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TENTATIVE SCHEME
FOR THE OPERATION OF THE GERMAN OIL REFINERIES
BASED ON THE USE OF GERMAN CRUDE OIL

June 23rd 1945.

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May 30th 1945.

PRELIMINARY INSTRUCTIONS TO HERRN HERR.

You are requested to prepare a scheme for the operation of the German oil refineries based on the use of German crude oil which will be rationally produced within the boundaries of the Alt-Reich, to meet the following indicated requirements. List the sources of crude oil in detail.

Per annum

Max. permitted production of lubricating oils, including all technical, white and half white oils will be

120,000 tons.

Within the limits set by the above figure, priority of max. yield of other products will be given in the following order:

1. Lub oil
2. Kerosene
3. Gasoline (motor spirit)
4. Diesel fuel oil
5. Bitumen.

You will prepare suggested specifications for these products. You will also submit recommendations as to which refineries should operate, and in what manner, in order to implement the suggested program in the most efficient manner. Giving estimates of the reconstruction necessary and the time required, on the assumption that all oil industry resources are pooled for this purpose and that priority will be available for supply of the requisite materials and labour. Where necessary, items of plant and material will be taken from one side and erected in another.

If it is considered advisable temporary operation in one or more refineries may be estimated for during the period of reconstruction of the plants selected for permanent operation. -

It is understood that no operations of any kind will be commenced without the authority in each case of Military Government. -

FACTORS FOLLOWED TO PRODUCE REPORT

1. H. Engel has invited:-

Dr. Walter K n u d s e n ;
Manager Manufacturing Department,
D.V.O.A.G., Hamburg;

Dipl. Ing. F. B o o k e r ;
Assistant Chief Engineer,
Rheinland-Odeag, Hamburg;

to lend their expert advice and help in establishing facts and in the preparation of the recommendations to be made in the report.

2. A questionnaire was drafted as per specimen copy herewith and submitted to all refineries for reply in writing. All refineries eligible for consideration in the scheme were inspected by Messrs. Knudsen and Becker. H. Engel had personal discussions with the managers of all companies explaining in detail the purport of the questionnaire and the objective of the study.

3. Every opportunity was given to the managers to make their own statements supported by their own responsibility. Over-optimism on the one hand and exaggeration of existing obstacles on the other hand were discouraged.

4. Forecast figures on crude production used in this report are quoted from own statements of producers. In some instances producers failed to send in figures in time for this report. In these cases and in respect of other questions relating to the producing sector, the advice was sought of Dr. Carl Schmidt, manager Crude oil Producing Department, D.V.O.A.G., Westercelle.

QUESTIONNAIRE

1. Name of firm
2. Plant
3. Which sections of plant are at present ready for operation ? State potential throughput.
4. Which parts of the plant are capable of being repaired ? State extent of need of repair and time required for work necessary to rehabilitate plant for operation. Also state throughput.
5. State quantities and types of crude and/or half-finished products required for above plants, giving the quantities per month from date plant is ready for operation to end of December 1945.
6. Crude to be run within certain limits to maximum yields in the following priority:
 - a) lubricating oils,
 - b) kerosene,
 - c) motor gasoline,
 - d) diesel fuel,
 - e) bitumen.

State yield in weight percent in the above and other products, based on the crude. When working up half-finished products procured from third parties, base yields on the intake of these half-finished products.

Remark to 6a: The lubricating oils to be subdivided in classes and quantities.

Remark to 6a-e: In order to classify the products please give the necessary specifications.

7. State facilities for receiving raw material and shipping finished products.
8. Is plant equipped to burn fuel or coal or both ?

LIST OF ABBREVIATIONS USED

<u>A.S.V.</u>	Arbeitsgemeinschaft Schmierstoff-Verteilung G.m.b.H., Hamburg.
<u>D.A.P.G.</u>	Deutsch-Amerikanische Petroleum-Gesellschaft, Hamburg.
<u>D.E.A.</u>	Deutsche Erdöl Aktiengesellschaft, Hietze.
<u>DEURAG</u>	Gewerkschaft Deutsche Erdöl-Raffinerie, Hannover.
<u>DEUTAG</u>	Deutsche Tiefbohr A.G., Aschersleben.
<u>D.V.O.A.G.</u>	Deutsche Vacuum Oil Aktiengesellschaft, Hamburg.
<u>EUROTANK</u>	Europäische Tanklager- und Transport A.G., Hamburg.
<u>NEURAG</u>	Gewerkschaft Neue Erdöl-Raffinerie, Hannover.
<u>PREUSSAG</u>	Preussische Bergwerke und Hütten A.G., Hannover.

**SUGGESTIONS FOR IMMEDIATE ACTION IRRESPECTIVE
OF FINAL RECOMMENDATIONS**

1. Plants at present in operation
 - Misburg
 - Brunkensen
 - Bückerhof
 - Dedenhausen
 - Dollbergen
 - Heide
 - Vedel

to produce max. yield of kerosene.
50 % refined product, 50 % distillate.
2. Petroleumgesellschaft (DAPO) to prepare for immediate removal and storage of current kerosene production for seasonal distribution.
3. Adequate number of dirty tank cars to be mobilized for immediate crude oil service, suggested minimum 1000.
4. All fields to lift crude at 100% of potential.
5. Adequate supply of chemicals for de-hydrating to be secured.
6. Eurotank to be authorized to make repairs for improvised restarting of topping plant in two weeks. This is meant as a temporary expedient and is not to be construed as a guarantee or promise for permanent employment.
7. Reloading arrangement to be worked out to transfer crude from tank cars by water to Eurotank.
8. Until further notice Eurotank to be supplied with 15,000 tons of crude per month.
9. Eurotank to produce
 - max. yield of kerosene
 - max. yield of gasoline
 - max. yield of Diesel fuel
 - residual to be used as fuel or put into storage for later or cracking.
10. Bremen refinery to be authorized to restart crude oil distillation by July 10th for residual to go into own storage. Available tanks to be filled with 10,000 tons of crude by July 10th.

This step does not involve any anticipation or decision regarding final intake programs.

GENERAL PREMISESfrom which this report emanates

1. that no virgin German crude - whether from stock or from current production - henceforth be used for fuel purposes;
2. that the existing stocks of crude residues, stored in outside storage - whether of paraffinic or asphaltic nature - should be made eligible for use as fuel (if so required), since the hopes of the lube refineries to use up these stocks for lube purposes within a measurable length of time, now appear to be unfounded. Normally, the recommendation would be to use this material for cracking to obtain motor fuels;
3. that fresh supplies of crude residues not needed for the lube programme be used for manufacturing bitumen;
4. that transport facilities, both water and rail, be rehabilitated as rapidly as possible and in an adequate measure;
5. that an adequate number of tank cars be provided for shipping crude and finished products. For the transport of residues and heavy lubes, barges and tank cars with heating equipment are indispensable.

