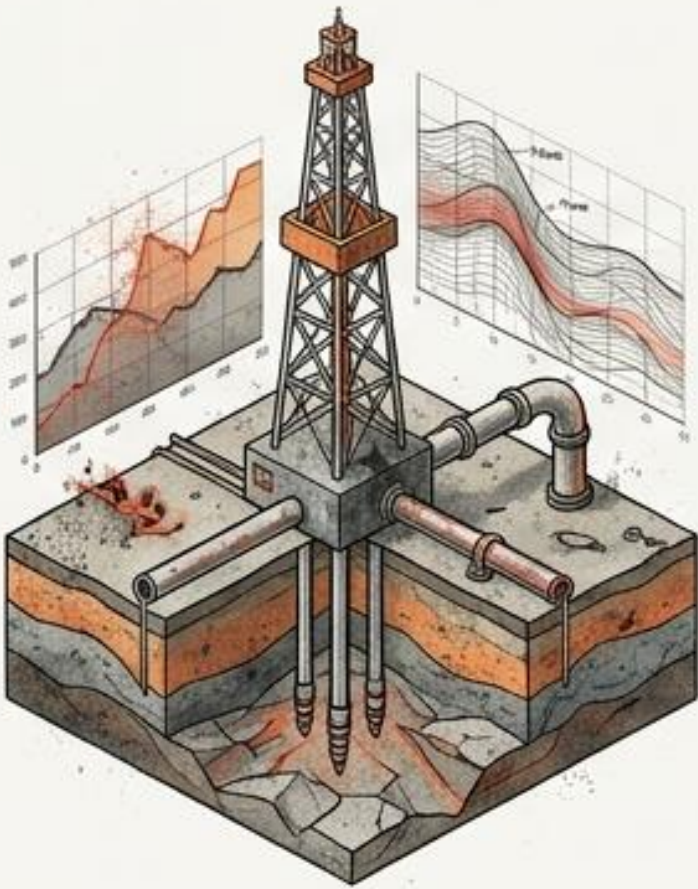
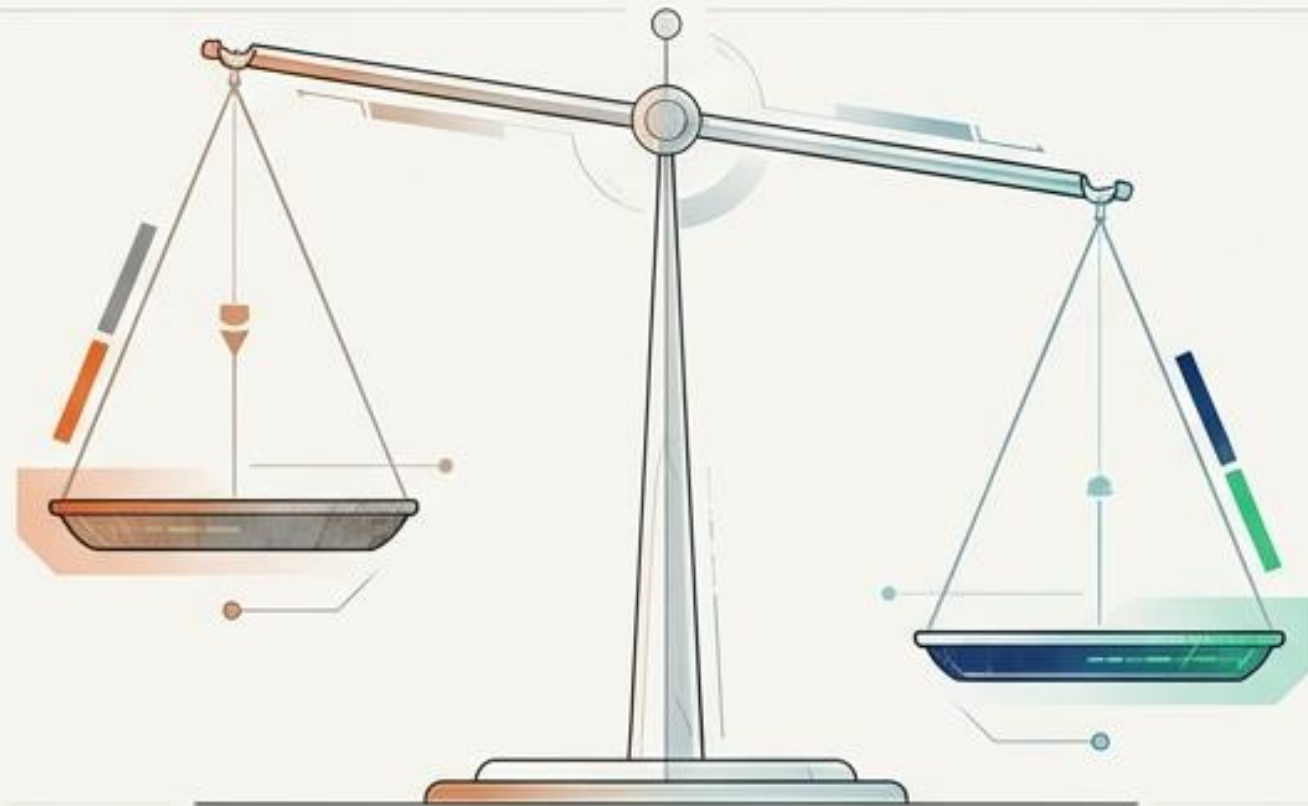




