
THE INDONESIAN GOVERNMENT IMPLEMENTATION RULES AND LAWS ABOUT IDENTIFICATION AND WASTE TAILING PROCESSING FLOWING THROUGH AGHAWAGON RIVER, AJIKWA RIVER, OTOMONA RIVER IN DISTRICT MIMIKA, PROVINCE OF PAPUA

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ABSTRACT

Background : Knowledge about the distribution of health problems is important because according to residence / place of work one can show some of the types of health problems and illness. New Mimika district located along streams Ajikwa and Otomona rivers been polluted by tailings and waste rock, the river was originally used to meet daily needs. However the Government Law about B3 Pollutant had been renewable from No.18/1999 into Government Law No. 85/ 1999, focusing on the increasing of natural environmental quality.

Method : Cross-sectional study design to measure the levels of mercury (Hg) in the river water Ajikwa and Otomona rivers describe the health condition of the people living along streams Ajikwa and Otomona rivers. And see the rules impact on the river ecology directly.

Result : The results of this study that the village has a Koperapoka and Kwamki Lama villages. For a sample DO levels in stream flow Ajikwa river of 4.8 mg / L BOD samples at 0 mg / L or nil, the sample COD is 5100mg / L and at Otomona rive DO levels measured at 0 mg / L , BOD samples of 0mg / L , sample COD is 3000mg / L, Levels of Hg contamination in water up from estuaries and river mouths Otomona and Ajikwa river, there are differences that exceed the threshold are allowed, which is average of 0,019 mg / L.

Summary: The existence coaching of relevant agencies to people who consume food, drink water contaminated river with mercury first cooked until it reaches a high boiling point cup to reduce mercury levels in the water and reduce the impact of diseases caused by mercury complaints. In sight we need the actions of Indonesian government law to arrange and determinate pollutant production flowing to the rivers over loaded along District of Mimika.

Keywords: Indonesian Regulations and Laws, Mimika Rivers, Freeport ,Pollutant B3, Tailing

1. BACKGROUND

Tailings are the waste rock still containing concentrates processing precious minerals (gold, silver, copper) in the form of residual sand discharged into a body of water (river Aghawaggon) about mile 74 and will meet Otomona river around mile 50 and meets the river at mile 32-34 exact Ajikwa in Otomona Bridge. Furthermore tailing said sedimentation (deposited) in the Deposition Area Ajikwa (DPA). Ajikwa deposition area starting from Otomona Bride and bounded by West Dike and Dike East. Dike West and embankment Eastern function to keep sedimentation Tailing remain at the focal point and does not make a move literal (laterally) that could

threaten the City of Mimika in the west and Wildlife Nasonal Lorensz to the East. Distribution showed 60% of the tailings embankment settles above, 35% settle in the peat swamps and 5% tailings left behind and carried to Muara Ajikwa and the Arafura Sea. Waste generated from PT Freeport mining process very much. These wastes are wastes that can not be recycled. In addition Ajkwa waste disposal in the watershed and lake Wanagon cause environmental damage around the area.

Tailings and rock gold mining results usually contain mineral inert (inactive). Minerals, among others; quartz, clasit and various types of aluminosilicate, tailings and rock gold mining results containing one or more toxic hazardous materials such

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as; Arsenic (As), cadmium (Cd), lead (pb), Mercury (Hg) Cyanide (Cn) and others. The metals that are in the tailings portion is a heavy metal that fall into the category of hazardous and toxic waste (B3) .10 Controversy Tailings categorized B3 (Toxic Substances and Hazardous) contains a wide range of long debate. Government Regulation on B3 which is updated from the Government Regulation No. 18 of 1999 to the Government Regulation No. 85 of 1999, the year the study was not intended to look at improving the quality of regulations, which in turn can support the management of environmental quality. Tailings produced by PT. Freeport Indonesia has been running a determination procedure B3, talk about the procedure, the determination is done by conducting a series of tests, pengujian first is testing the toxicity of the waste that is to test the characteristics (Government Regulation No. 85 1999. Article 8 Paragraph (3), followed toxicological test with TDP procedure (Toxicity Characteristic Leaching Procedure). Tests done before the waste characteristics untreated waste management in order to determine the characteristics of the B3 waste (explosive, flammable, reactive, infectious, corrosive and toxic). For wastes that are toxic to identify using standard and TDP concentration (Toxicity Characteristic Leaching Procedure) organic and inorganic contamination