POTENTIAL CRUDE OIL PRODUCTION IN NORTH WESTERN GERMANY

Any forecast of potential production of crude oil is inseparably associated with following problems:
(where answer is available it is so indicated)

1. No producing field can avoid decline of production for any length of time unless new wells in proven area are drilled.
2. New wells require regular flow of material
 - a) casings
 - b) drill pipe
 - c) tubes
 - d) tool joints etc.
3. This material is in store (when industry is pooled as a whole) for three months.
4. The adequate upkeep of production in the producing fields by the creation of new wells in the proven areas necessitates the use of 50 to 55 drilling rigs, including the gas field Bentheim. For exploration purposes in a subsequent stage there will be needed another 20 rigs.
5. Drilling rigs, engines (Diesel and gas), trained labour, engineers, geologists, Geophysicists and other experts are available.
6. Experience in normal times has shown that a drilling rig will absorb on an average a total of 80 to 100 tons of drilling material every 90 days. This includes casings, drill pipe, tool joints, spare parts for engines, rigs and pumps, subdivided roughly as follows:
 - 60 % for casings and pipes
 - 30 % for tool joints and spare parts
 - 10 % for other material.
7. Thus the 50 to 55 rigs needed for new wells will require 4000 to 5000 tons of drilling material every 90 days in the assessment indicated above.
8. This material should start to flow from the mills not later than October 1st.
9. Main suppliers of casings, drill pipes and tool joints are:
 - a) Mannesmann, Düsseldorf,
 - b) Deutsche Rohrenwerke, Düsseldorf.

POTENTIAL CRUDE OIL PRODUCTIONIN NORTH WESTERN GERMANY

cont'd

10. If water and salt content of the crude oil exceed certain maximum figures, various difficulties arise in the refinery operations. To reduce water and salt content chemicals are required. So far a line of chemicals called Bismulgan produced by I.G. Farben were used in the fields. Prompt and adequate ($\frac{1}{2}$ to 1 % in relation to crude) supply of Bismulgan or of suitable substitute is required if production forecasts are to materialize. This particularly applies to the fields Hienhagen, Rodewald, Reiterck, Rademstorf.
11. Drillers and help in oil fields are required to do hard work in long hours. Adequate food is indispensable. Requests of field managers for extra rations for men in certain classifications should be granted.
12. Because of the uncertainties involved, no forecast figures are shown beyond December 31st 1945. As a matter of precaution it is recommended that for the first six months of 1946 a safety margin in the form of 10-15% general decline in production be calculated for planning purposes.
13. This decline can probably be avoided if new drillings are resumed promptly and on a larger scale.
14. An interesting new discovery has been made by Gewerkschaft Elwerath at Kalberlah. CIL was struck at a depth of 180 m with flowing production. It is premature to make any forecast regarding this field.

STOCKS OF CRUDE IN FIELD TANK STORAGE ETC.on June 9th 1945.

Nienhagen - Elwerath	4,800	tons	
Binterehall	12,320	tons	
D.M.A.	370	"	
Itag	300	"	
D.V.O.A.A.G.	400	"	
Nicklingen	95	"	
Hänigsen	700	"	
Oberg	850	"	
Hademstorf	180	"	
Wesendorf	215	"	
Oifhorn	395	"	
Wietze	5,370	"	
Thürten	4,720	"	
Hölme	600	"	
Hohenassol	-	"	
Fuhrberg	5,710	"	
Berkhüpen	800	"	
Broistedt	35	"	
Shro	150	"	
Steimbke	900	"	
	3,700	"	in Reithrook field
	7,340	"	in Ostermoor
	1,880	"	in lighters on the Elbe
Reithrook	5,000	"	
Neckelsfeld	90	"	
Heide	6,000	"	
Field in Bentheim			
region no information			
anyet available			

52,918 tons

METHODS USED TO ARRIVE AT BREAKDOWN
OF TOTAL LUBRICATION PRODUCTION OF 120,000 TONS PER ANNUM
INTO VARIOUS PRODUCTS AND GRADES REQUIRED BY MARKET.

1. Four different methods were used to arrive at breakdown:
 - a) Estimate of A.S.V.
 - b) Comparison with official quotas used in previous years.
 - c) Estimate of one marketing firm.
 - d) Such corrections and correlations of above figures as author of report deemed necessary.
2. The grouping of products is the same as hitherto used by A.S.V. and for other official purposes.
3. The figures shown for the 14 groups are considered to be the best estimates that can be made at this time.
4. The one elusive figure is the requirement of axle oil. The estimate of 640 tons per month is admittedly on the lower side. Adjustment can be made without serious difficulty.
5. The production of greases is not included in the programme. It is recommended that the grease production be left aside. Its volume can at all times be governed by the amount of spindle oil and engine oil respectively released for this purpose. Greases manufactured on the basis of tar oils would be additional production.

REGIONAL SPREAD OF CONSUMPTION OF LUBRICANTS

The following statement shows the spread of consumption over the main areas in U.S. - British controlled Germany (based on actual AAV figures July-September 1944)

AREA	HAMBURG		Duesseldorf		TOTAL	
	tons	%	tons	%	tons	%
Duesseldorf	5,917	38.0	5,396	27.6	9,313	31.3
Frankfurt	726	7.0	1,616	8.2	1,342	4.5
Hamburg	747	7.2	3,673	30.1	6,620	22.2
Hanover	341	5.2	1,075	5.5	1,616	5.4
Cologne	361	9.5	2,061	10.6	5,022	10.2
Badwigshafen	1,081	10.5	1,359	7.0	2,440	8.2
Munich	624	6.1	306	5.1	1,610	5.4
Nuremberg	1,036	10.6	731	5.7	1,827	6.1
Stuttgart	627	6.1	1,413	7.2	2,040	6.9
	10,320	100.0	19,510	100.0	29,830	100.0

Comments:

Possible criticism:

Period chosen is too short to reflect actual consumption.

ANSWER: Experience over long term has shown that there are no major fluctuations in flow of consumption of lubricants.

Consumption in third quarter 1944 too strongly reflects war economy then prevailing.

ANSWER: Comparison of above figures with figures for 1938 shows fair similarity.

Post-war Germany will be much different from war Germany and pre-war Germany.

ANSWER: Admittedly insofar as grades are concerned. It is not assumed that there will be a radical change in basic economic structure of Germany except that the agricultural industry will receive prime consideration.

ANNUAL SPREAD OF
CONSUMPTION OF LUBRICANTS (cont'd)

The districts listed comprise the territory that will ultimately be the Anglo-American zone of occupation after the Russian army has moved into the Free State and Province of Saxony, Thuringia, Anhalt, and Mecklenburg as officially announced in the Hamburg press.

By a queer coincidence the figures shown for the districts listed representing consumption during the third quarter of 1944 agree almost 100% with the lube production per month envisaged in the programme.

The thought suggests itself that in view of present widespread industrial disorganization the production forecast is too high. It is considered that it would be premature to draw this conclusion. Furthermore, for the next three months Germany will largely live on stocks of lubricants. By the end of the year a review of situation can and should be made.

- - - - -

REPORT FOR BRUSSELSPRELIMINARY SCHEDULE OF PRODUCTION OF LUBRICANTSReasons in general:

1. The aim has been to prepare a schedule that provides for the production of the stipulated volume - 120,000 tons per annum -
 - a) with a minimum amount of crude by choosing the refineries capable of bringing out the highest yields of marketable products concurrent with adequate standard of quality;
 - b) within the shortest length of time required for re-starting or rehabilitating the plants;
 - c) with the least amount of material and labour;
 - d) with a rational spread of the refineries over the North Western German territory, both from the standpoint of receiving raw material and of distributing finished products;
 - e) with the assurance that the plants chosen, in their combination, provide the greatest flexibility in terms of volume and quality of products required in a market the final stabilization of which will presumably require a considerable time.

Reasons in particular:as regards Hulsberg

This is a modern plant. The war damage is essential parts is comparatively small or has been largely repaired.