# The Silent Scan: A New Paradigm for Low-Impact Seismic Exploration

Reconciling High-Resolution Subsurface Imaging with Ecological Preservation.

# The Fundamental Conflict of Subsurface Exploration



## The Demand



Global transitions require critical subsurface data—whether for deep geothermal energy, aquifer management, or resource exploration.



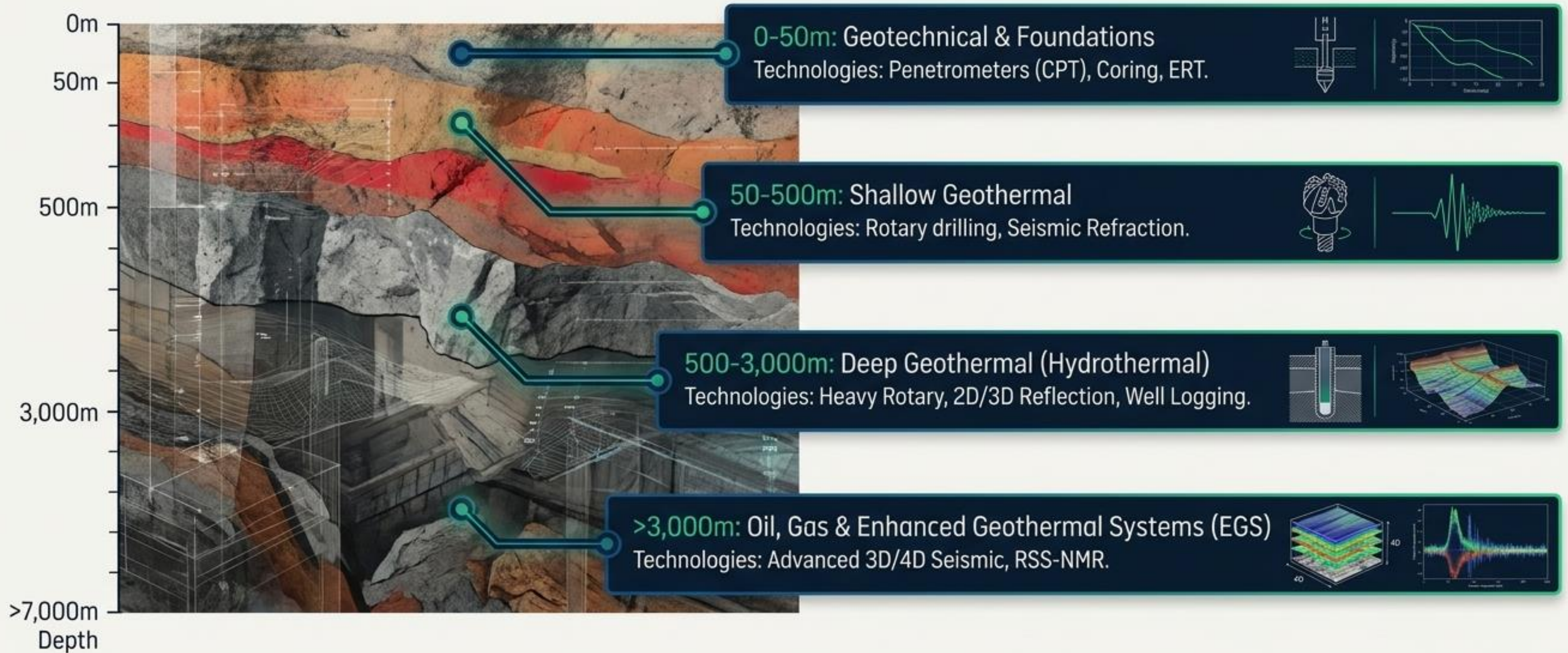
## The Resistance

Public and ecological perception associates 3D seismic campaigns with catastrophic surface destruction, viewing it as a brute-force industrial process incompatible with conservation.



