



RSS-NMR SEVSU Poisk

# 波伊斯克集团

生产中成熟领域的再探索

示例项目

# 案例研究 I. 俄罗斯。生产领域

## 这项研究的目的

识别和圈定与凝析气田中未钻探或发现的矿床相关的碳氢化合物异常

- 1) 通过处理卫星数据 (步骤I) 并使用移动共振地面设备详细检查异常区域 (步骤II) 来确定研究区域的碳氢化合物异常;
- 2) 测量异常油气藏深度
- 3) 估算油气藏厚度;
- 4) 估算气层孔隙部分的平均厚度和各层位的气压;
- 5) 绘制碳氢化合物通过透气岩石的运移路径;
- 6) 确定油气层位的储集岩石类型;
- 7) 异常构造油气藏深度剖面, 测量步距不超过500 m;
- 8) 估计已识别异常中的碳氢化合物资源。

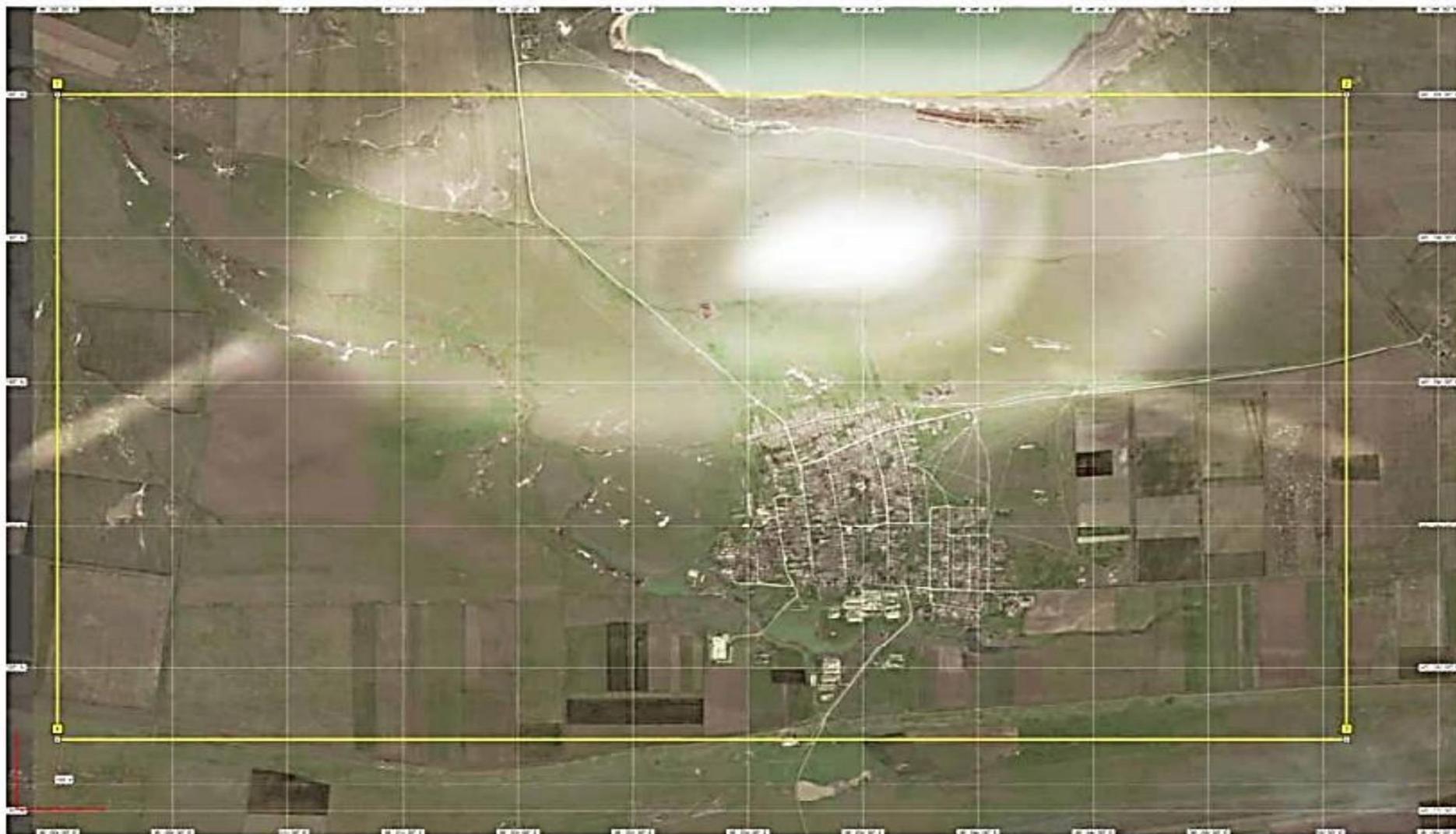
# 案例研究 I. 俄罗斯。一期生产领域 (遥感)。布局

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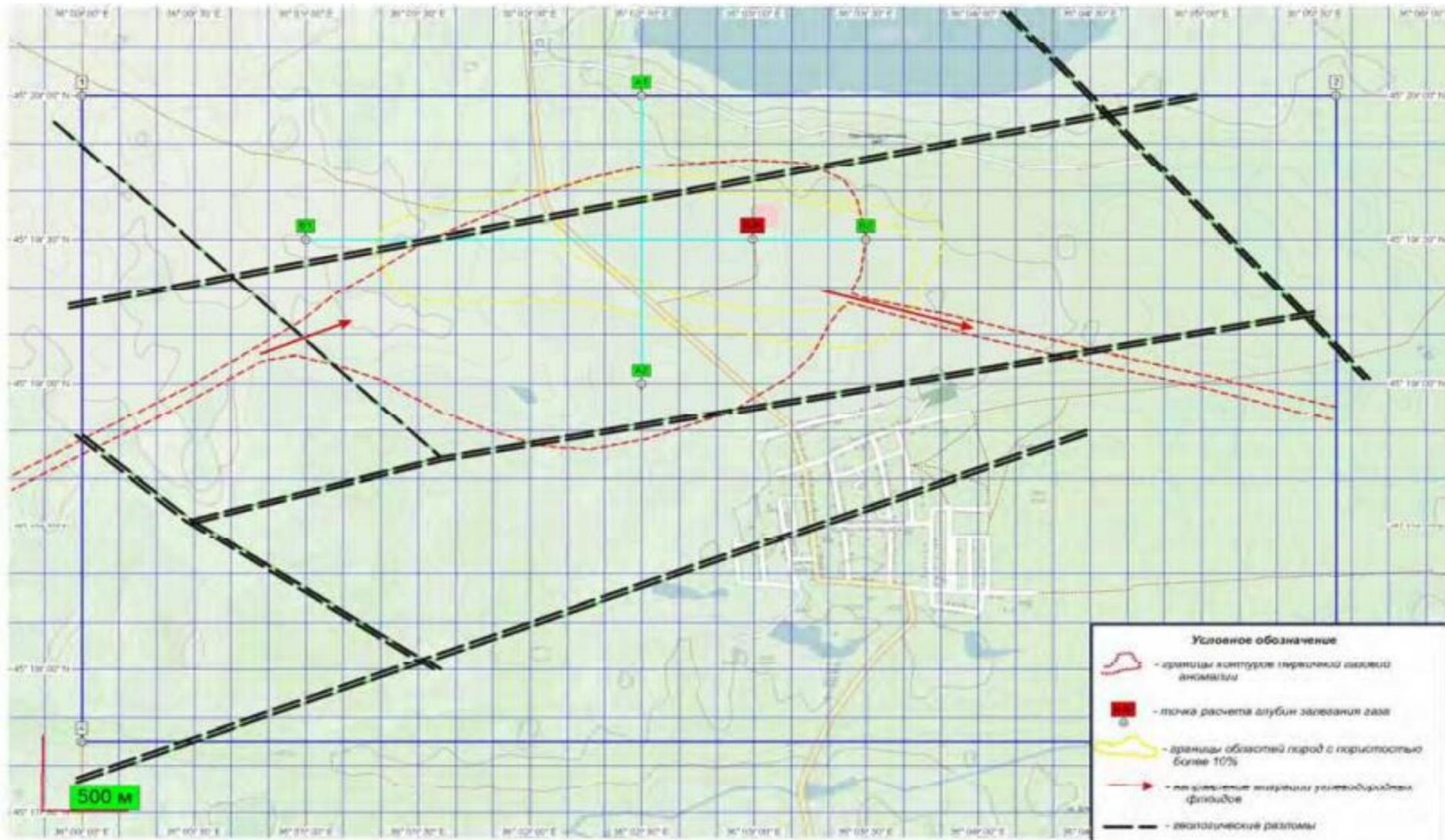


# 案例研究 I. 俄罗斯。一期生产领域（遥感）。映射异常

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# 案例研究 I. 俄罗斯。一期生产领域 (遥感)。默认值



