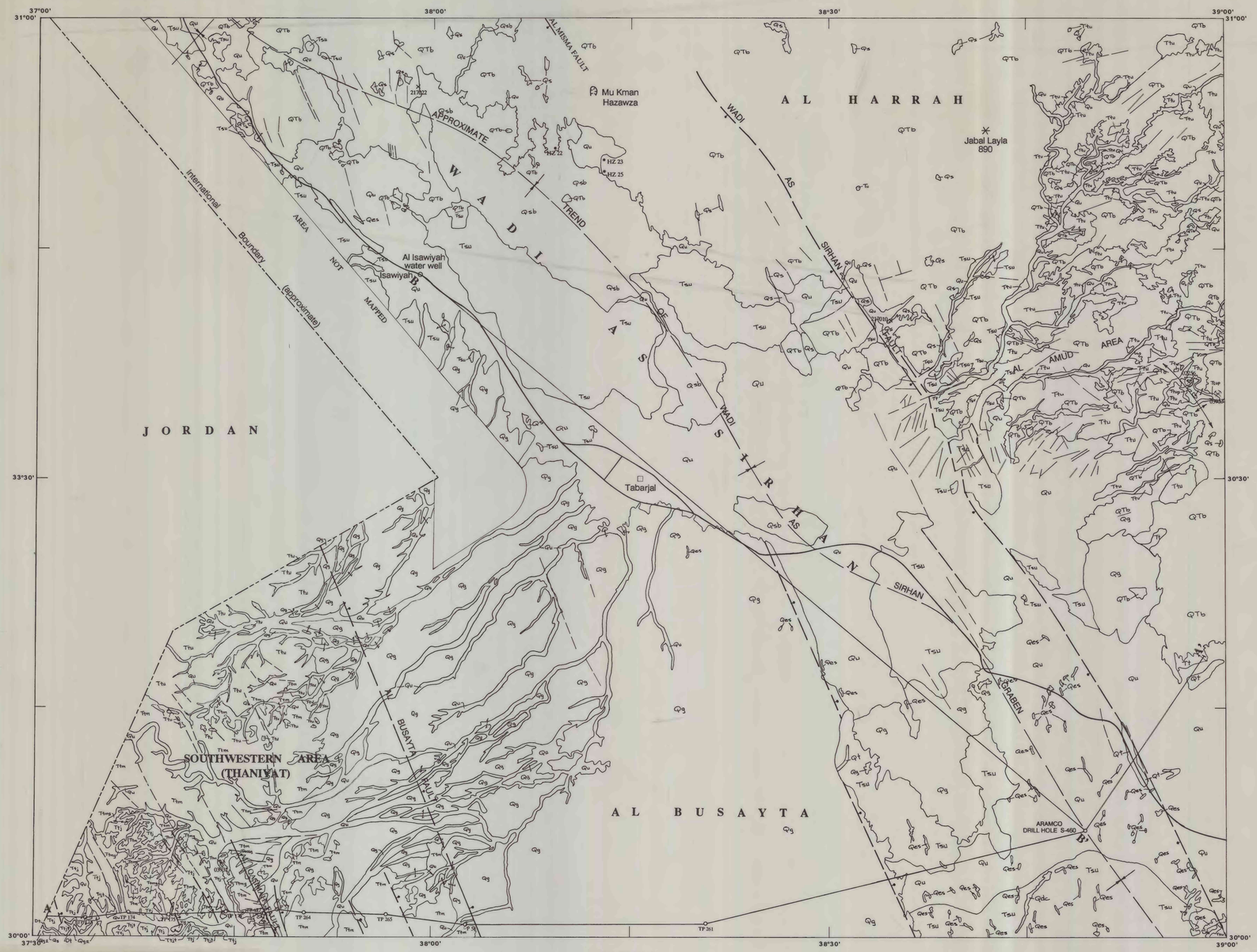
U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY, PREPARED FOR
MINISTRY OF PETROLEUM AND MINERAL RESOURCES
DIRECTORATE GENERAL OF MINERAL RESOURCES

