

DECLASSIFIED
EO 11652

TO BE RETURNED
TO THE ARCHIVES
OF THE AAF
HISTORICAL OFFICE

Handwritten: 1006061-5
1006061-5

PETROLEUM FACILITIES OF
GERMANY

DECLASSIFIED
EO 11652

RECORDED

3415-39

PETROLEUM FACILITIES OF

G E R M A N Y

Prepared by
The Enemy Oil Committee
for the
Fuels and Lubricants Division
Office of The Quartermaster General

March, 1945

C O N F I D E N T I A L
COPY NO. 274

Arrangements for the preparation and distribution of supplementary information pertinent to this report are contemplated. Request is made that advices concerning corrections and useful addenda for the report be sent to the:

Director, Fuels and Lubricants Division
Office of the Quartermaster General
Washington, D. C.

CONTENTS

- 1.0 INTRODUCTION (Page 11)
 - .1 General (p. 11)
 - .2 Strategic considerations (p. 12)
 - .3 Government corporations, agencies and compulsory trade associations (p. 12)
 - .4 Oil companies (p. 14)

- 2.0 PRODUCING (Page 21)
 - .1 Summary (p. 21)
 - Character of German crude oils (p. 21)
 - .2 Strategic considerations (p. 22)
 - .3 History of development (p. 23)
 - .4 Geology of Germany (p. 25)
 - Petroliferous districts (p. 25)
 - Historical geology (p. 27)
 - .5 North German oil fields (p. 33)
 - General (p. 33)
 - Geology (p. 33)
 - Alte Piccardie (Georgsdorf) field (p. 41)
 - Broistedt field (p. 42)
 - Coevorden field (p. 43)
 - Dalum (Lingen) field (p. 43)
 - Eickeloh (Hademstorf) field (p. 44)
 - Emlichheim (p. 44)
 - Epenwörden North field (p. 45)
 - Epenwörden South field (p. 45)
 - Etzel oil field (p. 45)
 - Fallstein field (p. 46)
 - Feldbergen (Mölme Extension) field (p. 47)
 - Fuhrberg field (p. 47)
 - Gifhorn field (p. 48)
 - Heide field (p. 49)
 - Hemmingstedt field (p. 49)
 - Hemmingstedt-Kanzlei field (p. 50)
 - Hope-Lindwedel (Adolphsglueck) field (p. 50)
 - Linden field (p. 51)
 - Meckelfeld field (p. 52)
 - Maldorferhafen field (p. 52)
 - Mölme field (p. 52)
 - Nienhagen-Hänigsen-Obershagen-Eichlingen field (p. 53)
 - Oberg field (p. 57)
 - Ölheim-Berkhöpen-Ödesse field (p. 58)
 - Reitbrook field (p. 59)
 - Rodewald (Steimbke) field (p. 61)
 - Schöningen field (p. 63)
 - Sottorf field (p. 63)
 - Westerholz (Wesendorf) field (p. 64)
 - Wietze field (p. 65)
 - Other fields (p. 67)
 - .6 Thuringian Basin oil fields (p. 67)
 - General (p. 67)
 - Geology (p. 68)
 - Volkenroda field (p. 69)
 - .7 Rhine Valley Graben oil fields (p. 70)
 - General (p. 70)
 - Geology (p. 70)
 - Bruchsal-Forst field (p. 72)
 - Weiber field (p. 74)
 - Weingarten field (p. 74)
 - .8 Bavarian (Munich) Basin oil fields (p. 75)
 - General (p. 75)
 - Geology (p. 75)
 - Tegernsee field (p. 78)
 - Salsburg, etc. (p. 78)
 - .9 Oil shale exploitation (p. 80)

- 3.0 REFINING (Page 85)
 - .1 General (p. 85)
 - .2 Berlin (p. 89)
 - "Brenntag" Brennstoff-Chemikalien- und Transport A.G. (p. 89)
 - Deutsch-Amerikanische Petroleum-Gesellschaft (p. 89)
 - Mineralölwerk Lichtenberg G.m.b.H. & Co., K.G. (P. 89)
 - .3 Bremen (p. 89)
 - Deutsche Vacuum Oel A.G. (p. 89)
 - .4 Dolbergen (p. 93)
 - Deutsche Gasolin A.G. (p. 93)
 - .5 Dortmund (p. 93)
 - Westfälische Mineraloel- und Asphaltwerke, W.H. Schmitz K.G. (p. 93)
 - .6 Düsseldorf (p. 95)
 - Deutsch-Amerikanische Petroleum-Gesellschaft (p. 95)
 - Rhenania-Ossag Mineralölwerke A.G. (P. 95)

CONTENTS (Continued)

- 3.0 REFINING (continued)
 - .7 Emmerich (p. 99)
 - Deutsche Gasolin A.G. (p. 99)
 - .8 Hamburg (p. 100)
 - Deutsche Petroleum A.G. (p. 100)
 - Deutsche Vacuum Oel A.G. (p. 100)
 - Ebano Asphalt-Werke A.G. (p. 103)
 - Europäische Tanklager- und Transport A.G. (Eurotank) (p. 106)
 - Mineralölwerke Albrecht & Co. K.G. (p. 115)
 - Oelwerke Julius Schindler G.m.b.H. (p. 115)
 - Rhenania-Ossag Mineralölwerke A.G., Harburg, (p. 115)
 - Rhenania-Ossag Mineralölwerke A.G., Grasbrook, (p. 121)
 - Rhenania-Ossag Mineralölwerke A.G., Wilhelmsburg (p. 121)
 - Ernst Schliemann's Oelwerke (p. 121)
 - .9 Hannover (p. 125)
 - Deurag-Nerag (Gewerkschaft Deutsche Erdöl-Raffinerie and Gewerkschaft Neue Erdöl-Raffinerie (p.125)
 - .10 Heide-Hemmingstedt (p. 131)
 - Holsteinische Erdölwerke G.m.b.H. (p. 131)
 - .11 Monheim (p. 131)
 - Rhenania-Ossag Mineralölwerke A.G. (p. 131)
 - .12 Ostermoor (p. 135)
 - Mineralöl und Asphaltwerke A.G. (p. 135)
 - .13 Peine (p. 135)
 - Mineralölwerke Peine (Julius Schindler)(p. 135)
 - .14 Regensburg (p. 135)
 - Rhenania-Ossag Mineralölwerke A.G. (p. 135)
 - .15 Rositz (p. 137)
 - Deutsche Petroleum A.G. (p. 137)
 - .16 Salzbergen (p. 137)
 - Erdöl-Raffinerie Salzbergen G.m.b.H. (Ersag)(p. 137)
 - .17 Voltol lubricating oil plant, Dresden (p. 139)
 - .18 Tetra-ethyl lead plants (p. 140)
 - Döberitz (p. 140)
 - Nachterstedt (p. 141)
- 4.0 SYNTHETIC OIL PRODUCTION (Page 143)
 - .1 General (p. 143)
 - .2 Principal companies (p. 144)
 - .3 Processes (p. 146)
 - General (p. 146)
 - High temperature carbonization of coal (p. 147)
 - Low temperature carbonization (p. 147)
 - Hydrogenation (Bergius - I.G.)(p. 148)
 - Hydrocarbon synthesis (Fischer-Tropsch) (p. 151)
 - .4 Production (p. 152)
 - High temperature carbonization (p. 153)
 - Low temperature carbonization (p. 153)
 - Hydrogenation (Bergius)(p. 154)
 - Hydrocarbon synthesis (Fischer-Tropsch)(p. 156)
 - Total production (p. 157)
 - .5 Coal consumption (p. 158)
 - .6 Individual plant descriptions (p. 159)
 - General (p. 159)
 - Blechhammer North (p. 165)
 - Blechhammer South (p. 169)
 - Böhlen-Rotha (p. 171)
 - Bottrop-Welheim (p. 173)
 - Castrop-Rauxel (p. 173)
 - Deschowitz (p. 175)
 - Dortmund (p. 177)
 - Gelsenkirchen (p. 181)
 - Holten-Sterkrade (p. 183)
 - Homburg (p. 185)
 - Kamen (p. 186)
 - Leuna (p. 190)
 - Lützenkendorf (191)
 - Magdeburg (p. 193)
 - Pöhlitz (p. 200)
 - Ruhland-Schwarzheide (p. 201)
 - Scholven (p. 205)
 - Wanne Eickel (p. 206)
 - Wesseling (p. 209)
 - Zeitz-Tröglitz (p. 212)
- 5.0 DISTRIBUTING (Page 217)
 - .1 Introduction (p. 217)
 - .2 Consumption (p. 217)
 - General (p. 217)
 - Industrial and civilian consumption of liquid petroleum products in Germany during 1943 (p. 217)
 - Summary of estimated consumption 1943 as compared to 1938 (p. 221)
 - .3 Supplies (p. 224)
 - .4 Substitute fuels - liquid (p. 225)
 - General (p. 225)

CONTENTS (Continued)

