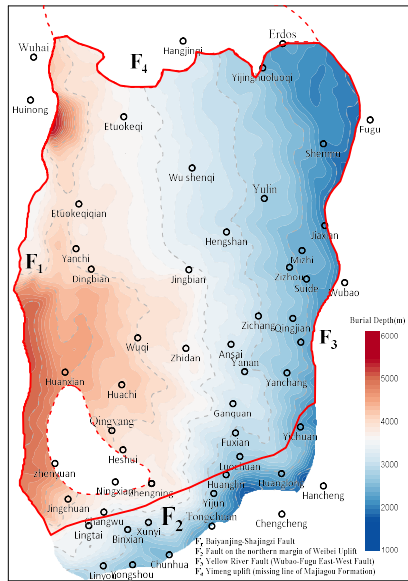




# Optimal Selection of Favorable Areas for CO<sub>2</sub> geological storage in the Majiagou Formation in the Ordos Basin

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## 1、Rough selection of the CO<sub>2</sub> geological storage area in the Ordos Basin



Based on systematic research on the reservoir conditions, structural conditions, caprock conditions, and the salinity conditions of the formation water, and the temperature and pressure conditions, the areas suitable for the geological storage of CO<sub>2</sub> in the Ordos Basin are selected roughly.

## 2、Optimization of CO<sub>2</sub> geological storage area



The factors for the optimization of the selection of CO<sub>2</sub> geological storage areas mainly involve the three aspects of technology, safety, and economic feasibility. These factors mainly include the physical properties of each reservoir and its paleokarst type, the distance from the CO<sub>2</sub> emission sources, the degree of exploration, the formations' burial depth, and the degree of influence on the development of other mineral resources.

## 3、Site ranking methodology for CGS in carbonate reservoir

Reserve Group	Formation	Average porosity	Permeability	CO <sub>2</sub> Capacity (Mt)	Cap rock	Distance from CO <sub>2</sub> emission source	Exploration degree	Constituency level
The Central Weathered Crust (I)	Wushen Banner—Jingbian—Yan'an Karst Slope Area (I <sub>1</sub> )	5.7	3.48	35.29	Good	Very close	Very high	1
	Yulin-Mizhi Karst Basin Area (I <sub>2</sub> )	3.4	0.83	5.03	Good	Closer	high	3
The dolomite bodies around the paleo-uplift (II)	Middle and lower parts of Ma5 and Ma4	4.6	0.43	11.27	Good	Far	General	4
The platform margin facies belt (III)	Cremeri Formation	5-11	/	14.09	Medium	Closer	General	2
The eastern subsalt (IV)	Lower Ma5 and Ma4	/	/	/	Good	Closer	Lower	5
Others	Ma4, Ma3, Ma2, Ma1	/	/	/	/	/	Low	6

Taking the technology, safety, and economic feasibility Of CGS into consideration, the Wushenqi-Jingbian-Yan'an karst slope area (I<sub>1</sub>) is determined to be the best CO<sub>2</sub> geological storage area. the Yulin-Mizhi karst basin area (I<sub>2</sub>) is determined to be a favorable area for the CGS in the Ordos Basin.

This article puts forward a site ranking methodology for CGS and establishes evaluation criteria (or technical systems) for the selection of carbon dioxide geological storage areas in carbonate reservoirs.