# 案例研究 I. 俄罗斯。生产领域

## 第二阶段（实地调查）。已确认的异常情况

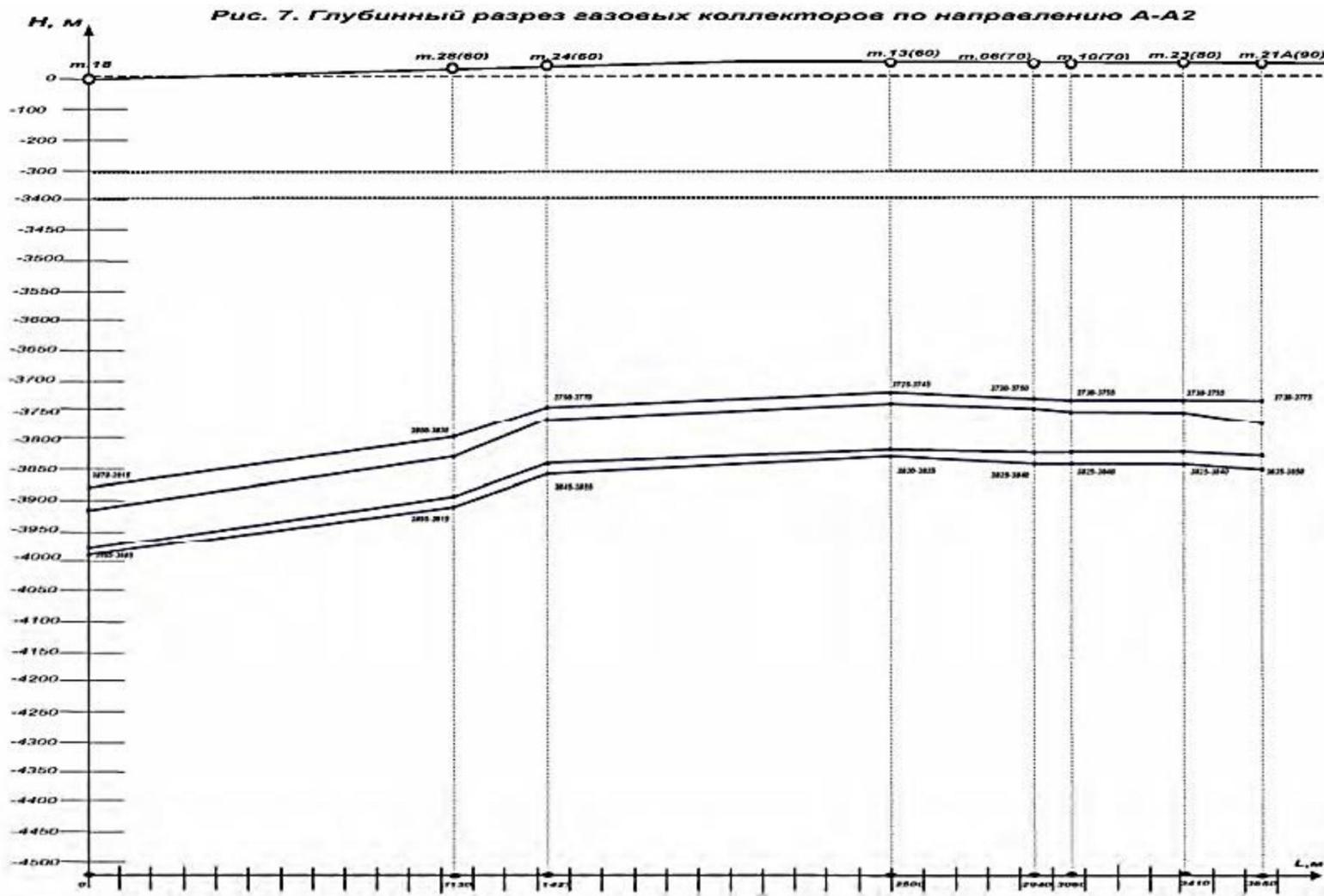


# 案例研究 I. 俄罗斯。生产领域

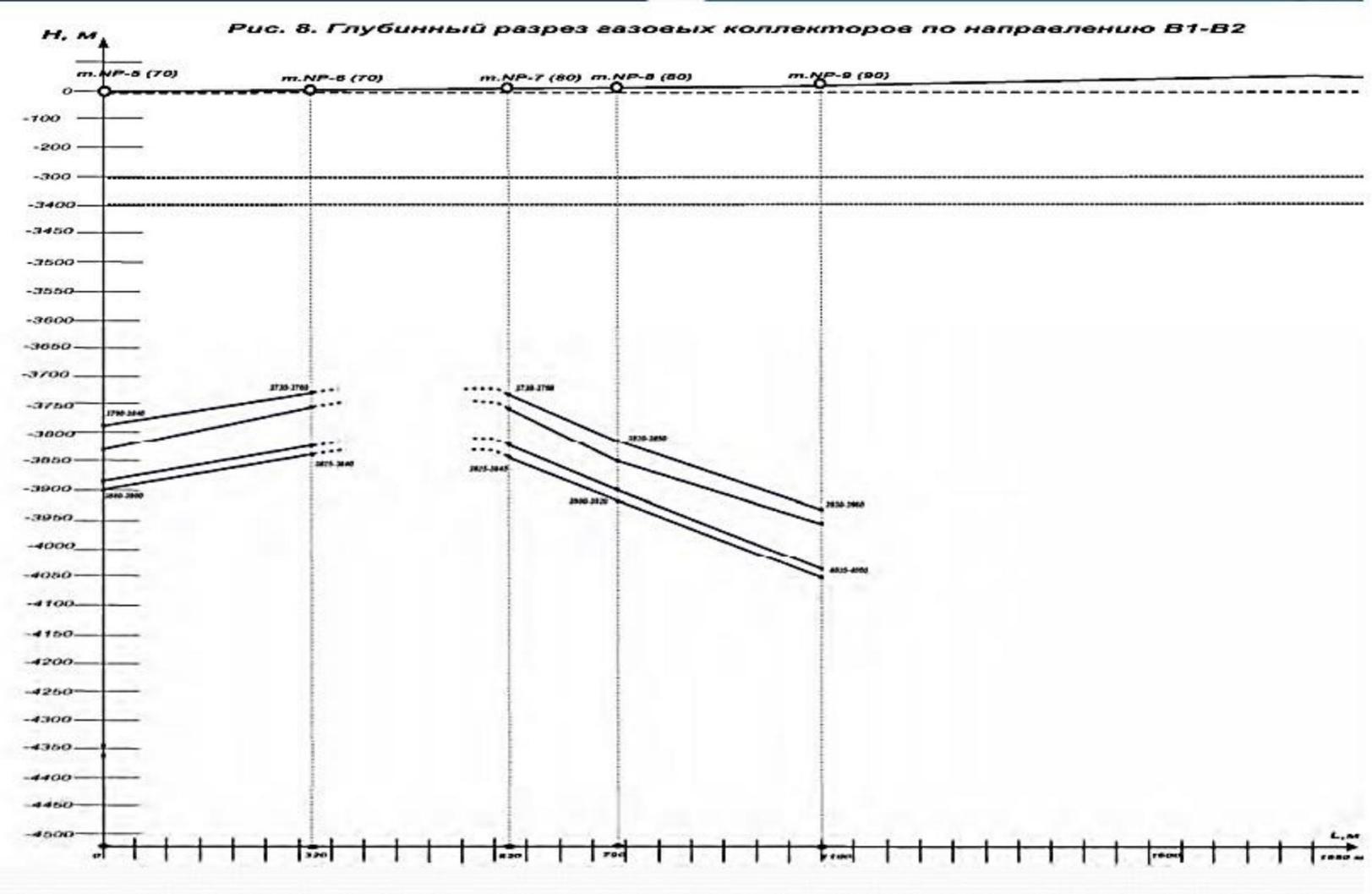
## 第二阶段（实地调查）。深度估计线



# 案例研究 I. 俄罗斯。二期生产现场（实地勘察）。深度估计



# 案例研究 I. 俄罗斯。二期生产现场（实地勘察）。深度估计



# 案例研究 I. 俄罗斯。二期生产现场（实地勘察）。油藏属性

Location	Lat, N	Signal features	Altitude above sea level (m)	Gas reservoirs depth -H <sub>1</sub> , -H <sub>2</sub> (m)	Rock types. Pressure (P, MPa)	Gas reservoir thickness, Δh (m)
	Long, E					
1	2	3	4	5	6	7
NP04	45°19'9,7" 36°3'2,0"	The "gas" signal, the background values of the signal. Of no commercial value	70	-	-	-
NP05	45°19'17,7" 36°3'1,8"	Gas. The southern tip of the productive anomaly. Maximum signal intensity. Measurement of gas reservoir occurrence parameters.	70	(I) -3790÷3830; (II) -3880÷3900.	Porous sandstone, P <sub>1</sub> =50; P <sub>2</sub> =55	30 10
NP06	45°19'26,2" 36°3'1,4"	Gas. The maximum amplitude of the signal. Measurement of gas reservoir occurrence parameters.	70	(I) -3730÷3760; (II) -3825÷3840.	Porous sandstone, P <sub>1</sub> =50; P <sub>2</sub> =55	25 10
NP07	45°19'34,4" 36°3'3,8"	Gas. The maximum amplitude of the signal. Measurement of gas reservoir occurrence parameters.	80	(I) -3730÷3750; (II) -3825÷3845.	Porous sandstone, P <sub>1</sub> =50; P <sub>2</sub> =55	25 10
NP08	45°19'40,7" 36°3'2,0"	The boundary of the intense signal at the northern part of the anomaly.	80	(I) -3820÷3850; (II) -3930÷3950.	Porous sandstone, P <sub>1</sub> =50; P <sub>2</sub> =55	25 10