- 5.0 DISTRIBUTING (continued)
 - .4 Substitute fuels - liquid (continued)
 - Alcohol (p. 225)
 - Benzol (p. 226)
 - Liquid gas (p. 226)
 - .5 Substitute fuels - solid and gaseous (p. 228)
 - General (p. 228)
 - Efficiency of substitute driven vehicles (p. 229)
 - Production and distribution of solid and gaseous substitute fuels in Germany (p. 229)
 - Consumption of solid and gaseous substitute fuels in 1943 (p. 230)
 - Private motor vehicles using solid and gaseous substitute fuels (p. 231)
 - Busses using solid and gaseous substitute fuels (p. 231)
 - Trucks using solid and gaseous substitute fuels (p. 231)
 - The use of generator motors on railroads (p. 232)
 - The use of generator motors in shipping (p. 232)
 - The use of generators in agriculture (p. 232)
 - The use of substitute fuels in industry (p. 233)
 - .6 Transportation (p. 233)
 - General (p. 233)
 - Inland waterways (p. 235)
 - Oil transportation (p. 236)
 - .7 Ocean terminals (p. 239)
 - General (p. 239)
 - Cuxhaven (p. 241)
 - Emden (p. 243)
 - Elbe River terminals - Hamburg, Schulau, Stade (p. 243)
 - Kaiser Wilhelm (Kiel) Canal, Brunsbüttel, Flemhude, Kiel, Ostermoor, Rendsburg, Schaftstedt (p. 258)
 - Stettin (p. 263)
 - Weser River terminals - Blexen, Brake, Bremen, Bremerhaven, Einswarden, Farge and Nordenham (p. 265)
 - Wilhelmshaven (p. 271)
 - .8 Strategic storage (p. 273)
 - General (p. 273)
 - Achim (p. 281)
 - Bleckede (p. 282)
 - Cuxhaven - Nordholz (p. 283)
 - Derben (p. 283)
 - Farge (p. 285)
 - Flemhude (p. 285)
 - Freiham (p. 285)
 - Hitzacker (p. 287)
 - Kiel (p. 288)
 - Neuburg (p. 288)
 - Nienburg (p. 289)
 - Oldendorf (p. 290)
 - Stassfurt (p. 291)
 - Swinemünde (p. 291)
 - Wilhelmshaven (p. 291)
 - .9 Interior bulk plants (p. 293)
 - .10 Distributing companies (p. 293)
 - .11 Government control and rationing (p. 296)
 - Official and semi-official agencies (p. 296)
 - Allocations and rationing (p. 302)
 - Miscellaneous regulations (p. 306)
 - .12 Allocation and distribution of substitute fuels (p. 308)
 - Summary of bulk storage facilities (p. 309)
- 6.0 APPENDICES (Page 346)
 - Appendix 1 - Conversion factors used in this report (p. 346)
 - Appendix 2 - Analyses of German crude oils (p. 347)
 - Appendix 3 - German crude oil analyses (p. 348)
 - Appendix 4 -- Analyses of Rodewald crude (p. 349)
 - Appendix 5 - Analyses of Oberg crude (p. 350)
 - Appendix 6 - Analyses of Reitbrook crude (p. 350)
 - Appendix 7 - German firms specializing in oil field drilling equipment (p. 351)
 - Appendix 8 - Plants engaged in the regeneration of used lubricants (p. 352)
 - Appendix 9 - W.I.F.O. branch offices and personnel (p. 353)
 - Appendix 10 - Definitely confirmed W.I.F.O. Aussenstellen (branch offices) in Germany (p. 354)
 - Appendix 11 - Sources of port and harbor maps for Germany (p. 355)
 - Appendix 12 - Jurisdiction of the Reichsstelle für Mineralöl (p. 356)
 - Appendix 13 - Internal organization of the Mineral Oil Economy division in the Ministry of Economics (p. 357)
 - Appendix 14 - Internal organization of the Reichsstelle für Mineralöl (Reich Board for Mineral Oil) and its personnel (p. 358)
 - Appendix 15 - Organization and leaders of the oil groups (p. 359)
 - Appendix 16 - Materials to be regarded as lubricants (p. 363)
 - Appendix 17 - Jurisdiction of various steering boards for the allocation of lubricants (p. 364)
 - Appendix 18 - Distributing boards for bitumen (p. 366)

LIST OF ILLUSTRATIONS

Maps and Figures

Page	
10	Map showing principal roads of Germany
26	Oil regions of Germany
28	Map showing distribution of salt domes in Northern Germany
32	Map showing oil fields of Northwestern Europe
34	Generalized stratigraphic section of Northwestern Germany
36	Sketch map of Northwestern Germany showing known salt domes and fold axes
37	Types of German salt domes
38	Seismic refraction map of Northwestern Germany
40	Geological cross-section through the Subherzynian basin
42	Sketch of the Alte Piccardie (Georgsdorf) oil field
44	Sketch of the Dalum (Lingen) oil field
46	Sketch of the Etzel oil field
47	Sketch of the Fuhrberg oil field
48	Sketch of the Gifhorn field
50	Map showing oil fields at Hammingstedt, Epenwörden and Meldorf
51	Cross-section of the Hope-Lindwedel oil field constructed from well records
53	Generalized map of the Nienhagen-Obershagen oil field
54	Nienhagen oil field
55	Partly schematic section through the Nienhagen oil field
56	Sketch of Hänigsen oil field
57	Sketch of Oberg-Mölme oil fields
59	Section through the Ölheim-Ödesse oil field
60	Reitbrook oil field
62	Rodewald (Steimbke) oil field
62	Cross-section of the Rodewald oil field
63	Cross-section through the Sottorf salt dome
64	Westerholz (Wessendorf) oil field
66	Sketch of Wietze oil field
66	Geological cross-section through the Wietze oil field
71	Sections through Rhein Valley Graben oil fields, Baden, Germany
73	The fault structure of the Rhine Valley Graben
75	Map showing location of Weingarten oil field
77	Map showing magnetic axes, Bavarian Basin, Germany
77	Sketch map showing the geological setting of the Munich Basin, deep wells and shows of oil and gas
79	Well logs, Bavarian Basin
84	Map showing locations of petroleum refineries and specialty plants of Germany
90	Refinery, Deutsch-Amerikanische Petroleum-Gesellschaft, Berlin
91	Layout plan of refinery, Deutsche Vacuum Oel A.G., Bremen (Oslebshausen)
95	Location map, refining facilities, Düsseldorf area
96	Refinery, Deutsch-Amerikanische Petroleum-Gesellschaft, Düsseldorf
97	Refinery, Rhenania-Ossag Mineralölwerke A.G. and R.W.E. Power station, Düsseldorf-Reisholz
100	Location map, refinery of Deutsche Gasolin A.G., Emmerich
101	Layout plan of refineries, Deutsche Vacuum Oel A.G. and Deutsch-Amerikanische Petroleum-Gesellschaft, Schulan (near Hamburg)
105	Plan of Ebano Asphalt-Werke A.G., Harburg (Hamburg)
108	Layout plan of refinery, Europäische Tanklager und Transport A.G. (Eurotank), Neuer Petroleumhafen, Hamburg
111	Flowsheet of topping cracking and reforming units, refinery of Europäische Tanklager und Transport, Neuer Petroleumhafen, Hamburg
112	Flowsheet of sweetener and agitator plants, refinery of Europäische Tanklager und Transport, Neuer Petroleumhafen, Hamburg
113	Flowsheet of recovery and stabilization plants, refinery of Europäische Tanklager und Transport, Neuer Petroleumhafen, Hamburg
116	Map showing petroleum facilities, Wilhelmsburg & Neuhof areas, Hamburg
117	Map showing petroleum facilities, Grasbrook area, Hamburg
118	Refinery of Rhenania-Ossag Mineralölwerke A.G., Harburg (Hamburg)
120	Refinery, Rhenania-Ossag Mineralölwerke A.G., Hamburg-Grasbrook
123	Refineries of Rhenania-Ossag Mineralölwerke A.G. and Deutsche Petroleum A.G., Hamburg-Wilhelmsburg
124	Map showing refining facilities, Hannover area
127	Refineries of Gewerkschaft Neue Erdöl Raffinerie (Nerag) and Gewerkschaft Deutsche Erdöl Raffinerie (Deurag), Misburg (Near Hannover)
129	Flowsheet of various installations, refinery of Nerag & Deurag, Misburg
132	Refinery and oil mine, Holsteinische Erdölwerke A.G., Heide-Hemmingstedt
133	Refinery, Rhenania-Ossag Mineralölwerke A.G., Monheim
135	Refinery of Mineralöl u. Asphaltwerke, Ostermoor
136	L.T.C. plant and refinery, Deutsche Petroleum A.G., Rositz
138	Plan of Erdöl Raffinerie Salzbergen (Ersag), Salzbergen
139	Location map, Rhenania-Ossag Mineralölwerke A.G., Freital
141	Tetra-ethyl lead plant, I.G. Farbenindustrie A.G., Döberitz
142	Map showing locations of synthetic plants, Germany
149	Simplified flow diagram of typical 2-stage hydrogenation plant
150	Bergius hydrogenation, simplified flowsheet for plants operating on brown coal and bituminous coal
151	Fischer-Tropsch process, simplified flowsheet for a plant operating on hard coal
161	Location map of synthetic plants, Western Ruhr area
162	Location map of synthetic plants, Leipzig area
163	Location map of synthetic plants and petroleum refinery, Central Ruhr area
164	Location map of hydrogenation plants, Oberschlesische Hydrierwerke A.G., Blechhammer North and Blechhammer South, Silesia
166	Hydrogenation plant, Oberschlesische Hydrierwerke A.G., Blechhammer North, Silesia
168	Hydrogenation plant, Oberschlesische Hydrierwerke A.G., Blechhammer South, Silesia

Maps and Figures (continued)

