

ID 2890

SEAGULL EXPLORATION ITALY

S.p.A.

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R O M A

PETROLEUM EVALUATION OF

SEAGULL PERMIT "BR.115.SE."

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I N D E X

PREMISES	page	1
I - REGIONAL GEOLOGY		4
II -STRATIGRAPHY		9
III-TECTONICS		14
IV -GEOPHYSICS		18
V -PETROLEUM EXPLORATION		20
a - Regional outline and hydrocarbons shows		20
b - Reservoir rocks		21
c - Source rocks		22
d - Gas fields		22
VI -CONCLUSIONS AND RECOMMENDATIONS		24
GIULIANOVA MARE WILDCAT DATA SHEET		28

LIST OF ENCLOSURES

ENCLOSURE

- I General Information Map : Stratigraphy and tectonics. Scale 1 : 50.000
- II Structural outline - Velocity and sand distribution map. Scale 1 : 25.000
- III Structural contour map. Top of Upper Pliocene. Scale 1 : 25.000
- IV Structural contour map : Top of Middle Pliocene. Scale 1 : 25.000
- V Structural contour map : Top of Lower Pliocene. Scale 1 : 25.000
- VI Structural contour map : Lowermost Pliocene. Scale : 1 : 25.000
- VII Isochrone map : Lower Pliocene Horizon. Scale : 1 : 25.000
- VIII Isochrone map : Lowermost Pliocene Horizon. Scale : 1 : 25.000
- IX Geological interpretation of seismic reflection L 1 line
- X Geological interpretation of seismic reflection L 2 line
- XI Geological interpretation of seismic reflection L 3 line
- XII Time-depth conversion diagram

PREMISES

The petroleum offshore concession "BR.115.SE." held by Seagull Exploration Italy S.p.A. has a surface of 7,068 hectares. It was granted on June 24th, 1972 (B.U.I. XVI, n.7). Drilling obligation date : June 27th, 1976.

The permit is located in Zone B offshore Adriatic on the eastern flank of the large Miocene-Pliocene North Abruzzi Basin. The distance from Giulianova coast varies from 6.8 kms. to 16.3 kms.

The permit is bound to the west, south and east by the petroleum permit BR.34.MC held by AGIP-SOMIT-SHELL. To the north it is bound by areas closed to further applications or connected with producing leases.

The permit regional picture evidences a favourable petroleum situation, represented by the Emilio 1 - Fratello East 1 gas trend. The BR.115 permit may be considered to be inserted between the Emilio 1 multi sand development with gas flows from Upper and Middle Pliocene sands and the Fratello 1 E with Upper and Middle Pliocene gas producing sands, 13.5 kms. to the south permit border.

From the stratigraphic point of view, a Pliocene thick section with an average thickness of 3,850 mts. is to be considered in the permit, and the presence in the latter

structured area of a sandy Upper and Middle Pliocene section with an average thickness of 2,150 mts.

On the other hand, the most important factor is represented by structural conditions of the entire Pliocene sequence.

A previous evaluation of the permit area was based on the AGIP seismic lines (B414-416 and B439-440) shot by G.S.I. in 1968.

The structural conditions occurring in the permit appear linked to the possibility in the mid-eastern part of a structural secondary culmination between the major culmination in the Emilio 1 location to the north and another one to the south.

The problem arising is that of the closure which could exist mainly north of this median axial culmination.

The detailed seismic survey is represented by three seismic reflection lines (L 1-3) totalling 30,730 kms., shot by Geofizika of Zagreb in June 1973.

This seismic study points out the importance of lateral changes of seismic velocities. The analysis of all velocities along the new profiles influences the time-depth transformation and structural depth relations.

From this point of view, the small structural closure present in the isochrone map of one of the Pliocene horizons, tends to minimize in the structural depth map.

The following conditions may be emphasized for the exploration possibility of the permit :

- the existence of a NE-SW structural nose in the middle east permit part, with a critical small closure;
- the velocity distribution from south to the north of the permit, related to a facies change and sand distribution in the Middle and Upper Pliocene sections;
- the zone of higher sand/shale ratio corresponds to the more favourable structural zone of the permit.