2. RESEARCH METHOD

This study describes the identification of Government Regulation on waste tailings and tailings drainage on PT. Freeport Indonesia according to the DPA capacity in Ajikwa River and River of Otomona Mimika. The study design used in this study is qualitative this is a research method that is carried out with the aim to find a picture identification of tailings and capacity Aghawagon DPA in rivers, streams and rivers Otomona Ajikwa Mimika. This study doing as an observational study, with a descriptive study design, researchers are trying to tell the existing problem-solving based on data that are comparative and correlative. Researchers describe the phenomenon in a systematic, factual and accurate information on the facts and properties as well as the relationship between the phenomenon investigated. Government Regulation On Identifying Waste on the river type Aghawagon, Ajkwa and rivers Otomona. Government Regulation On Waste Treatment in Aghawagon Rivers, streams and rivers Ajkwa Otomona.

Water sample collection techniques, to sediment done using Ce Piston Sampler, seabirds CYD-19 models

SBR CTD profiler paint sea. To maintain the authenticity and quality of the sediment samples are stored in a jar beta and cooled. Sediment sample processing is done with wet detruksi nitric acid, then mix until a homogeneous sediment then examined in a laboratory environment Timika. Sampling techniques for the extraction of water, water samples taken implemented composite water level of the river of water samples of the river's surface taken from one point on the left, 1 point right side and one point in the middle of water bodies of the river in order to identify the type of tailings later provide information the content of B3 waste before it is released in accordance DPA rivers. Water sample composite collected in a specific container was then taken in laboratory environment Timika to be identified. Tailings Waste Management Regulations that produced processed before being poured into the river by taking into account the carrying capacity and the capacity of the existing DPA .

3. RESULT RESEARCH

a. Suspended Solids (TSS)
The Control and compliance with waste water disposal into the settling ponds / sediment with measuring Dissolved Solids (TDS) as illustrated in the table below:

Tabel.4. 8. The results of measurements of suspended solids in Aghawagon river, Ajikwa and Otomona river year 2015

| Location | Sampling point | Result test (wight mg/L) |
|------------|----------------|--------------------------|
| Agghawagon | Lokasi I | 6400 |
| Ajikwa | Lokasi II | 8480 |
| Otomona | Lokasi III | 550 |

Sources : Enviromental Health Department PT. Freeport Indonesia 2015

Based on Table 4.8 above. shows the results of measurements of suspended solids in Aghawagon river totally 6400 Mg / L, River Ajikwa of 8480 Mg / L and the river Otomona in the amount of 550Mg/L.

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b. Dissolved Solids (TDS) Control and compliance with waste water disposal into the settling ponds / sediment with measuring Dissolved Solids (TDS) in the table below:

Table 4. 9. Measurement Results Dissolved Solids(TDS) in the River Aghawagon, Ajikwa River, River Otomona year 2015

| Location | Sampling point | Test Result (weight mg/L) |
|------------|----------------|---------------------------|
| Agghawagon | Location I | 18.800 |
| Ajikwa | Location II | 25.400 |
| Otomona | Location III | 712 |

Sources : Environmental Health Department PT. Freeport Indonesia 2015

Based on Table 4.9 above. shows the measurement results in river Aghawagon Suspended Solids of 18,800 Mg / L, River Ajikwa of 25,400 Mg / L and the river Otomona in the amount of 712 Mg/L

c. Oils And Fats COD

Oils and Fats can be entered as solids that float in water. Minyak insoluble above the water and when the open water contaminated with oil, the oil will still float in water. Usually an experienced oil flotation, but nearly 25 percent mixed together with water or an emulsification.

Control and compliance with waste water disposal into the settling ponds / sedimentation with Oils / Fats D and COD in the table below:

Table 4. 10 Results of Measurement Oils / Fats And COD Aghawagon On the river, the river Ajikwa, Otomona River 2015

| Location | Sampling point | Result test (weight mg/L) |
|------------|----------------|---------------------------|
| Agghawagon | Location I | 16.667 |
| Ajikwa | Location II | 10.000 |
| Otomona | Location III | 73.333 |

Sources : Environmental Health Department PT. Freeport Indonesia 2015

Based on Table 4.10 above. shows the measurement results Oils / Fats in the river Aghawagon of 16 667

Mg / L, River Ajikwa 10,000 Mg / L and the river Otomona in the amount of 73 333 Mg / L.