Page	
170	Hydrogenation plant, Braunkohle-Benzin A.G. (Brabag), Böhlen-Rotha (near Leipzig)
172	Hydrogenation plant, Ruhröl A.G., Bottrop-Welheim
174	Fischer-Tropsch plant, Gewerkschaft Viktor, Castrop-Rauxel
176	Fischer-Tropsch plant of Schaffgotsch Benzin G.m.b.H., Deschowitz
178	Fischer-Tropsch plant, Hoesch Benzin G.m.b.H., Dortmund
180	Hydrogenation plant, Gelsenberg Benzin A.G., Gelsenkirchen
182	Fischer-Tropsch plant of Ruhrbenzin A.G. at Holten-Sterkrade
184	Fischer-Tropsch plant, Rheinpreussen G.m.b.H., Homberg
186	Fischer-Tropsch plant, Chemische Werke Essener Steinkohle A.G., Kamen (near Dortmund)
188	Hydrogenation plant, I.G. Farbenindustrie A.G., Leuna (Merseburg)
192	Fischer-Tropsch and hydrogenation plant, Wintershall A.G., Lützkendorf (near Mühlen)
194	Hydrogenation plant, Braunkohle-Benzin A.G. (Brabag), Magdeburg
195	Location map, hydrogenation plant of Braunkohle-Benzin A.G. (Brabag) Magdeburg
198	Hydrogenation plant, Hydrierwerke Pöhlitz A.G., Pöhlitz
199	Location map, Hydrierwerke Pöhlitz, A.G., Pöhlitz
202	Location map, Fischer-Tropsch plant of Braunkohle-Benzin A.G. (Brabag), Ruhland-Schwarzheide
203	Fischer-Tropsch plant, Braunkohle-Benzin A.G. (Brabag), Ruhland-Schwarzheide
204	Hydrogenation plant, Hydrierwerke Scholven A.G., Scholven
207	Fischer-Tropsch plant, Krupp Treibstoffwerke G.m.b.H., Wanne-Eickel
210	Location map, hydrogenation plant of Union Rheinische Braunkohlen-Kraftstoff A.G., Wesseling
211	Hydrogenation plant of Union Rheinische Braunkohlen-Kraftstoff A.G., Wesseling
213	Hydrogenation plant, Braunkohle-Benzin A.G. (Brabag), Zeitz-Tröglitz
214	Location map, chemical plant, synthetic oil and rubber experimental station of I.G. Farbenindustrie A.G., Ludwigshafen
216	Map showing principal inland waterways and railways of Germany
234	Inland waterways of Germany
240	Location map showing German North Sea ports and Kaiser Wilhelm Canal, bulk terminal and bunkering points
242	Map showing petroleum facilities, Cuxhaven
242	Plan of strategic storage plant, Nordholz
243	Map showing location of probable Naval storage at Emden
246	Map showing petroleum facilities of the Hamburg area
248	Map of petroleum facilities, Neuer Petroleumhafen area, Hamburg
250	Layout plan of ocean terminal, Deutsch-Amerikanische Petroleum-Gesellschaft, Neuer Petroleumhafen, Hamburg
251	Bulk plant, "Olex" Deutsche Benzin- und Petroleum-G.m.b.H., Neuer Petroleumhafen, Hamburg
252	Ocean terminal, Europäische Tanklager und Transport A.G. (Eurotank), Neuer Petroleumhafen, Hamburg
253	Ocean terminal, Atlantic Refining Co., G.m.b.H., Hamburg-Grasbrook
254	Ocean terminal, Deutsche Erdöl A.G., Neuhof area, Hamburg
255	Sketch plan of oil storage plant, Kohlenschiffhaven, Hamburg
255	Sketch plan of unidentified oil storage plant, Hamburg-Wilhelmsburg
258	Map showing of petroleum facilities of Harburg (Hamburg) area
258	Location map and detail plan of ocean terminal, Mineralölwerke Stade, Andresen, Tafel & Co., K.G., Stade
260	Kaiser Wilhelm Canal, ocean terminal facilities
261	Flehmude Naval oil storage
263	Location map, port of Stettin
264	Ocean terminal, Deutsch-Amerikanische Petroleum-Gesellschaft, Stettin
265	Ocean terminal facilities, Bremerhaven (Wesermünde) area
267	Location map, ocean terminal facilities, Brake
268	Location map of strategic storage terminal, Farge
269	Location map, petroleum facilities, Bremen
270	Map showing ocean terminal facilities, Wilhelmshaven
274	Map showing strategic storage facilities, Western Germany
278	Types of German storage tanks
282	Map showing strategic storage plant, Achim
283	Sketch plan of strategic storage plant, Bleckede
284	Sketch plan of strategic storage plant at Derben
286	Sketch plan of strategic storage plant at Freiham (Unter Pfaffenhofen)
287	Sketch map of strategic storage plant at Hitzacker
289	Sketch map of strategic plant at Neuburg a. D. (Unterhausen)
290	Sketch map of strategic storage plant at Oldendorf
329	Map showing petroleum storage points of Germany
330	Bulk plant, "Olex" Deutsche Benzin- und Petroleum-G.m.b.H., Aken a. D. Elbe
331	Map showing petroleum facilities, Berlin
332	Bulk plant, "Olex" Deutsche Benzin- und Petroleum-G.m.b.H., Breslau-Woischwitz
333	Petroleum facilities, Dresden
334	Bulk plant, Deutsch-Amerikanische Petroleum-Gesellschaft, Duisburg
335	Bulk plant, "Olex" Deutsche Benzin- und Petroleum-G.m.b.H., Düsseldorf-Reisholz
336	Map showing petroleum facilities, Düsseldorf area
337	Petroleum facilities, Frankfurt-am-Main
338	Bulk plant, "Olex" Deutsche Benzin- und Petroleum-G.m.b.H., Köln-Braunsfeld
339	Bulk plant, "Olex" Deutsche Benzin- und Petroleum-G.m.b.H., Lubeck
340	Map showing petroleum facilities, Magdeburg
341	Bulk plant, Deutsch-Amerikanische Petroleum-Gesellschaft, Mannheim
342	Petroleum facilities, Mannheim-Ludwigshafen
343	Bulk plant, "Olex" Deutsche Benzin- und Petroleum-G.m.b.H., Mannheim
344	Bulk plant, "Olex" Deutsche Benzin- und Petroleum-G.m.b.H., Offenbach (near Frankfurt a.M.)
345	Map showing petroleum facilities of Regensburg

Tables and Charts

18	Principal German oil companies
22	Analyses of German crude oils
29	Oil prospects in Germany

Tables and Charts (Continued)

Page

81	Shale oil plants
82	Production of the German oil fields
85	German refining activity prior to 1938
86	Principal German petroleum refineries
95	Details of Tankage, Rhenania-Ossag Mineralölwerke A.G., Düsseldorf
121	Details of tankage, Rhenania-Ossag Mineralölwerke A.G., Grasbrook (Hamburg)
128	Tankage list, Nerag lube oil refinery, 1939
130	"Nerag" lube oil plant production (basis 1939 projects completed), Misburg, Hannover, Germany
137	Details of tankage, Rhenania-Ossag Mineralölwerke A.G., Regensburg
152	Distribution of products in Fischer-Tropsch process, synthetic crude oil
153	Liquid fuels and lubricants refined from high temperature tars
154	Liquid fuels and lubricants refined from low temperature tars
155	Annual capacities of hydrogenation plants
156	Hydrocarbon synthesis (Fischer-Tropsch) plants, annual capacity of primary products
157	Hydrocarbon synthesis products
157	Estimated annual production of finished products by German synthetic oil plants as of January 1, 1944 and without allowances for war damage to plants
160	Synthetic oil plants in Germany
165	Details of tankage, Blechhammer North
171	Details of tankage, Bühlen-Rotha
175	Details of tankage, Deschwitz
177	Details of tankage, Dortmund
181	Details of tankage, Gelsenkirchen
185	Details of tankage, Homberg
187	Details of tankage, Kamen
197	Details of tankage, Magdeburg
200	Details of tankage, Pölitz
206	Details of tankage, Scholven
209	Details of tankage, Wesseling
212	Details of tankage, Zeitz-Trüglitz
215	Important German benzol plants
221	Estimated industrial and civilian consumption of liquid fuels and lubricants in Germany, 1943
221	Estimated industrial and civilian consumption of liquid fuels and lubricants in Germany, 1938
222	Prewar imports of petroleum products, Germany
223	Prewar exports of petroleum products, Germany
224	Estimated annual production on 1943 basis
225	Alcohol consumption as motor fuel
227	List of German steel bottle manufacturers with symbols
228	Characteristics of solid generator fuels
230	Estimated number of motor vehicles in Germany using gaseous and solid substitute fuel as of July 1943
231	Estimated quantities of light fuels saved by the use of gaseous and solid fuels in Germany, 1943
243	Details of tankage, Cuxhaven-Nordholz
243	Details of tankage, Emden
245	Summary of terminal tankage at Hamburg
249	Summary of terminal tankage at Neuer Petroleumhafen
257	Details of tankage, Stade
259	Details of tankage, Ostermoor
259	Details of tankage, Schaftstedt
259	Details of tankage, Rendsburg
261	Details of tankage, Flehmude
262	Details of tankage, Kiel
263	D.A.P.G. terminal tankage, Stettin
265	Rhenania-Ossag terminal tankage, Stettin
266	Estimated tankage, Bremerhaven
266	Details of tankage, Blexen
267	Details of tankage, Brake
268	Details of tankage, Farge
271	Oil storage installations, Wilhelmshaven
271	Details of tankage, Sande
272	Details of tankage, Tirpitzhaven
272	Details of tankage, Hipperhafen
273	Details of tankage, Torpedobootshafen
275	Statistical summary of strategic bulk storage facilities
280	Identified major strategic reserve storage installations
282	Summary of storage tankage, Achim
283	Summary of tankage, Bleckede
284	Summary of estimated tankage, Derben
286	Summary of estimated storage tankage, Freiham
291	Total Tankage, Oldendorf
292	Marketing statistics of the leading oil companies in Germany, 1938
297	Organization diagram of the institutions controlling the oil industry in Germany
299	Organization of groups connected with oil production and distribution
303	The system controlling the wartime distribution of motor fuel in Germany
305	List of industrial users and their steering boards
310	Statistical summary of storage facilities

