

## DETAILS OF PETROGRAPHIC STUDIES OF BOREHOLE CORE SAMPLES OF NIMBLI BLOCK, TEHSIL: FATEHGARH, DISTRICT – JAISALMER, RAJASTHAN

| Sl. No. | Sample Number | Texture   | Mineral Composition                |  |                                  | Description  |
|---------|---------------|---|------------------------------------|--|----------------------------------|--|
|         |               |   | Major<br>>5%                       | Minor<br><5%->1%                           | Accessory<br><1%                 |  |
| 1       | MNP01/ P-01   | It is a fine grained rock showing granular texture. It reacts instantly with cold and dilute HCl.   | Quartz<br>Calcite                  | Ferruginous matter<br>Chlorite<br>Dahllite | Tourmaline<br>Opaques            | Quartz occurs as fine to medium subrounded grains floating over very fine micritic matrix. Framework grain to matrix ratio is almost equal. Reddish ferruginous patches, fillings and stains are common throughout the specimen, especially over matrix. Chlorite occurs as patchy pockets comprising very fine micro-crystalline aggregates. Dahllite is seen present as fine subrounded patches in areas. Tourmaline is noted as very fine to fine subhedral prismatic and lensoidal grains in accessories. Opaques are found present as very fine specks<br>The specimen is a <b>quartz wacke</b> . |
| 2       | MNP12/ P-02   | It is a fine grained rock showing granular texture. It reacts instantly with cold and dilute HCl.   | Quartz<br>Calcite                  | Dolomite                                   | Tourmaline<br>Ferruginous matter | The specimen is composed of fine to medium subrounded to subangular grains of quartz floating over very fine micritic matrix. Dolomitic rhombs are seen developing in areas. Tourmaline is noted as very fine to fine subhedral prismatic grains. Ferruginous matter occurs as reddish patches and stains over micrite, in areas.<br>The specimen is a <b>quartz wacke</b> .   |
| 3       | MNP20/ P-03   | It is a grey coloured fine grained rock showing granular texture and thin intercalations of buff grey coloured very fine grained laminations. | Quartz<br>Calcite<br>Clay minerals | Opaques<br>Ferruginous matter              | Collophane                       | Quartz occurs as fine anhedral grains set in clay mixed micritic matrix. Clay minerals are also seen present as thin sub-parallel laminations comprising very fine flaky aggregates and associating very fine silt sized quartz grains with it. Opaques occur as fine patchy and dendritic fillings. Ferruginous matter is present as reddish patches and stains, often seen oozing out from opaques. Collophane is noted as   |



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|         |               |   | Major<br>>5%                 | Minor<br><5%>1%   | Accessory<br><1%               |   |
|         |               | It reacts instantly with cold and dilute HCl.   |                              |   |                                | fine pisolites in accessories.<br>The specimen is a <b>quartz wacke with shaly intercalations.</b>  |
| 4       | MNP32/ P-04   | It is a fine grained rock showing granular texture. It reacts instantly with cold and dilute HCl. | Quartz<br>Calcite            | Sericite<br>Chlorite<br>Ferruginous matter<br>Collophane<br>Opaques | Tourmaline<br>Lithic fragments | The specimen is made up of fine subrounded to subangular quartz grains floating over micritic matrix. Calcite has also intruded as fine fillings and patches. Sericite and chlorite occur as very fine flaky aggregates, seen segregating in pockets. Reddish ferruginous patches and fillings have seen intruded. Collophane is noted as very fine brownish amorphous aggregates in patchy pockets. Opaques are present as very fine specks and anhedral patches. Tourmaline occurs as very fine to fine prismatic grains in accessories. Lithic fragments are found present as fine subrounded grains, mostly quartzitic/ cherty in nature.<br>The specimen is a <b>quartz wacke.</b> |
| 5       | MNP32/ P-05   | It is a buff grey coloured fine grained rock showing granular texture.                            | Quartz<br>Calcite<br>Opaques | Ferruginous matter<br>Collophane<br>Feldspar<br>Sericite            | Tourmaline                     | Quartz and feldspar occur as fine subrounded to sub-angular grains floating over very fine calcitic matrix. Calcite is also noted as patches and very fine fillings. Opaques are present as thin to moderately thick patchy fillings. Ferruginous matter occurs as reddish patches, fillings and stains over calcite. Collophane occurs as fine pisolites, patches and as very fine amorphous aggregates in association with calcite. Sericite is seen present as very fine flakes. Tourmaline is noted as very fine prismatic grains in accessories.<br>The specimen is an <b>opaque rich quartz wacke.</b>  |
| 6       | MNP23/ P-06   | It is a an intercalation of grey coloured   | Calcite<br>Quartz            | Clay minerals   | ....                           | Calcite occurs as very fine granular aggregates. Quartz occurs as very fine silt sized grains, segregating into thin to   |

