



OFFICE OF
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE INTERIOR

Recommendation for the Department's Coordination Concerning Cryptomining Activities Impacting Federal and Tribal Resources



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MANAGEMENT ADVISORY
OI-OG-22-0897-I

We learned that Federal mineral lease operators are diverting natural gas from those leases to power electric generators for cryptomining operations without paying gas royalties. Federal regulations applicable to the production of Federal minerals generally require that gas sold or removed from Federal leases be accounted for and reported to the U.S Department of the Interior (DOI). Federal mineral royalties are then calculated and paid to the DOI's Office of Natural Resources Revenue (ONRR) in accordance with applicable law and the terms of valid mineral leases. We found, however, that because of the novelty of cryptomining operations, the DOI currently does not have consistent guidance that addresses mineral revenue collection as well as permitted land use and environmental impacts specifically associated with cryptomining operations affecting lands and minerals under Federal jurisdiction. This management advisory highlights issues related to these activities and recommends the DOI take actions to address them.

Background

“Cryptomining” is a process used to create and validate new cryptocurrency in the blockchain¹ by solving complex algorithms; these algorithms require processing units designed to perform this service for profit. Competing “miners” race to complete the equation, and the first miner to solve it earns the cryptocurrency (e.g., Bitcoin). Both the amount of Bitcoin paid and the value of that payment fluctuates, but the miner who solves the equation currently receives 6.25 Bitcoin for each solution, which has fluctuated in value between approximately \$125,000 and \$246,000.

Notwithstanding that cryptocurrency is a virtual phenomenon, cryptomining itself requires physical infrastructure and can have a significant effect on the land on which it occurs. The cryptomining units include large generators, cooling equipment, and a significant number of computer arrays contained in mobile facilities. These facilities operate constantly and require vast amounts of energy.

Findings

Following discussions with the Colorado Oil and Gas Conservation Commission (COGCC), we learned that cryptomining units have been placed on or near lands and areas leased for Federal mineral development (see Figures 1 and 2). We observed these cryptomining operations and learned that operators divert gas from Federal leases to generators that power the cryptomining units. Put another way, these activities generate revenues for private companies using federally

¹ Blockchain is a virtual ledger that securely records validated transactions that cannot be altered or erased. The name derives from the network structure, where each set of data is considered a “block.” As new blocks are added in sequence, it forms a “chain.”

owned gas, at times without the leaseholder paying mineral royalties. As a result, these activities may result in the loss of Federal or Tribal mineral revenues administered by the DOI. We consulted with officials from ONRR, the DOI's Office of the Solicitor (SOL), and the DOI's Bureau of Land Management (BLM), all of whom have opined that Federal gas used to power cryptomining operations is subject to royalty payments and that consistent guidance is needed to address issues identified in this management advisory.

Figure 1: Example Generator Unit



Source: OIG.

Figure 2: Example Cryptomining Units



Source: OIG.

We also learned that the mobile nature of these operations creates unique concerns. In particular, they may operate for long periods of time without approval or notice by the Federal Government. The BLM inspects Federal lands under its jurisdiction, and it enforces laws, regulations, and lease requirements associated with the production, use, and transportation of natural gas from areas under Federal jurisdiction to ensure the safety of the personnel involved and to protect public lands and resources. BLM oil and gas inspectors cover a large area of land, and these

mobile cryptomining units may not be approved or even disclosed to BLM officials, making it difficult for BLM inspectors to observe and evaluate the operations. In addition, we learned that some BLM offices may allow the placement of cryptomining units on public land, while others do not, which could potentially result in the misapplication of the relevant law or regulation; this potential inconsistency could also cause confusion or conflict within the DOI regarding the approved use of Federal lands and resources for this commercial purpose.

The COGCC also raised a variety of other issues. For example, the COGCC stated that these operations could constitute a health and safety risk and could additionally jeopardize the oil and gas resources on the lease. Further, the COGCC stated that these operations may be underinsured for accidents, may cause damage to infrastructure, and pose risk to the environment. Understanding and evaluating the nature of these operations would enhance the DOI's ability to inspect cryptomining units and enforce regulations and laws established to protect public safety and public resources and ensure proper collection of Federal and Tribal revenues.

Overall, we identified the use of Federal gas to support cryptomining operations as an emerging issue with potential effects on Federal and Tribal lands and resources. The DOI currently does not have guidance that addresses mineral revenue collection and land use issues associated with cryptomining operations on leases under Federal jurisdiction. We believe that multiple DOI bureaus and offices, including the BLM, ONRR, the Bureau of Indian Affairs (BIA), the Bureau of Ocean Energy Management (BOEM), and the Bureau of Safety and Environmental Enforcement (BSEE) may be affected by cryptomining operations.

Recommendation

We recommend that the DOI:

1. Issue guidance to affected bureaus regarding cryptomining operations, including guidance addressing potential land use concerns, safety risks, environmental impacts, and royalty collection requirements.

Summary of DOI Response

We issued a draft of this management advisory to the DOI on October 27, 2022, for review and comment. The DOI responded on December 20, 2022 (see Attachment).