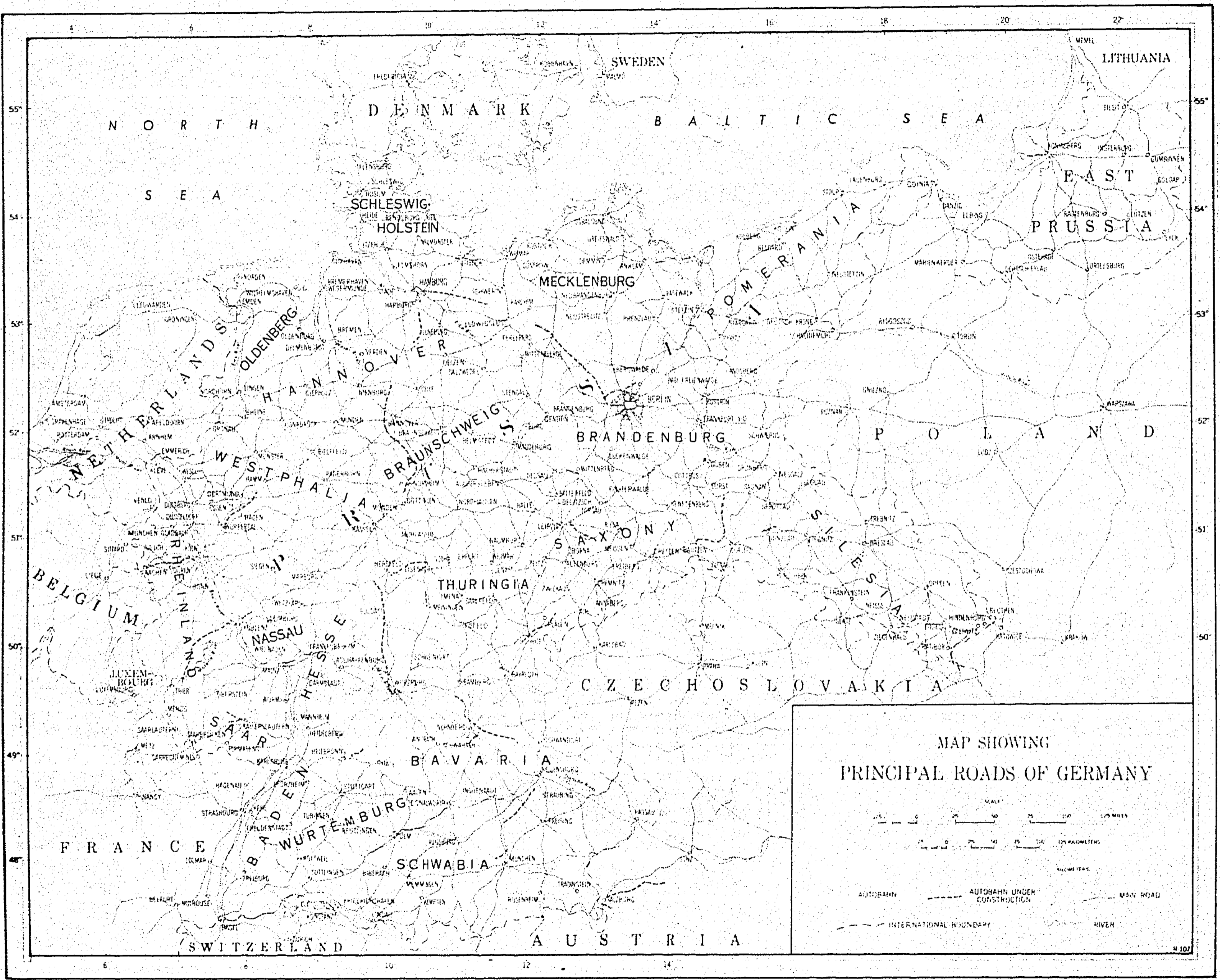
Photographs

92	View looking east, refinery of Deutsche Vacuum Oel A.G., Bremen (Oslebshausen)
92	View of Deutsche Vacuum Oel A.G. refinery, Bremen (Oslebshausen), from power station looking northeast toward storage tanks

Photographs (Continued)

Page

- 94 View of distillation section, refinery of Deutsch-Amerikanische Petroleum-Gesellschaft, Düsseldorf
- 98 View looking northeast, refinery of Rhenania-Ossag Mineralölwerke A.G., Reisholz (near Düsseldorf)
- 102 View looking southeast, refineries of Deutsche Vacuum Oel A.G. and Deutsch-Amerikanische Petroleum-Gesellschaft, Schulau (near Hamburg)
- 104 View looking north, refineries of Eban Asphalt-Werke A.G. (in foreground) and Rhenania-Ossag Mineralölwerke A.G. at Harburg (Hamburg)
- 107 View looking north, various processing units, "Eurotank" refinery, Neuer Petroleumhafen, Hamburg
- 110 View looking south, cracking and Lachman plant, "Eurotank" refinery, Neuer Petroleumhafen, Hamburg
- 114 View looking southeast, rundown tanks and storage tanks, "Eurotank" refinery, Neuer Petroleumhafen, Hamburg
- 119 View looking east, refinery of Rhenania-Ossag Mineralölwerke A.G., Hamburg-Grasbrook
- 119 View looking south, refinery of Rhenania-Ossag Mineralölwerke A.G., Hamburg-Harburg
- 122 Refineries of Rhenania-Ossag Mineralölwerke A.G. and Deutsche Petroleum A.G. at Hamburg-Wilhelmsburg
- 126 Views of Nerag and Deurag refinery, Misburg (near Hannover)
- 134 Refinery of Rhenania-Ossag Mineralölwerke A.G., Monheim, near Düsseldorf
- 167 Aerial view of hydrogenation plant, Oberschlesische Hydrierwerke A.G., Blechhammer North (near Cosel)
- 179 Aerial view of Fischer-Tropsch plant, Hoesch Benzin G.m.b.H., Dortmund
- 195 View of hydrogenation plant of Braunkohle-Benzin A.G. (Brabag) Magdeburg
- 199 Aerial photo of Hydrierwerke Pölitz A.G., Pölitz
- 210 Aerial photograph of Wesseling installation, dated 1941
- 244 View of Neuer Petroleumhafen, Hamburg
- 294 Service station on autobahn near Hannover
- 294 Service station on autobahn near Hermsdorf
- 295 Service stations on autobahn near Michendorf
- 295 Service station on autobahn near Hienberg



PETROLEUM FACILITIES OF GERMANY

1.0 INTRODUCTION

1.1 GENERAL

Scope.- The purpose of this report is to describe briefly all of the significant aspects of the petroleum economy of Germany and of the more important petroleum installations in that country. For this purpose, Germany is defined as that area lying within the boundaries of Germany prior to the 1938 Anschluss. It, therefore, excludes Austria, Sudetenland, Danzig and other occupied territories. A map of the area appears on page 10, and maps also appear elsewhere in the report.

The difficulties inherent in the wartime preparation of any such comprehensive report on an enemy country are augmented by the fact that for several years prior to the war and as her military preparations increased, Germany endeavored to conceal many of the activities and developments of her important industries. Foreign observers were severely restricted and transmittal of information subjected to strict censorship. Thus, many of the officially published statistics are open to question and even prewar reports submitted to American and British companies by their, more or less autonomous, German subsidiaries were considerably restricted as to content.

The German industrial organization is extensive and complex and analysis of the petroleum industry is rendered more difficult by the tremendous expansion of the synthetic oil program and the multitudinous interrelations that exist in varying degrees between the petroleum, coal, chemical, and other industries. Thus, while it is possible to present the broad outlines of the German petroleum economy, at many points definite details are lacking. Many of the figures contained in this report are, of necessity, estimates, and while they have been carefully compiled, giving weight to all available evidence, they should be used with that qualification in mind.

Imports and exports.- Prior to the war the major part of Germany's petroleum requirements were imported, mostly from the Americas. Imports in 1935 amounted to something like 28,270,000 barrels (a), and in 1938 exceeded 36,650,000 barrels, a part of which, no doubt, was stock-piled as a war reserve. Until these sources also were denied them, the Germans imported some quantities from Rumania and Hungary and still obtain small quantities from Austria. German petroleum exports were naturally small, but even after the start of the war she did manufacture and export considerable quantities of high grade and special lubricating oils. These small-volume high-value products provided a convenient source of foreign exchange.

Production.- Although for a number of years Germany has carried on intensive search for petroleum deposits within her boundaries, discoveries have been limited and production is meager. Annual indigenous production was almost doubled between 1937 and 1944, but it still amounts to only about 700,000 metric tons (5,000,000 barrels) and any sudden large increase appears doubtful. Much of the German crude, however, is suitable for the manufacture of lubricating oil.

Refining.- Prior to the war Germany had some 30 major refineries, plus an unknown number of minor plants, operating on indigenous and imported supplies. Since Germany's crude production was small and much of her requirements were imported in a finished or semi-finished state, cracking plants are not numerous and many of the refineries are, in reality, only rerunning or lubricating oil-treating plants.

Synthetic production.- The outstanding feature of Germany's oil economy has been the rapid development of her synthetic production. There are 20 major syn-

(a) Wherever the word "barrels" appears in this report, a barrel of 42 U. S. gallons is meant.

12 - INTRODUCTION Strategic considerations

thetic oil plants within Germany, having an estimated aggregate annual production capacity of over 4,225,000 metric tons (29,575,000 barrels) of products. These costly plants rely largely on coal as a source of raw material and, though the finished products are extremely expensive from orthodox commercial viewpoints, they constitute the major supplies of aviation and motor gasoline for the armed forces.