How do we extract ultra-high-resolution data from the deep earth without leaving a single scar on the surface?

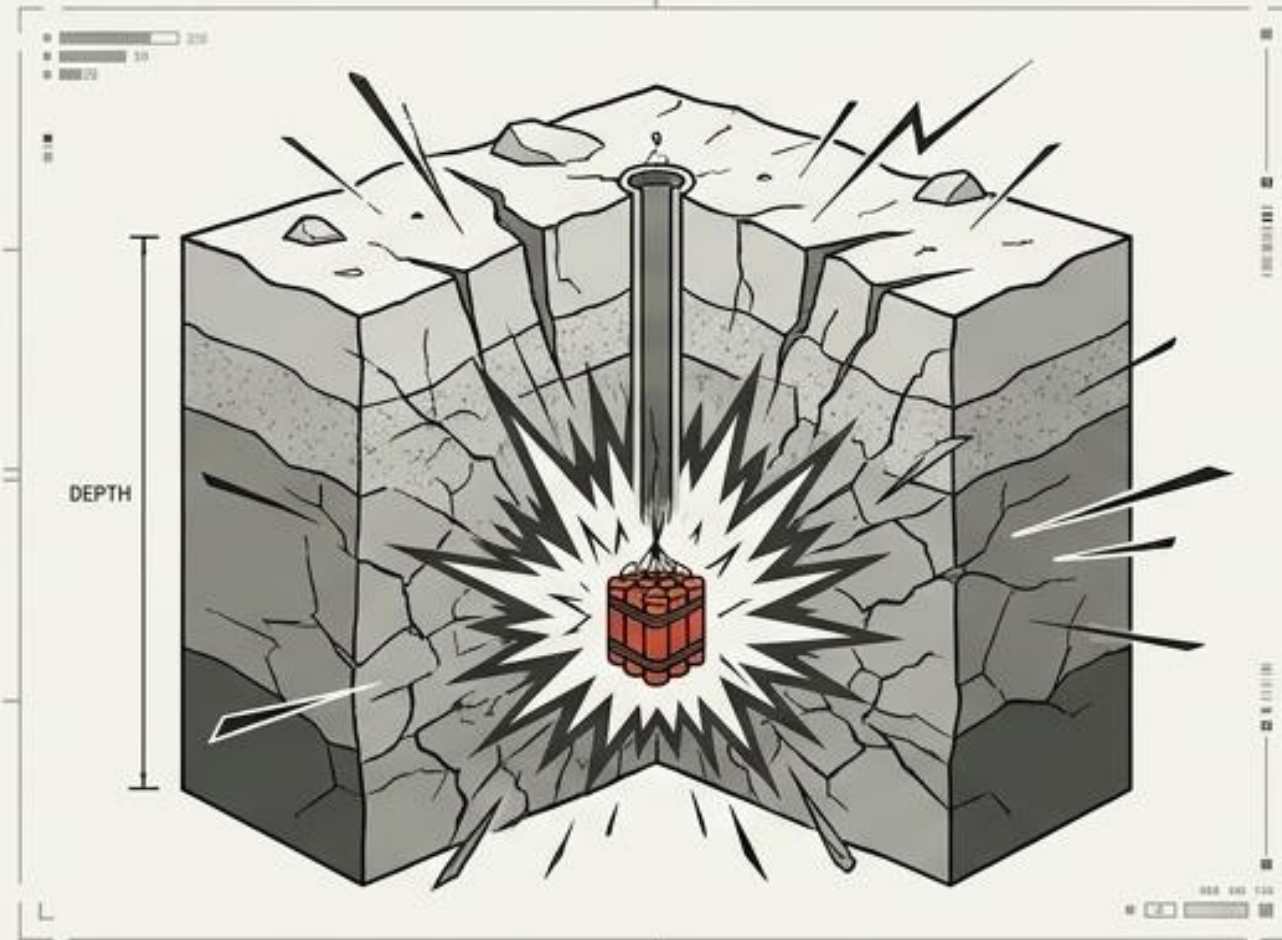
# Matching Methodology to Target Depths



**Takeaway:** As targets move deeper, surface-level sampling fails. Advanced imaging becomes the only viable diagnostic tool.