With respect to the BLM, the DOI agreed that "cryptomining is not a beneficial use under the terms of Federal oil and gas leases" and that any authorized uses of oil and gas resources for cryptomining purposes "would be subject to proper measurement, reporting, and payment of royalties." It stated, however, that its current training "sufficiently addresses unauthorized use, which would include any unauthorized cryptomining activity." As to offshore facilities, the DOI noted that BSEE, as the safety and enforcement agency covering BOEM's resource portfolio, would "respond to any cryptomining operations impacting offshore facilities." It also said that both BSEE and BOEM acknowledged that the "remote location of offshore facilities could potentially be used to facilitate" improper activities, including cryptomining. The DOI stated that

BSEE would “take steps to include cryptomining threat detection in future inspector and investigator training.”

The DOI did not explicitly concur or non-concur with the recommendation but stated it would:

- “Issue a memorandum to its bureaus, BLM, BOEM and BSEE, noting the threats outlined in the draft management advisory, and request that relevant staff closely re-review the advisory;
- Convene a meeting with the relevant ASLM [Assistant Secretary for Land and Minerals Management] bureaus, BIA, ONRR, and other appropriate bureaus/offices to understand data or evidence assembled of cryptomining activity on Federal lands and waters; and
- Working with the Office of the Solicitor and Office of the Secretary, discuss areas of concern and how consistent cross-Departmental guidance could be developed and utilized.”

Based on the actions identified, we consider this recommendation resolved but not implemented. In assessing when this recommendation has been implemented, we will continue to monitor the ASLM’s actions to determine whether it has communicated clear and consistent guidance to the Bureaus that oversee cryptomining operations.

Attachment



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

MEMORANDUM

To: Office of Inspector General

From: Laura Daniel-Davis
Principal Deputy Assistant Secretary,
Land and Minerals Management

Laura
Daniel-Davis

Digitally signed by
Laura Daniel-Davis
Date: 2022.12.20
09:46:44 -05'00'

Re: Response to Recommendation for the Department's Coordination Concerning
Cryptomining Operations Impacting Federal and Tribal Resources

Case Number: OI-OG-22-0897-I

Date: December 20, 2022

Thank you for providing the draft management advisory (advisory), *Recommendation for the Department's Coordination Concerning Cryptomining Operations Impacting Federal and Tribal Resources*, to the Office of the Assistant Secretary for Land and Minerals Management (ASLM) for review and response. I apologize for our delay in responding.

The draft advisory outlines information developed through communication with the Colorado Oil and Gas Conservation Commission which advised that certain Federal mineral lease operators have been found to be diverting natural gas to power electric generators associated with cryptomining. There also may be cryptomining units potentially sited on Federal lands. The draft advisory notes that this type of activity would not be appropriately permitted and would lead to a loss of Federal or Tribal mineral revenue due to the Department. The draft report recommends that the Department issue guidance to affected bureaus, to include potentially the Bureau of Land Management (BLM), the Bureau of Indian Affairs (BIA), the Bureau of Ocean Energy Management (BOEM), the Bureau of Safety and Environmental Enforcement (BSEE) and the Office of Natural Resources Revenue (ONRR), "addressing potential land use concerns, safety risks, environmental impacts, and royalty collection requirements" related to cryptomining activities on Federal lands and waters.

Below is a summary of background and actions related to potential cryptomining on Federal lands and waters for ASLM bureaus, BLM, BSEE, and BOEM.

BLM inspectors are fully trained to identify unauthorized use of Federal and Indian oil and gas resources, as well as unauthorized land use. Further, the BLM considers and analyzes all land use concerns, safety risks, and environmental impacts prior to approving any facilities on public

lands. The BLM believes current training for its inspectors sufficiently addresses unauthorized use, which would include any unauthorized cryptomining activity. The BLM agrees that cryptomining is not a beneficial use under the terms of Federal oil and gas leases, and that any authorized use of oil and gas resources for cryptomining purposes would be subject to proper measurement, reporting, and payment of royalties.

In response to this emerging issue, the BLM has discussed actions to address cryptomining with offices across the country during monthly national operations conference calls and monthly national inspection and enforcement conference calls.

BSEE, as the safety and enforcement agency covering the resource portfolio of BOEM, would respond to any cryptomining operations impacting offshore facilities for BOEM. BSEE and BOEM recognize that the remote location of offshore facilities could potentially be used to facilitate clandestine, nefarious activity – including cryptomining as addressed in the draft management advisory. BSEE inspectors and investigators receive training to observe, detect and report all manners of suspicious activity, and will take steps to include cryptomining threat detection in future inspector and investigator training.

Conclusion and Next Steps

The Office of the Assistant Secretary for Land and Minerals Management notes that the threat of potential cryptomining activity on Federal lands and waters is acknowledged by its relevant bureaus, and action is being taken to ensure permitting, inspecting, investigation, and enforcement officials are properly trained to identify and address such unauthorized activity. It is accurate that there is not, as noted in the draft management advisory, overarching ASLM or Departmental guidance associated with this emerging threat. The Office of ASLM will:

- Issue a memorandum to its bureaus, BLM, BOEM and BSEE, noting the threats outlined in the draft management advisory, and request that relevant staff closely re-review the advisory;
- Convene a meeting with the relevant ASLM bureaus, BIA, ONRR, and other appropriate bureaus/offices to understand data or evidence assembled of cryptomining activity on Federal lands and waters; and
- Working with the Office of the Solicitor and Office of the Secretary, discuss areas of concern and how consistent cross-Departmental guidance could be developed and utilized.