Distributing.- In normal times the civilian and industrial consumption of petroleum products in Germany was large, amounting to something like 7,000,000 metric tons or approximately 54,000,000 barrels per year. Distributing companies serving this demand were numerous, though some 60 per cent of the total trade was held by five or six large companies.

Bulk storage facilities were plentiful and tank cars, bulk barges, trucks and gasoline stations were of modern design. Large quantities of bulk products were moved by barges on the extensive system of inland waterways.

1.2 STRATEGIC CONSIDERATIONS

The vital strategic importance of oil production, oil supplies, and oil handling facilities hardly need be reiterated here. That this importance is universally appreciated is demonstrated by the supreme efforts the Germans have expended to build and protect both their natural and synthetic oil production and attendant facilities, regardless of cost, and the high priority enjoyed by these installations as targets for Allied bombers.

The highest strategic importance is held by the synthetic plants which constitute the greatest present source of aviation and motor gasoline for the German armed forces. Since total refinery capacity exceeds Germany's small indigenous crude production, petroleum refineries are of somewhat secondary strategic importance.

All German synthetic plants and refineries have been severely bombed and have sustained considerable damage, but these plants have not proved to be quite as vulnerable targets as was anticipated. It is very difficult to completely knock out such plants and the Germans have demonstrated an unusual ability to rehabilitate them and keep them in at least partial operation.

Bulk storage plants have also proven difficult to completely destroy and though much tankage has been damaged, bulk plants are numerous and no shortage of storage is likely to exist. Furthermore, most of Germany's strategic reserve stocks are held in buried tanks, especially constructed for the purpose, and which are exceedingly difficult targets. Reserve stocks are believed to have now been largely depleted, however.

Germany's supplies of tank barges, railway tank cars, trucks, as well as other equipment such as pumps and spare parts for refineries, were considerably augmented by loot from occupied countries. However, the Allies have systematically attacked the transportation systems and rolling stock and the amount of available equipment is decreasing. How much will remain in usable condition upon Allied occupation of the country is open to question. While rail lines can often be repaired quickly, canals, which in Europe carry large quantities of freight, are rendered useless for considerably longer periods by the destruction of their locks.

1.3 GOVERNMENT CORPORATIONS, AGENCIES AND COMPULSORY TRADE ASSOCIATIONS

Below are listed the more important Government agencies regulating or participating in the oil economy of the country. As is the German practice, many of the official agencies are organized as juristic individuals under corporate law, and often membership or participation in these organizations or corporations is compulsory upon all firms engaged in a particular business or industry. Detailed information concerning these and other official bureaus, cartels and trade associations, and also laws, official standards, statistics, etc., will be found in the Jahrbuch der Deutschen Mineralölwirtschaft by Karl-Heinrich V. Thümen and printed by Naturkunde und Technik Verlag Fritz Knapp of Frankfurt a. Main.

Reichsstelle für Mineralöl.- This bureau which appears to be a part of the Reichswirtschaftsministerium (Ministry of Economics), is subordinate to the top policy making agencies of the German Government, the Vierjahresplan (Four Year Plan), established by Herman Göring and the Reichministerium für Rüstung und Kriegsproduktion (Ministry of Armament and War Production), headed by Dr. Speer, in which is concentrated complete control of all industrial production. The main function of the Reichsstelle für Mineralöl is the administration of the rationing system in its broad aspects and supervision of the whole field of distribution and consumption. In this it acts in close consultation and cooperation with the industrial federations, the principal one of which, as far as liquid fuel is concerned, being the Wirtschaftsgruppe Kraftstoffindustrie, membership in which is compulsory.

Wirtschaftsgruppe Kraftstoffindustrie, Berlin NW7, Dorotheenstrasse 35. This industry association, membership in which is compulsory, was formed under government order in 1936, and covers a wide range of liquid fuels and lubricants and their by-products whether derived from crude oil, coal, or other sources. Its interests lie mainly in the production of liquid fuels and lubricants and not in their marketing.

Fachgruppe (Technical Branch) 6: Mineralöl, 35 Tiegartenstrasse 12a, Berlin W, a sub-section of the Reichsgruppe Handel, is concerned with the marketing of petroleum products and is divided into three Fachuntergruppen:

Fachuntergruppe 1: "Mineralöl und Mineralölerzeugnisse" consisting of large importing and exporting firms dealing in mineral oil products. Headquarters, Berlin W.9, Tirlpitzufer 26.

Fachuntergruppe 2: "Treibstoffgrosshandel" which is an association of all wholesale dealers in liquid fuels and through its associated organization "Uniti" Vereinigung deutscher Betriebsstoff-Grosshändler e.V. Headquarters, Berlin-Britz, Rudowerstrasse 82-83.

Fachuntergruppe 3: "Schmierölgrosshandel", association of large lubricating oil concerns which is closely associated with the Reichsverband des deutscher Mineralölhandels e.V. with office at Berlin-Britz, Rudowerstrasse 82-83.

Since the outbreak of the war, the activities and effectiveness of these trade federations of marketing interests have been considerably reduced by the establishment by the government of a central marketing authority, or pool organization, and the strict rationing of civilian consumption.

Zentralbüro für Mineralöl G.m.b.H.- All actual distribution and marketing is centralized in this wartime pool organization. All production of liquid fuels and lubricants must be sold to this bureau which is responsible for the distribution of these products to military and civilian users in accordance with established quotas.

Wirtschaftliche Forschungs G.m.b.H.- Berlin, Behrenstrasse 43. This is an official corporation, usually referred to as the WIFO, organized for the purpose of constructing and managing strategic bulk storage plants and the actual distribution of oil products to the German armed forces, both in Germany and in occupied territories. It operates government-owned and requisitioned storage and distribution centers.

Reichsautobahn-Kraftstoff-Gesellschaft.- This is a prewar entity organized to operate the system of state-owned service stations that had been built along the system of high speed motor highways known as the Autobahn.

Zentralstelle für Generatoren.- This bureau was established early in the war to organize mass production of simplified types of gas generators, to stimulate and direct a program for converting as many liquid fueled engines as possible to generators, and provide for the supply and distribution of substitute fuels. Official companies organized to implement this program are Generatorkraft A.G., Festkraftstoff A.G., and A.G. der Kohlenwertstoffverbände.

Kontinentalöl A.G.- German conquest, at least temporarily, opened up a wide field of expansion and exploitation for the German oil industry, and, in general, the State has delegated to German industry the responsibility for the maximum ex-

14 - INTRODUCTION
Oil companies

exploitation of all captured oil resources. This has been done under the aegis of Kontinentalöl A.G.

This company, whose headquarters are in Berlin, was formed under State direction and encouragement by the following concerns:

Borussia Beteiligungs G.m.b.H., Berlin
Braunkohlen Benzin A.G., Berlin
Deutsche Erdöl A.G., Berlin
Gewerkschaft Elwerath, Hannover
I.G. Farbenindustrie, Frankfurt-Main
Preussische Bergwerks & Hutten A.G., Berlin
Wintershall A.G., Kassel

and leading German banking houses.

The board of directors is made up of representatives of these companies and political appointees, and the chairman of the Board's working committee is Dr. E.R. Fischer. The company's articles of incorporation are broadly framed to allow its participation in any branch of the industry from crude production to refining, transportation and distribution, and while it is essentially a holding company, it also takes an active part in all these activities in subjugated countries.

German interests in Rumanian oil companies increased during the course of the war from less than 1 per cent of the total capital of Rumanian oil companies to ownership or control of nearly sixty per cent, and Kontinentalöl A.G., is the agency which supervises and seeks to increase those interests.

A subsidiary of Kontinentalöl A.G. was founded in Bulgaria in October, 1942, with a capital of 1-1/2 million leva. The company was called Mineralöl A.G.--the name Kontinental could not be used as there was already a company registered under that name in Bulgaria. Mineralöl A.G. controlled all imports into Bulgaria, though an association of Bulgarian oil companies, Öleinfuhr Zentrale Bulgarische A.G., actually purchased the products and arranged transport.

In France, Kontinentalöl A.G. seized equipment from a number of French refineries. It attempted to conceal, under its commercial guise, its political function of obtaining the maximum of loot and considerable pressure was brought to bear on the owners of French properties, or their agents, to sign commercial agreements assenting to removal of equipment.

In Poland the Beskiden Oil Company, also a Kontinentalöl A.G. subsidiary, was formed for the exploitation of Polish oil fields. This company was later replaced by the Karpathen Oil Company, whose activities in the field of production covered, not only Poland, but the occupied Ukraine.

Other similar, but smaller, companies have been formed for production, import and distribution in other European countries, where there were not already German interests to operate the newly-acquired resources or markets.

1.4 OIL COMPANIES

A list of important German oil companies appears on pages 18 to 20, while it is believed to include all of the more important oil companies operating in Germany before the war, there may be others that should now be included. Also, this list does not include a large number of small concerns of local importance who were engaged in various phases of the oil business. Information in considerable detail concerning all companies may be found in the yearbook entitled "Handbuch der Internationalen Petroleum-Industrie", published by Finanz Verlag G.m.b.H., Berlin C2.

Foreign companies operating in Germany did so through German subsidiaries. Data concerning the principal subsidiaries controlled by American and British interests are given below. Under each parent company its German subsidiaries are listed alphabetically with a brief description.

It appears that since the war foreign-owned companies have been permitted to continue in operation under their German managers with the supervision of State appointed commissioners.

