RSF/230/1831

[redacted]

Scale 1:500

MONSANTO DISPOSAL No 1 SEAL SANDS

GRAPHIC LOG A. 0 - 2300'

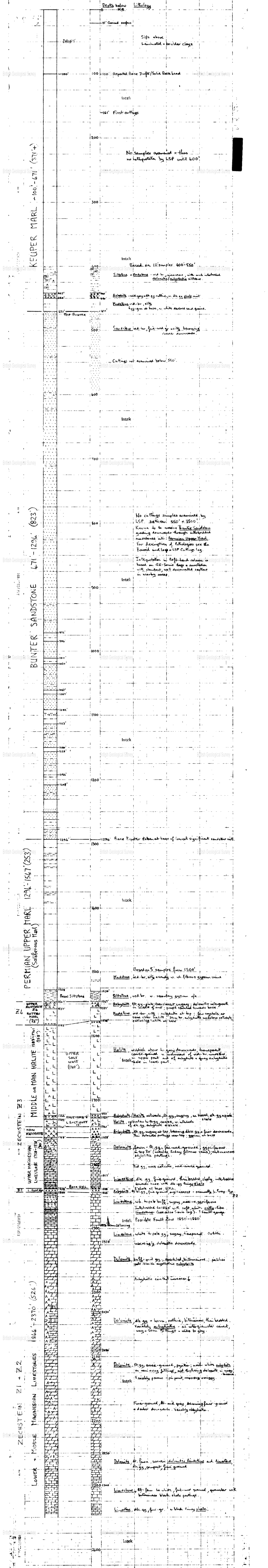
L.S. Phillips July 1974

[redacted]

CORRECTED LOG DEPTHS + LITHOLOGY

CUTTINGS

Depths below KB. Lithology



0

21' Ground surface

Silts above
Laminated + boulder clays

100 ~100' Reported Base Drift/Solid Rock head

161' First cuttings

No samples examined + thus no interpretation by LSP until 400'

Based on 10' samples 400'-550'

Siltstone + Mudstone - red-br, micaceous, with much interbedded dolomitic/anhydritic siltstone.

Anhydrite - mid-grey + lt. gy xalline, w. dk gy shale unit

Mudstone, red-br, silty + gy-grn at base, w. white derived sand grains.

Sandstone red-br, fine-med gr + silty becoming coarser downwards.

Cuttings not examined below 550'.

No cuttings samples examined by LSP between 550' + 1500'. Known to be massive Bunter Sandstone grading downwards through interbedded mudstones into Permian Upper Marl. For description of lithologies see the Baroid mud logs + LSP Cuttings log.

Interpretation in left-hand column is based on GR-Sonic logs + correlation with abundant, well documented sections in nearby areas.

1294' Base Bunter taken at base of lowest significant sandstone unit.

Based on 5' samples from 1500'

Mudstone, red-br, silty + sandy w. wh. fibrous gypsum veins

Siltstone, red br. w. secondary gypsum a/a.

Anhydrite, lt. gy-pink, translucent sugary; dolomitic intergrowth in middle of unit; purple streaked towards base.

Mudstone, red-br, silty; anhydritic at top; few crystals or veins clear halite. Dk. br. anhydrite mudstone network enclosing halite at base

Halite, reddish above to grey downwards, transparent coarse-grained w. inclusions of red-br. mudstone in upper part and of anhydrite + grey anhydritic shale in lower part.

Anhydrite/Halite network, lt. gy, sugary, w. basal dk. gy + pink shale

Halite, colourless to lt gy, coarse, w. interbeds of dk. gy. anhydrite + shale.

Anhydrite, lt. gy. sugary at top, becoming dkr. gy + finer downwards. Thin dolomitic partings near top; gypsum at base

Dolomite, fawn - lt. gy, fine-med. grained, gypsiferous in top 20' (nodules, 2ndary fibrous veins); carbonaceous stylolitic partings.

Mid gy, more calcitic, med-coarse grained.

Limestone, dk. gy, fine-grained, thin bedded, shaly, interbedded towards base with dk-gy limey shale. 2' shale at base UML.

Anhydrite, lt bl. gy, fine grained, argillaceous - presumably L. Evap. Gp. Z2

Limestone, wh. to pale buff, sugary, massive, gypsiferous. Interbedded to 1880' with soft, white putty-like limestone (see also Sonic log). ? Fault gouge

Possible Fault Zone 1850'-1880'

Limestone, white to pale gy, sugary, transparent. Oolitic.

increasingly dolomitic downwards

Dolomite, buff - mid gy, speckled, bituminous; patches pale-bluish crystalline anhydrite

Anhydritic content increases ↓

Dolomite, dk. gy + brown, xalline, bituminous, thin bedded. Variably anhydritic - as intergranular cement, vug + vein fillings - white to grey.

Dolomite, lt. gy, coarse-grained, pyritic; much white anhydrite as vein + vug fillings, and enclosing dolomite in micro-breccia. Variably porous - pin point, micro vug + vuggy.