KINGDOM OF SAUDI ARABIA

OPEN-FILE REPORT
USGS-OF-90-263
PLATE 1

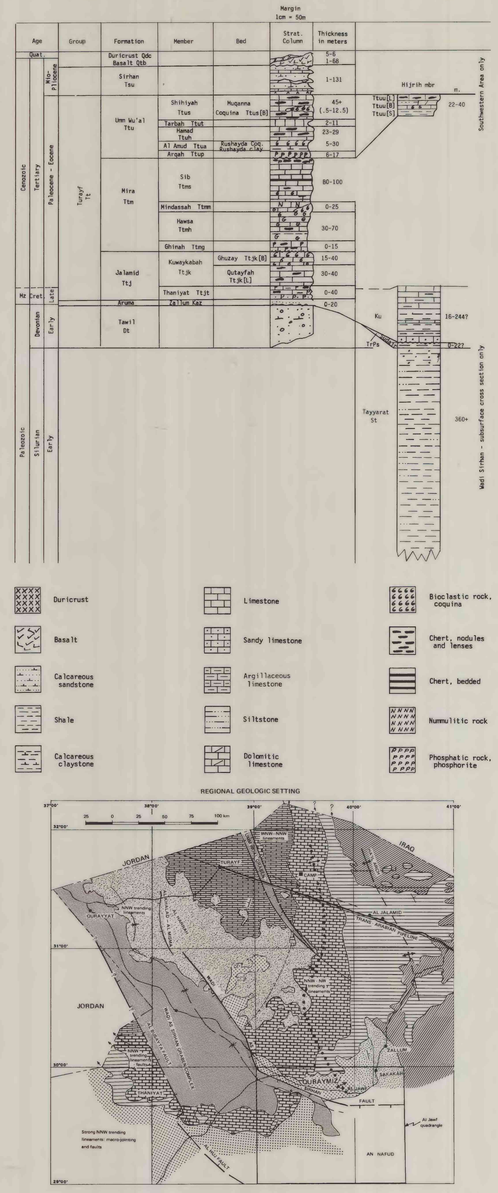


This report has not been edited or reviewed for conformity with U.S. Geological Survey standards and nomenclature.