This zone is considered for a proposed location, but we recommend an additional seismic survey to detail the structural and location zone, with three lines totalling 14 kms.

I - REGIONAL GEOLOGY

- 1 - The permit BR.115.SE. is located on the sea extension of the large gravimetric anomaly which has its maximum negative value in the Abruzzi-Marche hinterland.

The isoanomalies offer a well defined NNW SSE regional trend and correspond to the Teramo periadriatic basin. The permit area is situated on the eastern flank of this large anomaly, which corresponds to an updipping of the Paleogene-Mesozoic substratum.

The basin area corresponds to a strong neogenic subsidence developed during the Pliocene and Lower Quaternary. Consequently, the Lower - Middle Miocene limestone reaches the remarkable depth of 6,000-7,000 mts. in the coastal zones between the Tortoreto Lido 1 well and the Campomare wells 1 - 3 (See Encl.I).

The stratigraphic and structural development of the Teramo basin in the permit area could depend on the rigid carbonatic substratum and the overlying terrigenous plastic series.

The upper part of the carbonatic substratum is represented by Middle and Lower Miocene limestone and marly limestone, transgressive on Oligocene-Eocene formations, followed by powerful Cretaceous-Upper and Middle Jurassic sequence.

The Lias - Lower Middle Miocene substratum has an approx. thickness of 2,300 - 2,500 mts. and a structural trend characterized by a W and SW regional dip towards the deep basinal areas of the coastal belt and hinterland.

This structural trend and depth decidedly limits the interest of Middle - Lower Miocene and Paleogene - Upper Mesozoic substratum in the permit area and it is devoid of petroleum interest. On the other hand, the seismic data related to the deepest horizon considered in this study, refer to a lowermost or basal Pliocene.

- 2 - The plastic terrigenous series would begin with the deposition of the Upper Miocene sediments. This Upper Miocene sedimentation across the basin offers different facies and various development. The sandy arenaceous graded facies with local gypsum lenses characterizes the basin western outcrops where it reaches 1,500 mts. thickness.

South and eastwards, crosswise and along the basin axis, this clastic facies is heteropic to the marly formation, with arenaceous interbedding and gypsum, overlying the Middle Miocene limestone.

This marly arenaceous Upper Miocene facies is about 2,000 mts. thick and extends eastwards as far as the Adriatic coastal area.

None of the onshore wells, i.e. Tortoreto 1 (Martinsicuro

(T.D. 3011 mts.) and Tortoreto Lido 1 (T.D. 2,350 mts.) or the deeper inland well such as Torrente Tesino 1 (T.D. 5,044 mts.) have ever reached this marly arenaceous Upper Miocene unit. The basal marly arenaceous sequence of Emilio 1 well overlying directly the gypsum and associated marls could represent the basal Pliocene. But a basal undefined part of thick Lower Pliocene represented in the Emilio 1 - Tortoreto Lido 1 correlation (see Encl. I) could probably represent the marly arenaceous Upper Miocene facies in pinch-out towards the gypsum and marls of Emilio 1.

The Upper Miocene section thins from west to the eastern and southern marginal areas of the basin, where the evaporites and interbedded marls under the basal Lower Pliocene unconformity are few hundred meters thick.

The Pliocene sedimentation begins with an unconformable basal formation of shaly marls and local arenaceous levels and a basal conglomerate, followed by a sandy arenaceous formation with sand, graded sandstone and marly shaly interbeds. These two formations offer a basinal thickness of approximately 1,000 mts. Southeastwards in the offshore only the marly shaly formation is present. The deepest levels of the Cellino gas field and the gas bearing levels of the onshore structures, such as Torrente Tesino, belong to this formation.

The Lower Pliocene upper section consists of shaly silty marls with well defined but infrequent sands and sand-

stones, and upwards marly shale and interbedded sandy or arenaceous levels. The upper sands of the Cellino gas field are located in this uppermost Lower Pliocene formation. The 1,700 mts. formation thickness of the central hinterland zone, decreases sharply towards the southern basin edge and its lateral offshore extension.