Anglo-Iranian Oil Company Ltd. - London, England

Name: "Olex" Deutsche Benzin- und Petroleum G.m.b.H.
Head Office: Martin-Lutherstrasse 61-66, Berlin, Schöneberg
Ownership: Anglo-Iranian Oil Co. Ltd., 100%
Business: Marketing of all petroleum products.
Key Prewar Personnel: G. Gubisch, F. Müller-Jahn, W. Charpentier. All German citizens (a)

The Atlantic Refining Company - Philadelphia, Pa.

Name: The Atlantic Refining Company of Germany, G.m.b.H.
Head Office: Lange Mühren 9, Hamburg 1
Ownership: Atlantic Refining Co., 100%
Business: Blending and marketing of lubricants.
Key Prewar Personnel: William C. Frysinger, Manager, U. S. citizen now in Petroleum Administration for War, Washington, D. C.
Subsidiaries: Schlafhorst Chemische Werke G.m.b.H. The Atlantic Refining Company of Germany, G.m.b.H. owns this small lubricating oil blending and grease works at Georgswaerderdamm 2, Hamburg.

Name: Allgemeine Oel-Handels G.m.b.H. (Oelhag). The Atlantic Refining Company owns a third interest.
Head Office: Mittelweg 38, Hamburg 13.
Business: Oil handling and marketing company.

Gulf Oil Company - Pittsburg, Pa.

Name: Maschinenoel-Import G.m.b.H.
Head Office: Glockengiesserwall 1 "Klosterburg", Hamburg 1
Ownership: Gulf Oil Company, 100%
Business: Distributing of petroleum products, especially lubricating oils.
Key Prewar Personnel: G. Ad. Rahe, Director, Wacholderweg 13, Hamburg 1.

The Pure Oil Company - Chicago, Ill.

Name: Oelwerke Julius Schindler G.m.b.H.
Head Office: Hohe Bleichen 28, Hamburg 36
Ownership: The Pure Oil Company 49%. Until December 1938 the other 51% interest was held by Mr. Julius Schindler of Hamburg. In December 1938 Mr. Schindler, in conformity with a decree by the German government, was obligated to liquidate all of his property, both real and personal, held in Germany. In conformity with this decree, Mr. Schindler in that month sold 52.94% of his 51% equity in "Oelwerke" to Gewerkschaft Neue Erdoel Raffinerie (Nerag) of Hannover. The latter was given an option on the remaining 47.06% of Mr. Schindler's equity, which presumably was exercised.(b).
Business: Refining and distributing lubricants. Principal refinery located in Hamburg and a smaller one at Peine.

-
- (a) In listing the individuals who have been associated with the various oil companies, it should be understood that these individuals may be looked to for information of possible value in their respective fields, but insofar as concerns the non-Americans no implication should be drawn as to their political sympathies or affiliations.
- (b) Mr. Schindler died December 29, 1941 at Great Neck, Long Island. It is understood that Mrs. Schindler and her son, Gustave Schindler, now reside in New York City.

Shell Group - London, England

Name: Rhenania-Ossag Mineralölwerke, A.G.

Head Office: Shellhaus, Alsterufer 4-5, Hamburg.

Ownership: Royal Dutch Shell group, 100%

Business: Refining and marketing of all petroleum products

Key Prewar Personnel: Hamburg (Head office): Dr. Erich Boeder, General Managing Director, German; Fr. Haecker, Managing Director, German; L. de Laporte, Managing Director, German. Monheim Refinery: Dr. Meyering, Refinery Manager, German; Stok, Assistant Refinery Manager, now in Curacao, Dutch. Harburg Refinery: G. Voogt, Refinery Manager, last known address: B.P.M. The Hague, May 1940, Dutch.

Subsidiaries: Allgemeine Oel-Handels G.m.b.H. (Oelhag), head office Mittelweg 38, Hamburg 13. Rhenania-Ossag Mineralölwerke A.G. owns 1/3 interest of this oil handling and marketing company.

Deutsche Gasolin A.G., Adolph Hitler Platz 7-11, Berlin-Charlottenburg 9.

Rhenania-Ossag owns 25% interest in this refinery and marketing company.

Gewerkschaft Deutsche Erdöl-Raffinerie (Deurag), Hindenburgstrasse 27-29, Hannover. Rhenania-Ossag owns a minority interest in this refining company.

Socony-Vacuum Oil Company, Inc. - New York, N.Y.

Name: Deutsche Vacuum Oel A.G.

Head Office: Spitalerstrasse 12, Semperhaus 3, Hamburg

Ownership: Socony-Vacuum Oil Company, Inc., 100%

Business: Crude oil production and the manufacture and marketing of high grade lubricating products.

Key Prewar Personnel: (1) Max H. Engel, General Manager, Hamburg, Germany, German; (2) Dr. H. C. Goetz, Head of Manufacturing, Hamburg, German; (3) E. Ruhl, Sales Manager, Hamburg, German; (4) H. H. Matthiessen, General Counsel, Hamburg, German; (5) J. Von Puttkamer, Financial Comptroller and Head Accountant, Hamburg, German; (6) Dr. H. Pfefferkorn, Crude Producing, Hamburg, German; (7) P. P. Clover, Special Executive Consultant representing U. S. owners, New York, N. Y., American.

Subsidiaries: Erdoelbergbau, A.G. (EBAG); Hindenburgstrasse 29, Celle. Crude oil producing company with field at Oberg near Braunschweig 100% owned by Deutsche Vacuum Oel, A.G.

Erdoelbetrieb Reitbrook-Konsortium Preussag (PREUSSAG). Crude producing company with fields at Reitbrook and Sottorf (Harburg). 49% owned by Deutsche Vacuum Oel, A.G.

Petrolifer Rohoel Compagnie, Hannover. Crude producing company, 51.20% owned by Deutsche Vacuum Oel, A.G.

Name: Bayerische Minerale-Industrie, A.G.

Head office: Principal office--Sophienstrasse 3, Munich; Registered office--Maximiliansplatz 7, Munich.

Ownership: 90% of shares owned by Bavarian Oil and Gas Corporation of Delaware, U.S.A. Head office, 26 Broadway, New York City, in which Socony-Vacuum owns 67% of the stock.

Business: Concessions for the exploration and development of oil and gas lands in Bavaria.

Holding Companies.- The following is a list of other holding companies for crude producing leases in which Deutsche Vacuum Oel A.G. held a part or whole interest:

<u>Name of Company</u>	<u>DVOAG Ownership</u>
Gewerkschaft Alfred	100%
Gewerkschaft Aue 5	60%
Gewerkschaft Ostfeld I	60%
Gewerkschaft Komberg II	60%
Gewerkschaft Carsburg III	50%
West-Oel Gesellschaft m.b.H.	100%
Harburger Bergbau G.m.b.H.	West-Oel (100%)
Oldenburgische Erdöl G.m.b.H.	West-Oel (33-1/3%)

Standard Oil Company (N.J.) - New York, N.Y.

Name: Deutsch-Amerikanische Petroleum-Gesellschaft
Head Office: Neuer Jungfernstieg 21, Hamburg
Ownership: Standard Oil Company (N.J.), 100%
Business: Importation and distribution of all petroleum products
Key Prewar Personnel: Board of Management--F. Klasen, F. Brems, H. Brems, A. Spangenberg, G. Geyer. Technical Service Manager, Dr. Clemens. A. Kukemüller, Comptroller. All German citizens.
Subsidiaries: Deutsch-Amerikanische Petroleum-Gesellschaft V.N. Wien G.m.b.H. After the Anschluss this 100% owned company was formed to take over the Standard Oil Company (N.J.) interests in Austria.
"Glückauf" Deutsche Öl G.m.b.H., Glockengiesserwall 2, Hamburg 1. Marketing company 100% owned.
Deutsche Gasolin A.G., Adolph Hitler Platz 7-11, Berlin-Charlottenburg 9. Refining and marketing company, 25% owned by D.A.P.G.

Name: Ebano Asphalt-Werke A.G.
Head Office: Neuer Jungfernstieg 21, Hamburg 36
Ownership: Standard Oil Company (N.J.), 100%
Business: Refining and marketing of asphalt.
Key Prewar Personnel: Board of Management--F. Pabelik, G. Schmidt, H. Gans.
Subsidiaries: Busscher & Hoffman A.G., Berlin, asphalt and tar distillation. Ebano owns 40% interest.
Ebano Asphalt-Werke A.G., Wien, 100% owned subsidiary operating in Austria.
Emas Ges. für Strassenbaubedarf m.b.H., Hamburg, 100% owned.
Vereinigte Asphalt-und Teer Produkten G.m.b.H., Hamburg, 100% owned.

Name: Waried Tankschiff Rhederei G.m.b.H.
Head Office: Neuer Jungfernstieg 21, Hamburg, 36.
Ownership: Standard Oil Company (N.J.), 100%
Business: Owning and operating vessels carrying petroleum products
Key Prewar Personnel: Board of Management same as for D.A.P.G.

Name: Mineralöl-Raffinerie vorm August Korff
Head Office: Stephanikirchenweide 20, Bremen
Ownership: Standard Oil Company (N.J.), 95.44%, D.A.P.G. 0.20%
Business: Blending and marketing lubricating oils.
Key Prewar Personnel: Board of Management--E. Kerenburg, M. Weber.

Name: Allgemeine Oel-Handels G.m.b.H. (Oelhag)
Head Office: Mittelweg 38, Hamburg 13.
Ownership: The Standard Oil Co. (N.J.) owns a 33-1/3% interest in this marketing company.

Name: Gewerkschaft Deutsche Erdöl-Raffinerie Deurag.
Head Office: Hindenburgstrasse 29, Hannover
Ownership: The Standard Oil Company (N.J.) owns a 16-1/2% interest in this refinery.