NP09	45°19'51" 36°03'00"	Gas. Average signal intensity. The northern part of the anomaly. Measurement of gas reservoir occurrence parameters.	90	(I) -3930÷3960; (II) -4035÷4050.	-//-	25 10
NP10	45°19'25,9" 36°03'7,1"	Gas. Maximum signal intensity. Measurement of gas reservoir occurrence parameters.	70	(I) -3730÷3755; (II) -3825÷3840.	-//-	25 10

# 案例研究 I. 俄罗斯。生产领域

## 第二阶段（实地调查）。深度和储层数据

<b>№</b>	<b>Location</b>	<b>Altitude above sea level (m)</b>	<b>The depth of occurrence of gas reservoirs from the sea level</b>	<b>Effective thickness of the gas reservoirs (m)</b>
1	P-18	50	3870-3915 3965-3985	30 10
2	P-28	60	3800-3830 3895-3915	25 8
3	P-24	60	3750-3770 3845-3855	25 10
4	P-13	60	3725-3745 3820-3835	20 10
5	P-06	70	3730-3750 3825-3840	20 8
6	P-10	70	3730-3755 3825-3840	25 9
7	P-23	80	3730-3755 3825-3840	25 10
8	P-21A	90	3750-3775 3835-3850	20 8

# 案例研究 I. 俄罗斯。生产领域

## 第二阶段（实地调查）。资源估算

Hori zon	Gas reservoir size			Depth, H (m)			Average effective thickness h (m)	Porosity m (%)	Water saturation, %	Pressure P (MPa)	Resources ( $\cdot 10^6$ M <sup>3</sup> )	
	Width (m)	Length (m)	Area S(M <sup>2</sup> )	Min	Average	Max					In- place	Recovera ble
I	1,3	3,8	$3,2 \cdot 10^6$	3725	3820	3930	20	12÷15	30	50	582,4	416,0
II	1,3	3,8	$3,2 \cdot 10^6$	3820	3930	4048	10	10÷12	40	55	147,84	105,6
<b>Total:</b>			$6,4 \cdot 10^6$								730,24	521,6