The strategic position of the plant is good under present conditions.

The yield of lubricants secured in this plant - taking quality into account - is satisfactory, although it is not as high as in the other plants.

The combination of the plant with the cracking installations of the Hulsberg permits of rational use of all intake material.

as regards Hulsberg

This plant has suffered little damage.

Its refining and dewaxing plants are 100% intact and for starting up operation require chemicals only (Propane and ammonia).

Small damage in the distillation equipment can be repaired in 3-5 weeks. Tank capacity is adequate.

REASONS FOR RECOMMENDINGEXTENSIVE EXPANSION OF PRODUCTION OF LUBRICANTS (cont'd)Re Yagnum-Bremen (cont'd)

The two-step process enables the plant to produce a maximum yield of products over a wide range from high quality motor oil to axle oil.

The location of the plant is advantageous for receiving crude and for distributing products, particularly to the West and South-east of Germany.

Re Shell/Hamburg-Grasbrook

These lubricating plants, before suffering heavy damage by bombardments, were the most modern and efficient ones in the Hamburg area.

Their rehabilitation can be effected with less loss of time and less investment of material than would be required in another lube plant of similar size in the area.

One major lube plant should be re-started in the Hamburg area because this district will consume a considerable share of the total.

The location of the plants is a strategically good one for the raw material destined for them: asphalt base crude from Steilbek and paraffinous residual from the close-by Heide in Holstein.

Re Wiesbaden-D. L. A.

The plant equipment provided for at this location is a new installation.

The material is either already available on the spot, having been transferred there from other locations, or will be available from stocks the Company has on hand.

The D. L. A. propose to carry through the installation with their own men and implements.

The location of the plant right in the centre of a producing field is good.

The equipment to be used will give a high yield of lubricants and products to be turned out will meet a definite market need of bulk oils.

MINERAL RECOMMENDATIONS REGARDING INITIATIVE SCHEDULE OF PRODUCTION OF MINERALS

The schedule shows a deviation from the stipulated volume in three directions:

1. In and after December 1st the monthly actual production exceeds the monthly average needed to produce 120,000 tons per annum.
 This is meant as a temporary arrangement to produce 120,000 tons within 12 consecutive calendar months and to fill up the gaps in the national stocks that will be created during the initial months when production is below consumption.
 However, the recommendation is made already now to curtail crude allocation to the lube refineries after April 1st 1945 by 20% in order to
 - a) avoid an over-production of engine oils, cylinder oils for superheated steam and motor oils;
 - b) discount in advance the possibility of the crude production declining because of insufficient drilling of new wells;
 - c) provide a safeguard in event there arises an acute shortage in other petroleum products.
2. According to schedule there will be a current over-production of at least high temperature cylinder oil and of motor oils.

Insofar as this item is not already covered by the comments of 1a) it is suggested that more practical experience be gathered regarding the actual needs of the market. The general programme is so flexible that adjustments can be made within rather wide limits.

3. According to schedule there is a shortage in production of white oils and transformer oils.
 It is recommended that Celvaco Julius Schindler G.m.b.H., Hamburg, be authorized to continue operations in their Neuhoef plant to produce 250 tons of Transformer Oil and 100 tons of White Oils per month from distillates supplied from one of the major refineries. The amount of repair work to be done in the plant in this respect is comparatively small.
4. When the Diesel operations are started in the Gebrus plant in Bremen in October there will be a current yield of 520 tons of petroleum per month suitable for manufacture of kerosene.

FURTHER RECOMMENDATIONS REGARDINGEXTENSIVE SCHEDULE OF PROMOTION OF LUBRICANTS (cont'd)

It is recommended that until further notice Ernst Schlicmann's Oelwerke, Hamburg, be authorized to operate their vaseline plant on this petroleum. The vaseline plant of Schlicmann's is intact. The other refining equipment of Schlicmann's is not needed for the lube programs.

5. As an auxiliary for finishing, dewaxing (light lubes), blending and shipping purposes the major refineries listed in the programs need the services of the following small plants:

for Miskau

the use of the Vaseline plant of Schindler's,

for Bremen

the use of the Sedel plant of Vasmann,

for Hagera-Grasbrook

the use of the Grasbrook plant of Albrecht's.

It is recommended that these three works be authorized to continue operations for this auxiliary purpose. It is not intended to supply these plants with crude after the programs have been adopted.

6. For the purpose of the lube programs (and this also applies to the cracking unit of Dourag and the topping units at Heide) it is assumed that for a considerable time to come the refineries cannot hope to receive supplies of coal. Thus all yield calculations are based on the use of fuel oil, the consumption of which is at the expense of either bitumen, motor fuel (in the case of cracking) or of fuel oil available for other purposes. The Miskau, Bremen, Hagera-Grasbrook, Vichse and Heide plants will absorb a minimum of 7000 tons of fuel oil per month so long as coal is not available.

The cost of fuel oil versus coal is prohibitive for the oil industry. This problem will have to be dealt with separately.

Summary Schedule of production of lubricants by petroleum and chemicals
and minerals and related data for 1943 to June 30th 1944.
Please keep this report and all related documents.

1. <u>RESIDUALS - MOTOR OIL</u>					
as of July 1st 1943	7000 tons crude per month	to be topped		Total	
		residual to be present de-sulfurized		for motor	
		distillates to be drawn and treated by acid as required			
		<u>Total yield of lubricants 24-43 S</u>			
		equalling 2440 tons per month equalling		24,400 tons	
2. <u>RESIDUALS - FUEL OIL</u>					
as of July 1st 1943	10000 tons crude per month	to be topped for residual and to be stored or otherwise			
		disposed of until October 1st 1943			
as of Dec. 1st 1943	10000 tons crude per month	residual to be topped treated in one-stop operation			
		Residuals remaining to be drawn in second-stage plant when necessary			
		<u>Total yield of lubricants 24-43 S - 1943 tons</u>			
		equalling for 5 months	7000 tons		
as of Dec. 1st 1943	10000 tons crude per month	residual to be topped treated in one-stop operation			
		depending on above			
		<u>Total yield of lubricants 24-43 S - 4945 tons</u>			
		equalling for 7 months	4945 tons		
3. <u>RESIDUALS - GRAVITY FUEL OIL</u>					
as of Dec. 1st 1943	7000 tons crude per month	to be distilled in vacuum			
		Distillates to be partly acid treated			
		<u>Total yield of lubricants 41-43 S - 1700 tons</u>			
		equalling for 3 months	1700 tons		
as of Dec. 1st 1943	4500 tons crude per month) 4000 tons paraffin) residual (24 V))	to be distilled in vacuum			
		Distillates to be partly vacuum and acid treated			
		and to be drawn by solvent process (chlorinated hydrocarbon)			
		<u>Total yield of lubricants</u>	2400 tons		
		equalling for 7 months	2400 tons		

Reserve

173.83 tons

2. 1940-1941

all of Sept. 1940 1940 tons crude per month

to be distilled in France

Distillates partly to be sold, treated

Residue to be burned at a later stage

Total value of inventory 45.0 \$ = 1940 tons

equalling 1940 tons

173.83

173.83 tons

Estimated results per month as of December 1940

Shipping 2,470 tons

Storage 2,000 "

Marketing-Overhead 2,000 "

Waste 1,000 "

