

## LIST OF TABLES

Table No.	Page No.
<u>3.1 Abbreviations used in the lithological description.</u>	<u>29</u>
<u>3.2 Zones of the sedimentary shelf of the studied areas.</u>	<u>51</u>

## LIST OF TABLES IN APPENDICES

Table No.	Page No.
<u>3.1 Plug description and thin section of S# 6, BED1-11 well.</u>	<u>215</u>
<u>3.2 Plug description and thin section of S# 12, BED1-11 well.</u>	<u>215</u>
<u>3.3 Plug description and thin section of S# 16, BED1-11 well.</u>	<u>216</u>
<u>3.4 Plug description and thin section of S# 21, BED1-11 well.</u>	<u>216</u>
<u>3.5 Plug description and thin section of S# 27, BED1-11 well.</u>	<u>217</u>
<u>3.6 Plug description and thin section of S# 30, BED1-11 well.</u>	<u>217</u>
<u>3.7 Plug description and thin section of S# 41, BED1-11 well.</u>	<u>218</u>
<u>3.8 Plug description and thin section of S# 44, BED1-11 well.</u>	<u>218</u>
<u>3.9 Plug description and thin section of S# 48, BED1-11 well.</u>	<u>219</u>
<u>3.10 Plug description and thin section of S# 51, BED1-11 well.</u>	<u>219</u>
<u>3.11 Plug description and thin section of S# 59, BED1-11 well.</u>	<u>220</u>
<u>3.12 Plug description and thin section of S# 63, BED1-11 well.</u>	<u>220</u>
<u>3.13 Plug description and thin section of S# 65, BED1-11 well.</u>	<u>221</u>
<u>3.14 Plug description and thin section of S# 73, BED1-11 well.</u>	<u>221</u>
<u>3.15 Plug description and thin section of S# 32, TSW-7 well.</u>	<u>222</u>
<u>3.16 Plug description and thin section of S# 10, TSW-7 well.</u>	<u>222</u>
<u>3.17 Plug description and thin section of S# 22H, TSW-7 well.</u>	<u>223</u>
<u>3.18 Plug description and thin section of S# 2H2, TSW-7 well.</u>	<u>223</u>
<u>3.19 Plug description and thin section of S# 31H1, TSW-7 well.</u>	<u>224</u>

Table	Page
No.	No.
<u>3.20 Plug description and thin section of S# 31H2, TSW-7 well.</u>	224
<u>3.21 Plug description and thin section of S# 40, TSW-7 well.</u>	224
<u>3.22 Plug description and thin section of S# 1H1, TSW-7 well.</u>	225
<u>3.23 Plug description and thin section of S# 1H2, TSW-7 well.</u>	225
<u>3.24 Plug description and thin section of S# 58, TSW-8 well.</u>	225
<u>3.25 Plug description and thin section of S# 39, TSW-13 well.</u>	226
<u>3.26 Plug description and thin section of S# 48H1, TSW-13 well.</u>	226
<u>3.27 Plug description and thin section of S# 48H2, TSW-13 well.</u>	226
<u>3.28 Plug description and thin section of S# 3, TSW-15 well.</u>	227
<u>3.29 Plug description and thin section of S# 28H1, TSW-15 well.</u>	227
<u>3.30 Plug description and thin section of S# 28H2, TSW-15 well.</u>	227
<u>3.31 Plug description and thin section of S# 13H1, TSW-15 well.</u>	228
<u>3.32 Plug description and thin section of S# 13H2, TSW-15 well.</u>	228
<u>3.33 Plug description and thin section of S# 6, TSW-15 well.</u>	229
<u>3.34 Plug description and thin section of S# 55, TSW-15 well.</u>	229
<u>3.35 Plug description and thin section of S# 53H1, TSW-15 well.</u>	230
<u>3.36 Plug description and thin section of S# 53H2, TSW-15 well.</u>	230
<u>3.37 Plug description and thin section of S# 18H1, TSW-15 well.</u>	230
<u>3.38 Plug description and thin section of S# 18H2, TSW-15 well.</u>	230
<u>3.39 Plug description and thin section of S# 43H1, TSW-15 well.</u>	231
<u>3.40 Plug description and thin section of S# 43H2, TSW-15 well.</u>	231
<u>3.41 Plug description and thin section of S# 11H1, TSW-15 well.</u>	232
<u>3.42 Plug description and thin section of S# 11H2, TSW-15 well.</u>	232
<u>3.43 Plug description and thin section of S# 7H1, TSW-15 well.</u>	233
<u>3.44 Plug description and thin section of S# 7H2, TSW-15 well.</u>	233
<u>3.45 Plug description and thin section of S# 17, TSW-21 well.</u>	233

