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# Hydrocarbon exploration in the Swiss Molasse Basin

By PATRICK H. LAHUSEN<sup>1)</sup>

## ABSTRACT

Switzerland, a neither oil nor gas producing country (except from a very small gas accumulation in Finsterwald near Lucerne), is a hard, difficult and risky soil for the oil- and gas exploration. The fact that the mineral rights are in the hands of the 26 cantons and in some cantons even in the hands of the municipalities, complicates exploration work legally, technically and financially. During the first 25 years, Swiss oil- and gas exploration had to find financial and technical assistance in the private sector. Under these circumstances a very complicated structure of different companies, shareholders and foreign operators was built up. From 1983 onward repayable loans were received from private investors and also from the federal government. With this the structure of the different licence holding consortia became even more complicated. In the absence of significant discoveries and as all investors – private and public – would like to see a return on their investments, the only remaining assets are the geophysical and geological data that were gathered during the last 30 years of exploration. The concurrent financial and legal framework does not allow to give free for publication the acquired data.

## ZUSAMMENFASSUNG

Die weder erdöl- noch erdgasproduzierende Schweiz – abgesehen von einem kleineren Gasfund in Finsterwald Kanton Luzern – ist ein Hochrisikoland was die Erdöl- und Erdgasexploration betrifft. Da zudem die Bergrechte in den Händen der 26 Kantone sind, wird die Explorationsarbeit in rechtlicher, technischer und finanzieller Hinsicht noch komplizierter. Die schweizerische Explorationstätigkeit hatte in ihren ersten 25 Jahren seit Ende der Fünfzigerjahre ihren dornenvollen Weg ohne jegliche Unterstützung der öffentlichen Hand auf privater Ebene zu finden. Dieses unkonventionelle Umfeld führte zu einer verhältnismässig komplizierten Organisationsform, welche eine Finanzholding, mehrere Tochtergesellschaften, verschiedene Aktionäre und ausländische Operators einschloss. Als ab 1983 erstmals ein Darlehen des Bundes und solche privater Investoren hinzukamen, wurde die Organisationsstruktur noch verworrener. Da alle Geldgeber – öffentliche und private – ihre Investitionen wenn immer möglich zurückerhalten möchten, bleiben als einzige Aktiven aus der gesamten Explorationstätigkeit die gewonnenen Erkenntnisse, sprich die gesammelten Daten, zurück. Aus diesem Grund können diese Daten, vor Abschluss der Explorationsarbeiten oder vor Abschreibung der Explorationsaufwendungen durch einen kommerziellen Fund, dem Publikum und der Wissenschaft in Form von Publikationen noch nicht zugänglich gemacht werden.

## Ladies and Gentlemen

It is a great honour und pleasure for me, being a lawyer and former banker, to speak to such a highly qualified and experienced audience about the hydrocarbon exploration in the Swiss Molasse Basin. You can take it for granted that I won't give you any geological facts and figures – you are by any means better informed than I will ever be – so I will remain in my legal field. Being involved in the exploration business in Switzerland as leader of the SWISSPETROL Group, I would like to intro-

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duce you to the financial and legal background of the Swiss oil and gas exploration and their implications.

A very important first remark: before starting exploration work any interested party, either private or public, must know under what legal framework and financial condition and at what risk for its investments activities can be carried out. These aspects determine the "exploration environment" which differs consistently from one country to another, even sometimes from one place to another. Once these backgrounds are established, they should not be changed without very strong reasons, because otherwise you might discourage the existing exploration. A change of the background might be appropriate and even encouraging when successful findings have been made. As long as exploration companies made only investments without tangible results – as for instance in Switzerland – the legal and financial facts for exploration works should remain unchanged.

What have we done in Switzerland in the last 30 years? We have spent over 314 Millions Swiss Francs or approximately 10 Million Francs a year, as you can see on table 1. The amount seems high, but compared with the costs of the legal compulsory stocks for oil in Switzerland, which amount to about 200 to 250 Million Swiss Francs a year, it is little. In the same table you can also see how the total amount was refinanced. These mostly private sources, but also public ones, have the right feeling of having invested their funds in an important matter by trying to lower the extreme dependency of approx. 85% of our country from imported energy. All these investors have the hope to get their money back!