17,000 tons

equalling 17,000 \$ of stipulated value

173.83

VOLUME OF CRUDE REQUIRED TO PRODUCE STIPULATED VOLUME OF LUBRICANTS

As per Schedule "A" there will be produced per month as of December 1st 1945 at

				<u>Total Yield</u>
1.	Misburg	2,410 tons of lubricants from	7,000 tons of crude	34.45 % from light crude
2.	Bremen	4,845 tons of lubricants from	10,000 tons of crude	48.45 %
3.	Hamburg- Grainbrook	5,100 tons of lubricants from	16,000 tons of crude and crude equivalent (taking as a basis 4500 tons of intake of Briggitta straight crude and 11,500 tons of Heide and Hienhagen crudes in the form of a 52% residual)	48.50 %
4.	Slieve	1,310 tons of lubricants from	2,800 tons of crude	46.80 %
		13,665 tons of lubricants from	35,800 tons of crude of certain classification	
	representing:	136.65 % of stipulated volume		
	or	100 tons of lubricants will require	262 tons of crude of certain classification	
	or	10,000 tons of lubricants will require	26,200 tons of crude of certain classification	
	or	11,000 tons of lubricants will require	28,820 tons of crude of certain classification	

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Inventory schedule of production of intermediate for export
for period April 1st 1942 to April 30th 1942
ALL Figures must be whole

Group 1 : Group 2 : Group 3 : Group 4 : Group 5 : Group 6 : Group 7 : Group 8 : Group 9 : Group 10 : Group 11 : Group 12 : Group 13 : Group 14 : Group 15 :
 Spindle : Engine : Engine : Opt. M2 : Opt. M2 : Motor : Turbine : Ballroom : Bank : Motor : Motor : Motor : Motor : Motor : Motor :
 All : All : All : All : All : All : All : All : All : All : All : All : All : All : All :
 : 0.175 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 :

Intermediate as of April 1st 1942	300	750	-	-	210	970	-	-	-	-	-	-	-	-	2,000
Intermediate as of April 1st 1942	300	-	-	-	-	-	-	-	-	-	-	-	-	-	200
as of April 1st 1942	300	450	-	-	-	1,200	100	600	600	-	-	-	-	700	1,300
as of April 1st 1942	300	300	-	750	300	1,200	100	600	600	-	-	-	-	700	1,300
Intermediate as of April 1st 1942	300	450	-	750	700	1,200	50	-	100	700	100	700	-	700	1,300
as of April 1st 1942	300	1,700	-	750	800	1,200	50	-	100	700	100	700	100	700	1,300
Intermediate as of April 1st 1942	450	450	500	-	-	-	-	-	-	-	-	-	-	-	1,300
Intermediate as of April 1st 1942	750	3,750	300	1,400	3,000	1,200	600	600	600	600	600	600	600	600	11,000
Intermediate as of April 1st 1942	750	3,750	300	400	3,000	1,200	600	600	600	600	600	600	600	600	11,000

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MONTHLY PRODUCTION OF WILD CRUDE

	1943	August	September	October	November	December	Total
	1943	1943	1943	1943	1943	1943	1943
Barrel Production							
(See footnote)	15,445	15,445	15,445	15,445	15,445	15,445	92,670
Barrel Storage							
(See notes)	7,000	7,000	7,000	7,000	7,000	7,000	42,000
Barrel Balance							
For tapping light prod.	15,000	15,000	15,000	-	-	-	45,000
Barrel							
For tapping light prod.	5,000	5,000	5,000	5,000	5,000	5,000	30,000
after Dec. 1st 1943							
needed to go to							
Shell Refinery							
Barrel							
For tapping crude	10,000	10,000	10,000	10,000	10,000	10,000	60,000
from 1943, for							
later shipment							
Barrel for Shell Ref.							
for light	-	-	-	7,000	7,000	7,000	21,000
					+ residual		
					on Ref. etc.		
Barrel for							
for light	-	-	2,000	2,000	2,000	2,000	11,000
	<u>39,445</u>	<u>39,445</u>	<u>39,445</u>	<u>39,445</u>	<u>39,445</u>	<u>39,445</u>	<u>236,570</u>
Field production							
as per forecast	35,700	35,800	35,800	37,000	35,800	35,800	216,900
Available for manufacture							
from storage	1,200	1,100	1,000	1,000	1,000	1,000	6,300
from stocks in field storage,							
plus stocks of product as							
per forecast							
Less: Stocks of crude in							
city storage							

Note 1: After January 1st 1944 there should be made, as a matter of convenience, a discount of 30 ft in total monthly crude production versus December 1943, viz., 35,700 $\times$.10 = 3,570 to be the theoretical monthly production for first 6 months 1944.

Note 2: After January 1st 1944 monthly crude (light) as per schedule of lubricants (plus amount at Refinery and tapping at Ref.) will be as follows:

Barrel Refinery	15,445 tons
Barrel	7,000 "
Barrel	7,000 "
Barrel	10,000 "
Barrel (forecast)	7,000 "
plus a value of residual oil	
and above grade of light equaling 1,200 "	
Barrel	1,200 "
	<u>50,645 tons</u>

POTENTIAL CREDIT FOR ALLOCATION OF CREDIT CASH

cont'd

Item 2: After April 1st 1945 into plants at

Stearns
 Brown
 Eschburg - Great Brook
 Watrous

will reduce throughout by 10 %, corresponding to reducing credit totals from \$1,100 tons to \$1,000 tons per month.

Item 3: Thus, after April 1st 1945 total credit totals for plants including cracking at Stearns and topping at Watrous will be \$1,000 / $\times 7,100 = 71,000$ tons.

Caution as against field production available for manufacture into bitumen.

Item 4: Rational use of credit for products to be manufactured according to schedule presupposes care in allocation of credit to individual plants. Recommendations in this regard are offered if desired.

THE KEROSENE SITUATION

A strict adherence to the prescribed list of priorities will produce, as shown in the provisional forecast of production on page 30 of this report, a total of 92,190 tons of kerosene in the period July 1st 1945 to June 30th 1946.

The Petrochemiewirtschaft (DARA) estimate that the minimum requirements of kerosene (both for illuminating purposes and for tractor purposes) will be 63,000 tons in the Anglo-American zone of occupation during the 12 months' period.

Thus, the forecast of kerosene production is considerably in excess of actual requirements.

The requisite adjustment can be made with comparative ease by diverting the excess supply of kerosene to an additional production, chiefly diesel fuel and to some extent straight run gasoline. Roughly speaking, the diversion of surplus kerosene into other products can be made at 25% diversion into gasoline, 75% diversion into Diesel fuel.

The quantity of 63,000 tons of kerosene actually required should come 2/3 in the form of refined illuminating oil, 1/3 in the form of kerosene distillates for use in tractors.

Of the total quantity of 63,000 tons of kerosene (both refined and unrefined products) 60% are needed during the winter months October to March, 40% during the summer months April to September.

NARROW BOILING POINT AND TEST BENZINE

The average actual sales per month of the marketers associated in the "Special- und Test-Benzin Gesellschaft" were:

Narrow Boiling Point Benzine

1938: 6,000 tons 1944: 4,400 tons

Test Benzine (White Spirit)

second half 1938: 12,500 " 1944: 3,000 "

first half 1939: 18,500 tons 7,400 tons
per month per month

It is the estimate of the foregoing Gesellschaft that in the Allied zone of occupation, once full normalcy of transport and industrial operations has been reinstated, the consumption will be approximately as follows:

Narrow Boiling Point Benzine	1,800 tons per month
Test Benzine (White Spirit)	2,400 "
	4,200 tons per month

A census of industrial etc. requirements will have to determine the actual needs in the immediate future.

