MSC-03, @ 85.0-85.10m) | It is a medium grained rock showing gneissosity. | Plagioclase  Microcline/ Orthoclase  Quartz  Epidote | Chlorite  Sericite  Biotite  Apatite | Sphene  Opaques | Plagioclase occurs as medium to coarse prismatic grains and segregated patches showing intense saussuritization. Microcline/ orthoclase are present as medium subhedral to anhedral grains showing minor albitization in areas. Quartz occurs as fine to medium anhedral grains, often clustering in pockets and showing crude alignment. Epidote occurs as very fine to fine granular aggregates, developing after plagioclase alterations and also occurs as relatively coarser grains in association with chlorite. Chlorite occurs as patches, fillings and flaky aggregates showing crude alignment. Sericite is present as very fine flakes and flaky aggregates developing after plagioclase alterations. Biotite is noted as flaky and patchy relicts within chlorite. Apatite is seen present as fine hexagonal and subrounded grains, often showing association with chlorite patches. Sphene occurs as anhedral patches and elongated grains. Opaques are found present as very fine specks in accessories.  The specimen is a **granodiorite gneiss.** |
| 10 | MSCP-04  (BH.No. MSC-04, @ 82.0-82.10m) | It is a medium grained rock showing gneissosity. | Plagioclase  Quartz  Epidote  Biotite | Sericite  Orthoclase | Chlorite  Apatite  Clay minerals  Carbonates  Ferruginous matter | Plagioclase occurs as medium to coarse turbid and segregated patches showing intense saussuritization and sericitization. Quartz occurs as fine anhedral grains, segregating into linear aggregates and showing parallel alignment. Epidote is present as very fine to fine granular aggregates developing after plagioclase alteration and also seen intruded as thin to moderately thick fillings. Biotite occurs as fine flaky aggregates, segregating into zones and showing parallel alignment and often seen associating epidote. Sericite occurs as very fine flaky aggregates developing after plagioclase alterations. Orthoclase is present as patchy relicts being replaced by clayey pseudomorphs. Chlorite occurs as fine flakes and patches replacing biotite in areas. Apatite occurs as fine subrounded grains in accessories. Very fine carbonate and reddish ferruginous fillings have seen intruded, at places. Reddish ferruginous patches are also seen oozing out from biotite in areas.  The specimen is a **granodiorite gneiss.** |