

Major Simone

ROUMANIA OIL TARGETS - SMALLER INSTALLATIONS

We attach hereto lists of the smaller oil installations in Roumania. These consist principally of Gasoline extraction plants at the oil fields, Storage Tanks, Oil Pumping Stations and some of the smaller refineries. They are arranged in 3 schedules A, B, and C according to priority of importance of the groups and again in order of priority within each schedule according to importance of the installation. These lists have been prepared in conjunction with the Roumanian Oil Expert, Lt. Col. Forster and are based on available information from a number of Sources. However, they are subject to revision in accordance with photographic interpretation as it may become available.

A.I.3c(1) target material has been issued on those targets whose Op. Nos. are underscored twice. No A.I.3c(1) target material has been issued on targets whose Op. Nos. are underscored once, but they are on the Station List. Targets whose Op. Nos. are not underscored are either in the S.D. 159 at present, or will be added to it in an amendment to be issued shortly.

A.I.3c(1)  
24 July 1944.

A.W. Lawson  
Lt.Col. A.C.

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005-1767

ROUMANIA - OIL TARGETS - SMALLER INSTALLATIONS SUGGESTED FOR E.B.C.

Op.No.	A.M.No.	Place	Name	Geographical Co-ord.		MAAF. Target Number	Cover ?	Identified on cover ?
				North Lat.	East Long.			
	<u>Primary:-</u>							
<u>BR.83</u>	<u>S.6133</u>	Boldesti	Oil Pumping Station, Storage, Gasoline Extraction Plant & Compressor Station of Astra Romana & Steaua Romana.	45° 03'	26° 02'		Yes	Yes
BR.84	S.6134	Ceptura	Gasoline Extraction Plant and Storage (Three groups).	45° 01'	26° 19'		No	No
BR.85	S.6135	Tintea (Balcoi/Tintea)	Crude Oil Storage	45° 02'	25° 53'		Yes	Yes
BR.86	S.6136	Moreni	Gasoline Extraction Plant & several groups of important storage tanks & pump stations.	44° 59'	25° 38'		No	No
BR.87	S.6137	Gura Ocniței (Targoviste/ Gura Ocniței)	Crude Oil Storage & Extraction Plant. (Several scattered groups)	44° 56'	25° 33'	11-59-NA	Yes	Yes
	<u>Secondary:-</u>							
BR.88	S.6138	Ochiuri or Ocnița	Gasoline Extraction Plant and storage tanks	45° 00'	25° 32'		No	No

Op.No.	A.M.No.	Place	Name	Geographical Co-ord.		MAAF Target No.	Cover ?	Identified on Cover ?
				North Lat.	East Long.			
BR.89	S.6139	Rasvad or Razvadul	Gasoline Extraction Plant	44° 56'	25° 28'		No	No
BR.106	S.6166	Margineni	Gasoline Extraction Plant & Storage	44° 53'	25° 45'		Yes	No
<u>BR.80D</u>	<u>S.6130B</u>	Baicoi (Baicoi/Floresti)	Oil storage, Pumping Station & storage tanks (several groups)	45° 03'	25° 48'		Yes	Yes
<u>BR.3D</u>	<u>S.103D</u>	Campina	Oil Pumping Station and Storage	45° 08'	25° 45'	11-1-NA	Yes	Yes
BR.90	S.6140	Bucsan	Gasoline extraction plant and storage tanks, several groups.	44° 52'	25° 39'		No	No

A.I.3c(1).

## Schedule "B" (Second priority)

~~SECRET~~ROUMANIA - OIL TARGETS - SMALLER INSTALLATIONS SUGGESTED FOR E.B.C.

Op.No.	A.M.No.	Place	Name	Geographical Co-ord.		MAAF No.	Cover	Identified
				North Lat.	East Long.			
<u>BR.4B</u>	<u>S.104B</u>	Teleajen nr. Ploesti	Teleajen State Oil Pumping Station	44° 57'	26° 05'	11-100B-NA	Yes	Yes
BR.91	S.1641	Moinesti	Steaua Romana Refinery and Oil Storage	46° 27'	26° 29'	11-61-NA	Yes	Yes
<u>BR.82C</u>	<u>S.6132C</u>	Buzau	Petrol Block Refinery	45° 08'	26° 50'	11-12-NA	Yes	Yes
BR.92	S.6142	Ramnicul Sarat	Venus Refinery	45° 21'	27° 03'		Yes	Yes
BR.93	S.6143	Doicesti	Refinery of Soc. Gen. Mine & Petrol & Oil Storage	44° 58'	25° 25'		Yes	Yes
<u>BR.82B</u>	<u>S.6132B</u>	Buzau	State Oil Pumping Station	45° 08'	26° 47'	11-12-NA	Yes	Yes

A.I.3c(1).