可恢复的体积：

$$V_{\text{记录}} = S \cdot \Delta h \cdot P \cdot \eta_{\text{CP}};$$

式中,  $\eta_{\text{CP}}$  孔隙度、温度、含水饱和度、气体采收率的积分因子

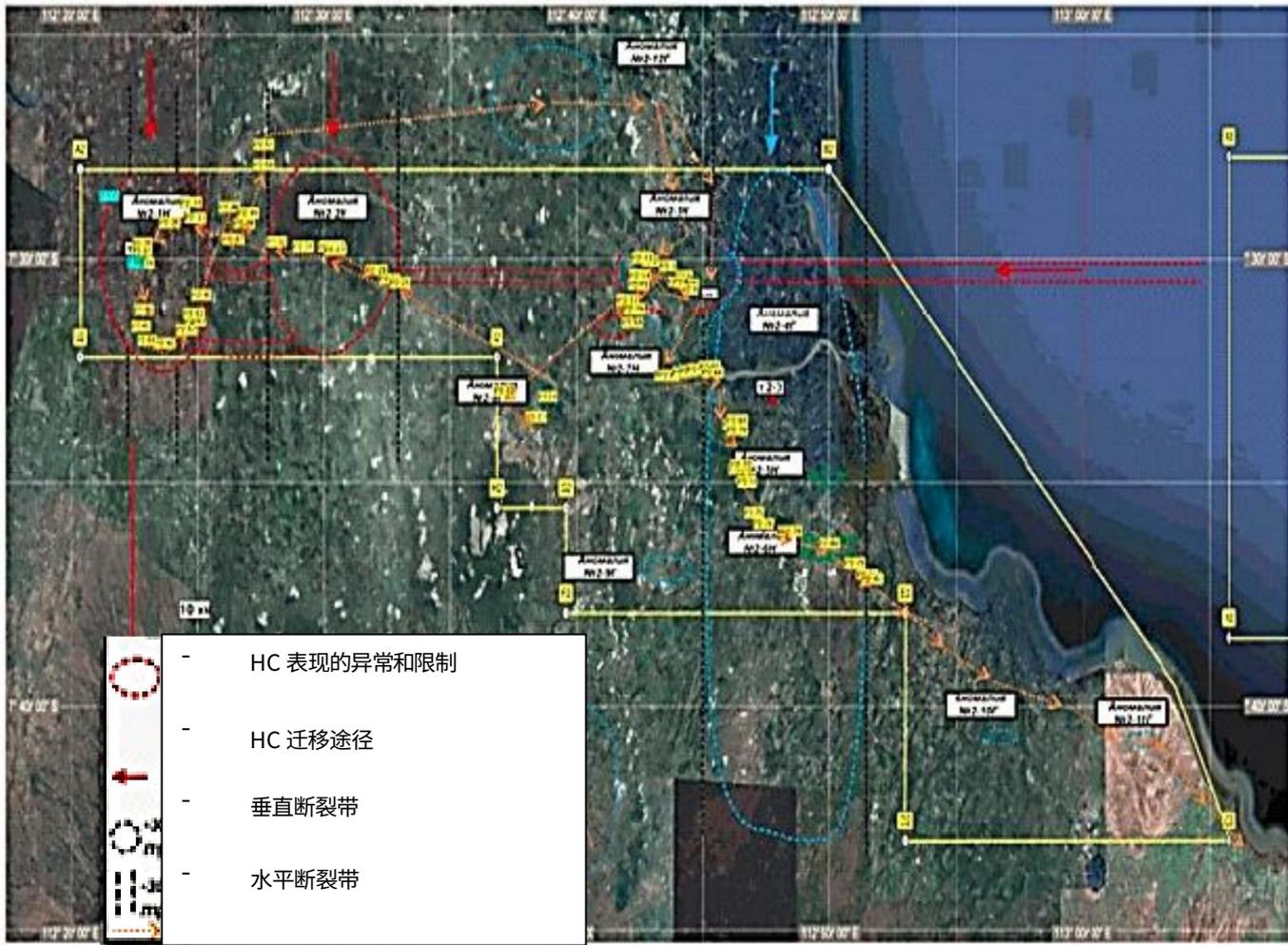
- $\eta_{\text{CP}}$  – 对于地平线 I – 0.13
- $\eta_{\text{CP}}$  对于地平线 II – 0.06

# 案例研究 I. 俄罗斯。生产领域

## 结论

- 使用RS-NMR 技术对许可区域进行研究后，  
使用 POISK 设备处理空间图像（第一阶段），异常  
气体已被识别并绘制成图。
- 估计气藏出现的深度（近似值）。
- 气层储集岩类型和光谱已确定  
异常上方的共振电磁场的特征有  
记录了储层孔隙部分的有效厚度  
测定气体饱和度。
- 预测了部分储层物性并估算了天然气资源量
- 在推荐地点钻探的井产生了大量气体，这证明  
该方法的可靠性

# 案例研究二。印度尼西亚。 生产领域



## License block in Indonesia

Productive wells are sitting within the areas outlined marked with red color

- HC 表现的异常和限制
- HC 迁移途径
- 垂直断裂带
- 水平断裂带

勘测路线

# 案例二.印度尼西亚.见证

Russ  
Techno

Tel: +62 8170 228877 FAX: +62 21 84306196



CV RussTechno Indonesia

Ruko Permata Boulevard Blok BA, No.1  
Jl Pos Pengumben Raya Jakarta Barat 11550 – INDONESIA

Date : 1 June, 2012 r.

Re: SBRDSS report reference

In accordance Contract No.1, 28.11.2011 between RussTechno Indonesia and Sevastopol State University, Sevastopol's specialists (head of team - Ph.D. Kovalev N.I.) were involved with a set of equipment "Poisk" for remote search for oil and gas with identification its depth and deposit on Brantas Block in Java, Indonesia total area 3050 km<sup>2</sup>. Off-shore – 2 blocks and On-shore – 3 blocks.

Previously, these areas were studied by traditional seismic methods and have more then 30 wells.

The study was performed in February 2012. Based on the results of study on Brantas Block by using remote method SBRDSS Sevastopol specialists discovered total 31 hydrocarbon anomalies.