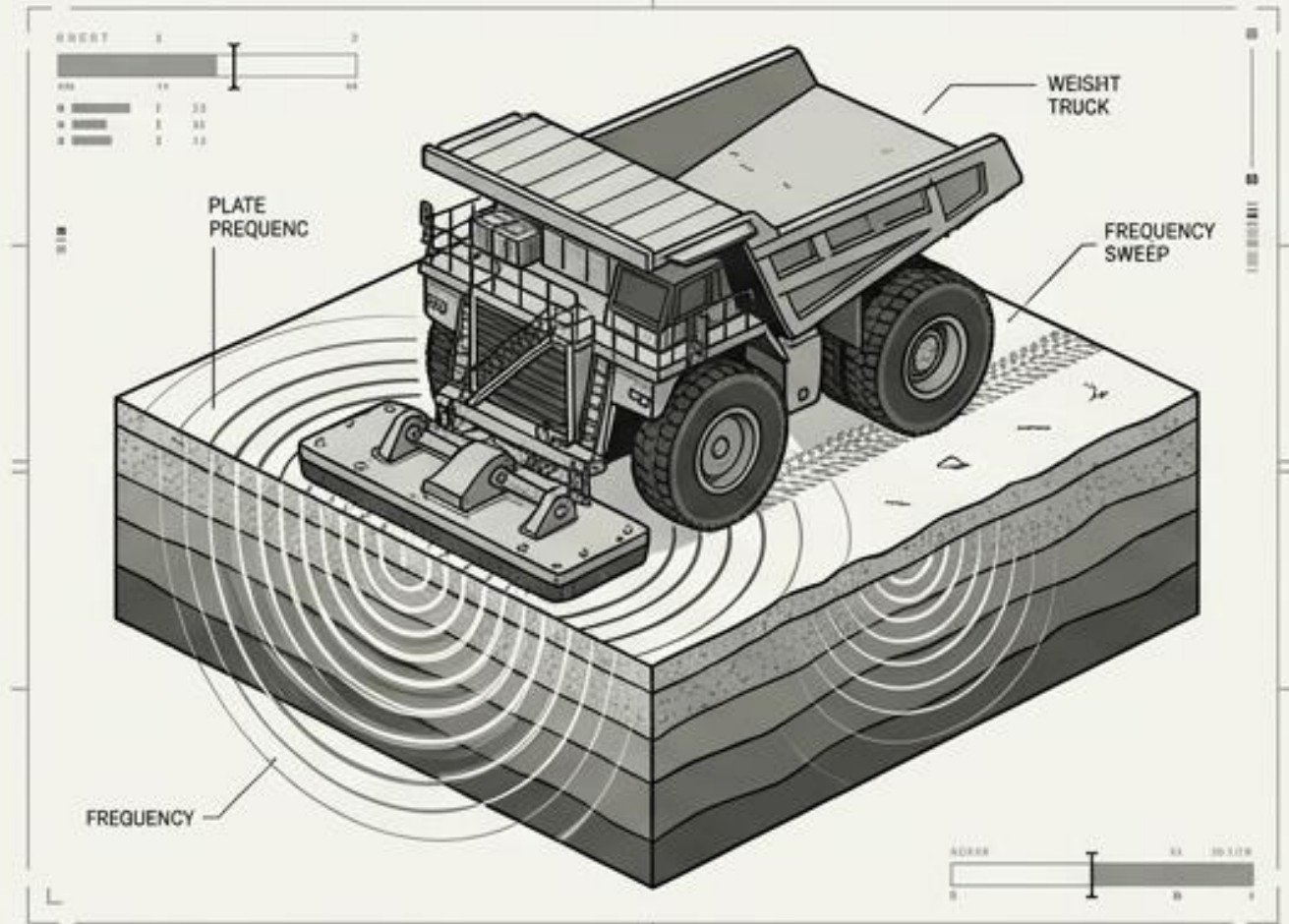
# The Legacy Playbook: Two Methods of Brute Force

## The Brute Force (Explosives)



- **Mechanism:** Detonation of dynamite charges placed in drilled wells (meters to tens of meters deep).
- **Result:** Creates instantaneous, violent, high-frequency shockwaves.

## The Heavy Footprint (Vibroiseis)



- **Mechanism:** Injection of continuous, modulated acoustic frequencies (sweeps) into the ground.
- **Result:** Requires fleets of heavy, destructive industrial vehicles.