The Middle Pliocene sedimentation offers a regional unconformity which truncates nearly all the Lower Pliocene and Upper Miocene strong structures. The lithofacies is given by marly shale with sand; in the offshore by alternating sand, sandstone and shale. This interval may be defined by *Globorotalia crotonensis* biozone. It corresponds to an eastwards displacement of the basin.

The base of the Upper Pliocene sedimentation is marked by another unconformity, evident on structural culminations. It corresponds to the eastwards displacement of the basin axis and to a large extension in the offshore areas, with shale, sandy and silty shale, sometimes numerous sand intervals. A notable thickness of 2,500 - 3,000 mts. characterizes the synclinal areas, on the anticlines the disharmony with the Quaternary cover is evident and the thickness is strongly reduced. The Upper Pliocene corresponds to the *Bulimina marginata* biozone.

The Pleistocene sedimentation (Lower Quaternary) is marked in its lower part by the appearance of *Anomalina (Hyalinea) balthica*, and corresponds to a further eastwards displacement of the basin, involving a large offshore zone and a narrow coastal belt.

The Quaternary sediments are shale, silty shale, sometimes sand and conglomerate. Thickness increase from the coastal belt to the external offshore belt. The unconformity and truncation of the Upper Pliocene are emphasized by a bent stratification relative to the prograding shelf. The basal unconformity surface reflects the Upper Miocene structure.

- 3 - In conclusion the NW-SE basin axis culminates at NW and SE. The basin structural evolution trends eastwards. Consequently, the sedimentation varies in both the axial and transversal directions.

II - STRATIGRAPHY

Permit BR.115.SE is located 4 kms. south of the Emilio 1 well (T.D. 4,285 mts.) and 14 kms. respectively, 25 kms. north of Fratello 1 E well (T.D.3,500 mts.) and Fratello 1 (T.D.4,351 mts.). The Emilio 1 and Fratello 1 have reached the Upper Miocene substratum, with gypsum and marl, at 4,280 mts. at Emilio 1.

The BR.115 permit is 8 kms. from the offshore Squalo 1 well (T.D. 2,568 mts.) and approximately 10 kms. from onshore wells Tortoreto Lido 1 (T.D.2,350 mts.), Campomare 1-3 (T.D. 1,403-1,296 mts.) and Montepagano 1 (T.D. 1,302 mts.) (See Encl. I).

These onshore wells reach the Lower Pliocene upper section of a structurally folded and faulted zone thrust eastwards.

The tectonics influence the Pliocene-Upper Miocene sedimentation and controls the exploration possibilities in the pre-Miocene sequence. From this point of view, into the restricted permit area the pre-Miocene offers a probably very limited structural evidence and consequently is practically devoid of a real petroleum interest.

The stratigraphic column considered is represented by the terrigenous Upper Miocene, Pliocene and Quaternary sequence. Its vertical development in the permit structural zone exceeds

the 4,285 mts. drilled by Emilio 1 and also the 4,850 mts. indicated by the basal unconformity surface along the structural section of Encl. II.

1 - Lower Quaternary :

shale, silty shale, local sand and conglomerate lenses.

The 880 mts. drilled in Emilio 1 may be correlated westwards with the 240 mts. of Tortoreto Lido Pleistocene.

In the permit area this Lower Quaternary offers a variable thickness from 920 mts. in the structural zone to 1,030 mts.

The Lower Quaternary section is characterized by the "Anomalina (Hyalinea) balthica biozone". It is unconformable on the Upper Pliocene and evidences the sedimentation of prograding shelf eastwards.

2 - Upper Pliocene :

shale, sandy and silty shale, numerous sand intercalations. The Upper Pliocene interval is 1,196 mts. thick in Emilio 1 structure, with predominant and various sand intervals and shaly sand and shale interbeds.

A multi sand Upper Pliocene section extends and increases southwards in the permit area, where the thickness varies from 1,775 mts. of the structural zone to 2,275 mts of the synclinal western and southern zones. Also towards the synclinal area facing the Tortoreto 1 anticline, the Upper Pliocene thickness increases considerably.