If the estimated total of 4200 tons per month is eventually to be made available this would necessitate providing intake material on the following scale per month:

3650 tons of straight run gasoline will produce:

47% Narrow Boiling Point Benzine	= 1,810 tons
35% Test Benzine (White Spirit)	= 1,347 "
16% Diesel Fuel	= 616 "
2% Loss	= 77 "
	3,850 tons

To produce the balance of 1050 tons of Test Benzine (2400 // 1347 tons) another 3000 tons per month of straight run gasoline are needed to serve as intake material:

35% Test Benzine of 3000 tons	= 1,050 tons
62% Motoring gasoline	= 1,890 "
2% Loss	= 60 "
	3,000 tons

Total intake per month
6850 tons of straight run gasoline

Total net production:

Narrow Boiling Point Benzine	1,810 tons
Test Benzine (White Spirit)	2,397 "
Motoring Gasoline	1,890 "
Diesel fuel	616 "
Loss	137 "
	6,850 tons

HAMBURG BOILING POINT AND TEST RESULTS (cont'd)

Since it is premature to attempt to make a reliable forecast of the actual need in these products during the next few months, the report does not specify these requirements in the "Provisional Forecast of Production" on page 30-31. It must be envisaged, however, that a considerable share of the production in straight run gasoline has to be diverted for this purpose.

In normal times the consumption in this market is divided as follows:

Northern and Northwestern zone	roughly 50%
West, Southwest and South	50%

The immediate and vital needs are for
vegetable seed extraction
mine lumps.

To meet these immediate needs it is recommended that Haltermann at Wilhelmshurg be authorized to restart work. Small repairs necessary to reinstate an intake capacity of 1000 tons a month promptly.

It is stated that in the Hamburg-Harburg area there is a prompt and current need of 10 tons Low Boiling Benzine per day for seed extraction. The yield of this oil being small, it requires an intake capacity of much more than a thousand tons to meet this need in the Hamburg area. The reopening of Shell Wilhelmshurg in about 6 weeks time for an improvised monthly intake of 1000 tons per month should, therefore, be seriously considered. Thought should also be given to increasing Haltermann's capacity to 2000 tons a month.

50% of the normal total consumption being in districts that nationally should be supplied from the Rhine area, it is recommended that a finishing plant be reopened on the Rhine. It is claimed that this plant at Reisholz near Düsseldorf can be rehabilitated with a comparatively small amount of labour and material in 8 weeks for an intake capacity of 2500 tons per month.

As and when total consumption finally runs up to estimates, a second plant will be needed on the Rhine. Thought should, therefore, be given to rehabilitate, at a later stage, the Düsseldorf plant of the D.A.F.G. The plant has an intake capacity of 1600 tons a month. The amount of damage suffered by this plant is stated to be higher than at Reisholz. The reconstruction will, therefore, take more time than at Reisholz.

BITUMEN

In the course of the tube programs there will be produced, as per provisional forecast on pages 30-31 a total of 11,480 tons of Bitumen in 12 months.

It is reasonable to assume that this volume is insufficient to meet current essential needs, particularly for road repairs.

The question has, therefore, been investigated of how additional supplies of bitumen can be mobilized, at least until December 31st 1945 by which time the problem of whether surplus material should go into bitumen or be cracked for motorway fuel will present itself more clearly.

There can be no doubt that from a technical and manufacturing point of view the Igano is best equipped to rationally produce bitumen from the domestic material that might be made available for intake now and in the near future. Igano could be restarted by the beginning of August.

However, it must be mentioned that on account of shortage of suitable tanks with heating coils etc., only softer grades can be produced at present.

To be able to illustrate the possibilities offered, it has been assumed that the surplus of crude available for allocation shown on page 23 is released for manufacture into bitumen by Igano. Likewise that the quantities of residual are released resulting from topping operation in Hamburg (July to September) Eurotank or other plant 15,000 tons crude per month, in Hilde (July to November) total crude intake in period 15,000 tons, in Bremen (July to September) total crude intake in period 30,000 tons. On this basis, the following approximate yields can be expected per month:

REVENUE REPORT OF RITTER COMPANY

IN TONS

	August	September	October	November	December	Total
Crude Received	1,000 tons of crude	1,100 tons of crude	1,200 tons of crude	900 tons of crude	600 tons of crude	
	plus residual of 10,000 tons of crude on barrels/lines	plus residual of 11,000 tons of crude on barrels/lines	plus residual of 12,000 tons of crude on barrels/lines			
	plus residual of 5,000 tons of crude on fields	plus residual of 6,000 tons of crude on fields	plus residual of 7,000 tons of crude on fields	plus residual of 8,000 tons of crude on fields	plus the residual of 9,000 tons of crude on fields	
	plus residual of 10,000 tons of crude on barrels	plus residual of 11,000 tons of crude on barrels	plus residual of 12,000 tons of crude on barrels			
Crude Shipped	700 t	750 t	800 t	600 t	400 t	3,250 t
Crude Lost	100 t	150 t	200 t	100 t	50 t	600 t
Crude in Storage	200 t	250 t	300 t	300 t	200 t	1,250 t
Crude in Transit	200 t	250 t	300 t	300 t	200 t	1,250 t
Crude in Use	100 t	150 t	200 t	100 t	50 t	600 t
Crude in Inventory	100 t	150 t	200 t	100 t	50 t	600 t
Crude in Production	100 t	150 t	200 t	100 t	50 t	600 t
Crude in Distribution	100 t	150 t	200 t	100 t	50 t	600 t
Crude in Consumption	100 t	150 t	200 t	100 t	50 t	600 t
Crude in Sale	100 t	150 t	200 t	100 t	50 t	600 t

NOTE 1: The availability of the crummet depends upon

- adequate transport facilities for residual (barges and tank cars with heating coils);
- adequate start-up of steam;
- availability of 50,000 tons a month capacity of steam;
- adequate throughput through plant (shortage of fields);
- adequate removal of lake distillates;
- provision of adequate supply of ammonia for nitrous.

NOTE 2: There are two alternatives for the disposal of the light and heavy lake distillates

- distillation lake distillation. This will mean provision of refinery equipment. A decision of this will release funds for heating and cracking. For the latter process there is no time capacity in sight.
- the so-called stock. A capacity for heating through the 50,000 tons could then be developed.

NOTE 3: It may be assumed that the steam to be produced on shore will be of a heating value of 10,000 Btu and 1000 Gal.

NOTE 4: Number of the preliminary design of instrumental the plant. Estimated are necessary of appropriate structure.