# The Unacceptable Collateral Damage



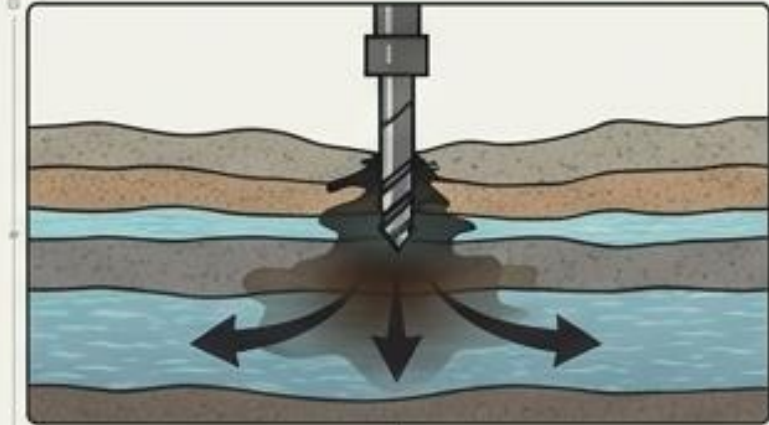
## Fauna & Acoustic Stress

Extreme sound pollution. Explosive detonations and industrial truck engines trigger acute stress, behavioral modification, and the immediate desertion of breeding and wintering habitats.



## Flora & Soil Destruction

















Deployment requires cutting 3 to 8-meter-wide paths ("layons") through vegetation. 30-ton Vibroseis trucks cause massive soil compaction and habitat fragmentation.



## Hydrological Pollution

Deep drilling for explosive placement introduces severe risks of mixing distinct aquifers, while chemical explosive residues and drilling muds threaten to contaminate pristine groundwater.

# The Terrain Matrix: Identifying the Blank Spot

	Vibroiseis (Trucks)	Explosives (Dynamite)
<b>Desert</b> 	<b>WINS:</b> Fast deployment, flat terrain, zero water needed. 	<b>FAILS:</b> Sand drilling is slow; requires massive water resources.  
<b>Urban</b> 	<b>WINS:</b> Controlled sweeps prevent structural damage. 	<b>FAILS:</b> Strictly prohibited; shatters foundations.  
<b>Dense Forest</b> 	<b>FAILS:</b> Demands massive, destructive deforestation. 	<b>WINS:</b> Requires only narrow foot trails for portable drills.  
<b>The Gap: Sensitive Parks &amp; Mountains</b> 	<b>FAILS:</b> Ecologically too destructive. 	<b>FAILS:</b> Acoustically and logistically disruptive.  

**Result:** A technological deadlock requiring a complete paradigm shift.

# Enter the Next Generation of Exploration

Solving the 'Sensitive Park' gap requires abandoning active destruction in favor of passive, invisible precision.



## RSS-NMR

[Remote Sensing Survey +  
Nuclear Magnetic Resonance]



## LIS & STRYDE Nodes

[Wireless Low-Impact Seismic]

# RSS-NMR: The Macro 'Spy' Mode



Leverages **passive satellite telemetry** and the **Earth's natural magnetic field** combined with microwaves to stimulate the protons of subterranean fluids.



**Zero Impact:** Absolutely no footprint, noise, or deforestation.



**Direct Detection:** Unlike traditional seismic that only shows rock shapes, RSS-NMR directly identifies unique molecular fingerprints of water, oil, gas, and porosity.



**Unprecedented Speed:** Compresses multi-year exploration cycles into a 2-month phase, bypassing lengthy access permits.

# Low Impact Seismic (LIS) & Wireless Nodes



Legacy footprint: 30 tons, miles of heavy copper cables, linear destruction.



- **The Node:** 150-gram, autonomous, battery-powered memory banks with GPS-synced continuous recording.
- **The Deployment:** Carried on foot. Placed densely along sinuous paths (<2 meters wide) without cutting a single branch.
- **The Result:** Ultra-high resolution 3D/4D structural imaging via passive recording of the earth's ambient noise.

# The Ultimate Synergistic Architecture

## Phase 1: Macro-Screening / RSS-NMR



**Action:** Scan massive regional concessions from space.

**Objective:** Rapidly locate and isolate geological 'Sweet Spots' containing the target fluids.

**Benefit:** Prevents wasted ground deployment over barren zones.

## Phase 2: Micro-Targeting / Node LIS



**Action:** Deploy lightweight wireless nodes only over the validated sweet spots.

**Objective:** Generate ultra-high-fidelity structural imaging to prepare for exact drilling coordinates.

**Benefit:** Concentrated, zero-deforestation data acquisition.

# The Business Case for Low-Impact Methodologies



## Cost Efficiency

Reduces operational field logistics and overall costs by up to 50%.