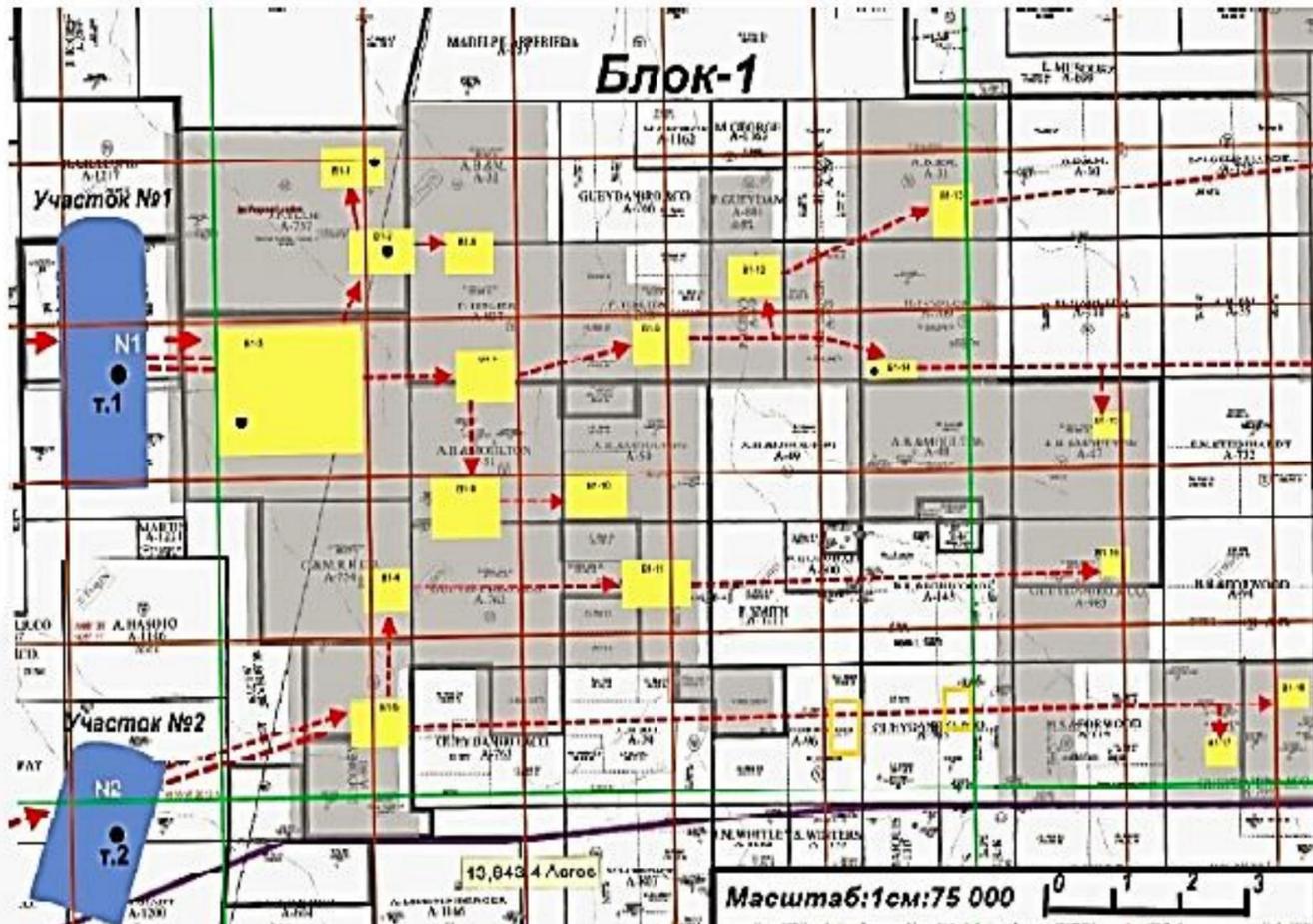
SBRDSS remote method was proven by compare with seismic date available in Lapindo Brantas company. This method is cost effective and very accurate in depth and deposit result.

