EUROPEAN REGION TECHNICAL CENTRE

REPORT No RL-83-33

INVESTIGATION OF BAILED SAMPLE

CLIENT- PHILLIPS
DATE- 6 December 1983
D.S. CONTACT-

AUTHOR(S)
ROB LAWSON

MANAGER- C. KEARY

INFORMATION REQUESTED

Identify the material collected in bailed samples from well COD/11-7.

SAMPLES RECEIVED

Two, twenty gram samples from depths of 14028' and 14030' were received in the laboratory. (It should be noted that because these were bailed samples they were probably not representative of the material as a whole).

All chemicals used came from laboratory stock.

RESULTS OF TESTING

Sample 14028 (as received) contained 30% $\pm$ 10% sintered bauxite, mixed chlorides and clay.

Sample 14030 (as received) contained no observable bauxite and was comprised of soluble material (Iron carbonate, chlorides) and a clay.

Both samples contained elemental abundances of Cl, Ca, Si, Al, K, Mg and Fe.

Although a clay was observed with the SEM and as an insoluble residue (after 15% H Cl treatment), it did not appear on the X-ray spectrum. It was probably bentonite but this was not confirmed.

No mixed chlorides were observed by XRD which suggest that they were in a form amorphous to X-rays in the samples.

METHODS OF INVESTIGATION

The samples were dried (at 150°F) and subsequently examined by X-ray powder diffraction (XRD) and a Scanning electron microscope with an energy dispersive analysis by X-rays attachment. (SEM/EDAX).

XRD

The diffractometer trace recorded peaks which were unambiguously to iron carbonate and a trace amount of sintered bauxite. Peak intensities were too low for any reliable indication of relative percentages to be determined. Although it should be noted that this probably reflected a low content of crystalline material in the samples.

SEM/EDAX

The energy spectrum recorded revealed that Cl, Ca, Si, Al, Na were the major elements present with some K, Mg and Fe.
Note: No element of smaller atomic number than fluorine can be detected because of instrumental limitations (ie. if carbon and oxygen were present than would not be observed by EDAX).

SOLUBILITY IN ACID

One gram batches of the samples were placed in 100 mls of 15% hydrochloric acid for one hour at 150°F. The solution was filtered, then weighed and the amount of hydrochloric acid soluble material calculated and reported as a percentage.

SAMPLE	PERCENT SOLUBILITY IN 15% HYDROCHLORIC ACID
14028	16%
14030	84%

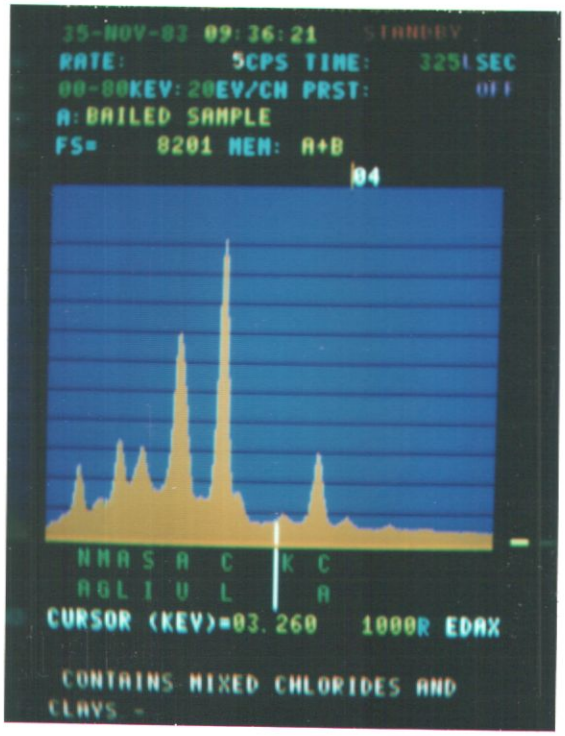

Photo one:

EDAX spectrum from 14030' sample (Au is gold introduced during sample preparation). The Fe peak is not shown.

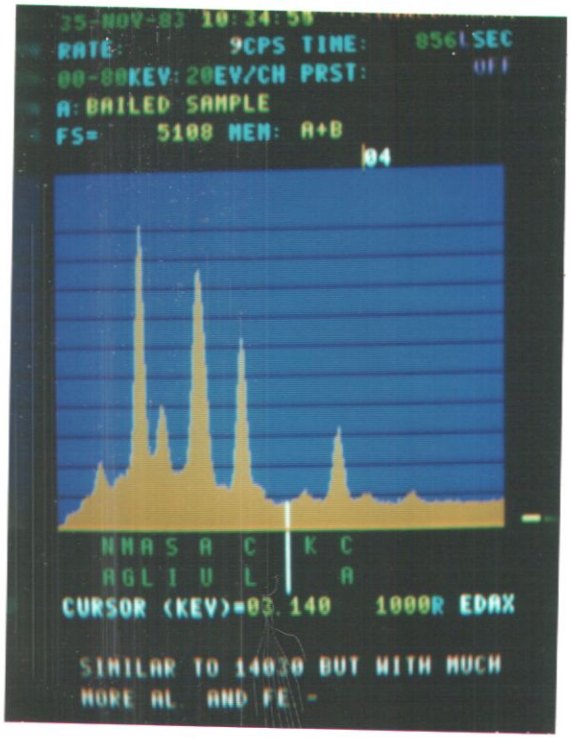

Photo two:

EDAX spectrum from 14028' sample. Similar to photo one but with more Al and Fe (not shown).