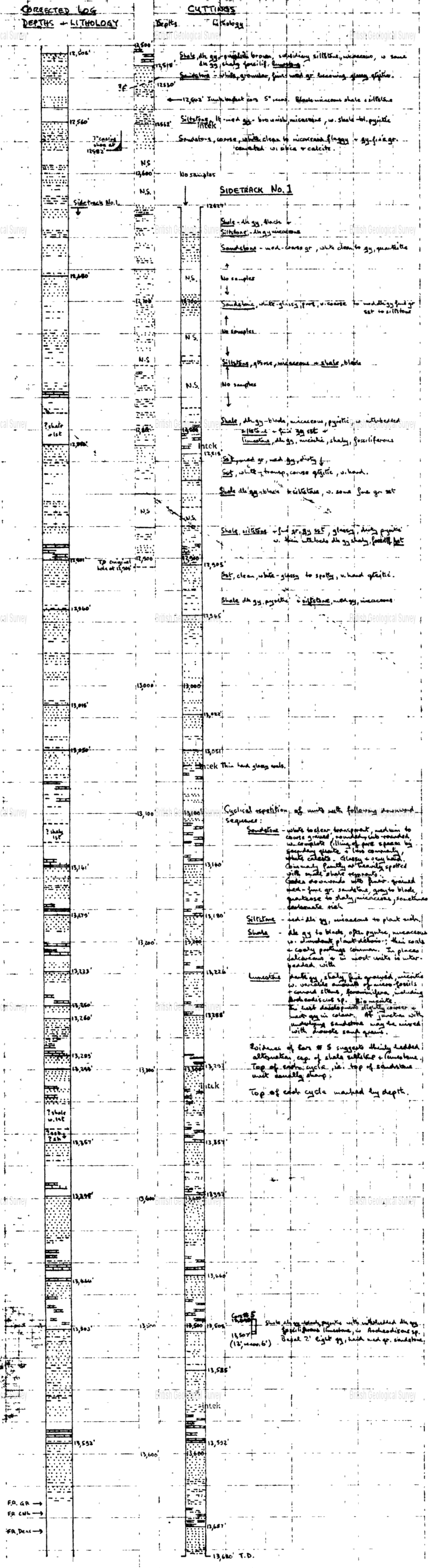
Finer grained, lt-mid grey, becoming finer grained + darker downwards. Variably anhydritic.

Dolomite, lt. fawn, sucrosic, dolomitic limestone and limestone, dk gy, compact, fine grained

Limestone, lt-fawn to white, fine-med grained, granular with bituminous black shale partings.

Limestone, dk. gy, fine-gr. + black limey shale.

GRAPHIC LOG H 12,500' - 13,680' T.D.



Shale, dk gy, purplish brown, subsidiary siltstone, micaceous, w. some dk gy, shaly fossilif. **limestone**.

Sandstone - white, granular, fine-med gr becoming glassy qtzitic.

← 12,542' Junk basket core 5" recov. Black micaceous shale & siltstone

Siltstone, lt-med gy - brownish, micaceous, w. shale - bl. pyritic

Sandstone, coarse, white clean to micaceous flaggy + gy, fine gr. cemented w. silica + calcite.

No samples

SIDETRACK No. 1

Shale - dk gy, black +
Siltstone, - dk gy micaceous

Sandstone - med-coarse gr, white clean to gy, quartzitic

↑
No samples
↓

Sandstone, white-glassy, pure, v. coarse to med dk gy fine gr sst to siltstone

↑
No samples
↓

Siltstone, qtzose, micaceous + **shale**, black

↑
No samples
↓

Shale, dk gy-black, micaceous, pyritic, w interbedded **siltstone** + fine gy sst + **limestone**, dk gy, micritic, shaly, fossiliferous

Sst, mixed gr, med gy, dirty ↓

Sst, white, transp, coarse qtzitic, v. hard.

Shale dk gy-black + siltstone, w. some fine gr sst

Shale, **siltstone** + fine gr, gy **sst**, glassy, dirty pyritic w. thin interbeds dk gy shaly, fossilif **lst**

Sst, clean, white-glassy to spotty, v. hard qtzitic.

Shale dk gy, pyritic + **siltstone**, med gy, micaceous

Thin hard glassy coals.

Cyclical repetition of units with following downward sequence:

Sandstone - white to clear, transparent, medium to coarse grained, rounded-sub-rounded, w. complete filling of pore spaces by secondary quartz + less commonly, white calcite. Glassy + very hard. Commonly faintly or heavily spotted with small shale segments. Grades downwards into finer-grained med-fine gr. sandstone, grey to black, quartzose to shaly, micaceous, sometimes carbonate rich

Siltstone - med-dk gy, micaceous to plant rich.

Shale - dk gy to black, often pyritic, micaceous w. abundant plant debris; thin coals + coaly partings common. In places calcareous + in most units is interbedded with

Limestone - dark gy, shaly, fine grained, micritic w. variable amounts of micro-fossils + crinoid stems, foraminifera, including Archaediscus sp. Biomicrite. The best developments slightly coarser + light gy in colour. At junction with underlying sandstone may be mixed with discrete sand grains.

Evidence of core # 5 suggests thinly bedded alternation esp. of shale siltstone + limestone. Top of each cycle, ie. top of sandstone unit usually sharp.

Top of each cycle marked by depth.

Core # 5 13,500 - 13,507 (12', recov. 6') Shale, dk gy-black, pyritic with interbedded dk gy fossiliferous limestone, w. Archaediscus sp. Basal 2' light gy, hard med gr. sandstone.