Tide Water Associated Oil Company - New York, N.Y.

Name: Hamburg Amerikanische Mineralöl G.m.b.H.
Head Office: 51 Jungfernstieg, Hamburg
Ownership: Tidewater Associated Oil Company, 99.96%
Business: Marketing of lubricating oil
Key Prewar Personnel: Charles R. Gerth, General Manager, American, now at 17 Battery Place, New York, N.Y.; Hans Ulrich von Borke, Manager, 13a Fontenoy, Hamburg, German; Alfred Louis Heindrich August Ernst, Manager, Muhlendam 42, Hamburg, German.

18 - INTRODUCTION
Principal oil companies

PRINCIPAL GERMAN OIL COMPANIES

Company	Address of Head Office	Capital (RM) (a)	Remarks
"A.B.C." Allgemeine Brennstoff-handels G.m.b.H.	Herringen	170,000	Filling stations, terminals transport facilities.
A.G. für Mineralölhandel	Berlin-Schöneberg, Kolonnenstrasse 31.	-	Pumps, filling stations, tank cars and storage.
Allgemeine Erdöl	Oldenburg	20,000	Affiliated with Oldenburgische Erdöl G.m.b.H., Mecklenburgische Erdöl G.m.b.H., and Ost. Öl G.m.b.H. Holds interests in concessions of other companies.
Allgemeine Oel-Handels G.m.b.H. (Oelhag)	Hamburg 13, Mittelweg 38.	6,000,000	Owned by D.A.P.G., Rhenania-Ossag and Atlantic Refining Co. Warehouses, storage, service stations, transport facilities and sales office in Berlin, Bielefeld, Chemnitz, Cologne, Dresden, Düsseldorf, Erfurt, Frankfurt/Main, Hamburg, Hannover, Karlsruhe, Leipzig, Magdeburg, Münster, and Stuttgart.
Alminag Allgemeine Mineralöl- und Asphalt K.G.	Berlin-Charlottenburg 2, Bleibtreustrasse 20.	150,000	Plant and storage in Spandau-Hakenfelde.
Atlantic Refining Co. of Germany G.m.b.H.	Hamburg 1, Lange Mühren 9.	1,000,000	Importers and marketers of oil products. Owns Schlafhorst Chemische Werke, Hamburg, with lubricating oil plant at Petroleumhafen.
Benzol-Verband G.m.b.H.	Bochum, Wittenerstrasse 45-47.	41,800	Producer and marketer of benzol, benzol blends and other motor fuels, B.V. Benzol, B.V. Aral, etc., and Russian oil, with a wide network of storage installations and service stations in Germany.
Benzol-Vereinigung des Ostens G.m.b.H.	Berlin NW 7, Karlstrasse 1.	20,000	Producer and marketer of benzol and benzol blend, with extensive sales organization.
Benzol-Vertrieb. Berlin G.m.b.H.	Berlin W 9, Bellevuestrasse 7.	300,000	Operating company of B.V. of Bochum and B.V. des Ostens. After the Anschluss took over the share capital and business of the Österreichisch Fanto A.G. in Austria.
Betriebsstoff- und Mineralöl-Vertrieb. G.m.b.H.	Schneidemühl, Guterbahnhofstrasse 1.	50,000	Tank storage.
Bremer Chemische Fabrik A.G.	Klaffenbach (Erzgebirge)	350,000	Marketer and compounder of all kinds of greases and of petroleum products. Sales organization covers Saxony and Thuringia.
"Brenntag" Brennstoff, Chemikalien- und Transport-A.G.	Berlin SW68, Alexandrinenstrasse 11.	1,500,000	Refinery at Berlin Britz, tank cars, storage, etc. Formerly Philip Mühsam.
Burbach-Kaliwerke A.G.	Magdeburg, Kaiser-Otto-Ring 9.	18,000,000	Partly owned by Wintershall, A.G. Oil production from Volkenroda potash mine, now exhausted, and other concessions.
Christian Arens, Kompressol-Ölwerk	Köln-Nippes	-	Manufacturers of special lubricants and hydraulic oils.
Cölnner Benzin-Raffinerie Kroseberg & Co.	Köln-Braunsfeld, Eupener Strasse 144.	100,000	Producers of special boiling point spirits, white spirits, etc., in their refinery in Cologne: transport and distribution facilities.
Creditul Minier, Deutsch-Rumänische Petroleum-Vertriebs-A.G.	Berlin W 15, Kurfürstendamm 37.	500,000	Subsidiary of Rumanian and Austrian Creditul Minier Companies. Tankage at Deggendorf. Filling stations.
Danubia A.G. für Mineralölindustrie	Regensburg	368,000	Small refinery at Regensburg.
"Debag" Betriebsstoff A.G.	Berlin W 8, Mauerstrasse	500,000	Subsidiary of Europäische Tanklager- und Transport A.G. Owns installations at Hamburg Petroleum Harbor.
"Depi" Petroleum A.G.	Berlin-Grünwald, Salzbrunnerstrasse 17.	100,000	Tank storage in Berlin-Spandau.
Derop Deutsche Vertriebsges. für Russische Ölprodukte	Bochum, Wittenerstrasse 47.	4,000,000	Subsidiary of Benzol Verband, Bochum. Formerly marketing Russian oil products. Tankage and installations in many German cities.
Deutsch-Amerikanische Petroleum-Gesellschaft	Hamburg 36, Neuer Jungfernstieg 21.	63,000,000	(D.A.P.G.) Subsidiary of Standard Oil (N.J.) Refineries in Hamburg, Berlin-Tempelhof, Düsseldorf. Extensive distributing organization. After the Anschluss took over the interests, except lubricating oil marketing, of the Vacuum Oil Co., A.G. in Austria.
Deutsche Aseol- G.m.b.H.	Zeitz, Hindenburg-Promenade 28.	-	Manufacturers, special lubricants and grease, in plant at Rehmsdorf.
Deutsche Erdöl-A.G. (Deag)	Berlin-Schöneberg, Martin-Luther-Strasse 66.	100,000,000	Parent company of, or holdings in, D.P.A.G., Edeleanu Ges., Stöck & Fischer, Brabag, Deutsche Mineralöl Verkauf Verein, Ölkontor Ges., Dea Ges. für Mineralöle, Deutsche Viscobil. Widespread interests in crude and synthetic oil production.

(a) Proxar figures given here as an indication of approximate relative importance of the companies.

PRINCIPAL GERMAN OIL COMPANIES (Continued)

C o m p a n y	Address of Head Office	Capital (RM) (a)	R e m a r k s
Deutsche Gasolin A.G.	Berlin-Charlottenburg 9, Adolf Hitler Platz 7-9-11.	11,000,000	Control; I.G. Farbenindustrie 50 per cent, S.O.M.J. 25 per cent, Shell 25 per cent. Refineries at Emmerich and Dollbergen. Sales of own products from German and imported crudes, and of I.G. synthetic oil-Leuna Benzin, Gemisch, Treibgas, etc. Sales organization in German principal cities.
Deutsche Fanto-Mineralöl-Industrie G.m.b.H.	Hamburg 1, Mönckebergstrasse 11, Rappolthaus.	300,000	Subsidiary of Fanto interests. Owns sea and river tankers, storage and distributional facilities.
Deutsche Petroleum-A.G.	Berlin-Schöneberg, Martin-Luther-Strasse 61-66.	24,000,000	Subsidiary of Deag, of which it is the operating company for crude oil production and refining in Hannover, Heide, and Nienhagen; part owner of Gew. Krug von Nidda, Celle, Holsteinische Erdölwerke, Heide; Deutsche Erdölwerke, Berlin-Schöneberg; Mineralöl Raffinerie, Rheinau G.m.b.H. Oil concessions in Hannover, Holstein, Baden and Bavaria. Refineries at Wilhelmsburg and Rositz. After the Anschluss took over the plants and business of Creditul Miner in Austria.
Deutsch-Überseeische Petroleum A.G.	Hamburg, Esplanade 46-47.	500,000	Subsidiary of Société Française des Pétroles de Silva Plana of Paris. Storage installation in Hamburg.
Deutsche Vacuum Oel A.G.	Hamburg 1, "Semperhaus, B" Spitalerstrasse 12 III.	20,000,000	Affiliated with Socony-Vacuum Oil Co. Wells and concessions in a number of localities. Owner of "Ebag" Erdöl Bergbau A.G., with producing wells at Oberg. Refineries at Schulau and Oslebshausen. Storage and warehouse facilities throughout Germany. After the Anschluss took over the lubricating oil business of the Vacuum Oil Co. A.G. in Austria.
Deutsche Viscobil Öl A.G.	Berlin-Schöneberg, Martin-Luther-Strasse 61-66.	100,000	Subsidiary of Deag. Warehouses at Berlin-Westhaven for lubricants.
Ebano Asphalt-Werke A.G.	Hamburg 36, Esplanade 6.	9,000,000	Refinery at Hamburg designed to operate on imported Mexican and West Indies crude, primarily for the production of asphalt.
Erdöl Bergbau A.G. "Ebag"	Celle i. H., Hindenburgstrasse 29.	200,000	Subsidiary of Deutsche Vacuum Öl, Co. Oil concessions in Hannover, at Oberg, Gross Ilsede, Klein Ilsede, Gadenstedt, Nienburg and Neustadt.
Erdölbetrieb Reitbrook Konsortium Preussag	-	-	Production of crude oil at Reitbrook, near Hamburg. Deutsche Vacuum Oel A.G. holds 49 per cent interest. Balance controlled by Preussische Bergwerks- und Hütten A.G. (Preussag).
Erdöl Raffinerie Salzbergen (Ersag)	Salzbergen.	400,000	Controlled by Wintershall A.G., operators of Salzbergen Refinery.
Erdöl- und Teerprodukten A.G.	Berlin W 8, Behrenstrasse 14-16.	250,000	Importers and marketers of petroleum and tar products: filling stations.
Europäische Tanklager- und Transport A.G. (Eurotank)	Berlin W 8, Mauerstrasse 33.	5,000,000	Undisclosed ownership control via Crusader Petroleum Industries Ltd., London, subsidiary of Foreign Oil Co. Inc., Boston (W.K. Davis) and the Hardy Bank, of Berlin.
Gewerkschaft Elwerath	Hannover, Hindenburgstrasse 29.	-	Majority of shares privately owned; minority held by Wintershall A.G. Concessions in Brunswick, Holstein, Westfalen, Hesse and Baden.
Gewerkschaft Deutsche Erdöl-Raffinerie (Deurag)	Hannover, Hindenburgstrasse 27-29.	6,300,000	Subsidiary of Elwerath, Preussag, Rhenania-Ossag and D.A.P.G. Refinery at Misburg.
Gewerkschaft Neue Erdöl-Raffinerie (Nerag)	Hannover, Hindenburgstrasse 27-29.	18,000,000	Jointly owned by Elwerath and by Preussag. Refinery at Misburg specializing in lubricants.
"Glückauf" Deutsche Oel Gesellschaft m.b.H.	Hamburg 1, Glockengieserwall 2.	-	Subsidiary of D.P.A.G. Storage tanks and warehouses in all large cities. Importers and marketers.
Gössel & Wilcken	Seestadt Wismar, Krönkenhagen 36.	-	Marketer of petroleum products. Storage plants in numerous cities in northeastern Germany.
Hamburg-Amerikanische Mineralöl-G.m.b.H.	Hamburg 36, Jungfernstieg 51.	2,500,000	Subsidiary of Tide Water Associated Oil Company.
Hermann von Rautenkranz. Internationale Tiefbohr-K.G. (Itag)	Celle, Güterbahnhofstrasse 5.	-	Concessions in Celle and participation in a number of oil producing companies in Hannover. Manufacturers of drilling tools and equipment.
Holsteinische Erdölwerke G.m.b.H.	Heide i. Holstein	40,000	Subsidiary of D.P.A.G. for oil production and treatment in Hemmingstedt district of Holstein.
Königsberger Handels Compagnie A.G.	Königsberg	-	Subsidiary of D.A.P.G. marketing petroleum products with a large number of plants in East Prussia.
Max Loeb, Benzin-Benzol-Mineralölwerk.	Köln-Braunsfeld.	-	Refinery in Cologne-Braunsfeld, producing motor fuels and technical benzine. Storage and distributional facilities.
Maschinenöel-Import G.m.b.H.	Hamburg 1, Glockengieserwall 1. Zweigniederlassung: Düsseldorf.	2,050,000	Subsidiary of the Gulf Oil Corporation. Tankage in Hamburg, Duisburg, Mannheim and Halle. Branches in all large German cities.