You may object that such a national policy does not really match with the new horizons in the European Common Market and that the use of more gas and oil might interfere with the world wide concern about the greenhouse effect. To these two points the answer is simple: even in a European common market you will choose your place of

Table 1. Costs of the exploration in Switzerland und its refinancing sources (in 1000.–SFr.).

*Exploration costs in Switzerland*

First Programme	(1956–1974)	75 858
Second Programme	(1974–1982)	153 290
Third Programme	(since 1983)	<u>84 966</u>
Total		314 114

*Refinancing Sources*

Federal Government	4 468
Former partners	7 474
Div. Swiss shareholders	8 712
Canton Berne	8 934
SWISSGAS	17 500
SHELL (Switzerland)	28 254
SWISSPETROL (sharecapital and loans)	42 687
ELF-Aquitaine International	46 119
BEB	<u>149 586</u>
Total	314 114

production or other activities by looking for the available and trained labour on one side and by considering the quantity and price of available energy on the other side. By subsidising imported gas to own gas resources the greenhouse effect is neither in – nor decreased, but the considerable shortening of the distance between the gas producer and the consumer lowers considerably environmental implications.

Most people here in Switzerland think that we have spent a lot of money and that the results are poor. Are they right? If you look to what has been done in the last 30 years in seismics in the eastern part of Switzerland compared with southern Germany, the picture looks like on figure 1. The total amount of seismic lines in Switzerland is about 15000 kilometers of which 8500 kilometers were shot for the oil and gas exploration. If you make the same comparison with the drilled wells, the figure 2 shows you a very similar picture. If finally you look only to the results in the wells drilled in Switzerland (figure 3), you might agree that the oil and gas shows are present in the most of the wells drilled since 1960. We are now told by our experts that not the question of oil and gas generation is the problem in Switzerland, but the existence of commercially exploitable reservoirs.

Let us come back to the questions of organisation, legal and financial matters. The SWISSEPETROL Group is organised as shown in table 2. It looks like a big company in a big country what it is not, as it is typically Swiss: small and unknown, but complicated because of the mineral rights being vested into 26 cantons and in some cantons even in municipalities. To this complex organisational structure we have to add the also complex financial structure with shareholders, repayable loans with or without options for conversion into shares and/or participation bonds etc. and here again: all want their money back!

This, Ladies and Gentlemen, are the financial and legal backgrounds for exploration in Switzerland. They do not apply to Nagra which has not a commercial but a scientific purpose. Having not been very successful in our exploration work up to now, all expenses have been booked as potential assets in the balance sheets of our affiliated companies. As long as these “assets” cannot be written off against commercial successes, the acquired data are the only remaining assets of the affiliated companies. That is why our excellent universities, which are among the bests for Geology worldwide, are in the very awkward position to use for instance seismic data from Papua New Guinea for explanation to the Students instead of Swiss data. I am by no means happy about this, but being responsible for the Swiss exploration, I can only choose in between keeping the data secret till a commercial success or bring our daughter companies sooner or later in financial troubles and finally the whole SWISSEPETROL Group. Our oldest and most important partner BEB and our company try to help public and private institutions with data as much as possible – and I think a lot of you here can confirm our willingness to help if possible – but on the other hand we cannot change the legal and financial backgrounds for our investors in our country.