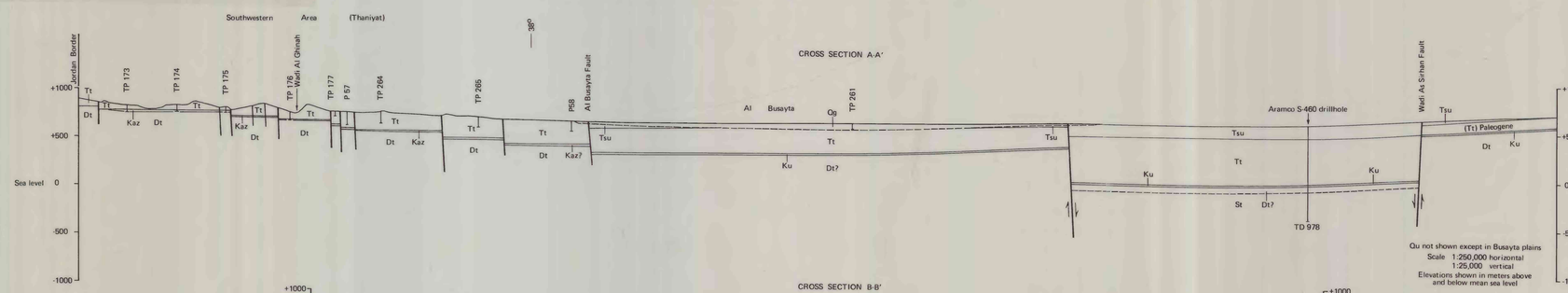
SCALE 1:250 000

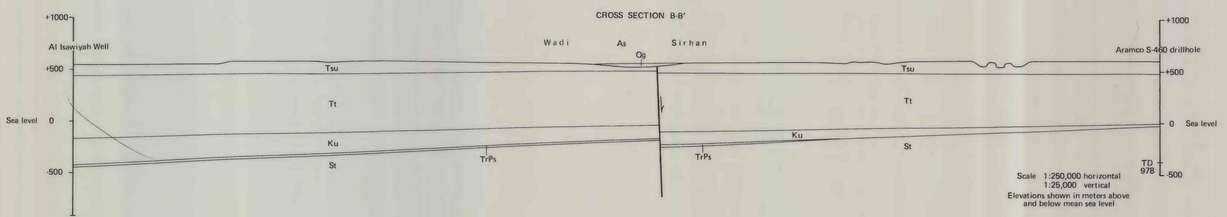
5 0 5 10 15 20 25 KILOMETERS

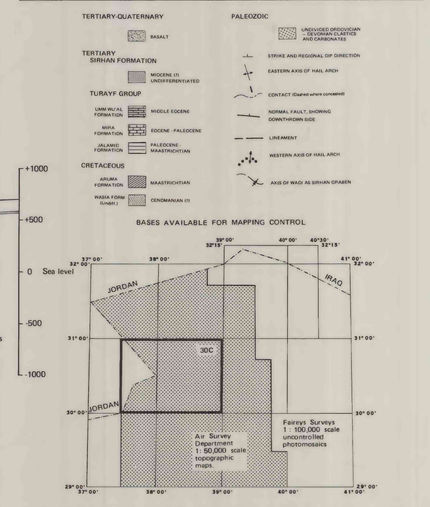
5 0 5 10 15 20 MILES



REGIONAL GEOLOGIC SETTING







PRELIMINARY GEOLOGIC MAP OF THE WADI AS SIRHAN QUADRANGLE, SHEET 30 C, KINGDOM OF SAUDI ARABIA

BY

C. R. MEISSNER, Jr., M. B. GRIFFIN, G. P. RIDDLER, MARCEL VAN ECK, N. C. ASPINALL, A. M. FARASANI, AND S. M. DINI

EXPLANATION OF MAP UNITS

QUATERNARY

Qes — EOLIAN SAND--Stabilized dunes

Qu — ALLUVIUM--Unconsolidated silt, sand, and gravel

Qs — SILT AND CLAY--Fill undrainced depressions

Qg — GRAVEL--Composed mostly of chert pebbles

Qt — TERRACE--Elevated wadi deposits of sand and gravel

Qsb — SABKHA DEPOSITS--Salt-encrusted clay, silt, and sand

Qdc — CALCAREOUS AND GYPSIFEROUS DURICRUST

QTb — ALKALI-OLIVINE BASALT--Forms lava flows and cinder cones

QTb / Qg — Alkali-olivine basalt with veneer of basaltic gravel and sand

Tsu — SIRHAN FORMATION--Calcareous sandstone and limestone

QTb / Tsu — Sirhan Formation with basalt interbeds

UNCONFORMITY

TERTIARY

TURAYF GROUP (Tt)

[Geologic map units printed in italics shown on plate 2 only]

Ttu — UMM WU'AL FORMATION--Includes Shihiyah member (Ttus), Muqanna coquina bed (Ttus[B]), Tarbah member (Ttut), Al Hanad member (Ttua), and Hidrij member (Ttuu)--Shown on Plate 1 only

Ttus / Ttus[B] — *Shihiyah member--Limestone containing chert nodules*; *Muqanna coquina bed--Coquina and shells*

Ttut — *Tarbah member--Bioclastic, nummulitic limestone*

Ttuh — *Hamad member--Bedded limestone containing thin chert beds*

Ttua — *Al Amud member--Limestone and claystone; intermittent opal claystone; coquina at top*

Ttup — Arqah Phosphorite member--Limestone and phosphorite

Ttuu / [L] / [B] / [S] — *Hidrij member--*; *Ribbon banded limestone and chert*; *Silty limestone and claystone; partly bioclastic*; *Fissile shale and dolomitic limestone*

DISCONFORMITY

Ttm — MIRA FORMATION--Includes the Sib member (Ttms) and Hawsa member (Ttmh)--Shown on plate 1 only

Ttms — *Sib member--Interbedded limestone and chert*

Ttmh — *Hawsa member--Interbedded limestone and claystone containing chert and geodes; includes Mindassah member*

Ttmg — Ghinah Phosphorite member--Limestone and thin phosphorite beds; fissile shale

Ttj — JALAMID FORMATION--Includes the Kuwaykabah member (Ttjk) and the Ghuqzy [B] and Qutayfah [L] beds--Shown on plate 1 only

Ttjk / [B] / [L] — *Kuwaykabah member*; *Ghuzay bed--Bioclastic limestone*; *Qutayfah bed--Limestone with chert nodules and lenses*

Ttjt — Thaniyat Phosphorite member--Phosphorite, limestone and chert

DISCONFORMITY

CRETACEOUS

Kaz — ARUMA FORMATION--Kaz-Zallum member--Argillaceous limestone and shale [cross section only]

Ku — CRETACEOUS ROCKS, UNDIVIDED--Limestone and shale [cross section only]

UNCONFORMITY

PERMO-TRIASSIC (cross section only)

TrPs — SUDAIR SHALE--Reddish gray and reddish brown shale [corss section only

UNONFORMITY

DEVONIAN

Dt — TAWIL FORMATION--Sandstone with quartz pebbles. Minor interbeds of shaly sandstone

UNCONFORMITY

SILURIAN

St — TAYYARAT FORMATION--Shale and siltstone, sandy near top [cross section only]

EXPLANATION OF MAP SYMBOLS

CONTACT

FAULT--Probable, bar-and-ball or downthrown side

ANTICLINAL AXIS--Showing direction of plunge

AXIS OF WADI SIRHAN GRABEN-- Based on gravity-survey data and surface indications

LINEAMENT--Trend line observed from aerial photographs or landsat imagery

Jabal Layla 890 — VOLCANIC CONE--Showing elevation above sea level in meters

Makman Hazawza — CRATER--Containing olivine zenoliths

A — A' — LINE OF CROSS-SECTION

× 217922 — BASALT SAMPLE LOCALITY SITE

Al Isawiyah — DEEP WATER WELL--Having subsurface geologic data

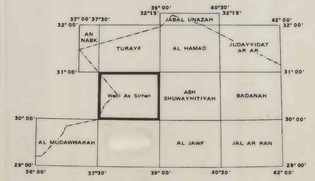
HZ 22, 23, 25 — HAZAWZA DRILL SITE

P 58 / T—261 — SHALLOW DRILL HOLE--For phosphate exploration

02256 — MODS-GENERAL LOCALITY--Area around which phosphate rock drilled or trenched

03932 — MODS-MINERAL SITE--Locality where phosphate rock drilled or trenched

TOWN OR VILLAGE

PAVED ROAD

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