

# NEGATIVE STATEMENT AS A REGULATORY PRACTICE ON NATURALLY OCCURRING RADIOACTIVE MATERIAL (NORM) IN INDONESIA

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## ABSTRACT

BAPETEN as Indonesia nuclear energy regulatory agency has set an intervention level for radiation exposure derived from Technologically Enhanced Naturally Occurring Radioactive Material (TENORM). The intervention level stated in:

Ø amount or quantity of TENORM; and

Ø contamination level and / or activity concentration

Intervention level will decide whether or not TENORM produced would require radioactive material storage license from BAPETEN. Non nuclear industry that produce TENORM with specification below intervention level will receive negative statement from BAPETEN as an assurance that its radiation exposure will not impact the safety of workers, public, and environment.

Negative statement on TENORM has become one of BAPETEN regulatory practice with the issuance of BAPETEN Chairman Regulation (BCR) No. 9 Year 2009 on Intervention on Exposure from TENORM and BAPETEN Chairman Regulation (BCR) No. 16 Year 2013 on Radiation Safety in Storage of TENORM. As for NORM, thus far BAPETEN doesn't have regulatory basis to perform any regulatory practices. Determination of radioactive mining region in mining zonation established by ministry of energy and mineral resources has imposed BAPETEN to perform its task to ensure the safety of workers, public, and environment. This is due to BAPETEN recommendation in the form of negative statement has become main requirement for the issuance of exploration approval in the so-called radioactive mining region.

## INTRODUCTION

BAPETEN as Indonesia's nuclear regulatory body has the task to control any activity using nuclear energy by undertaking regulatory activities of developing regulation, and conducting licensing and inspection. Regarding management of TENORM, BAPETEN has developed BCR No. 9 Year 2009 on Intervention on Exposure from TENORM and BCR No. 16 Year 2013 on Radiation Safety in Storage of TENORM. As for NORM, thus far BAPETEN doesn't have regulatory basis to perform any regulatory practices. Determination of radioactive mining region in mining zonation established by ministry of energy and mineral resources has imposed BAPETEN to perform its task to ensure the safety of workers, public, and environment. This is due to BAPETEN recommendation in the form of negative statement has become main requirement for the issuance of exploration approval in the so-called radioactive mining region.

This paper will describe NORM related regulations, BAPETEN policy on NORM, and future provisions that will be enforced.

## DISCUSSION AND RESULTS

### NORM Regulations

Based on Government Regulation No. 33 Year 2007 on Safety of Ionizing Radiation and Security of Radioactive Source, implementation of intervention due to chronic exposure situation originating from NORM/TENORM can be applied to NORM/TENORM with radioactive concentrations exceed the intervention level[2]. The intervention level stated in:

Ø amount or quantity of radioactive material; and

Ø contamination level and / or activity concentration[3]

Intervention level will decide whether or not radioactive material produced would require radioactive material storage license from BAPETEN[4]. Non nuclear industry that produce radioactive material with specification below intervention level will receive negative statement from BAPETEN as an assurance that its radiation exposure will not impact the safety of workers, public, and environment. However, this intervention level only applied for radiation exposure derived from TENORM. As for intervention level for radiation exposure derived from NORM has not been set.

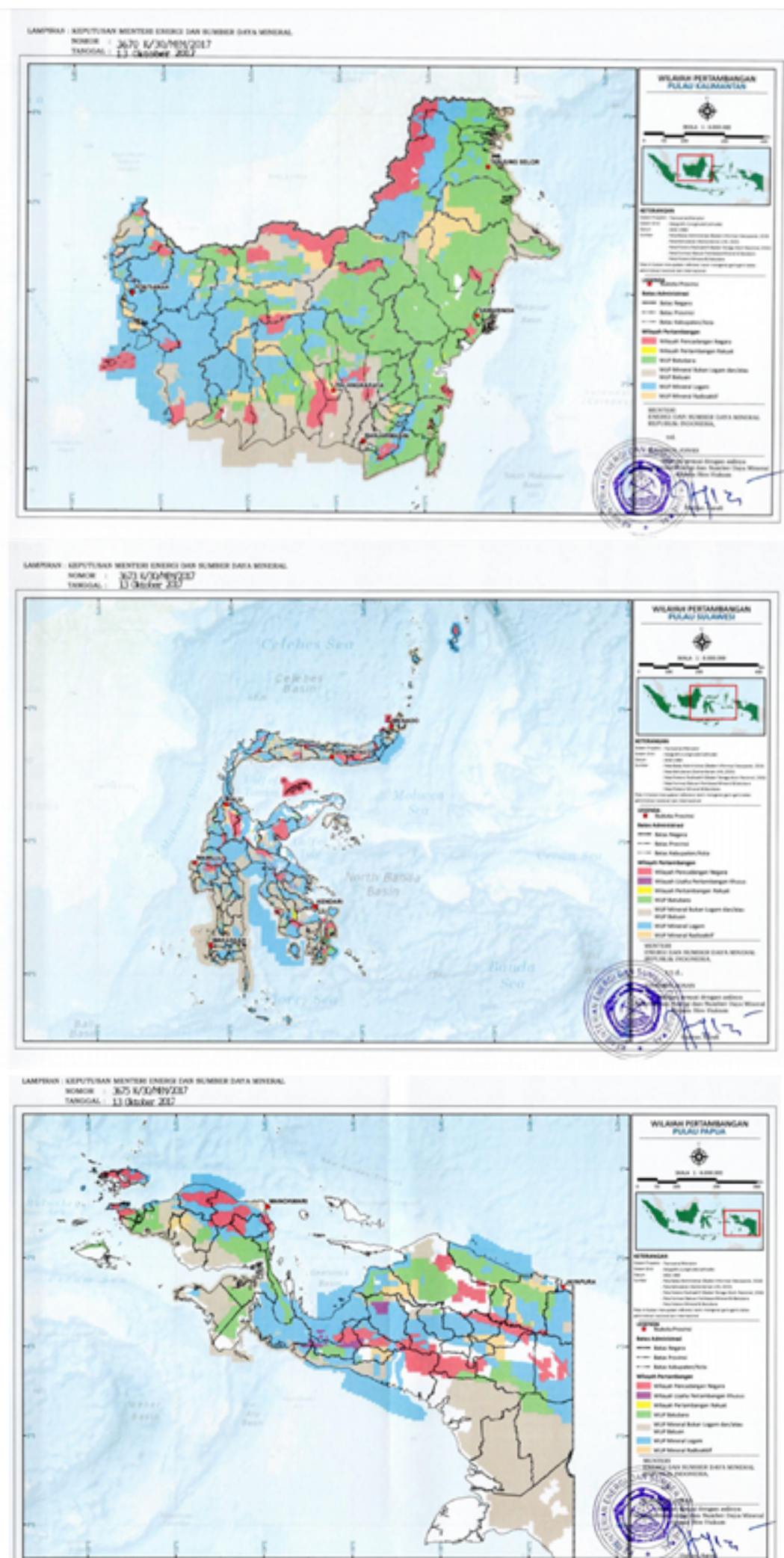
### Radioactive Mineral Mining Regulations