The Upper Pliocene is unconformable over the Middle Pliocene, moving from synclinal thick area to anticlinal reduced culmination.

The Upper Pliocene section is envisaged between the first and second horizons along the seismic lines (Encls. IX - XI). The regional biostratigraphy is defined by the "Bulimina marginata biozone".

3 - Middle Pliocene :

sand, shaly sand and shaly intercalations of an upper prevailing part, and underlying marly shale.

In the Emilio 1 structure the Middle Pliocene reported section is 511 mts. thick, and the sandy upper part is 414 mts. thick. Its equivalent is represented by 300 mts. marly shale and silty marls with some thin arenaceous levels and basal clastites of Tortoreto Lido 1 well.

In the permit area, the direct Middle Pliocene equivalent is given by the Emilio 1 section, with an upper prevailing sand interval and basal marly shale. It appears strongly developed in the permit, from 650 to 700 mts. of thickness.

The Middle Pliocene section is defined by the second and third horizon traced on the seismic sections (Encls. IX - XI); there is no evidence of truncation in the Lower Pliocene. The "Globorotalia crotonensis biozone" characterizes the section.

4 - Lower Pliocene :

The sequence was penetrated to 1,695 mts. in the Emilio 1 structure. It includes :

- 688 mts. of shaly marl, sometimes arenaceous with thin sandstone and siltstone.
- Underlying 115 mts of thin marly sandstone and marl.
- A lower section of 890 mts. of arenaceous and shaly marl with thin silty and shaly intercalations.

This Emilio 1 Lower Pliocene extends into the BR.115 permit where it varies from 1400 mts. thickness of the structural zone to 1,725 mts. synclinal thickness.

The Lower Pliocene upper section drilled to 1,000 mts. thickness in the Tortoreto Lido anticline, displays 400 mts. of soft quartz-sandstone with shaly cement and frequent marly shale intercalations, followed by marly shale with sands. This coastal Lower Pliocene represents only the upper part of a very thick Lower Pliocene sequence, considerably reduced in the Emilio 1 and permit sections. This latter is individuated by the third and fourth horizons of the seismic sections (Encls. IX - XI).

The regional biostratigraphy is given by the "Globorotalia punctulata biozone."

A regional unconformity extends along the base.

5 - Upper Miocene :

5 mts. gypsum and marl, drilled in the Emilio 1 structure.

This gypsum formation could extend for about few hundred meters thickness according a remarkable reduction on the major structural culminations of the Emilio - Fratello trend.

III - TECTONICS

1 - General Outline

The structural situation of BR.115 permit area results between the culmination of Emilio 1 structure to the north and the culmination of Fratello 1 E structure to the south.

The interposed area corresponds to a general N-S structural depression which converges on the southern synclinal permit area and continues on the west and east permit sides.

A NE - SW axial direction characterizes the permit tectonics, which is defined by the following elements from north to south :

- a - the Emilio 1 anticline, a NE-SW prominent structure on the north permit border.
- b - A NE - SW structural nose, joined to the Emilio 1 south flank.
- c - A NE - SW syncline, in the south corner of the permit, which divides the permit structural nose from the southern structural culmination.

2 - Geological interpretation of seismic lines

The structural picture of the permit area is given by four structural contour maps (Encls. III, IV, V, VI) based on four horizons traced on the seismic sections (L 1 - 3, Encls. IX, X, XI) after the projection of stratigraphic units from Emilio 1 well to seismic profiles.

These four horizons correspond to :

- the Lower Quaternary basal unconformity (880 mts in Emilio 1 well);
- the Upper Pliocene basal unconformity or top of Middle Pliocene (2076 mts. in Emilio 1 well);
- the Middle Pliocene base or Lower Pliocene top (2585 mts.in Emilio 1 well);
- a Lowermost Pliocene near the basal unconformity or Lower Pliocene - Upper Miocene boundary (4280 mts. in Emilio 1 well).

a - Structural contour map - Top of Upper Pliocene (Encl.III).