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|         |               |   | Major<br>>5%                    | Minor<br><5%->1%                          | Accessory<br><1%                |   |
|         |               | massive rock and reddish brown coloured very fine grained thinly laminated rock.  | Ferruginous matter              | Collophane                                |                                 | moderately thick laminations. Ferruginous matter is present as reddish patches and fillings, mostly within quartz rich laminations and also seen present over calcitic aggregates. Clay minerals occur as very fine flaky aggregates within quartz rich laminations. Collophane is noted as fine pisolites and patches in areas.<br>The specimen is a <b><u>limestone and ferruginous shale intercalation.</u></b>  |
| 7       | MNP26/ P-07   | It is a grey coloured fine grained rock showing granular texture.   | Quartz<br>Clay minerals         | Ferruginous matter<br>Sericite<br>Calcite | Tourmaline<br>Zircon<br>Opaques | Quartz occurs as fine subrounded to sub-angular grains showing well sorting and moderate packing. Clay minerals are present as very thin lamellae comprising very fine aggregates of dirty particles along inter granular spaces of quartz, and working as matrix material. Ferruginous matter occurs as patchy fillings. Sericite is present as very fine disseminated flakes. Calcite occurs as fine patches in areas. Tourmaline and zircon are noted as very fine prismatic grains as accessories. Opaques occur as very fine specks and anhedral grains.<br>The specimen is a <b><u>quartz wacke</u></b> |
| 8       | MNP15/ P-08   | It is a grey coloured fine grained rock showing granular texture and vein intrusions. It reacts instantly with cold and dilute HCl. | Quartz<br>Calcite<br>Collophane | Illite<br>Opaques                         | Ferruginous matter<br>Sericite  | Quartz occurs as fine to medium subrounded to subangular grains floating over very fine calcitic matrix. Thin to moderately thick sub-parallel calcite veins have seen intruded. Collophane is noted as very fine amorphous aggregates, fine pisolites and as fine patchy relics within calcite matrix. Illite occurs as very fine flaky aggregates in segregated zones. Opaques are present as patchy fillings in areas. Reddish ferruginous fillings and stains are seen  |

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|         |               |   |                          |   |                          | associated with opaques. Sericite is noted as very fine flakes in accessories.<br>The specimen is a <b><u>cellophane bearing quartz wacke.</u></b>   |
| 9       | MNP27/ P-09   | It is a very fine to fine grained thinly laminated rock.  | Illite<br>Quartz         | Ferruginous matter<br>Sericite                        | Collophane<br>Tourmaline | Illite occurs as very fine flaky aggregates, seen segregating into moderately thick zones. Quartz occurs as fine anhedral grains, often seen segregating into thin to moderately thick lenses and bands. Ferruginous matter occurs as reddish fillings and patches. Sericite occurs as very fine disseminated flakes. Collophane is seen present as very fine amorphous aggregates. Tourmaline is noted as very fine to fine prismatic grains in accessories.<br>The specimen is a <b><u>shale.</u></b>  |
| 10      | MNP24/ P-10   | It is a dirty buff grey coloured very fine to fine grained massive rock showing vein intrusions and fast reaction with cold and dilute HCl. | Calcite<br>Clay minerals | Ferruginous matter<br>Quartz<br>Opaques<br>Collophane | Sericite                 | The specimen is made up of very fine to fine granular aggregates of calcite in association with very fine clayey aggregates, which are often masked by reddish amorphous aggregates and stains of ferruginous matter. Very thin hairline calcite fillings and moderately thick calcite veins have seen intruded. Quartz occurs as very fine grains floating over calcitic matrix and also occurs as medium sized grains in association with calcite veins. Opaques are seen present as very fine segregations, patches and specks, often in association with calcite veins. Collophane occurs as very fine amorphous aggregates in pockets. Sericite is noted as very fine flakes in accessories.<br>The specimen is a <b><u>clay bearing limestone.</u></b> |
| 11      | MNP24/ P-11   | It is a dirty buff grey coloured very fine to   | Calcite<br>Quartz        | Ferruginous matter                                    | Opaques<br>Tourmaline    | The specimen is composed of very fine micro-crystalline aggregates of micrite. Very thin to moderately thick criss-  |