Table	Page
No.	No.
<u>3.46 Plug description and thin section of S# 25H1, TSW-21 well.</u>	234
<u>3.47 Plug description and thin section of S# 25H2, TSW-21 well.</u>	234
<u>3.48 Plug description and thin section of S# 30H1, TSW-21 well.</u>	234
<u>3.49 Plug description and thin section of S# 30H2, TSW-21 well.</u>	234
<u>3.50 Plug description and thin section of S# 9H1, TSW-21 well.</u>	235
<u>3.51 Plug description and thin section of S# 9H2, TSW-21 well.</u>	235
<u>3.52 Plug description and thin section of S# 24H, TSW-21 well.</u>	235
<u>3.53 Plug description and thin section of S# 54, TSW-21 well.</u>	236
<u>3.54 Plug description and thin section of S# 52, TSW-21 well.</u>	236
<u>3.55 Plug description and thin section of S# 16H1, TSW-21 well.</u>	237
<u>3.56 Plug description and thin section of S# 16H2, TSW-21 well.</u>	237
<u>3.57 Plug description and thin section of S# 20H1, TSW-21 well.</u>	237
<u>3.58 Plug description and thin section of S# 20H2, TSW-21 well.</u>	237
<u>3.59 Plug description and thin section of S# 45, TSW-21 well.</u>	238
<u>3.60 Plug description and thin section of S# 5, TSW-21 well.</u>	238
<u>3.61 Plug description and thin section of S# 49, TSW-21 well.</u>	238
<u>4.1 Porosity, Permeability and Bulk density of BED1-11 well.</u>	239
<u>4.1 cont.: Porosity, Permeability and Bulk density of BED1-11 well.</u>	240
<u>4.2 Porosity, Permeability and Bulk density of TSW-7 well.</u>	241
<u>4.3 Porosity, Permeability and Bulk density of TSW-8 well.</u>	242
<u>4.4 Porosity, Permeability and Bulk density of TSW-13 well.</u>	242
<u>4.5 Porosity, Permeability and Bulk density of TSW-15 well.</u>	243
<u>4.6 Porosity, Permeability and Bulk density of TSW-21 well.</u>	244
<u>4.7 Porosity, permeability and bulk density of Abu Roash 'G', TSW-21 well.</u>	245

Table No.	Page No.
<u>4.8 Porosity, permeability and bulk density of U. Bahariya, TSW-7, 13,15 and 21 wells.</u>	246
<u>4.8 cont.: Porosity, permeability and bulk density of U. Bahariya, TSW-7, 13, 15 and 21 wells.</u>	247
<u>4.9 Frequency distribution of the measured porosity of L. Bahariya, BED1-11 well.</u>	248
<u>4.10 Frequency distribution of the measured permeability of L. Bahariya, BED1-11 well.</u>	248
<u>4.11 Frequency distribution of the measured porosity, all TSW wells.</u>	249
<u>4.12 Frequency distribution of the measured permeability, all TSW wells.</u>	249
<u>4.13 Frequency distribution of the measured porosity of Abu Roash 'G', TSW-21 well.</u>	250
<u>4.14 Frequency distribution of the measured permeability of Abu Roash 'G', TSW-21 well.</u>	250
<u>4.15 Frequency distribution of the measured porosity of U. Bahariya, all TSW wells.</u>	251
<u>4.16 Frequency distribution of the measured permeability of U. Bahariya, all TSW wells.</u>	251
<u>4.17 Comparison of porosity and permeability of the studied units.</u>	251
<u>4.18 Frequency distribution of the measured bulk density of L. Bahariya, BED1-11 well.</u>	252
<u>4.19 Frequency distribution of the measured bulk density, all TSW wells.</u>	252
<u>4.20 Frequency distribution of the measured bulk density of Abu Roash 'G', TSW-21 well.</u>	253
<u>4.21 Frequency distribution of the measured bulk density of U. Bahariya, all TSW wells.</u>	253

