Pluto 2
Sand Section 3199m - 3213m

Original Horizontal Surface.

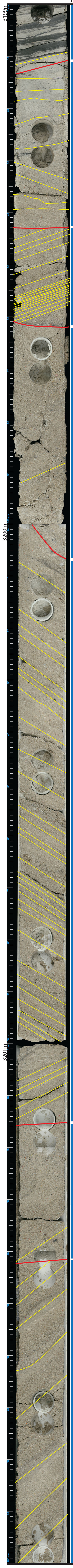
Architectural Element Association: Thalweg Fill Element; Unit Bar Element; Abandonment Phase Element

Channel/Channel Belt Association: Channel/Channel Belt Affiliation Unknown; Channel/Channel Belt 5.0m

Higher Order Surface Association: 4th Order; 5th or Higher Order; 7th or Higher Order

Symbol Key: Cross-set measurement. .23m; Rooting.; Ripples.

3199m - 3201m



Description and Interpretation | Architectural Elements | Higher Order Sufaces

Description: Very low angle planer cross-bedded coarse to very coarse sandstone with many beds washed out. Cross beds are 1.0cm to 2.0cm thick.
Interpretation: 2-d dune to upper plane bed transition. Set not measured due to transitional nature.

Description: Planar laminated to planar bedded sandstone. Medium to granule moderately well sorted. Granule lag at scour base and set fine up. Laminations .25cm to .85m thick and beds 1.5cm to 2.7cm thick.
Interpretation: Upper plane bed.

Description: Section of massive to slumped bedding.
Interpretation: Slumping beds.

Description: Planar cross-bedded sandstone. Very coarse moderately well sorted with individual beds normally graded. Cross-beds are 1.0cm to 9.0cm thick.
Interpretation: Insipient 2-d dune depsited during bursts of energy. Not measured due to insipient state.

Soft sediment deformation.

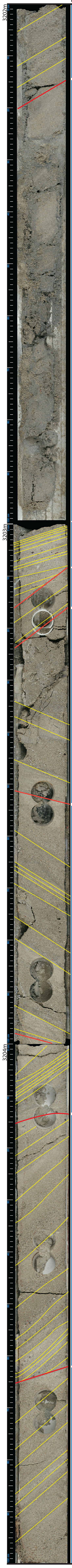
Soft sediment deformation.

Description: Section of massive to slumped bedding.
Interpretation: Slumping beds.

Description: Planar cross bedding. Very coarse moderately well sorted sandstone. Individual beds display normal grading. Beds are 7.0cm to 13cm thick.
Interpretation: Lower plane coarse grained bed wave locally at 3-d dune transition. Insipient bar rather than dune and thus not measured to calculate median dune height. May be lateral accretion elements on a bar due to higher angle.

Architectural Elements: Unit bar; Channel fill element- Channel affiliation unknown.

3202m - 3204m



Description: Planar cross-bedded sandstone. Medium to coarse moderately well sorted with individual beds normally graded. Cross-beds are 2.0cm to 4.0cm thick.
Interpretation: 2-d dune depsited during bursts of energy.

Description: Rubble zone. Medium to granule sized sandstane. Weak low angle cross bedding at bottom.
Interpretation: Core fell apart. Low angle cross bedding at base suggests 2-d dune to upper plane bed.

Description: Planar cross-bedded ~~sandstone. Medium to coarse mod-~~ erately well sorted with individual beds normally graded. Cross-beds are 2.0cm to 4.0cm thick.
Interpretation: 2-d dune depsited during bursts of energy.

Description: Planar cross-bedded sandstone. Medium to coarse moderately well sorted with individual beds normally graded. Cross-beds are 2.0cm to 4.0cm thick.
Interpretation: 2-d dune depsited during bursts of energy.

Description: Planar cross-bedded sandstone. Medium to coarse moderately well sorted with individual beds normally graded. Cross-beds are 2.0cm to 4.0cm thick.
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Description: Planar cross-bedded sandstone. Medium to coarse moderately well sorted with individual beds normally graded. Cross-beds are 2.0cm to 4.0cm thick.
Interpretation: 2-d dune depsited during bursts of energy.
Soft sediment deformation.

Description: Planar cross bedding. Coarse to medium moderately well sorted sandstone. Individual beds display normal grading. Beds are 7.0cm to 17cm thick.
Interpretation: Lower plane coarse grained bed wave locally at 3-d dune transition. Insipient bar rather than dune and thus not measured to calculate median dune height. May be lateral accretion elements on a bar due to higher angle.

Description: Planar cross bedding. Very coarse to pebble size moderately well sorted sandstone. Individual beds display normal grading. Beds are 3.0cm to 9cm thick.
Interpretation: Lower plane coarse grained bed wave locally at 3-d dune transition. Insipient bar rather than dune and thus not measured to calculate median dune height. May be lateral accretion elements on a bar due to higher angle.

Architectural Elements: Unit bar continued.; Unit bar; Channel fill element- Channel affiliation unknown.