000102

MONTHLY FORECAST OF PRODUCTION IN ALL MINERALS ONE PRODUCT

(Figures largely based on estimates and corrected as by Government; illustrations subject to revision)

all figures in tons

	July 1955	August 1955	Sept. 1955	October 1955	November 1955	December 1955	January 1956	February 1956	March 1956	April 1956	May 1956	June 1956	Total
IRON AND STEEL													
Castings	1,500	1,500	1,500	1,500	1,512	1,500	1,510	1,500	1,500	1,500	1,500	1,500	18,012
Forged	700	700	700	700	700	700	700	700	700	700	700	700	8,400
Structural	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Sheet	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	14,400
Wrought	500	500	500	500	500	500	500	500	500	500	500	500	6,000
Castings	-	-	-	-	-	-	-	-	-	-	-	-	-
Structural	-	-	-	-	100	100	100	100	100	100	100	100	1,000
Sheet	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
STEEL PIPE													
Castings	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Forged	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ALUMINUM													
Castings	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Forged	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Sheet	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Wrought	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Castings	-	-	-	-	-	-	-	-	-	-	-	-	-
Forged	-	-	-	-	-	-	-	-	-	-	-	-	-
Sheet	-	-	-	-	-	-	-	-	-	-	-	-	-
Wrought	-	-	-	-	-	-	-	-	-	-	-	-	-
STEEL PIPE													
Castings	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Forged	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Sheet	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Wrought	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Castings	-	-	-	-	-	-	-	-	-	-	-	-	-
Forged	-	-	-	-	-	-	-	-	-	-	-	-	-
Sheet	-	-	-	-	-	-	-	-	-	-	-	-	-
Wrought	-	-	-	-	-	-	-	-	-	-	-	-	-

000103

QUARTERLY FORECAST OF PRODUCTION IN ALL MINERAL OIL PRODUCTS (cont'd)

	July 1945	August 1945	Sept. 1945	October 1945	November 1945	December 1945	January 1946	February 1946	March 1946	April 1946	May 1946	June 1946	7 months 1946
CRUDE OIL													
a) Domestic	2,410	2,410	2,410	2,410	2,410	2,410	2,410	2,410	2,410	2,380	1,920	1,920	27,480
b) Foreign	-	-	-	2,975	2,975	4,845	4,845	4,845	4,845	2,875	2,075	2,075	112,000
c) Cracking Residuum	-	-	-	2,700	2,700	2,100	2,100	2,700	2,700	4,000	4,000	4,000	40,000
d) Stocks	-	-	1,310	1,310	2,310	2,310	1,310	1,310	1,310	4,000	1,000	1,000	20,700
	2,410	2,410	3,720	11,395	11,395	13,665	13,665	13,665	13,665	10,320	10,920	10,920	170,780
REFINED													
a) Domestic	-	-	-	520	520	520	520	520	520	415	415	405	4,325
b) Foreign	2,475	2,475	2,475	2,475	2,475	2,475	2,475	2,475	2,475	2,475	2,475	2,475	29,700
RESIDUAL													
a) Domestic	300	300	300	300	300	300	300	300	300	300	300	300	3,600
WAXES													
a) Domestic	-	-	700	700	700	700	700	700	700	500	500	500	5,300
b) Foreign Residuum	-	-	-	850	850	850	850	850	850	400	400	400	4,300
	-	-	700	1,550	1,550	1,550	1,550	1,550	1,550	900	900	900	11,000
BITUMEN													
a) Domestic	2,375	2,375	2,375	-	-	-	-	-	-	-	-	-	10,725
b) Foreign	4,150	4,150	4,600	4,600	4,100	-	-	-	-	-	-	-	21,600
c) Stocks	2,707	2,707	2,707	-	-	-	-	-	-	-	-	-	17,921
	9,232	9,232	9,682	4,600	4,100	-	-	-	-	-	-	-	49,246

a) In line with recommendations made, the crude allocations to these refineries
 such as to 2 after April 1st 1946. Yields of other products from these plants
 were allocated accordingly.

000104

SUPPLEMENT TO PROVISIONAL FORECAST OF PRODUCTION
IN ALL MINERAL OIL PROVINCES

after diversion of surplus of kerosene (as per page 25)
 to gasoline and Diesel fuel respectively and after
 inclusion of additional production of bitumen
 (as per page 29), but

before diversion of straight run gasoline
 for special boiling point and Test Bensines.

Total for
 12 months' period
 July 1st 1945
June 30th 1946
 tons

Total crude intake 645,135 tons
 in 12 months

Gasoline (straight run and cracked)	107,017
Kerosene	65,000
Diesel fuel	94,964
Lubricating oil	116,726
Light and heavy distillates (suitable for cracking fuel oil or, as an emergency, for lube manufacture)	40,472
Petrolatum	4,366
Bitumen	44,108
Coke	39,700
Liquid gas	5,600
Fuel and gas consumption in refineries	101,400
Loss	18,700
Crude not yet allocated	<u>19,080</u>
	<u>645,135</u>

~~LOANER - FAMILIAL AND QUANTITATIVE~~

	Sizing		F E A		D E A		Heavy		Knapweed		Shell		Shell		Self-Seeding		Vernal		Vernal		Shrubland	
	Days	Thick	Days	Thick	Days	Thick	Days	Thick	Days	Thick	Days	Thick	Days	Thick	Days	Thick	Days	Thick	Days	Thick	Days	Thick
BARBERS																						
Building water system (filled) 12	50	1400	50	1500	50	700	50	2500	-	-	70	2100	50	4000	40	2400	50	500	50	1000	50	4000
Building water system (unfilled) 12	50	2100	-	-	-	-	50	2500	-	-	70	1300	50	3000	40	2400	50	500	50	1000	50	4000
Building water (for removal of debris) 12	50	2000	-	-	-	-	100	5000	-	-	50	4500	50	4500	-	-	-	-	-	-	-	-
Build system (filled) 12	50	2500	40	1800	50	1500	50	2500	-	-	70	1200	50	2000	70	1500	50	1000	50	1000	50	1000
Build system (unfilled) 12	70	2000	50	2000	-	-	50	1500	-	-	50	1100	50	2000	70	1500	50	1000	50	1000	50	1000
BARBERS																						
Draw for building 12	50	5	50	5	-	-	70	5	5	5	700	5	5	5	5	5	5	5	5	5	5	5
Draw for building 12	50	5	50	5	50	5	500	5	5	5	700	5	5	5	5	5	5	5	5	5	5	5
Draw 12	50	5	50	5	50	5	500	5	5	5	700	5	5	5	5	5	5	5	5	5	5	5
Building water 12	100	500	100	500	50	500	100	500	50	500	100	500	100	500	100	500	100	500	100	500	100	500
Draw and land 12	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500
Draw water 12	50	5	50	5	-	-	50	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	-	-	50	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12 (for light and screening only, not for building)	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
BARBERS																						
Draw for building 12 (for light and screening only, not for building)	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
BARBERS																						
Draw for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Building water 12	100	500	100	500	50	500	100	500	50	500	100	500	100	500	100	500	100	500	100	500	100	500
Draw and land 12	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500
Draw water 12	50	5	50	5	-	-	50	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	-	-	50	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12 (for light and screening only, not for building)	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
BARBERS																						
Draw for building 12 (for light and screening only, not for building)	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
BARBERS																						
Draw for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Building water 12	100	500	100	500	50	500	100	500	50	500	100	500	100	500	100	500	100	500	100	500	100	500
Draw and land 12	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500
Draw water 12	50	5	50	5	-	-	50	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	-	-	50	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12 (for light and screening only, not for building)	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
BARBERS																						
Draw for building 12 (for light and screening only, not for building)	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
BARBERS																						
Draw for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Building water 12	100	500	100	500	50	500	100	500	50	500	100	500	100	500	100	500	100	500	100	500	100	500
Draw and land 12	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500	50	500
Draw water 12	50	5	50	5	-	-	50	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	-	-	50	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12 (for light and screening only, not for building)	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw water for building 12	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
BARBERS																						
Draw for building 12 (for light and screening only, not for building)	50	5	50	5	50	5	500	5	5	5	500	5	5	5	5	5	5	5	5	5	5	5
Draw 12																						

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- a) covers in this connection: brick layers, carpenters, concrete work specialists.
- b) covers in this connection: welders, mechanics, pipe fitters, riveters, electricians, plumbers, heating engineers.

