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PRESS RELEASE

December 23, 2025

Chiyoda Corporation Signs an MOU with GeoKiln Energy Innovation Inc, for a Conceptual Study on Hydrogen Recovery and Purification Facilities using their Stimulated Natural Hydrogen Generation Technology

Chiyoda Corporation (Chiyoda) is pleased to announce that it has signed a Memorandum of Understanding (MOU) with GeoKiln Energy Innovation Inc. in the USA (GeoKiln) to jointly study hydrogen recovery and purification facilities using GeoKiln's Manufactured Subsurface Hydrogen technology[*1] (MSSH™).

Natural hydrogen has gained international attention in recent years as a naturally occurring, low-carbon hydrogen source, and technological development towards commercialization is progressing worldwide. The study aims to deepen understanding of stimulation-enhanced natural hydrogen, where subsurface hydrogen generation is artificially accelerated, and to explore the potential for future business in Japan and abroad.

Under the study, which has already commenced, Chiyoda and GeoKiln will conceptually design a commercial scale surface plant based on MSSH™ technology, which enhances hydrogen generation through subsurface reactions. GeoKiln will provide subsurface models and baseline hydrogen generation data and Chiyoda will perform the conceptual design of the surface facilities, including commercial feasibility assessments and energy balance. A 3rd party major Japanese energy company will also support the study from an 'offtake' perspective by examining potential energy supply models and product specifications.

The study will also examine hydrogen utilization pathways, including pipeline delivery, hydrogen fired power generation and fuel cell based electricity supply. The outcomes will serve as foundational information for future commercial plant development.

This initiative has been selected for support under the Tokyo Metropolitan Government's 'TiB CATAPULT' program[*2], a cluster initiative to drive global innovation promoted by Plug and Play Japan, the cluster representative of TiB. The study also aligns with Tokyo's 'Zero Emission Tokyo Strategy' and contributes to the diversification of future hydrogen supply models. Chiyoda will continue collaborating with GeoKiln to add value in the natural hydrogen sector from technical and business perspectives.

As comprehensive engineering company, Chiyoda develops technologies to realize carbon neutrality and will continue contributing to the development of sustainable society under our purpose of 'Enriching Society through Engineering Value'.

GeoKiln Energy Innovation Inc.
Established: 2023
Headquarters: Houston, Texas, United States
Main Business: Development of proprietary manufactured subsurface hydrogen generation technology (MSSH™), subsurface hydrogen activation modeling, and provision of hydrogen generation data and stimulation design for commercial recovery and purification systems. The company is a global leader in this field and has been selected as a 2025 Breakthrough Energy Fellow*3.

*1 Manufactured Subsurface Hydrogen (MSSH™) is an emerging geologic hydrogen technology that accelerates naturally occurring subsurface reactions to generate hydrogen within the Earth's crust at commercial rates. GeoKiln's H_2 is net positive for the world's energy balance and can be produced at less than 1/5 the cost of current blue and green technologies at target. Unlike conventional hydrogen production methods—such as electrolysis or reforming—which require external feedstocks or large energy inputs, MSSH ™ leverages intrinsic geochemical water–rock reactions and applies controlled thermal stimulation to increase hydrogen generation rates. This approach enables predictable, controllable, in-situ hydrogen production and has the potential to offer large-scale, low-carbon and cost-competitive hydrogen supply suitable for power generation, industrial applications and pipeline-grade hydrogen systems.

*2 Chiyoda press release dated March 25, 2025:
Participation in the Tokyo Metropolitan Government's "TIB CATAPULT" Global Innovation Program.

*3 The Breakthrough Energy Fellows program has supported bold innovators at the earliest stages of developing climate solutions for five years, providing mentorship, resources and networks that help turn breakthrough ideas into scalable impact.

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