Schedule "C" (Third priority)

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ROUMANIA - OIL TARGETS - SMALLER INSTALLATIONS SUGGESTED FOR E.B.C.

Op.No.	A.M.No.	Place	Name	Geographical Co-Ord.		MAAF NO.	Cover	Identified
				North Lat.	East Long.			
BR.102	S.6152	Bascovu	Oil Storage	44° 53'	24° 48'		Yes	Yes
BR.103	S.6153	Caineni (North)	Oil Storage	45° 29'	24° 16'		Yes	Yes
BR.104	S.6154	Caineni (South)	Oil Storage	45° 28'	24° 17'		Yes	Yes
BR.105	S.6155	Tantareni	Oil Storage	44° 34'	23° 31'		Yes	Yes

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AO 54/1/2

ROUMANIAN OIL

From the information available to us it is far from clear how much Roumanian refining capacity has been definitely knocked out. Although a number of the undamaged or slightly damaged plants are reported as inactive we do not know the reasons for this inactivity and pending further information we must regard such plants as in operating condition. We are also in doubt as to how seriously Romana Americana, Standard Petrol Block and Unirea Sperantza are damaged; likewise it is possible that a part of the heavily damaged Astra plant could be brought into partial operation. In all there are some 3 million tons of capacity which we cannot describe as knocked out pending further information. I think all we can say at the moment is:-

- (1) Refining as a whole has received a severe check and it looks as though refining operations have been totally stopped for at least a number of days during the recent attacks.
- (2) That about 2 million tons of refining capacity should be in operation at any moment, if it is not already, and that this may quite quickly be increased to from 3 to 4 million tons if repairs are not interrupted.

The steps being taken by the Germans to remedy the position are probably based on the following priorities:-

- (1) To ensure the supply of fuel oil to the Roumanian railways.
  - (2) To supply operational requirements of gasoline and diesel oil to the forces fighting on the Roumanian front. These requirements are estimated at from a minimum of 3 to a maximum of 5 trains per day, plus the equivalent of almost 1 train per day to supply G.A.F. requirements.
- (Note: To meet the requirements of (1) & (2), not less than 3,000,000 tons of refining capacity will be necessary).
- (3) To export the maximum quantity of crude from Roumania for refining elsewhere.
  - (4) To restore Roumanian refining capacity

Of the foregoing priorities numbers (1) and (2) may be of equal priority. As far as POL supplies to the Roumanian front are concerned, the frontline is within MT distance of Ploesti. The estimated military requirements do not take into account those forces north of the Carpathians which have hitherto been supplied substantially from Roumania.

The requirements for the G.A.F. are likely to be supplied direct from central European sources.

In regard to (3), provided that transport facilities are available, substantial quantities of crude oil should be available for movement out of Roumania for refining elsewhere. We know, however, that the refining position in Axis Europe is tight and assuming that transport is no bottleneck the amount shipped is likely to be dependent upon the refining capacity available. Consequently a reduction in this refining capacity would be a deterrent to shipment.

In regard to (4) a considerable quantity of spare equipment was used up in rehabilitating the refineries that were badly damaged last August. It is consequently to be expected that, whereas repairs will be made as rapidly as possible to produce gasoline by the simplest methods, there are likely to be immense difficulties in restoring quickly a major part of the damage.

In considering the foregoing from the target point of view the following comments are pertinent:-

- (a) If refining capacity is reduced to small figures and if the Russians resume their offensive while this condition prevails, the German armies on that front would have to rely principally upon supplies

/from

from Germany.

(Note: The large production of Austria yields negligible quantities of gasoline.)

(b) Crude oil shipped from Roumania to refineries in Central or Northern Europe will not be available for consumption as finished products in under about 2 months. Consequently a stoppage of crude movement would have a long term rather than a short term effect.

(c) Intelligence shows that such crude as has been shipped in the past has almost entirely been shipped by barge. The crude is believed to be moved by the two ten inch pipelines to Giurgiu. If both these pipelines are used for crude their combined capacity is about 135,000 tons per month. The Teleajen pumping station, at the start of the line near the Romana Americana refinery, is the vulnerable point for dislocating these two lines; also live storage at Giurgiu.