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|         |               |   | Major<br>>5%                           | Minor<br><5%>1%    | Accessory<br><1% |   |
|         |               | fine grained massive rock showing vein intrusions and fast reaction with cold and dilute HCl. | Collophane                             |                    |                  | cross calcite veins have seen intruded. Quartz occurs as fine to very fine grains floating over micritic matrix. Collophane is present as fine anhedral patches and pisolites. Ferruginous matter occurs as very fine reddish amorphous aggregates and stains over micritic matrix. Opaques are noted as very fine segregations in pockets. Tourmaline is noted as very fine prismatic grains in accessories.<br>The specimen is a <b><u>collophane bearing impure micritic limestone.</u></b>                            |
| 12      | MNP25/ P-12   | It is a dirty buff grey coloured very fine grained thinly laminated rock.                     | Illite<br>Quartz                       | Ferruginous matter | ....             | The specimen is made up of very fine flaky aggregates of illite. Quartz occurs as very fine silt sized grains disseminated over clayey matrix and also seen segregated in thin zones. Ferruginous matter is seen present as reddish patches and stains over clayey matrix and also seen intruded as fillings across the lamination.<br>The specimen is a <b><u>shale.</u></b>   |
| 13      | MNP21/ P-13   | It is a very fine grained thinly laminated rock.  | Illite<br>Quartz<br>Ferruginous matter | Opaques            | Sericite         | Illite occurs as very fine flaky aggregates, often showing micro-folds. Quartz occurs as very fine silt sized disseminated grains and also occurs as fine anhedral grains, segregating into thin lenses and showing micro-folds. Ferruginous matter is present as reddish amorphous aggregates and patches, seen segregating into zones. Opaques occur as fine patchy fillings and as relicts within ferruginous patches. Sericite is noted as very fine flakes in accessories.<br>The specimen is a <b><u>shale.</u></b> |



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|         |               |  | Major<br>>5%        | Minor<br><5%>1%  | Accessory<br><1% |  |
| 14      | MNP26/ P-14   | It is a dark grey coloured very fine to fine grained massive rock. It reacts instantly with cold & dilute HCl. | Calcite<br>Opauques | Ferruginous matter<br>Collophane<br>Quartz<br>Sericite | Biotite          | The specimen is composed of very fine to fine granular aggregates of calcite. Opauques occur as very fine specks disseminated throughout the specimen. Ferruginous matter and collophane together present as dark semi opaque fillings along inter granular spaces. Quartz occurs as very fine angular grains floating over calcitic matrix. Sericite is seen present as very fine disseminated flakes. Biotite is noted as very fine pellets in accessories.<br>The specimen is an <b><u>impure limestone.</u></b>  |
| 15      | MNP26/ P-15   | It is a grey coloured very fine grained massive rock. It reacts slowly with cold & dilute HCl.                 | Dolomite<br>Quartz  | Ferruginous matter<br>Sericite                         | Opauques         | The specimen is made up of very fine micro-crystalline aggregates of micritic dolomite. Traces of relict algal structures are noted. Fine to medium sparry patches are seen developing in areas. Very fine hair line criss-cross calcite fillings have been intruded. Quartz occurs as very fine sub-angular grains in dissemination. Thin quartz veins/ fillings are seen as intrusion. Ferruginous matter is present as reddish patches and fillings. Sericite is noted as very fine flakes. Opauques are found present as very fine specks in accessories.<br>The specimen is an <b><u>impure micritic dolostone.</u></b> |