3205m - 3207m

Description: Planar bedded sandstone. Coarse to very coarse moderately well sorted with individual beds normally graded. Cross-beds are 2.0cm to 3.0cm thick.
Interpretation: Upper plane bed.

Description: Low angle planar cross-bedded to cross laminated sandstone. Coarse moderately well sorted with individual beds normally graded. Cross-beds are 2.0cm to 4.0cm thick. Lamina are .30cm thick.
Interpretation: 2-d dune.

Description: Very low angle planar cross-bedded coarse sandstone. Individual beds normally graded. Cross-beds are 1.5cm to 6.0cm thick.
Interpretation: 2-d dune to upper plane bed transition.

Description: Very low angle planar cross-bedded sandstone. Very coarse moderately well sorted with individual beds normally graded. Cross-beds are 2.0cm to 6.0cm thick.
Interpretation: 2-d dune to upper plane bed transition. Set not measured due to transitional nature.

Description: Planar cross-bedded sandstone. Medium to coarse moderately well sorted with individual beds normally graded. Cross-beds are 2.0cm to 4.0cm thick.
Interpretation: 2-d dune depsited during bursts of energy.

Description: Planar cross bedding. Coarse moderately well sorted sandstone. Individual beds display normal grading. Beds are 7.0cm to 17cm thick.
Interpretation: Lower plane coarse grained bed wave locally at 3-d dune transition. Insipient bar rather than dune and thus not measured to calculate median dune height. May be lateral accretion elements on a bar due to higher angle.

Description: Low angle planar bedding. Appears te be local Some trough-cross bedding and soft sedimest deformation 3026.78 to 3026.82m. Coarse to medium moderately well sorted sandstone. Individual beds are normally graded. Beds are 7.0cm to 17cm thick.
Interpretation: Lower plane coarse grained bed wave locally at 3-d dune transition. Insipient bar rather than dune and thus not measured to calculate median dune height.

Description: Planar cross-bedding. Coarse to medium moderately well sorted sandstone. Individual beds are normally graded. Beds are 2.0cm to 5.0cm thick.
Interpretation: 2-d dune.

Description: Low angle planar bedding. Coarse to medium moderately well sorted sandstone. Normal grading in the individual beds. Beds are 5.0cm to 12cm thick.
Interpretation: Lower plane coarse grained bed wave. Insipient bar rather than dune and thus not measured to calculate median dune height.

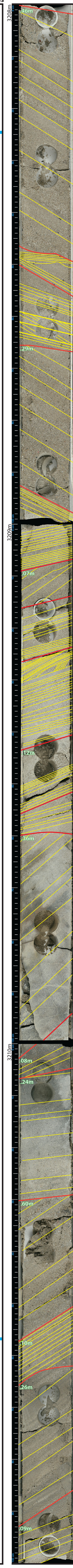
Description: Planar laminated sandstone. Moderately well sorted upper coarse. Laminations are 1.0mm to 8.0mm thick.
Interpretation: Upper plane bed.

Description: Planar cross-bedded sandstone. Moderately well sorted upper coarse. Individual beds are normally graded. Cross-beds are 1.0cm to 5.0 cm thick.
Interpretation: 2-d dune deposited during flashy episodes.

Description: Planar laminated to very low angle cross-bedded bedded to trough cross-bedded sandstone . Moderately well sorted upper coarse to granule. Beds towards top exhibit normal grading. Lamina are.20cm to .70cm thick. Cross-beds are 1.0cm to 2.0cm thick.
Interpretation: Upper plane bed to upper plane bed 3-d dune transition.

Architectural Elements: Unit bar; Channel fill element- Channel affiliation unknown.; Unit bar

3208m - 3210m



Description: Planar cross bedded sandstone. Coarse to very coarse moderately well sorted. Individual beds display normal grading. Cross sets are 2.0 cm to 8.0cm.
Interpretation: 2-d dune deposted during high energy bursts.

Description: Low angle planar cross- bedding grading to trough -cross bedding and then planar cross lamination. Medium to lower coarse moderately sorted sandstone.
Interpretation: Bar top responding to varying flow regimes.

Description: Planar laminated to planar bedded sandstone. Medium to lower coarse moderately sorted. Ripples on some beds . Laminations to .75cm and cross-beds to 2.0cm.
Interpretation: Upper plane bed to upper plane bed ripple transiton.

Description: Planar cross-bedded sandstone. Coarse to very coarse moderately well sorted. Cross-beds are 2.5cm to 6.0cm thick. Some beds display normal grading.
Interpretation: 2-d dune with some beds deposited during flashy events.

Description: Planar laminated sandstone. Medium to coarse moderately well sorted. Laminations up to 1.0cm.
Interpretation: Upper plane bed.

Description: Planar cross-bedded sandstone. Medium to coarse moderately well sorted with normal grading. Cross-beds are 2.0cm thick.
Interpretation: Small 2-d dune.

Description: Planar laminated to planar bedded sandstone. Medium to coarse moderately well sorted. Lamina are .25cm to .75cm thick. Beds are 1.5cm to 2.0cm thick.
Interpretation: Upper plane bed.