By changing the financial contribution key inbetween the Swiss and the foreign exploration partners in 1988 from 10:90 to 51:49, things have started to move on the Swiss side. The Swiss, financing now the majority of the exploration costs, thanks to the strong financial support of SWISSGAS, became aware of their responsibility. This upgraded partnership started slowly a geological assistance to our foreign explora-

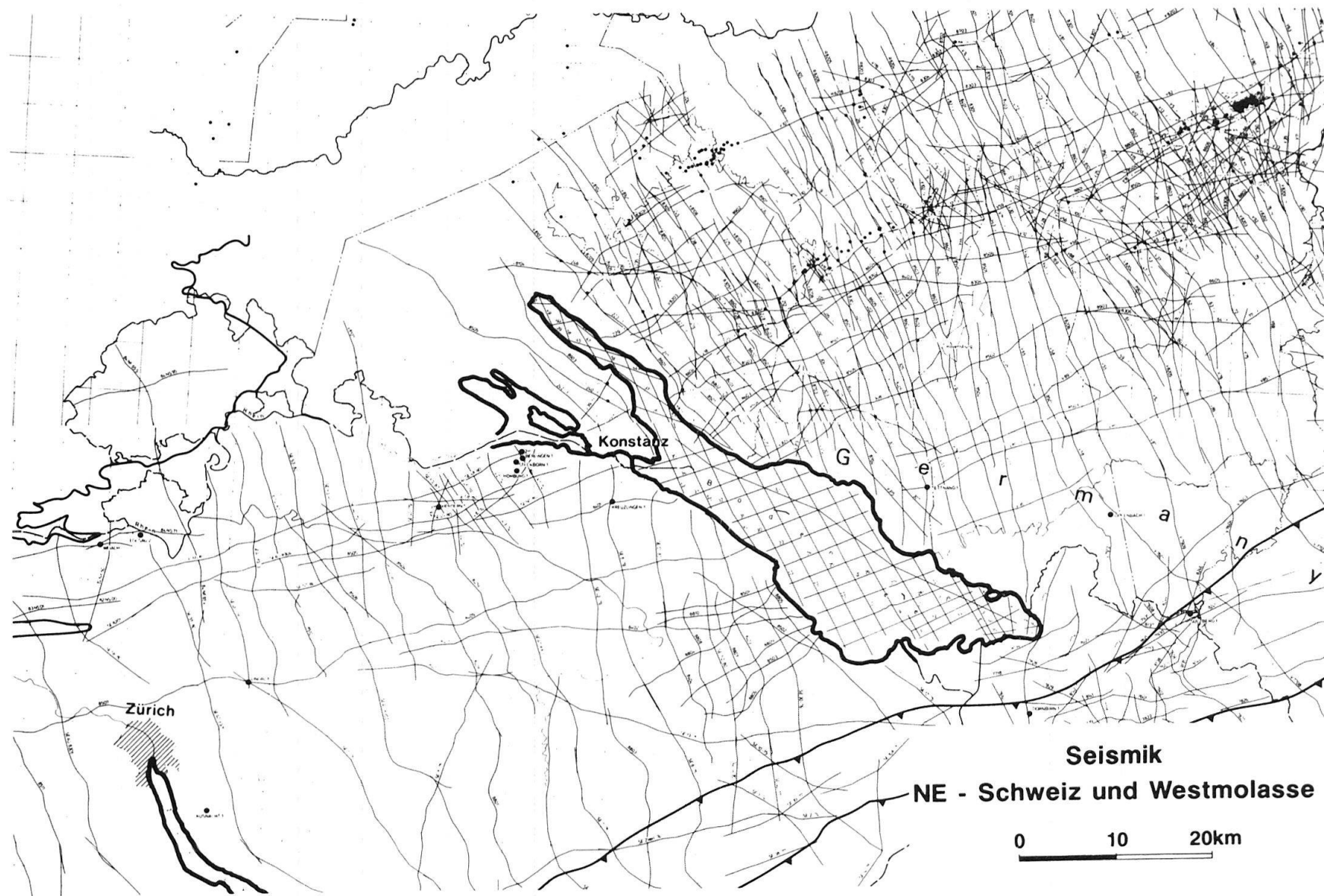


Fig. 1. Comparison between the density of seismic lines in southern Germany and in Switzerland.

