

**Statement showing Petrographic studies of Primary samples, Ambara West Block for Glauconite, District- Kachchh, Gujarat**

Sl. No.	Sample Number & Location	UTM Coordinates		Texture	Mineral Composition			Description
		Easting	Northing		Major >5%	Minor <5%->1%	Accessory <1%	
1	AW-235	501462	2609278	It is a buff grey coloured very fine grained thinly laminated rock.	Quartz  Limonite  Feldspar  Calcite  Biotite	Opakes	Muscovite/ Sericite  Chlorite  Glauconite	The specimen is composed of very fine subangular quartzo-feldspathic clasts floating over limonite and micrite mixed matrix and showing crude alignment. Biotite occurs as very fine to fine disseminated flakes showing parallel alignment. Opakes occur as very fine to fine anhedral to subhedral grains and patches aligned along the direction of laminations. Muscovite/ sericite and chlorite occur as very fine flakes in the association. Glauconite is noted as very fine subrounded pseudomorphic relicts being replaced by limonite.  The specimen is a <b><u>biotite rich shale</u></b> .
2	AW-276	504108	2607267	It is a buff grey coloured fine grained rock showing granular texture.	Quartz  Carbonates  Feldspar  Opakes/ Ferruginous matter	....	Clay minerals	Quartz and feldspar occur as fine subrounded to subangular grains floating over opaque/ ferruginous matter mixed carbonate matrix, which is further recrystallized to subhedral grains. Opakes/ ferruginous matter are also seen present as patches and fillings. Very fine clay minerals are seen developing after feldspar alterations.  The specimen is an <b><u>arkosic wacke</u></b> .

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		Easting	Northing		Major >5%	Minor <5%->1%	Accessory <1%	
3	AW-337	502736	2611237	It is a fine grained rock showing granular texture.	Quartz Limonite Feldspar	Opauques Glaucanite	Lithic fragments Muscovite/ Sericite  Kaolinite	The specimen is made up of fine subrounded to subangular quartzo-feldspathic clasts floating over limonitic matrix. Opauques occur as fine to very fine disseminated grains, patches and fillings. Glaucanite is seen present as fine subrounded pellets. Fine subrounded lithic fragments are seen present in the association, mostly quartzitic in nature. Muscovite/ sericite are noted as very fine flakes. Kaolinite is seen developing after feldspar alterations. The specimen is a <b><u>glaucanite bearing arkosic wacke.</u></b>
4	AW-348	496697	2609380	It is a fine grained rock showing granular texture.	Quartz  Biotite  Feldspar	Limonite  Opauques	Muscovite/ Sericite  Tourmaline	Quartz and feldspar occur as fine subrounded to subangular grains set in a very fine micro-crystalline aggregate of patchy biotite, often associated and intermixed with limonitic patches. Opauques are present as very fine to fine anhedral grains, patches and fillings. Muscovite/ sericite are seen present as fine to very fine flakes. Tourmaline is noted as fine grains in accessories.  The specimen is an <b><u>arkosic wacke.</u></b>

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		Easting	Northing		Major >5%	Minor <5%->1%	Accessory <1%	
5	AW-455	496680	2613037	It is a very fine grained thinly laminated rock.	Biotite Quartz Feldspar	Limonite Opaques Chlorite	Muscovite/ Sericate Monazite	<p>The specimen is mostly made up of very fine cryptocrystalline aggregates of biotite. Quartz and feldspar are present as very fine silt sized disseminated clasts. Limonite occurs as fine pellets, patches and fillings. Opaques occur as very fine disseminated grains and fillings. Chlorite and muscovite/ sericite are present as very fine to fine disseminated flakes. Monazite is noted as very fine subrounded grains in accessories.</p> <p>The specimen is a <b><u>biotite rich shale.</u></b></p>
6	AW-633	496644	2607691	It is a buff grey coloured very fine grained thinly laminated rock.	Quartz Calcite Biotite Feldspar	Limonite Opaques Chlorite	Glauconite Muscovite/ Sericate Zircon	<p>The specimen is made up of very fine silt sized quartzo-feldspathic clasts floating over very fine calcitic matrix. Biotite occurs as fine disseminated flakes showing crude alignment. Limonite is noted as patches and fillings associating chlorite patches. Opaques are present as fine to very fine grains, patches and fillings. Glauconite is seen present as fine to very fine subrounded pellets. Muscovite/ sericite occur as very fine to fine flakes in the assemblage. Zircon is noted as very fine grains in accessories.</p> <p>The specimen is a <b><u>biotite rich shale.</u></b></p>