(d) The dislocation of the already over-worked refineries of Central and Northern Europe would, firstly, be quickly reflected in shortage of supplies at points of consumption and, secondly, prove a deterrent to the export of Roumanian crude.

(e) If the Roumanian refineries are totally immobilised and if damage is simultaneously done to the refineries elsewhere then the fuel supplies to the German armies in South-East Europe would virtually dry up.

RUMANIA

*John P. ...*  
SECRET

Oil Movement

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During 1943 Rumanian oil movements were approximately as follows:-

		Million Tons
By Rail	Export	2.41
	Internal	1.46
By Pipeline		1.34

Of the quantity carried by pipeline about four-fifths was handled by the new 10" lines to Giurgiu. During the same period rail traffic was at the rate of over 24,000 wagons of oil per month, or some 800 wagons per day. The ratio of oil carried by rail for all purposes to that carried by pipeline was almost 3 tons of oil by rail for every one carried by pipeline; for oil exports only the ratio was 1.8 tons by rail for 1 by pipeline.

Destruction of refinery capacity will necessitate larger proportionate exports of crude oil for which barge transport will prove more convenient; it may therefore be expected that so long as the Giurgiu pipelines are in working order they will continue to be used at their normal rate of operation at least - i.e. they will handle up to  $1\frac{1}{2}$  million tons of oil a year. This assumes that Danube barge traffic is not severely dislocated.

Assuming that oil is being exported to Germany and supplied to German forces in Rumania at the rate of 3 million tons a year, if former normal oil transportation practice is being maintained, the quantities of oil being supplied by rail to Germany and the German armed forces would average 160,000 t.p.m., leaving 90,000 t.p.m. to be carried by pipeline for on-shipment by barge. The 90,000 t.p.m. would be well within the capacity of the four Giurgiu pipelines.

So long as they remain undamaged the Giurgiu pipelines could handle probably over 50% of the assumed 3 million tons of German oil supplies from Rumania, with a corresponding reduction in the demands made upon the railways for oil transport.

There is the possibility that the load upon the railways could be further reduced by making use of the Ploesti-Czernavoda line with an additional capacity of over 60,000 t.p.m. and creating barge loading

/facilities

facilities at Czernavoda, though this would entail a round trip of an extra 200 miles or more for the barges which used this source of supply. The Ploesti terminals of both Constanza and 10" Giurgiu lines are situated in the one installation at Teleajen.

S  
B

SITUATION OF PLOESTI REFINERIES

Whereas, my previous report approached the subject from the standpoint of refineries that had been damaged in the 1 Aug. 1943 raid, the status of restoration and the damage from subsequent attacks in April and May 1944 by the 15th Air Force, this paper will now list the available refining capacity in the light of new photographic interpretation reports up to 11 May 1944.

Capacity per Annum

1. Romano Americana - This refinery has not been attacked and no bombs have accidentally fallen within its boundaries.

1,300,000 tons.

2. Standard Petrol Block - It was not attacked and not damaged in the raid of 1 Aug. 1943. Some bombs fell on it in the raids made by the 15th A.F. The result of this is stated in MAPRW report DB. 71 date 11 May 1944 as follows.

1. A shed in the Dubbs cracking plant slightly damaged by a near miss.

2. Roof of boiler house damaged, but not severely.

3. Nine small storage tanks destroyed (Note, there are 14 large and at least 33 small tanks in the refinery)

4. Hits on sidings tracks.

Comment: The damage does not appear to have been sufficient to impair any of the refining capacity, hence it must be rated as it was originally

480,000 tons.

3. Speranza Unirea - This refinery, which adjoins Standard Petrol Block, was not damaged on 1 Aug. 1943. In the attacks by the 15th A.F. several bombs apparently dropped in the refinery area. The report G.125 dated 6 May 1944, states the plant is largely smoke obscured but several craters are visible but no damage to installations or storage tanks can be seen. A subsequent report of 11 May 1944 DB.71 states "Small shed SE. of boiler house almost destroyed."

Comment: There is no damage reported of a nature sufficiently serious to write off any refining capacity, hence the original amount.