Regards,

Thanigasalam  
President Director



# 案例研究三。美国。 产气田



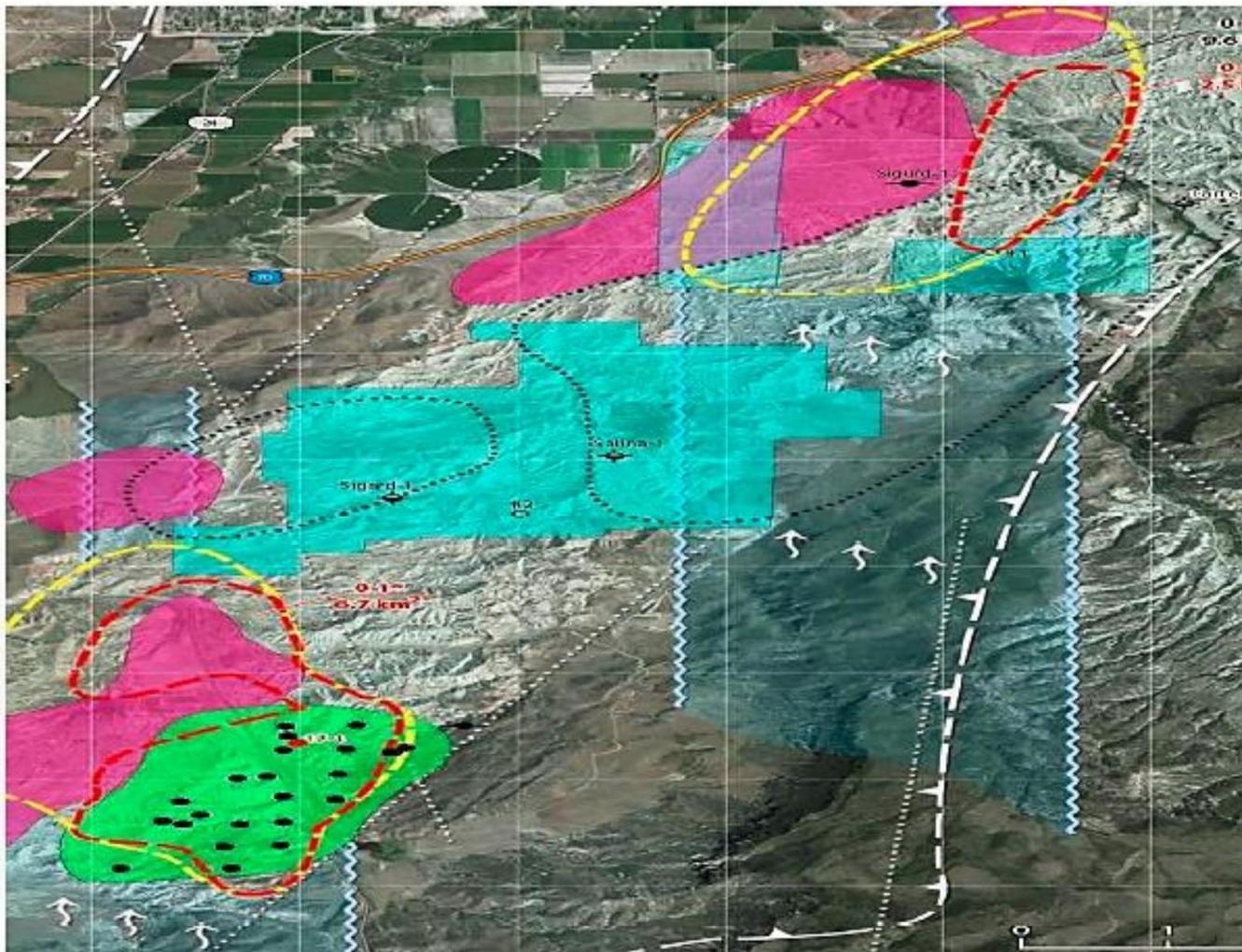
License block in  
Texas, USA

Well N-1 penetrated shale  
oil formation as indicated by  
the corresponding anomaly

# 案例三.美国.见证

<p>«Інститут геофізики та проблем Землі» Товариство з обмеженою відповідальністю</p> <p>Україна, м. Київ, вул. К. Білокур 4, оф. 6 тел/факс: +38 044 285 0826, моб.: +38 068 100 5153</p>	 <p>Founded in 2007</p>	<p>«Institute of Geophysics and Problems of the Earth» Limited Liability Company</p> <p>Ukraine, Kyiv, K. Bilokur 4, of. 6 tel/fax: +38 044 285 0826, mobile: +38 068 100 5153</p>
Outgoing # <u>11/10-03</u>		15.11. 2010
<p style="text-align: center;"><b>Conclusion</b> <b>on the results of prospecting works performed by specialists of the «Sevastopol National University of Nuclear Energy and Industry» in the territory of Texas, USA</b></p> <p>Commissioned by the Institute of Geophysics and Problems of the Earth (Kiev, Ukraine) in 2010 specialists (Ph.D. Goh V.A., Ph.D. Kovalev N.I., Doctor of Geological and Mineralogical Sciences Filippov E.M., etc.) performed a search and exploration of natural gas deposits on the territory of Texas, USA using the equipment of the remote complex "Search". At the same time, remote search facilities were used to study the territory in the south of Texas, with an area of about 500 km<sup>2</sup>.</p> <p>Based on the results of work on a given territory, underground natural gas accumulations were discovered having industrial significance, 3 points for drilling industrial wells were selected and surveyed.</p> <p>The results of drilling a well at one of the proposed points confirmed the presence of a natural gas reservoir. The gas pressure in the deposit proved to be abnormally high, 620 atm., in accordance with the survey data.</p>		
<p>Director of Institute of Geophysics and Problems of the Earth Pavel Ivashchenko</p>		

# 案例研究四。美国。 石油生产领域



## License block in Utah, USA

The oil accumulations and wells locations have proved the delineated anomalies. Recommendations were made to drill new wells at the identified anomalies to the north-east.

# 案例四。美国。见证

**"CARPATHIA", LLC**  
 Limited Liability Company  
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 Off:801-293-3314 Fax:801-303-0720  
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**"КАРПАТІЯ", ТОВ**  
 Товариство з Обмеженою Відповідальністю  
 Cell:8063-740-4071 [ttvol333@gmail.com](mailto:ttvol333@gmail.com)

**FINAL REPORT**  
**On Presentation-Demonstration of "Deep Vision" Model**

"CARPATHIA", LLC, represented by Vasyl Lyubarets, as a party representing "Deep Vision" Model of discovering natural resources that being tested, and Kelly Alvey, as a party participating in the test, have executed this Final Report concerning final results of testing unique Model "Deep Vision".