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		Easting	Northing		Major >5%	Minor <5%->1%	Accessory <1%	
7	AW-972	496792	2608144	It is a buff grey coloured very fine grained thinly laminated rock.	Quartz Limonite Feldspar Biotite	Opauques Glauconite Muscovite/ Sericite	Monazite Zircon	Quartz and feldspar occur as very fine sub-angular silt sized grains. Limonite is seen present as reddish patchy matrix. Biotite and muscovite/ sericite occur as very fine disseminated flakes showing parallel alignment. Opauques are present as very fine to fine anhedral grains, patches, streaks and fillings. Glauconite is seen present as patchy relicts within limonite. Monazite and zircon are noted as very fine subrounded grains in accessories.  The specimen is a <b><u>biotite rich shale</u></b> .
8	MKAU-03P1			It is a buff grey coloured very fine grained thinly laminated rock.	Quartz Biotite	Opauques	Sericite Chlorite	Quartz and feldspar occur as very fine silt sized clasts. Biotite occurs as very fine flakes and flaky aggregates, seen segregating in thin laminations. Opauques are mostly seen present as streaky fillings along the laminations. Sericite and chlorite occur as very fine disseminated flakes in association with biotite. Tourmaline is noted as very fine prismatic grains. Rutile is observed as very fine blades. Glauconite and monazite are seen present as very fine subrounded grains in accessories.
	BH No-MKAU-03				Feldspar		Tourmaline	
	Depth Range (From-20.84 to 20.90m)						Rutile Glauconite Monazite	
								The specimen is a <b><u>biotite rich shale</u></b> .

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		Easting	Northing		Major >5%	Minor <5%>1%	Accessory <1%	
9	(MKAU-10BD1)			It is a very fine to fine grained rock showing granular texture.	Quartz	Opauques	Chlorite	Quartz and feldspar occur as silt sized to very fine sand sized subangular clasts. Biotite is present as fine flakes, flaky aggregates and patches. Limonite occurs as patches, patchy fillings and as pseudomorphic pellets showing traces of glauconite relicts in areas. Opauques occur as fine anhedral grains, patches and fillings. Sericite/ muscovite are present as very fine to fine flakes in dissemination. Chlorite is noted as very fine to fine flakes and patches. Zircon is found present as very fine slender prismatic grains in accessories.
	BH No-MKAU-10				Biotite	Sericite/ Muscovite	Zircon	
	Depth Range (From-21.38 to 21.55m)				Feldspar	Glauconite		
					Limonite			The specimen is a <b><u>biotite rich shaly sandstone.</u></b>

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		Easting	Northing		Major >5%	Minor <5%->1%	Accessory <1%	
10	(MKAW-09BD1)			It is a very fine to fine grained rock showing granular texture.	Quartz	Opakes	Sericite	Quartz and feldspar occur as silt sized to very fine sand sized subangular clasts. Biotite occurs as fine disseminated flakes and patches. Limonite is present as patches and patchy fillings, mostly seen oozing out from biotite and also seen present as fine pseudomorphic pellets. Opakes occur as fine anhedral grains, patches and as streaky fillings. Sericite and chlorite occur as very fine disseminated flakes. Glauconite is noted as very fine to fine subrounded pellets and as relicts within limonitic pseudomorphs. Monazite is seen present as very fine grains in accessories.
	BH No-MKAW-09				Feldspar		Chlorite	
	Depth Range (From-13.70 to 13.85m)				Biotite		Glauconite	
					Limonite		Monazite	The specimen is a <b><u>biotite rich shaly sandstone.</u></b>