440,000 tons

4. Dacia Romana - 220,000 tons

Xenia Redeventza - 260,000 tons

Redeventa - 210,000 tons

Lumina - 144,000 tons

834,000 tons

Some damage has occurred to Lumina and possibly Xenia, but nothing of a serious nature. No bombs have fallen on Dacia or Redeventa. These refineries have been reported as inactive at various times but there is nothing to show that the refining capacity of these plants has been lessened.

Capacity per Annum

5. Concordia Vega - Although this plant had been seriously damaged in the attack of 1 Aug. 1943, Report D.S. 45 of Jan 10th 1944 states that it was then repaired and in active operation. The next report DB 71 dated 11th May 1944 covers the damage resulting from the two raids 5th April and 5th May. This report mentions two items of serious damage as follows.

"Considerable damage among installations and buildings in cracking plant" and "Distillation unit and sunken processing tanks severely damaged."

Other damages consist principally of damages to or destruction of tanks, which, though harmful, are not particularly serious, except those referred to "in an unidentified processing plant." This, in fact, is the stabilization plant.

Comment: The units of the cracking plant are out of action but may not be for very long unless the fractionating columns were damaged. The distillation unit is also out of action but although it is one of the newer type units, five others remain intact. The stabilization plant is inoperative, but this is comparatively unimportant. To sum up, this plant may have lost some of its thru-put capacity but it has definitely not been destroyed. Whereas, it was rated at an annual capacity of 1,300,000 tons before the attacks it can now hardly be rated at less than a million tons though the percentage of gasoline will be reduced while the cracking plant is out of action.

1,000,000 tons

6. Steaua Romana - This refinery, seriously damaged in the attack of 1 Aug. 1943, was reported almost completely restored and active in Report D.B. 37, dated 3 April 1944. The first damage reported as a result of raids by the 15th A.F. is contained in D.B. 67 dated 6th May. The photographs covered the night attack 5/6 May and were taken just previous to a daylight attack on the same day. This report states :

1. At least 3, possibly more, oil storage tanks on the N.E. side of the loading sidings are burning fiercely.

3. On the S.E. side of the loading sidings at least one oil storage tank is burning fiercely.

4. Several buildings in the vicinity of the storage tanks have been damaged. One building has been half destroyed.

6. Several buildings in the vicinity of the process tanks have suffered considerable damage.

From photographs on a sortie made 3 hours later in the report G 125 dated 6 May 1944 it is stated that heavy smoke from fires among storage tanks obscures the major portion of the refinery. It can be seen, however, that the Dubbs cracking plant has been damaged but the paraffin plant and a number of storage tanks have escaped injury. No photograph accompanied this report and no further reports have been received.

Comment: In the first report the whole refinery is visible except the storage tank area, N.E. of the loading sidings, and a small part of the loading sidings. The damage to the storage tanks or the buildings near them does not appear to be serious.

/The damage

Capacity per Annum

The damage as stated above under item 6 may be serious since it occurs in the Stratford distillation plant. In the second report, it appears that the wind has changed since the major portion of the refinery is now smoke obscured. The Dubbs plant is important but the impression is left that it is not severely damaged or it would state so. To sum up from the evidence received this plant is far from being destroyed, though it is not possible to say how much damage was done in the daylight raid of the 6th May because the plant was largely obscured by smoke when the P.R. was made.

Of the remaining refineries in the Ploesti area, Astra Romana, Phoenix, and Creditul Minier are definitely out for a considerable period.

Recapitulation

1. Romano Americana	-	1,300,000 tons
2. Standard Petrol Block	-	480,000 tons
3. Speranza Unirea	-	440,000 tons
4. Dacia Romana -	220,000 tons	
Xenia Redeventza -	260,000 tons	
Redeventa -	210,000 tons	
Lumina -	<u>144,000 tons</u>	
	-	834,000 tons
5. Concordia Vega	-	1,000,000 tons
6. Steaua Romana(1,500,000 tons)	-	doubtful
		<u>4,054,000 tons</u>
	TOTAL	

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Review of SituationRoumanian Oil Refineries

The Roumanian oil refinery capacity, situated almost entirely in the Ploesti area, amounted to something over 9,000,000 tons per year before the attack of 1 Aug. 1943. Its production, however, was only 5,000,000 tons since that was about the total amount of crude oil made available from the Roumanian oil fields. The surplus capacity of 4,000,000 tons was then temporarily put out of commission as a result of the raid of 1 Aug. 1943. That surplus was gradually restored, however, so that by 5th April, 1944, eight and one-half months after the raid of 1 Aug. 1943 and before the first attack on the Ploesti marshalling yards the lost surplus capacity had been reduced by 2,840,000 tons. At no time, however, can it be considered that the enemy forces or industrial production was deprived of oil.