The contour outline corresponds to the Lower Quaternary surface and evidences the Upper Pliocene culmination along the NE-SW Emilio 1 structure and the joined structural nose with a critical closure at -950 mts. in the middle central zone of the permit.

The synclinal NE-SW zone is also present in the SE permit corner; the structural depression is evident on the east and west permit sides, where the Quaternary section may exceed 1,000 mts.

b - Structural contour map - Top of Middle Pliocene (Encl. IV).

The contour evidences the NE-SW structural nose with a critical closure on the isobath 2,750 or 2,775 mts. and the steep descent to the deep NE-SW synclinal zone, where the corresponding horizon may reach the isobath -3225 mts.

This contour is particularly important owing to its structural and stratigraphic meaning, related to the Upper Pliocene section.

c - Structural contour map - Top of Lower Pliocene (Encl. V).

The contour little differs from the preceding one. The NE-SW structural nose is evident, migrated rather SWwards, with a critical closure on the 3450 mts. isoline. The steep SE descent is evidenced by the deep NE-SW syncline on the south border of the permit, where the horizon reaches the depth of -3875 mts.

d - Structural contour map - Lowermost Pliocene (Encl. VI).

Also this contour is particularly important owing to its structural significance in the Lowermost Pliocene section, characterized by an unconformity.

The NE-SW structural nose appears well defined, with a critical closure on the isoline - 4525 mts.

The steep southwards descent emphasizes the deep NE-SW synclinal zone slightly migrated southwards, where the horizon reaches the depth of -5350 mts. A NE-SW and NNW-SSE fault system has some structural importance in the Lower Pliocene section.

IV - GEOPHYSICS

The seismic exploration of the permit area was previously based on the seismic reflection survey shot by G S I for A G I P in 1968 and was represented by two NW - SE lines (B 439 pars and B 440 pars) and by four transversal lines (B 414, 415, 416 and 417 pars) (See Encl.I.).

This preliminary study was limited to the isochrone contour related to four horizons. It demonstrates the structural evolution from Upper Miocene as far as the Quaternary base. The previous conclusions pointed out the possibility of the existence of one closure in the Pliocene section along the axial Emilio 1 NNE-SSW direction.

Three additional seismic profiles L 1 - 2 - 3 were shot by Geofizika in 1973 for Seagull Exploration and represent the subsequent detailed seismic study of the permit area (see Encl. II).

The three additional seismic profiles and their interpretation according to the reflection time, confirm a closer and a small structure, situated near the intersection of L 1 - L 3 profiles.

The analysis of all velocities on the new profiles evidences a characteristic change of velocity in the area. This

velocity change influences the time-depth transformation. The structural depth relations tend to minimize the existence of closure in a well-defined NE-SW structural nose.

During digital processing of new profiles, 17 velocity scans were effected. The lateral important changes of seismic velocity and the interpretation of all velocity analyses conclude that average velocities change systematically from the south of the permit area towards the north.

The permit area may be divided into three velocity distribution zones (see Encl. II) :

- a southern high velocity zone
- a transition zone
- a northern low velocity zone.

This velocity change corresponds to a lateral facies change, mostly in the Upper Pliocene lower part. This high velocity zone corresponds to a lower sand/shale ratio. The transition zone corresponds to a facies change and the lower velocity zone would correspond to a higher sand/shale ratio, in which net sand predominates.

It is of the greatest interest to consider that the high velocity zone invests the southern synclinal zone of the permit. The structural nose develops in the low velocity zone where the extremely low velocity inside this zone probably indicates gas saturation.

V - PETROLEUM EXPLORATION

a - Regional outline and hydrocarbon shows

The basin maximum subsidence and development occurs in the Abruzzi-Marche hinterland, where the Miocene - Pliocene sequence exceeds 8,000 mts. thickness, and the Upper Miocene-Lower Pliocene section has the greatest predominance.

The permit area in particular is located in an intermediate zone, between a major uplifting of the carbonatic substratum to NE and to the east and the deep western zone, where thick Upper Miocene - Lower Pliocene sequence is involved in east-wards thrusting structures:

Several gas shows occurred in the exploratory wells of this basin eastern flank.