Due to the difficulties in investigation the figures for Henry-John McGhee, Ben Walker and Eddie
could only be obtained in passing, without the respective local officers being able to check them.

Salt Domes and Structures in N.W. Germany

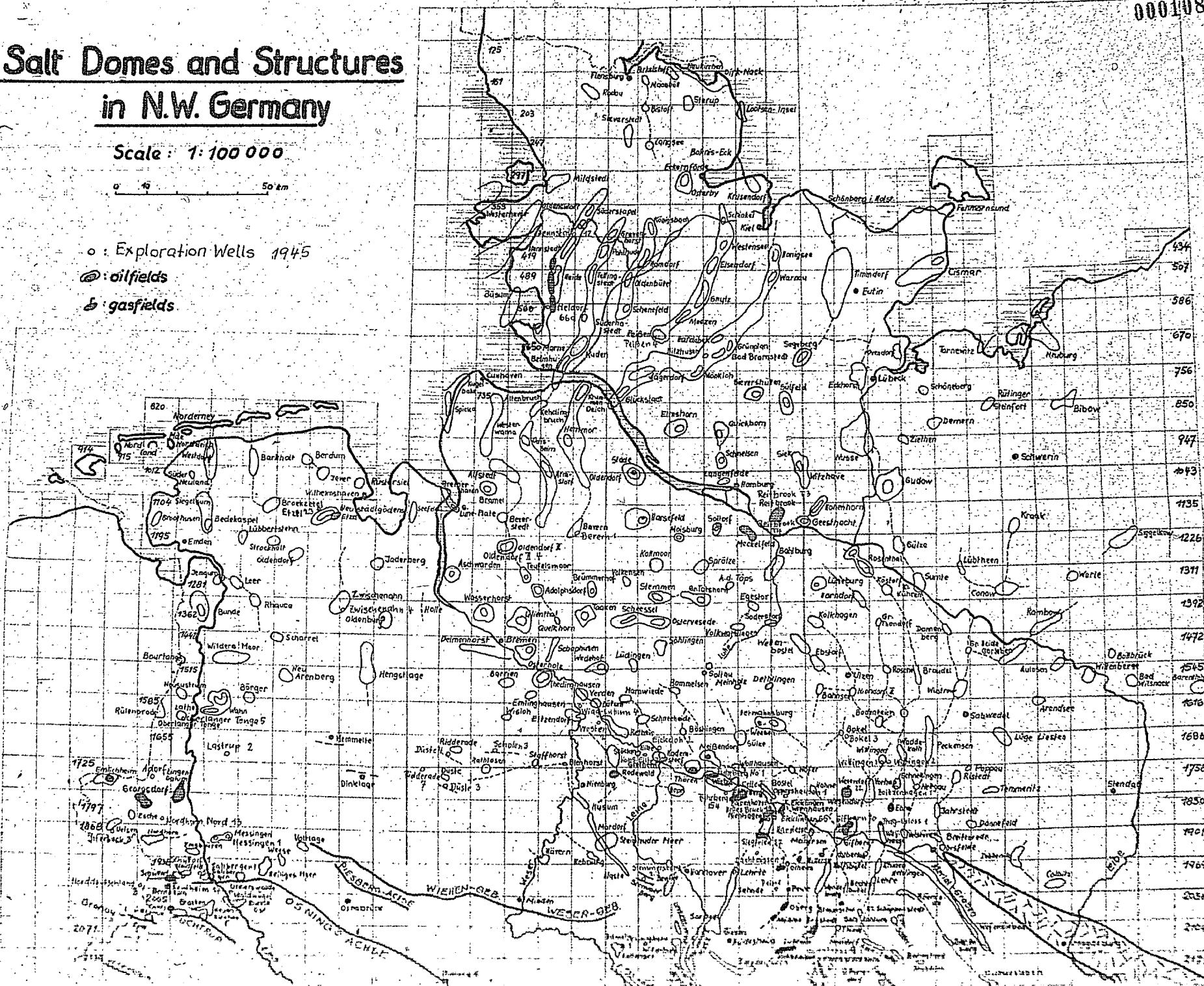
Scale: 1:100 000

0 40 50 km

○ : Exploration Wells 1945

⊙ : oilfields

⊗ : gasfields

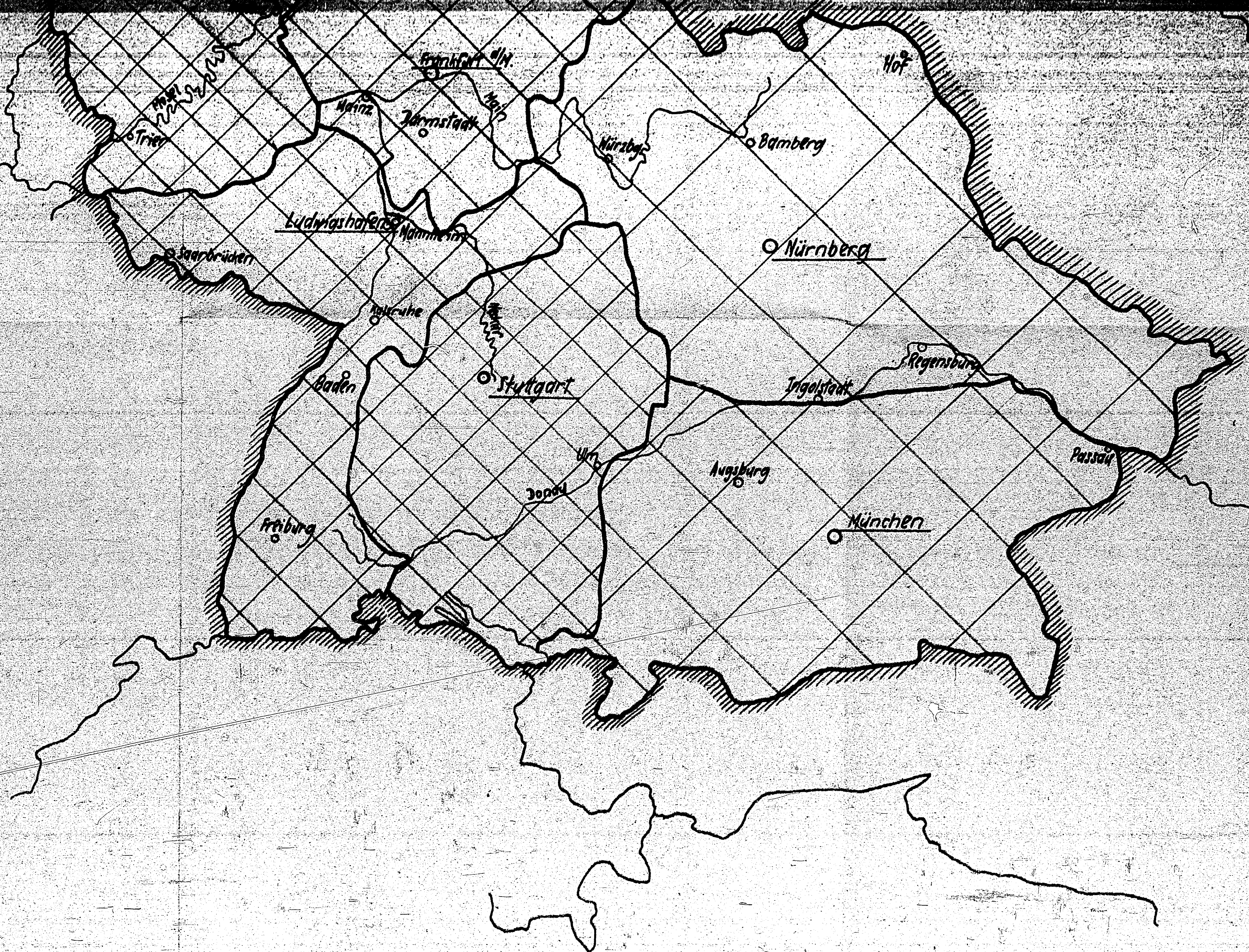


Map showing Manufacturing Plants and Relative Lub Oil Distribution in Allied Controlled Germany