Table 4. 11 Results of Measurement of Chemical Oxygen Demand (COD) In Aghawagon River, Ajikwa River, Otomona 2015

| Location | Sampling point | Test result (weight mg/L) |
|-----------|----------------|---------------------------|
| Aghawagon | Location I | 4200 |
| Ajikwa | Location II | 5100 |
| Otomona | Location III | 3000 |

Sumber : Environmental Health Department PT. Freeport Indonesia 2015

Based on the above Table 4.11. shows the results of measurements of COD in river Aghawagon of 4200 Mg / L, River Ajikwa of 5100 Mg / L and the river Otomona that is equal to 3000 Mg / L.

d. Non Metal Inorganic Chemistry Monitoring the rate of sedimentation in the body in the river Aghawagon, Ajikwa, rivers Otomona parameter terdapat inorganic nonmetallic show an increase in the phenomenon of the three rivers in the Mimika Regency.

1.Manganese(Mn)

Control and compliance with waste water drainage into settling ponds / sediment with measuring Manganese (Mn) in the table below:

Table 4. 12. Measurement Results Manan (Mn) in the River Aghawagon, River Ajikwa, Otomona River 2015
Sources : Environmental Health Department PT.

| Location | Sampling point | Result test (weight mg/L) |
|------------|----------------|---------------------------|
| Agghawagon | Location I | 0,439 |
| Ajikwa | Location II | 0,200 |
| Otomona | Location III | 1,055 |

Freeport Indonesia 2015

Based on the above Table 4.12. shows the measurement results anoranic compound namely Manganese (Mn) in the river Aghawagon amounting to

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0,439 Mg / L, River Ajikwa of 0.200 Mg / L and the river Otomona that is equal to 1.055 Mg / L.

2. Mercury (Hg)

Control and compliance with waste water drainage into settling ponds / sediment with measuring Mercury (Hg) in the table below:

Table 4. 13. Results of Measurement Mercury (Hg) in the River Aghawagon, Ajikwa River, River Otomona 2015

| Location | Sampling point | Result test (weight mg/L) |
|------------|----------------|---------------------------|
| Agghawagon | Location I | 1,258 |
| Ajikwa | Location II | 0,078 |
| Otomona | Location III | 0,513 |

Sources: Environmental Health Department PT. Freeport Indonesia 2015

Based on the above Table 4.13. shows the measurement results Mercury (Hg) in snai Aghawagon of 1,258 Mg / L, River Ajikwa of), 078 Mg / L and the river Otomona that is equal to 0.513 Mg / L.

3. Lead (Pb)

Control and compliance with waste water drainage into settling ponds / sedimentation with measurement Lead (Pb) in the table below:

Tabel 4. 14. Measure Timbal (Pb) in river Aghawagon, Ajikwa, Otomona year 2015

| Lokasi | Stasiun/ Pengambilan Sampel | Titik | Hasil Uji (Berat mg/L) |
|------------|-----------------------------|-------|------------------------|
| Agghawagon | Lokasi I | | 2,827 |
| Ajikwa | Lokasi II | | 0,557 |
| Otomona | Lokasi III | | 1,810 |

Sources : Environmental Health Department PT. Freeport Indonesia 2015

Based on Table 4:14 above. shows the results of measurements on the river Lead Aghawagon by 0.151 Mg / L, River Ajikwa 0.092 Mg / L and the river Otomona that is equal to 0196 Mg / L.

4. Copper (Cu)
Control and compliance with waste water drainage into settling ponds / sediment with measuring Copper (Cu) in the table below:

Table 4. 15. Measurement Results of Copper (Cu) In Aghawagon River, Ajikwa River, River Otomona 2015

| Location | Sampling point | Result test (weight mg/L) |
|------------|----------------|---------------------------|
| Agghawagon | Location I | 0,871 |
| Ajikwa | Location II | 1,685 |
| Otomona | Location III | 1,104 |

Sources : Environmental Health Department PT. Freeport Indonesia 2015

Based on Table 4:15 above. shows the measurement results Copper (Cu) in the river Aghawagon amounted to 0.871 Mg / L, River Ajikwa of 1.685 Mg / L and the river Otomona amounting to 1,104 Mg / L.

5. Arsenic (As)

Control and compliance with waste water drainage into settling ponds / sedimentation with the measurement of arsenic (As) in the table below:

Tabel 4. 16. Measuring Arsenik (As) river of Aghawagon, Ajikwa and Otomona year 2015.