Along the coastal Tortoreto Lido 1 structure and Campomare structure numerous gas shows occurred from the Lower Pliocene sand and sandy or arenaceous intercalations.

The important Fratello 1 E - Emilio 1 gas trend directly interests the permit area.

The Emilio 1 well (T.D. 4,285 mts.) is characterized by a multi-sand development and gas flows from 5 Upper and Middle Pliocene sand intervals encountered in a 773 mts. Upper and

Middle Pliocene sandy facies.

The Fratello 1 E is a gas producing well, characterized by Upper and Middle Pliocene gas-bearing sand.

The Emilio 1 - Fratello 1 E gas trend represents an Upper and Middle Pliocene objective with sandy gas-bearing sections.

b - Reservoir rocks

Reservoir rocks in the basin east flank are typically represented by Pliocene sand intercalations, which are characterized by a high to medium porosity.

A secondary reservoir may be represented by sandy or arenaceous levels, with shaly and silty content and cement and a strong porosity decreasing.

As it is proven by Emilio 1 and Fratello 1 wells, the reservoir may be represented by a multi-sand sequence, which interests a large Middle and Upper Pliocene section.

In the structured permit zone, the Upper and Middle Pliocene sandy facies reach 2,200 mts. thickness.

In the eastern offshore belt of the basin, the Paleocene - Upper Cretaceous transition facies with calcarenite intercalations, could represent a gas and oil reservoir as it is shown in the Emilio 3 well (T.D. 3236 mts., approx. 15 kms.

NE of Emilio 1).

c - Source rocks

The thick basinal Upper Miocene and Lower Pliocene section with marl, shale and evaporite could represent the source rocks of the basin Pliocene gas production. This section probably exceeds 5,000 mts. in the basin belt.

But the deep and thick Upper Triassic evaporite could very probably represent the basin source rocks of Lower Paleocene Upper Cretaceous gas production and the late origin of Middle-Upper Mesozoic shows (Emilio 3 well).

d - Gas fields

According to the gas shows distribution reported above, the gas-producing zone is represented by Fratello 1 E well (T.D. 3,500 mts.), probably producing from a multi-sand Upper and Middle Pliocene section. No production and potentiality data are available for this well, 14 kms. to the south of the permit border.

The easternmost uplifted flank of the basin is characterized by the Emilio 3 gas-producing well (T.D. 3,236 mts., with oil shows). This production is linked to a favourable tectonics in the pre-Upper Miocene Mesozoic substratum, and to a calcarenite development of the Lower Paleocene - Upper Cretaceous trans-

ition facies.

The gas production of the basin belt is represented by Lower Pliocene numerous sand and sandstone levels. The deepest production may be indicated by Torrente Tesino-Carassai-Grottemare structure, which represents a deep intermediate basinal tectonics (indicative depth interval 3,494 - 4,210 mts. in Torrente Tesino 2 well).

The Cellino gas field of the N-S producing trend is indicated by Castiglione-Cellino-Fendi wells. It represents another Lower Pliocene gas production of the basin belt, 23 kms. west of Fratello 1 E well, in a strongly uplifted, thrust and truncated anticline. The production depth varies from 600 to 1,000 mts. in multi-sand or sandy-arenaceous levels. The gas saturation is strongly controlled by tectonic traps and porosity factor.

VI - CONCLUSIONS AND RECOMMENDATIONS

The BR.115 limited area is situated on the eastern offshore flank of the Teramo basin.

The regional structural position appears to be intermediate between the strong culmination of the pre-Pliocene substratum to the east, and the strong basinal depression to the west.

The permit area is characterized by a thick sequence from Upper Miocene evaporite to the Lower Quaternary.

The permit is interested and controlled by the stratigraphic north-south Emilio 1 - Fratello 1 E correlation and gas sands distribution.

From this important point of view, the Upper and Middle Pliocene sandy sequence represents the objective in the permit.

This stratigraphic situation is confirmed by the seismic velocity distribution into the permit, which is reported to a sand/shale ratio distribution from southern permit zone to the northern zone.