Situation on Damaged Refineries from Int. Report D.S.45 based on photographs on 10 Jan. 1944

Table I Astra Romana - reported very active - Cap. 1,750,000 tons  
 Phoenix/Orion " " " " 730,000  
 Concordia/Vega - reported repairs and clearance completed and plant in obvious active operation Cap. 1,450,000  
 Colombia - still out of action (also IB.37 date 3 April, 1944)  
 Creditul Minier - still out of action

Int. Report D.B.37  
 Based on photograph, 3 April, 1944

Steana Romana - Repairs practically complete appears active Cap. 1,500,000

From the report of the combined agencies to A.C. of A.S., Intelligence, dated 6 Sept. 1943, the tons lost as a result of the raid 1 Aug. 1943, and hence the tons restored by 5th April, 1944, in view of above reports are:-

	Cap. Tons lost (Raid 1 Aug. 1943)	Cap. Tons Restored (by 5 April, 1944)
Table II		
Astra Romana	900,000 T.	900,000 T.
Phoenix/Orion	220,000	220,000
Concordia Vega	220,000	220,000
Columbia	535,000	-
Creditul Minier	535,000	-
Steana Romana	1,500,000	1,500,000
Total	3,910,000 T.	2,840,000 T.

In the first report, IB.47, dated 14th April, after the first attack by the 15th A.F. on the 5th April, 1944, it is stated that the Astra Romana Group of Refineries is inactive though no major damage to essential installations can be detected. The minor damage mentioned includes two large storage tanks burnt out as well as a number of small process tanks. In the next report IB.55 dated 25th April, following attacks by the 15th A.F. on the 15th and 24th April, the Astra Romano group of refineries has suffered severe damage. The Astra Romano group consists of Astra Romano, Phoenix Orion and Iuzina refineries. Of the three Iuzina refinery (small, only 144,000 tons) which had not been damaged in any previous raid, now suffered only minor damage. The Phoenix Orion plant was put out of action by the destruction of the power house and severe damage to half the boiler house. The Astra Romano plant suffered severe damage to at least half its Shell type distillation unit. However, the McFee Units and the Trumble units were

not damaged. Hence, this plant retains probably two-thirds of its refining capacity since no other serious damage occurred. The result of these two raids may be estimated as follows:-

Table III

	<u>Capacity before raids</u>	<u>Lost Capacity</u>	<u>Remaining capacity</u>
Astra Romano	1,750,000 T.	600,000 T.	1,150,000 T.
Phoenix Orion	730,000	730,000 T.	-
Lumina	144,000	-	144,000
	<hr/>	<hr/>	<hr/>
TOTALS	2,624,000	1,330,000	1,294,000

Referring back to Table II, the capacity restored by repair work by April 5th was 2,840,000 tons

The capacity lost by the raids 15th, 24th April is estimated, as shown above 1,330,000 "

Restored surplus capacity 2 May, 1944 1,510,000 "

On 6th May a further attack on the Ploesti marshalling yards was made. No damage photo interpretation report covering this attack has, as yet, been received, but a signal states photos. (presumably strike) show tremendous fires Astra refinery. No estimate of lost refining capacity can be made but the estimated refining capacity at the time of the attack was 1,150,000 tons per annum.

On the night of 5/6th May an attack was made on the Steaua Romana refinery (cap. 1,500,000 tons) at Campina. The signal states hits were made in the refinery and the entire area was smoke covered after attack. A day attack on 6th May followed and the signal states further hits were made in the refinery area. These attacks were not concentrated on the refineries but included nearby marshalling yards, pumping station and other installations. In view of this and the fact that both Astra Romana and Steaua Romana each have several distillation batteries and extensive boiler houses, it is very unlikely that the whole refining capacity in either plant has been damaged. Should this be the case, however, then the entire surplus refining capacity of 4,000,000 tons in Roumania will have been temporarily eliminated and in addition a productive capacity of 1,150,000 tons.

The net refining capacity would then be:-

Table IV

1.	Total Capacity	9,000,000 tons	
2.	Productive Capacity required for Roumain Crude Oil output	5,000,000 "	
3.	Surplus capacity	4,000,000 "	
4.	Capacity out of action	5,150,000 "	
5.	Remaining productive capacity	3,850,000 "	or 77% of total required.

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