Table No.	Page No.
5.1	254
5.1	255
5.2	256
5.3	257
5.4	257
5.5	258
5.6	259
5.7	260
5.8	261
5.8	262
5.9	263
5.10	263
5.11	263
5.12	263
5.13	264
5.13	265
5.14	266
5.15	266
5.16	266
5.17	267
5.18	268

Table	Page
No.	No.
<u>5.19 K and Swirr of Abu Roash 'G', TSW-21 well.</u>	<u>268</u>
<u>5.20 K and Swirr of U. Bahariya, TSW-7, 13, 15 and 21 wells.</u>	<u>269</u>
<u>5.20 cont.: K and Swirr of U. Bahariya, TSW-7, 13, 15 and 21 wells.</u>	<u>270</u>
<u>5.21 Grouping of BED1-11 well based on irreducible water saturation.</u>	<u>271</u>
<u>5.22 Irreducible water saturation properties of TSW-8 well.</u>	<u>271</u>
<u>5.23 Grouping of Abu Roash 'G', TSW-21 well based on</u> <u>irreducible water saturation.</u>	<u>271</u>
<u>5.24 Grouping of U. Bahariya, TSW-7, 13, 15 and 21 wells based on</u> <u>irreducible water saturation.</u>	<u>271</u>
<u>5.25 PVC's percents of BED1-11 well.</u>	<u>272</u>
<u>5.25 cont.: PVC's percents of BED1-11 well.</u>	<u>273</u>
<u>5.26 PVC's percents of TSW-7 well.</u>	<u>274</u>
<u>5.27 PVC's percents of TSW-8 well.</u>	<u>274</u>
<u>5.28 PVC's percents of TSW-13 well.</u>	<u>274</u>
<u>5.29 PVC's percents of TSW-15 well.</u>	<u>275</u>
<u>5.30 PVC's percents of TSW-21 well.</u>	<u>276</u>
<u>5.31 PVC's percents of Abu Roash 'G', TSW-21 well.</u>	<u>276</u>
<u>5.32 PVC's percents of U. Bahariya, TSW-7, 13, 15 and 21 wells.</u>	<u>277</u>
<u>5.32 cont.: PVC's percents of PVC's percents of U. Bahariya,</u> <u>TSW-7, 13, 15 and 21 wells.</u>	<u>278</u>
<u>5.33 Grouping of L. Bahariya, BED1-11 well based on PVC2 values.</u>	<u>279</u>
<u>5.34 PVC1 properties of TSW-8 well.</u>	<u>279</u>
<u>5.35 Grouping of Abu Roash 'G', TSW-21 well based on PVC2 values.</u>	<u>279</u>
<u>5.36 Grouping of U. Bahariya, TSW-7, 15 and 21 wells based on</u> <u>PVC2 values.</u>	<u>279</u>
<u>5.37 K, Mhr, Median and R35 of well BED1-11.</u>	<u>280</u>