This distribution characterizes the major and structured part of the permit in a zone of higher sand/shale ratio, where net sand predominates and gas saturation appears quite possible

in the Middle - Upper Pliocene sandy facies.

The permit structure is essentially represented by a NE-SW structural nose, joined to the major structural Emilio 1 culmination to the north.

The structural closure on this northern side is reduced and minimized by the time-depth transformation along the seismic sections and by an important velocity variability.

On the eastern, western and southern sides, the structural closure is emphasized by synclinal depressions.

The southern permit NE-SW synclinal zone represents the real structural depression which defines the permit structural nose between the structural major culmination to the north and to the south of the permit area.

The structural nose is defined by an axis with SWwards major axial dipping. This axis is reported on all the Pliocene section from the Upper Pliocene top to the Lowermost Pliocene or basal Pliocene unconformity surface.

The structural nose is developed inside the low velocity seismic zone and higher sand/shale ratio, to the north of the transitional velocity zone, which corresponds to a facies change to the sandy Upper Pliocene sequence.

The following structural and stratigraphic conditions inside the permit area, are considered to be favourable for gas accumulations:

- a - a joint presence of a facies change and structure;
- b - a less accentuated tectonics as an intermediate structural nose;
- c - the structural nose in all the Upper Miocene - Pliocene sequence and in a zone of a thick Middle-Upper Pliocene sandy facies.

The conclusions descending from velocity distribution into the permit area and connected sand distribution and gas saturation may be considered of major interest in the hydrocarbon permit exploration than a small critical closure.

The possible proposed location of Giulianova Mare wildcat is based on the relative position of the axial culmination and critical closures on the four horizons, which structurally would represent all the Pliocene sequence.

The proposed location corresponds to the following coordinates:

14° 09' 03"

42° 46' 07"

and to a structural evaluation of the

- Upper Pliocene top at -970 mts.
- Middle Pliocene top at -2,750 mts.
- Lower Pliocene top at -3,450 mts.

The critical structural culmination and location zone may be confirmed by a more detailed seismic grid. For this reason, we recommend a complementary seismic grid of one NE-SW line

and two NW-SE lines, totalling 14 kms. (see Encl. II).

THE GEOLOGIST

R. Loss

Rome, October 1974

RL/sb

GIULIANOVA MARE WILDCAT DATA SHEET

PERMIT	B.R.115.SE.
TITLEHOLDER	Seagull Exploration Italy S.p.A.
ACREAGE	7,068 hectares
PARTICIPATING INTERESTS	None
DRILLING OPERATION DATE	June 27, 1976
GEOLOGIC PROVINCE	North Abruzzi Basin
TYPE OF STRUCTURE	Nose with structural closure
EXPLORATION BACKGROUND	Detailed seismic reflection exploration
OBJECTIVE FORMATION	Lower Pliocene
KEY OBJECTIVES	Upper and Middle Pliocene gas condensate sands
SECONDARY OBJECTIVES	Lower Pliocene sands
TOTAL DEPTH FORESEEN	3,500 mts. (11,483 ft.)
AVERAGE CLOSURE	40 mts. (130 ft.)
MAXIMUM INDICATED CLOSURE	50 mts. (165 ft.)
PROSPECTIVE AREA AVERAGE	Closure 253,5 ha. (623 acres) Nose 1,425,5 ha. (3,520 acres)
PROSPECTIVE AREA MAX.	Closure 338 ha. (835 acres) Nose 2,062 ha. (5,095 acres)
PROSPECTIVE AREA MIN.	Closure 169 ha. (418 acres) Nose 787 ha. (1,944 acres)
GEOLOGIC AGE PROSPECT	Pliocene
SAND DISTRIBUTION AND STRUCTURE	Excellent and thick Middle-Upper Pliocene sands and sand porosity development indicated by seismic velocity change and distribution

DRY HOLE COST	\$1,500,000
COMPLETED PRODUCER COST	\$2,500,000
TYPE PRODUCTION EXPECTED	Gas condensate Multipay Sands
DISTANCE FROM COAST	15 kms. (9 miles)
WATER DEPTH	37 mts. (125 ft.)