Regulations regarding radioactive mineral mining are somewhat different from conventional mineral mining. The regulation is separated from the Mining of Mineral and Coal Law and the exclusion of the rights of holders of Mining License (IUP) and Special Mining License (IUPK) regarding ownership of minerals and / or associated minerals. This is due to the high risk nature of radioactive minerals, such as radiation hazards to workers, surrounding communities and the environment if their utilization is not monitored intensively[5].

Mining of Mineral and Coal Law No. 4 Year 2009 stipulates that the Mining Business Area (WUP) for radioactive mineral is determined by the government[6]. Government Regulation No. 22 Year 2010 on Mining Areas stipulates that Indonesian regions that contain uranium can be classified as State Reserved Area (WPN), mining area which is reserved for national strategic interests. Determination of WPN by the Government is intended to encourage national economic growth, energy security and national strategic industries, and increase national competitiveness in facing global challenges. As for determination WUP for radioactive mineral is carried out by the Minister of Energy and Mineral Resources based on a proposal from National Nuclear Energy Agency (BATAN)[7].

### Ministerial Decree

In 13 October 2017, Ministry of Energy and Mineral Resource has issued 7 Ministerial Decrees on Determination on Mining Areas for all Indonesian region. 3 out of those 7 Ministerial Decrees stated WUP of radioactive mineral as part of mining areas of the regions. The 3 regions are Kalimantan Island, Sulawesi Island, and Papua Island. Figure 1 - 3 shows Mining Areas of the 3 regions respectively.



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## NEGATIVE STATEMENT

The ministerial decrees on determination of mining areas has cause BAPETEN to perform its regulatory task to ensure the safety of workers, public, and environment from radiation exposure derived from NORM. This is due to BAPETEN recommendation in the form of negative statement has become main requirement for the issuance of exploration approval in the WUP of radioactive mineral. Heretofore, BAPETEN already issued 10 negative statements as recommendations for the issuance of exploration approval in the WUP of radioactive mineral. All of the negative statements are issued as recommendation for application of non-metal mineral and rock areas reserves in Central Kalimantan province.

## LESSON LEARNED

WUP of radioactive material are already determined in 3 different regions in Indonesia. Currently, BAPETEN has already issued recommendations for application of non-metal mineral and rock areas reserves in Central Kalimantan province and expect other applications to be submitted from other provinces with WUP of radioactive material. Draft of Government Regulation on Business and Licensing of Radioactive Mineral and Associated Mineral will provide regulatory basis for NORM regulatory practices, but further provisions as those applied for TENORM are also needed. The draft will also present compatibility and relevance with the mining law and regulations.

## CONCLUSION

BAPETEN already perform its regulatory task on radiation exposure derived from NORM without detailed regulatory basis for NORM regulatory practices. Draft of Government Regulation will provide compatibility and relevance between NORM and mining regulations. Further provisions as those applied for TENORM are needed for future regulatory practices.

## REFERENCES

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- [3] BAPETEN Chairman Regulation (BCR) No. 9 Year 2009 on Intervention on Exposure from TENORM.
- [4] BAPETEN Chairman Regulation (BCR) No. 16 Year 2013 on Radiation Safety in Storage of TENORM.
- [5] Sophia Clara B.K., Kerangka Hukum Pertambangan Mineral Radioaktif di Indonesia, 2016.
- [6] Mining of Mineral and Coal Law No. 4 Year 2009.
- [7] Government Regulation No. 22 Year 2010 on Mining Areas.
- [8] Ministry of Energy and Mineral Resource Decree No. 3670 K/30/MEM/2017 on Determination on Mining Areas of Kalimantan Island.
- [9] Ministry of Energy and Mineral Resource Decree No. 3673 K/30/MEM/2017 on Determination on Mining Areas of Sulawesi Island.
- [10] Ministry of Energy and Mineral Resource Decree No. 3675 K/30/MEM/2017 on Determination on Mining Areas of Papua Island.