Description: Planar laminated to low angle cross-bedded sandstone. Ripples from 3209.26m to 3209.30m Coarse to granule moderately well sorted. Lamina are up to 1.0cm thick and cross-beds are 3.0cm thick.
Interpretation: Upper plane bed to upper plane bed ripple transition.

Description: Low angle planar cross-bedded sandstone to massive sandstone. Upper coarse to granule moderately well sorted. Appears to be soft sediment deformation at top of section. Lamina 0.3cm to 0.7cm thick.
Interpretation: Low angle 2-d dune.

Description: Planar laminated sandstone. Upper coarse to granule moderately well sorted. Laminations up to about 1cm.
Interpretation: Upper plane bed.

Description: High angle planar cross- bedded sandstone. Medium to upper coarse moderately well sorted. Cross-beds are 2.0cm to 5.0cm thick. Section is well cemented, probably related to secondary groundwater movement.
Interpretation: High angle 2-d dune.

Description: Low angle planar cross-bedded to planar laminated sandstone. Moderately to poorly sorted coarse to fine. Cross-beds are 1.0cm to 2.0cm thick.
Interpretation: Small 2-d dune.

Description: Low angle planar cross-bedded sandstone. Moderately to poorly sorted coarse to fine with a few shots of granules. Section fines up over all. Cross-beds are 1.0cm to 5.0cm thick.
Interpretation: 2-d dune.

Description: Planar cross-bedded sandstone. Moderately well sorted medium to very coarse. Individual beds are normally graded. Cross-beds are 3.0cm to 7.0cm thick.
Interpretation: 2-d dune prone to deposition during flashy events.

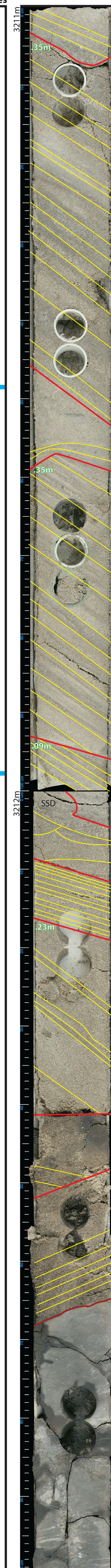
Description: Planar cross-laminated sandstone. Moderately well sorted medium to very coarse. Cross-lamina are .30cm to 1.0cm thick.
Interpretation: Small 2-d dune.

Description: Planar cross-bedded sandstone. Moderately well sorted medium to very coarse. Normal grading in individual beds. Cross-beds are 3.0cm to 6.0cm thick.
Interpretation: 2-d dune prone to deposition during flashy events.

Description: Low angle planar cross-bedded sandstone. Moderately well sorted medium to coarse. Normal grading. Cross-beds are 2.0cm to 7.0 cm thick. Erosional base.
Interpretation: Low relief 2-d dune.

Architectural Elements: Unit bar continued.; Unit bar; Unit bar; One complete bar element which is equivalent to approximately one channel depth.

3211m - 3213m



Description: Planer cross-bedded sandstone. Moderately well sorted mostly medium to coarse with some some fine sand and silt at top of sets. Normal grading in some individual beds. Cross-beds are 2.0cm to 7.0 cm thick. Erosional base.
Interpretation: 2-d dune prone to deposition during flashy events.

Description: Massive to irregular planar laminated medium to coarse sandstone. Possible plant debris.
Interpretation: Rapid depostion.

Description: Planer cross-bedded sandstone. Moderately well sorted mostly medium to coarse with some some fine sand and silt at top of sets. Normal grading in some individual beds. Cross-beds are 2.0cm to 4.0 cm thick.
Interpretation: 2-d dune prone to deposition during flashy events.

Description: Planer cross-bedded sandstone. Moderately well sorted medium to coarse. Cross-beds are 1.0cm thick.
Interpretation: Small 2-d dune.

Description: Trough cross-bedded sandstone . Moderately well sorted upper medium to very coarse. Cross-beds are 3.0cm to 5.0 cm thick. Soft sediment deformation at top left.
Interpretation: Highly truncated 3-d dune with secondary fluid deformation.

Description: Planar laminated coarse sandstone. Lamina are .50cm to 1.0cm thick.
Interpretation: Upper plane bed.

Description: Planar cross-bedded sandstone with irregular parallel cross-lamination. Moderately well sorted upper medium to coarse. Cross-lamina are 0.5cm to 1.0cm thick and cross-beds are 5.0 to 7.0cm thick.
Interpretation: 2-d dune.

Description: Faint planar laminated to massive sandstone. Moderately sorted upper medium to very coarse.
Interpretation: Upper plane bed with area of rapid deposition or deformed core.

Description: Faint planar laminated to massive sandstone. Moderately sorted upper medium to very coarse.
Interpretation: Upper plane bed with area of rapid deposition or deformed core.

Description: Mostly massive mudstone with some silt laminations towards bottom. Upper 22cm churned by roots. Large root penetrates core at 3212.8m and continues to bottom of core at 3213.0m.
Interpretation: Proximal lake grading to composite soil.

Architectural Elements: Unit bar continued.; One complete bar element continued.; Composite soil.