Table	Page
No.	No.
<u>5.37 cont.: K, Mhr, Median and R35 of well BED1-11.</u>	281
<u>5.38 K, Mhr, Median and R35 of well TSW-7.</u>	282
<u>5.39 K, Mhr, Median and R35 of well TSW-8, Abu Roash 'F'.</u>	282
<u>5.40 K, Mhr, Median and R35 of well TSW-13.</u>	282
<u>5.41 K, Mhr, Median and R35 of well TSW-15.</u>	283
<u>5.42 K, Mhr, Median and R35 of well TSW-21.</u>	284
<u>5.43 K, Mhr, Median and R35 of Abu Roash 'G', TSW-21 well.</u>	285
<u>5.44 K, Mhr, Median and R35 of U. Bahariya, TSW-7, 13, 15 and 21 wells.</u>	286
<u>5.44 cont.: K, Mhr, Median and R35 of well of U. Bahariya, TSW-7, 13, 15 and 21 wells.</u>	287
<u>5.45 Grouping of L. Bahariya, BED1-11 well based on MHR values.</u>	288
<u>5.46 MHR properties of TSW-8 well.</u>	288
<u>5.47 Grouping of Abu Roash 'G', TSW-21 well based on MHR values.</u>	288
<u>5.48 Grouping of U. Bahariya, TSW-7, 13, 15 and 21 wells based on MHR values.</u>	288
<u>5.49 Grouping of L. Bahariya, BED1-11 well based on median values.</u>	289
<u>5.50 Median properties of TSW-8 well.</u>	289
<u>5.51 Median properties of Abu Roash 'G', TSW-21 well based on median values.</u>	289
<u>5.52 Grouping of U. Bahariya, TSW-7, 13, 15 and 21 wells based on median values.</u>	289
<u>5.53 Porosity, refined porosity, mercury porosity and permeability of BED1-11 well.</u>	290
<u>5.53 cont.: Porosity, refined porosity, mercury porosity and permeability of BED1-11 well.</u>	291

Table No.	Page No.
<u>5.54 Porosity, refined porosity, mercury porosity and permeability of TSW-7 well.</u>	292
<u>5.55 Porosity, refined porosity, mercury porosity and permeability of TSW-8 well.</u>	293
<u>5.56 Porosity, refined porosity, mercury porosity and permeability of TSW-13 well.</u>	293
<u>5.57 Porosity, refined porosity, mercury porosity and permeability of TSW-15 well.</u>	294
<u>5.58 Porosity, refined porosity, mercury porosity and permeability of TSW-21 well.</u>	295
<u>5.59 Porosity, refined porosity, mercury porosity and permeability of Abu Roash 'G', TSW-21 well.</u>	296
<u>5.60 Porosity, refined porosity, mercury porosity and permeability of U. Bahariya, TSW-7, 13, 15 and 21 wells.</u>	297
<u>5.60 cont.: Porosity, refined porosity, mercury porosity and permeability of U. Bahariya, TSW-7, 13, 15 and 21 wells.</u>	298
<u>5.61 Correlation coefficients values before and after applying the refined porosity concept in TSW-7, 8, 13, 15 and 21 wells.</u>	299
<u>5.62 Comparison of different petrophysical parameters of the different studied units.</u>	300

## LIST OF PLATES

Plate	Page
No.	No.
<u>3.1 Foraminiferal molluscan packstone.</u>	<u>42</u>
<u>3.2 Calcareous quartz arenite.</u>	<u>43</u>
<u>3.3 Glauconitic quartz arenite.</u>	<u>44</u>
<u>3.4 Laminated quartz arenite.</u>	<u>45</u>
<u>3.5A Subfeldspathic quartz arenite.</u>	<u>46</u>
<u>3.5B Glauconitic subfeldspathic quartz arenite.</u>	<u>46</u>
<u>3.6A-B Massive quartz wacke.</u>	<u>47</u>
<u>3.6C Laminated quartz wacke.</u>	<u>47</u>
<u>3.7 Glauconitic quartz wacke.</u>	<u>48</u>
<u>5.1 L. part of Bahariya Fm., BED1-11 well.</u>	<u>105</u>
<u>5.2 U. part of Bahariya Fm., TSW-7 well.</u>	<u>107</u>
<u>5.3 Abu Roash 'F' Member, TSW-8 well.</u>	<u>108</u>
<u>5.4 U. part of Bahariya Fm., TSW-13 well.</u>	<u>109</u>
<u>5.5 U. part of Bahariya Fm., TSW-15 well.</u>	<u>111</u>
<u>5.6 U. part of Bahariya Fm. and Abu Roash 'G' Member, TSW-21 well.</u>	<u>113</u>
<u>5.7 Abu Roash 'G' Member, TSW-21 well.</u>	<u>115</u>
<u>5.8 U. part of Bahariya Fm. compiled from TSW-wells.</u>	<u>117</u>