Results of inspection of objects, located on the territory of the state of Utah, USA Dated 25 of February 2009

Object #	Kelly Alvey's data	"Deep Vision" data	Comparison %	CONCLUSION
X "0"	Nothing	Nothing	100 %	Matching results
X 1	Nothing	Nothing	100 %	Matching results
X 911	6780	6150-6450	100 %	Matching results
X 912	6380	6150-6420	100 %	Matching results
X 913	6500 ; 9500-10000	6040-6420 ; 9450-9750	98 %	Matching results

Director of "Institute of Geophysics and Problems of the Earth" Technical Director of "Benif International" Corporation Pavlo N. Ivashchenko

Inventor of "Deep Vision" Model Professor Vitaly A. Gokh Inventor of "Deep Vision" Model Professor Mykola I. Kovalyov

Signatures of Witnesses Kelly Alvey  
 Kelly Alvey

Vasyl O. Lyubarets, Leader-President of "CARPATHIA", LLC  
Rex W Hardy, Lawyer  
Roy Moore, Wolverine Gas and Oil Company of Utah, LLC. Landman

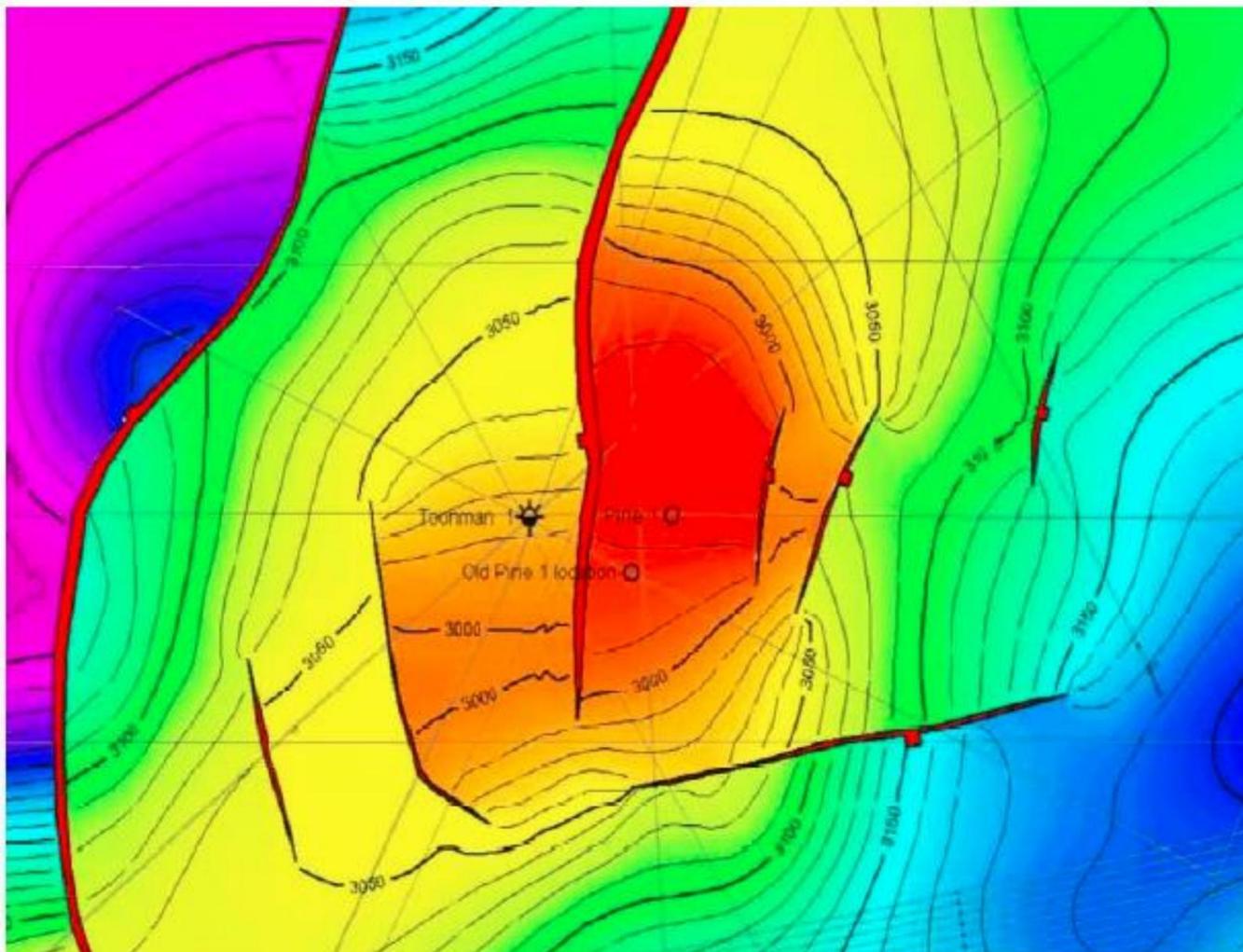
Ray Beckham, BYU Professor  
Jeffrey F. Chivers, "ENDEAVOR" Capital Group, LLC

Brad Whittaker, CEDO Executive Director  
Edward W. Fall, P.G.U.F Government Department of Natural-Resources  
Phillip Babcock

Arbitrator Elizabeth Goryunova, Director of International Relations Salt Lake Chamber of Commerce



# 案例研究 V. 澳大利亚。 石油生产领域



License block  
Pel-105 in Aus-  
tralia

Well Pine-1 location was  
changed as suggested the  
identified anomaly. The well  
has been drilled and proved  
to be productive.



**RSS NMR**  
THE SIMPLE WAY OF EXPLORATION

By Fands-LLC



RSS-NMR SEVSU Poisk

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