Sources : Environmental Health Department PT. Freeport Indonesia 2015

| Lokasi | Stasiun/ Pengambilan Sampel | Titik | Hasil Uji (Berat mg/L) |
|------------|-----------------------------|-------|------------------------|
| Agghawagon | Lokasi I | | 0,151 |
| Ajikwa | Lokasi II | | 0,092 |
| Otomona | Lokasi III | | 0,196 |

Based on Table 4:16 above. shows the measurement results Arsenic (As) in snai Aghawagon of 2,827 Mg / L, River Ajikwa of 0.557 Mg / L and the river Otomona that is equal to 1.810Mg/L.

6. Cadmium (Cd)

Control and compliance with waste water drainage into

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settling ponds / sediment with measuring Cadmium (Cd) in the table below:

Table 4. Results Measurement 17. Cadmium (Cd) On the river Aghawagon, Ajikwa River, River Otomona 2015

| Location | Sampling point | Result test (weight mg/L) |
|------------|----------------|---------------------------|
| Agghawagon | Location I | 0,046 |
| Ajikwa | Location II | 0,032 |
| Otomona | Location III | 0,068 |

Sources : Enviromental Health Department PT. Freeport Indonesia 2015

Based on Table 4:17 above. shows the measurement results Cadmium (Cd) in snai Aghawagon of 0,040 Mg / L, River Ajikwa of 0,016 Mg / L and the river Otomona ie 0,026 Mg / L.

| Location | Sampling point | Result test (weight mg/L) |
|------------|----------------|---------------------------|
| Agghawagon | Location I | 0,285 |
| Ajikwa | Location II | 0,029 |
| Otomona | Location III | 0,702 |

7. Cyanide (Cn)
Control and compliance with waste water drainage into settling ponds / sedimentation with measurement Cyanide (Cn) in the table below:

Table 4. 18. Measurement Results Cyannide (Cn) In Aghawagon River, Ajikwa River, River Otomona 2015.

Sources : Enviromental Health Department PT. Freeport Indonesia 2015

Based on Table 4:18 above. shows the measurement results Cyaniide (Cn) in snai Aghawagon of 0,064 Mg / L, River Ajikwa of 0.063 Mg / L and the river Otomona ie 0.119 Mg / L.

8.Iron (Fe)
Control and compliance with waste water drainage into settling ponds / sediment with measuring Iron (Fe) in the table below:

| Location | Sampling point | Result test (weight mg/L) |
|------------|----------------|---------------------------|
| Agghawagon | Lokasi I | 0,049 |
| Ajikwa | Lokasi II | 0,016 |
| Otomona | Lokasi III | 0,026 |

Table 4.19 Results Measurement. Iron (Fe) In Aghawagon River, Ajikwa River, River Otomona 2015

Sumber : Environmental Health Department PT. Freeport Indonesia 2015

Based on Table 4:19 above. shows the measurement results Iron (Fe) in sungai Aghawagon amounted to 0.046 Mg / L, River Ajikwa of 0,032 Mg / L and the river Otomona that is equal to 0.068 Mg / L.

9. Zinc (Zn)Control and compliance with waste water drainage into settling ponds / sedimentation with measurements Zinc (Zn) in the table below:
Table 4. 20.Results Measurement of Zinc (Zn) In Aghawagon River, Ajikwa, Otomona River 2015.

Sources : Environmental Health Department PT. Freeport Indonesia 2015

Based on Table 4.20 the total solid Suspensity in

| Location | Sampling point | Result test (weight mg/L) |
|------------|----------------|---------------------------|
| Agghawagon | Location I | 0,064 |
| Ajikwa | Location II | 0,063 |
| Otomona | Location III | 0,119 |

Aghawagon river totally 0,285 Mg/L, Ajikwa river totally 0,029 Mg/L and Otomona river totally 0,702 Mg/L.

10. Chlorida (Cl)
Measuring Chloride (Cl) on the table below :

Table 4. 21. Results of Measurement Chloride (Cl) In Aghawagon River, Ajikwa River, River Otomona2015

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| Location | Sampling point | Result test (weight mg/L) |
|-----------|----------------|---------------------------|
| Aghawagon | Location I | 1779 |
| Ajikwa | Location II | 2788 |
| Otomona | Location III | 1267 |

Sumber : Environmental Health Department PT. Freeport Indonesia 2015

Based on Table 4:21 above. shows the measurement results in Aghawagon river, Suspended Solids of 1779 Mg / L, River Ajikwa of 2788 Mg / L and the river Otomona that is equal to 1267 Mg/L.