20 - INTRODUCTION
Principal oil companies

PRINCIPAL GERMAN OIL COMPANIES (Continued)

Company	Address of Head Office	Capital (RM) (a)	Remarks
Mecklenburgische Erdöl G.m.b.H.	Schwerin	20,000	Oil concessions in Mecklenburg. Affiliated with Allgemeine Erdöl.
Mineralöl- und Asphaltwerke A.G. (Lawaag)	Hamburg: 36, Jungfernstieg 7.	2,000,000	Refinery at Ostermoor primarily for asphalt production. Tankage at Ostermoor and Berlin-Rummelsburg.
Mineralöl-Raffinerie vorm. Aug. Korff	Bremen, Stephanikirchenweide 20.	1,500,000	Subsidiary of D.A.F.G. Plant at Bremen. Specializes in lubricants and greases.
Mineralölprodukten-Handel A.G.	Kassel.	50,000	Subsidiary of Wintershall A.G. Trading company for Wintershall & Ersag.
Mineralölwerk Stade, Andersen Tafel & Co., K.G.	Stade, Kalkmühlenstrasse 1.	-	Importers. Own bulk terminal facilities at Stade near Hamburg.
Mineralölwerke Albrecht & Co. K.G.	Hamburg 1, Glockengieserwall 2-4, Wallhof.	-	Importers and refiners of all types of lubricants, special, transformer, white, turbine oils, etc. Storage at Duisberg (subsidiary company) and many German towns.
Mineralölwerke Lichtenberg G.m.b.H. & Co. K.G.	Berlin-Lichtenberg, Herzbergstrasse, 35.	1,245,000	Complete but small refinery at Berlin-Lichtenberg for the production of all petroleum products.
Naphta Industrie und Tankanlagen A.G. (Nitag)	Berlin and Hamburg.	4,200,000	Owned jointly by Wintershall and by Hardy & Co., Berlin. Tank storage and warehouses throughout Germany: a chain of more than 100 filling stations. Full transport facilities and large storage in Berlin and Magdeburg.
Nitag Erdöl-Handel G.m.b.H.	Königsberg, Friedländer Torplatz 4a.	100,000	Subsidiary of Naphta Industrie und Tankanlagen A.G., with tankage at Königsberg, Eibing, Goldap, Lyck, Marienburg, Marienwerder, Rastenburg, Tilsit; also a chain of filling stations.
Nitag Mineralöl-Handel A.G.	Dortmund, Töllnerstrasse 9.	500,000	Subsidiary of Naphta Industrie und Tankanlagen A.G.; tankage in Dortmund, Bonn and Düsseldorf.
Oelwerke Julius Schindler G.m.b.H.	Hamburg 36, Hohe Bleichen 28.	2,400,000	49 per cent of shares held by Pure Oil Co. of Chicago. Refineries and storage at Wilhelmsburg and Faine. Tankers and lighters.
"Olex" Deutsche Benzin- und Petroleum G.m.b.H.	Berlin-Schöneberg Martin-Luther-Strasse 61-66.	60,000,000	Subsidiary of Anglo-Iranian Oil Co. Distributional facilities and storage throughout Germany, and a widespread chain of filling stations.
Pintsch Oel G.m.b.H.	Berlin-Britz, Gradestrasse 83-89	400,000	Small plant for processing of lubricants.
Preussische Bergwerks- und Hütten A.G. (Preussag).	Berlin W 62, Einemstrasse 24/26.	80,000,000	Concessions at Berghöpen (Hannover), in association with Deutsche Vacuum Oil A.G. Associated with Wintershall A.G. in ownership of Misburg refinery.
Redeventza Deutsch-Rumänisch Petroleum-Verkaufsgesellschaft m.b.H.	Berlin W 15, Eiserstrasse 40/41	100,000	Subsidiary of Redeventza, Bucharest, whose products it markets.
Reichskraftsprit G.m.b.H.	Berlin-Charlottenburg 9, Adolf-Hitler-Platz 7-9.	1,000,000	A Government sponsored combine of all large oil companies in association with Reichsmonopolverwaltung für Branntwein for research into and development of the use of alcohol in motor fuels.
Rex Mineralöl-Gesellschaft, Paul Zeigler & Co.	Buer.	-	Import, export and marketing of special oils and greases, especially cutting and cooling oils.
Rheinprussen G.m.b.H.	Homburg (Niederrhein)	-	Fischer-Tropsch synthesis plant at Homburg.
Rhenania-Ossag Mineralölwerke A.G.	Hamburg, Alsterufer 4-5 (Shellhaus).	75,000,000	Subsidiary of Royal Dutch-Shell. Seven refineries; storage, filling stations, bunkering stations widespread throughout Germany. After the Anschluss took over the interests of A.G. der Shell-Floridsdorfer Mineralöl Fabrik in Austria.
Ruhrbenzol G.m.b.H.	Bochum Kernerstrasse 234.	400,000	Wholesale dealers in benzol; storage in Koblenz, Krefeld, Halk, Leipzig, Frankfurt/Main.
Runo Oel A.G.	München, Landsbergerstrasse 180-182.	900,000	Subsidiary of Phoenix Oil Transport Co., London. Importers and marketers of petroleum products from company's depots at Munich, Nuremberg, Würzburg, Rosenheim, Augsburg, Regensburg, Muehldorf and Ulm. Part-owner of Mineralölwerke Bayern G.m.b.H. at Regensburg.
Ernst Schliemann's Oelwerke	Hamburg 8, Catharinenstrasse 38-39.	-	Tank storage in Hamburg (Freihafen Grasbrook, Neuer Petroleumhafen, and Harburg). Specialists in special and high-grade lubricants. Refinery at Grasbrook.
Westfälische Mineraloel- und Asphaltwerke W.H. Schmitz	Dortmund, Lange Reihe 43	-	Distillation, refining and storage in Dortmund-Gld. Manufacture of lubricating oils and bitumen.
Wintershall A.G.	Sitz der Verwaltung: Kassel, Hohenzollernstrasse 139 (Postschließfach 292).	125,000,000	Part or whole owner of Gew. Elwerath, Erseg: Gew. Niemhagen, Thüringer Erdöl A.G., Mineralölprodukten Handel A.G., Mitteldeutsch Treibstoff und Ölwerke, Nitag, Kaliwerke Burbach A.G. Widespread interests in crude oil production and refining and in synthetic production and refining and in synthetic production. Also interested in potash.
Zeller & Gmelin	Eislingen-Fils	-	Small refinery and tankage in Eislingen. Manufacture of oils and road surfacing materials.
R.G.F. Wolter	Grabow 1. Meckl., Berlinerstrasse 5.	60,000	Modern tankage and blending installation.