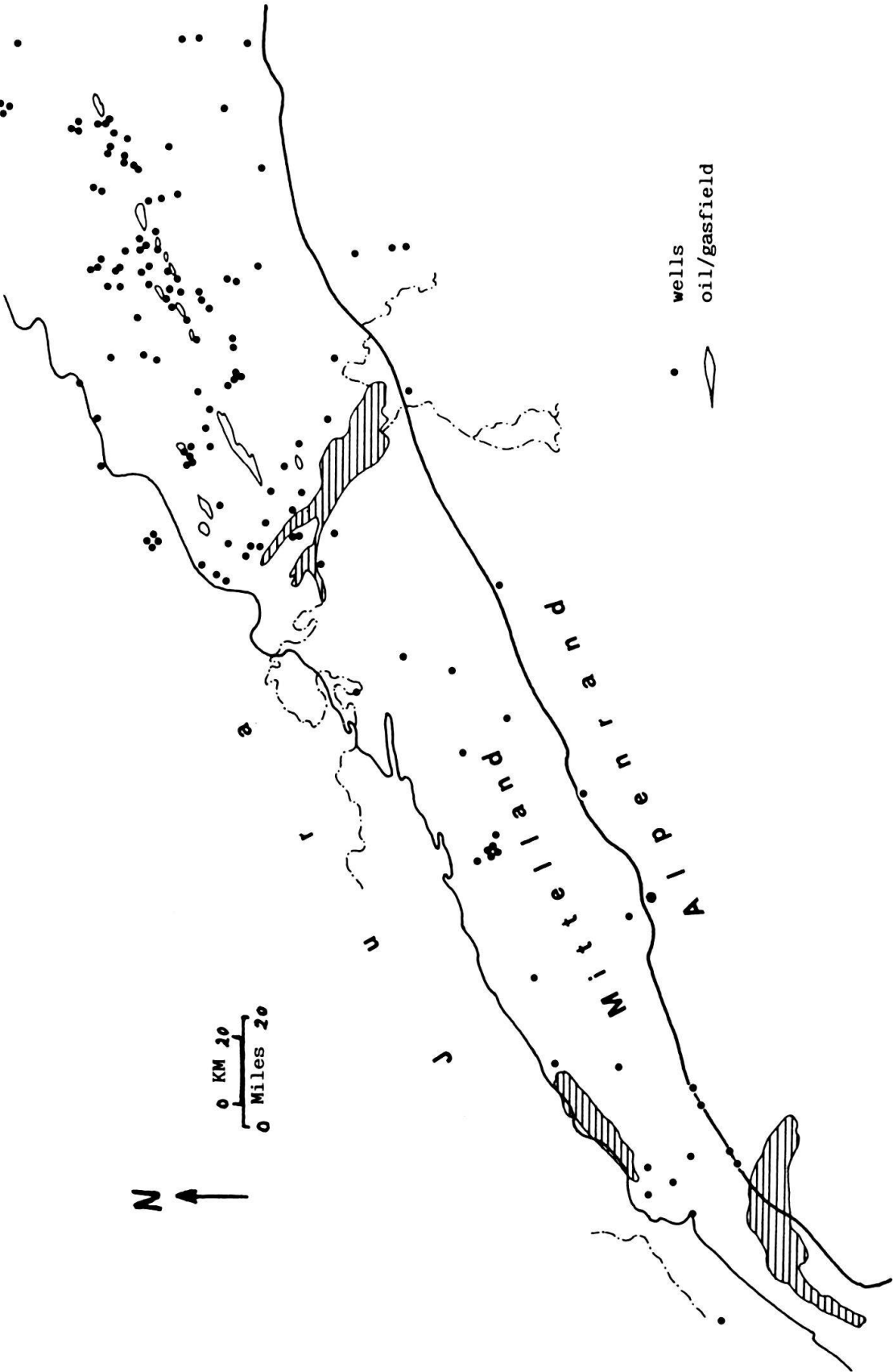


Fig. 2. Comparison between the number of wells drilled in southern Germany and in Switzerland.