## Speed to Insight

Satellite targeting and agile node deployment cut exploration cycles and data processing times by 30% to 50%.



## HSE & Risk Mitigation


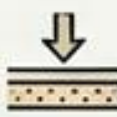















Zero heavy machinery, zero explosives handling. Eliminates major workplace accident vectors and circumvents public blockade risks.



## Resolution Superiority

Massive density of cheap, wireless nodes removes subsurface blind spots, offering 3D/4D clarity impossible with constrained cable systems.

# The Master Diagnostic Comparison

Criteria	Dynamite	Vibroiseis Trucks	RSS-NMR + Nodes
Soil Destruction	 <b>High</b> (Boreholes)	 <b>Moderate</b> (Compaction)	<b>ZERO / Minimal</b>
Vibratory & Sound Nuisance	 <b>Extreme</b> (Detonations)	 <b>Moderate</b> (Engine/Sweeps)	 <b>ZERO</b>
Fauna Perturbation	 <b>High</b> (Flight response)	 <b>Temporary</b>	 <b>ZERO</b>
Carbon Footprint	 <b>Moderate</b>	 <b>High</b> (Truck fleets)	 <b>Near-Zero</b>
Fluid Detection	 <b>Indirect</b>	 <b>Indirect</b>	 <b>DIRECT</b> (RMN Signature)
Data Fidelity	 <b>Low</b> (2D/3D)	 <b>Medium</b> (3D)	 <b>Ultra-High</b> (4D Clarity)

# The Strategic Mandate for Sensitive Ecosystems

For semi-arid fragile ecosystems, national parks, and mountainous terrains, the era of explosive and heavy-machinery seismic is over.

The standard is now set: Deploy RSS-NMR for direct fluid screening, followed by LIS Node technology for high-fidelity structural imaging.

Limitless data.  
Invisible footprint.



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Valid from 20.10.2025 to 05.10.2028

Срок действия с по

Applicant/Manufacturer: Poisk Group LLC, 299040, Russia, Sevastopol,  
st. Khrustal'naya, 143

Заявитель/Производитель: ООО «ГРУППА ПОИСК», 299040, Россия, г. Севастополь,  
ул. Хрустальная, д. 143

Product: Methodology for calculating predicted ore reserves in deep-lying deposits, using  
the parameters of ore bodies obtained using remote geosound methods of geological exploration  
and field geophysical equipment of the Poisk complex (EACH of the OJSC 901809100)

Продукция: Методика подсчета прогнозируемых запасов руд в глубинных залежах, с  
использованием параметров рудных тел, полученных с помощью дистанционных  
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ООО «ГРУППА ПОИСК» № 105 от 07.10.2015 на соответствие «Надежность» системы  
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Reg. № РОСС RU.31678.040010 от 10.10.2016 г.



## СЕРТИФИКАТ СООТВЕТСТВИЯ

№ РОСС RU.МЕТ.010066

Срок действия с 24.05.2021 по 24.05.2028

№ 0057630

ОБЛАСТЬ СЕРТИФИКАЦИИ: РОСС RU.МЕТ.0100119

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использованием параметров буровых скважин для определения геологических  
характеристик скважины в скважинной геофизической аппаратуре «Поиск» «Серебряный  
Бор».

дата СЭС  
21.11.21

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ НОРМАТИВНЫХ ДОКУМЕНТОВ

дата СЭС  
21.11.21

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НА ОСНОВАНИИ

Протокола испытаний № 0018-2021 от 24.05.2021 года, выданной Национальным лабораторией «Техносервис»  
(адрес: РОСС RU.31678.040010)

ДОСТАВЛЯЕТСЯ НАД: ИСПОЛНИТЕЛЯМ

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Руководитель центра

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# VERSATILITY OF APPLICATION



## HYDROCARBONS

Oil  
Gas  
Condensed



## PRECIOUS METALS AND BASES

Gold  
Copper  
Lithium  
Nickel



## STRATEGIC

Uranium  
Diamonds  
Coal



## WATER RESOURCES

Drinking Water  
Underground  
Geothermal

The technology eliminates false positives by identifying the specific type of mineral.