Scale 1:1500 000

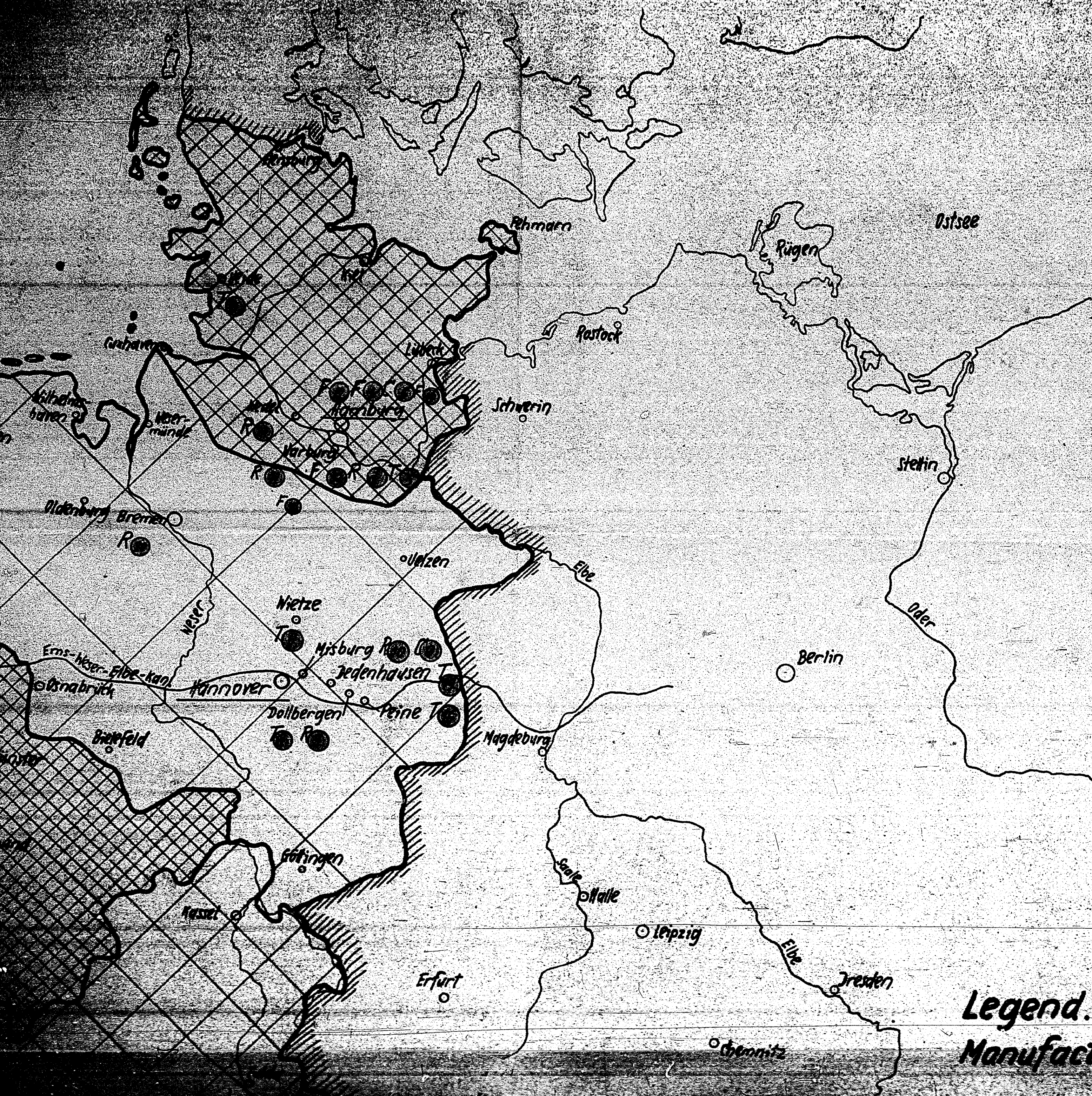


Legend.
Manufacture



1	
2	
3	
4	Wietze
5	Harburg
6	Hamburg
7	Dollbergen
8	Dollbergen
9	Misburg
10	"
11	Harburg
12	Hamburg
13	Wilhelmsb.
14	Reisholz
15	Monheim
16	Peine
17	Wilhelmsh.
18	Hamburg
19	Dedenhaus
20	Bremen
21	Wedel
22	Salzbergen

• in const



Signs:

R = Refinery

T = Topping Plant

C = Cracking Plant

F = Finishing Plant

figures in circles point to list of Manufacturing plants

Chequers covering districts indicate density of distribution as per tabulation below

Legend. Manufacturing Plants



	Location	Company	Type of Plant	Capacity (t.p.m.)
1	Hamburg	Albrecht u. Co. K.G.	Finishing Plant	1400
2	Wilhelmsburg	Deutsche Erdöl A.G.	Refinery	10000
3	Heide	" " "	Topping Plant	15000
4	Wietze *	" " "	" "	4500
5	Harburg	Ebano Asphalt Werke A.G.	" "	30000
6	Hamburg	Eurotank A.G.	Topping unit Cracking Plant	25000
7	Dallbergen	Deutsche Gasolin A.G.	Refinery	4400
8	Dallbergen	Georg Greiser	Topping Plant	1400
9	Misburg	Deurag	Cracking Plant	15000
10	"	Nerag	Refinery	15000
11	Harburg	Rhenania Ossag	"	30000
12	Hamburg	" "	Finishing Plant	4000
13	Wilhelmsburg	" "	" "	5000
14	Reisholz	" "	" "	2500
15	Monheim	" "	" "	2500
16	Peine	Julius Schindler GmbH	Topping Plant	800
17	Wilhelmsburg	" " "	Finishing Plant	750
18	Hamburg	Ernst Schliemann's Ölwerke	" "	1000
19	Dedenhausen	Albert Sengewald	Topping Plant	1800
20	Bremen	Deutsche Vacuum Öl A.G.	Refinery	10000
21	Wedel	" " " "	"	3000
22	Salzbergen	Wintershall A.G.	"	4000

* in construction

Relative Distribution in 1944	
District	%
Düsseldorf	31,3
Frankfurt a/Main	4,5
Hamburg	22,2
Hannover	5,4
Köln	10,1
Ludwigshafen	8,2
München	5,4
Nürnberg	6,1
Stuttgart	6,8
	100,0

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