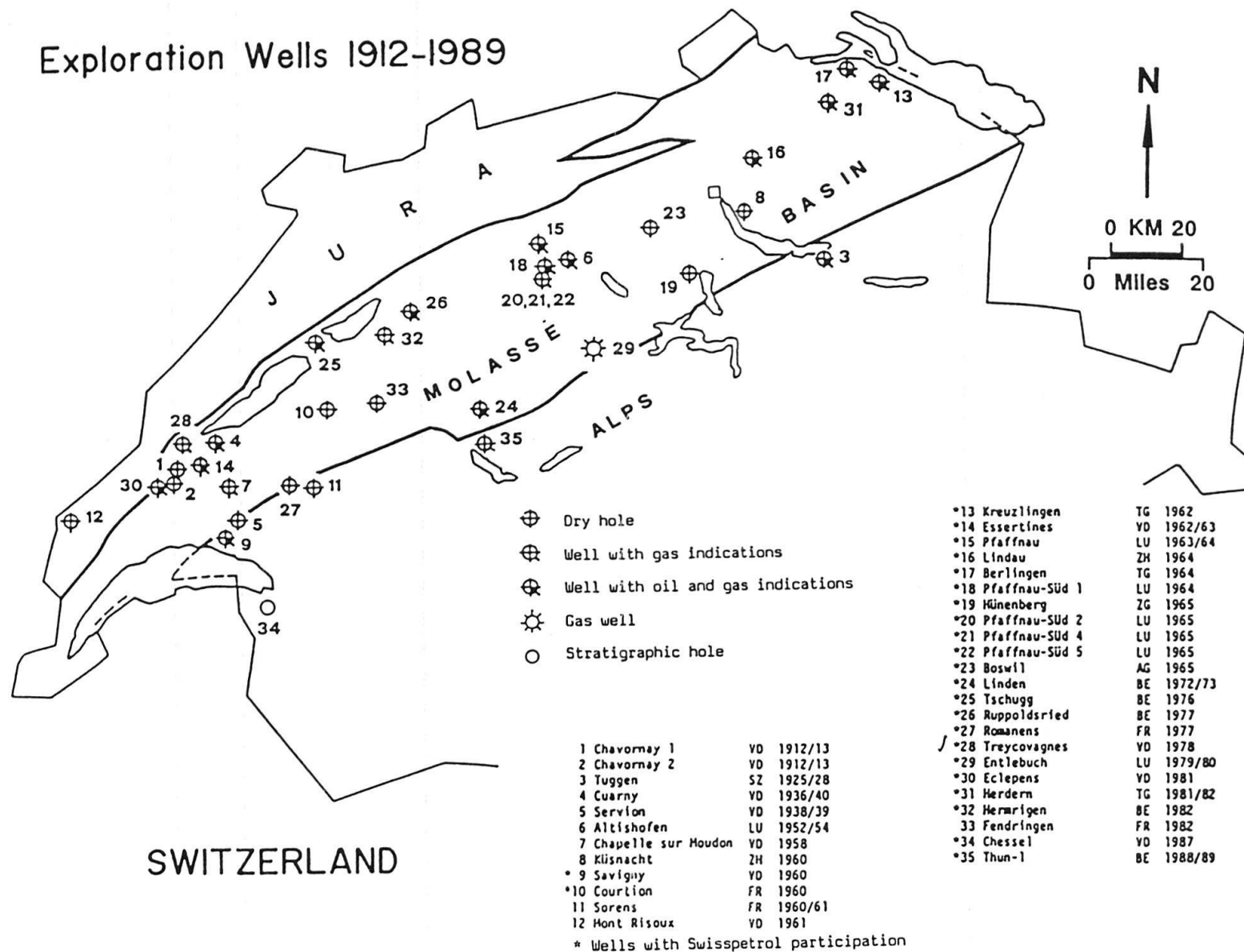
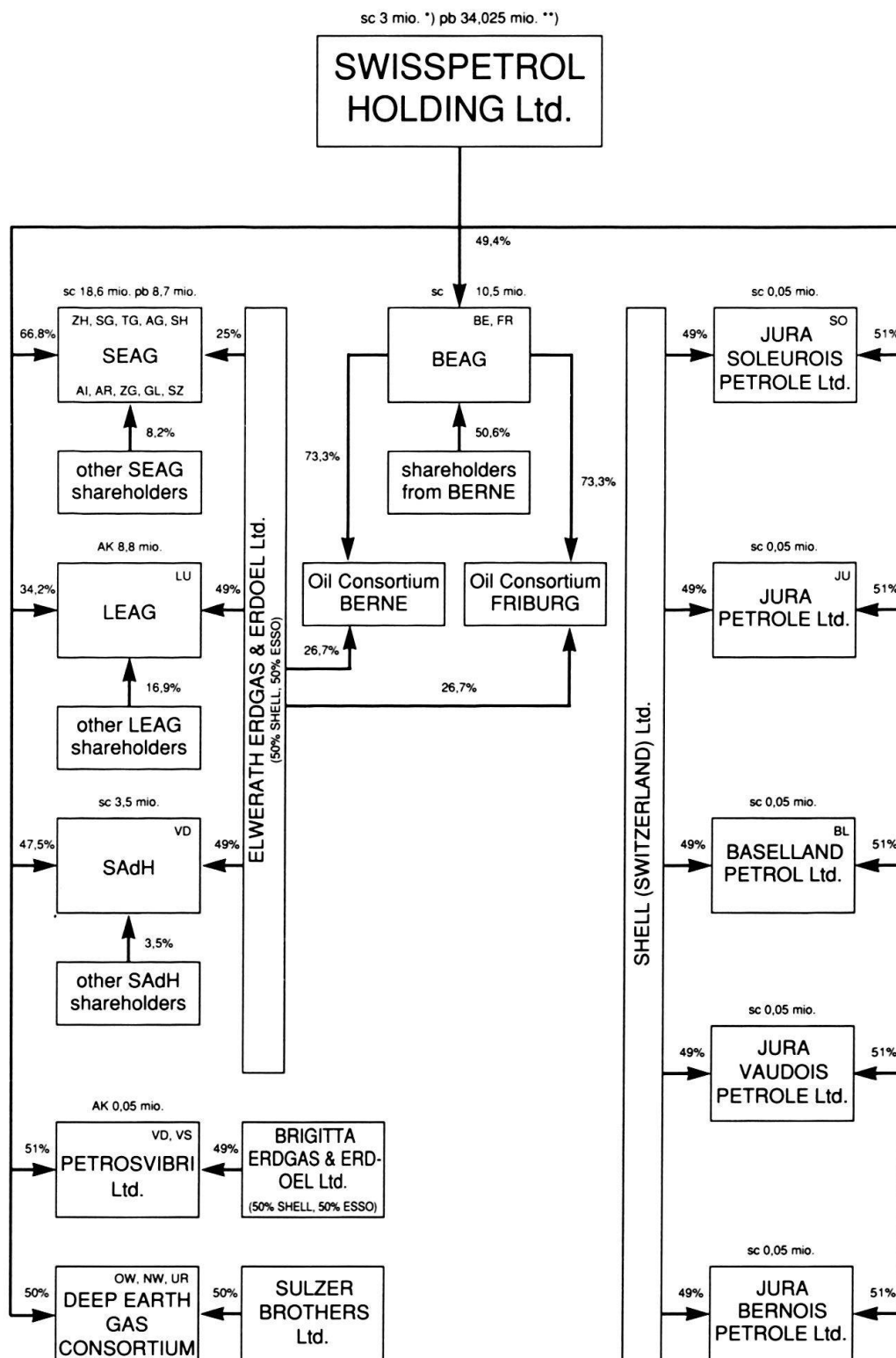


Fig. 3. Results and location of the wells drilled in Switzerland.



Table 2. Organigram of the SWISSPETROL group.



\*) authorized share capital = 3,9 mio.

\*\*) authorized participation bond capital = 58,5 mio.

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tion partners and operators in their very difficult task. This assistance is given not by pretending that we know it better, for heaven's sake no, but by opening doors to local knowledge. That is the opportunity for private and public Swiss institutes and also for consultant geologists to assist our works. Very promising first steps have already been done in this direction.

So may I ask you to help us by becoming either successful or by contributing with useful data in exchange with ours or by lending us even some funds. We do accept all three cases, especially all three together. I thank you for this in advance.

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