4. DISCUSSION

1. Government Regulation On Waste Identification Tailing PT. Freeport Indonesia In river of Ahawagon, Ajikwa River, River Otomona.
2. The cause of insecurity of a food and drink for consumption is due to the presence of compounds / chemical, physical contamination harmful microorganisms and unwanted presence or amount exceeds the established provisions. Timika is a city located in the area Aghawagon rivers, streams and rivers Ajikwa Otomona used PT. Freeport Indonesia as a diverter river tailings and rock. Initially these three rivers are rivers that was instrumental to support the lives of the people who settled around the flow of these rivers. All types of activity that causes pollution around the river, greatly affect the level of public health as a result of illegal gold mining is carried out by the society regardless of the surrounding environments. Different types of activities that generate waste very influenced by various factors such as topography, rainfall, geography, soil type and season. Based on Table 4.3. Results Identification and Measurement of Water Quality Waste in Area I (River Aghawagon shows only a small portion that meet water quality standards based on Government Regulation No. 82 Tahun2001 include: fluoride, as Nitrate (NO₃-N), as Nitrate (NO₂), Iron (Fe), chromium (VI), Detergent as MBAs. In addition to the parameters above did not meet water quality standards, namely: Solids Dissolved (TDS), Solids Suspended (TSS) Chemical Oxygen Deman (COD), Desolved Oxygen (DO), Ammonia as (NH₃-N), chloride (Cl), phosphate as (PO₄-P), Silfat (SO₄), arsenic (as), cadmium (Cd) Manganese (Mn),

Mercury (Hg), Lead (Pb), Copper (Cu), Zinc (Zn), Oil / fats, Phenol compounds as phenol.

Based on Table 4.3 shows that the levels of COD in river Aghawagon great very exceed quality standards which is equal to 4200mg / L, it can affect the presence of organic material that can be oxidized biologically and which is difficult to be oxidized biologically.

The amount of *dissolved oxygen* (DO) indicates that the quality standards that are totally *dissolved oxygen* DO above 5.8 mg / L so it did not rule out increasing the organic matter along river flow Aghawagon. Based on Table 4.3 shows that the amount of phosphate (PO₄) and sulfate (SO₄) is above the quality standard that is phosphate (PO₄) at 3.5 mg / L and sulfate (SO₄) of 2250 mg / L. Based on Table 4.3 shows that the compound of arsenic (As) of 2.847 mg / L, Metal Cadmium (Cd) sebesarr 0,049, Metal Mercury (Hg) of 1,258mg / L, Metal Timbbal or Plumbum (Pb) of 0,151mg / L, Metal Copper (Cu) of 0,871mg / L, Zinc (Zn) of 0,285mg / L, oil / Fat for 16667 mg / L, a Phenol compound at 5 mg / L.

Based on Table 4.4. Results Identification and Measurement of Water Quality Waste in Area II (River Ajikwa) shows only a small portion that meets the quality standards of water based on Government Regulation No. 82 of 2001 sample of: fluoride, nitrate as (NO₃-N), Iron (Fe), chromium (VI), Detergent as MBAs. In addition to the parameters above did not meet water quality standards, namely: Solids Dissolved (TDS), suspended solids (TSS), Chemical Oxygen Deman (COD), Desolved Oxygen (DO), ammonia as (NH₃-N), chloride (Cl), phosphate as (PO₄-P), sulfate (SO₄), arsenic (as), cadmium (Cd), manganese (Mn), Mercury (Hg), Lead (Pb), Copper (Cu), Zinc (Zn), Oil / fats, Phenol compounds as phenol.

Based on Table 4.4 shows that the levels of COD in river Aghawagon great level of exceed quality standards of 5100 mg / L, it can affect the presence of organic material that can be oxidized biologically and which is difficult to be oxidized biologically.

The amount of dissolved oxygen (DO) DO above indicates that the quality standard of 4.8 mg / L so it did not rule out increasing the organic matter along river flow Ajikwa.

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Based on Table 4.4 shows that the amount of chlorine (Cl) is above the quality standard that chlorine (Cl) of 2788 mg / and Manganese (Mn) of 0.200 mg / L.

Based on Table 4.4 shows that the amount of phosphate (PO₄) and sulfate (SO₄) is above the quality standard that is phosphate (PO₄) was 4.8 mg / L and sulfate (SO₄) of 3000 mg / L. Based on Table 4.4 shows that the compound of arsenic (As) of 0.557 mg / L, Metal Cadmium (Cd) totally 0,016 mg / L, Metal Mercury (Hg) of 0.078 mg / L, or Plumbum Metal Lead (Pb) 0.092 mg / L Metals Copper (Cu) of 1.685 mg / L, Zinc (Zn) of 0.029 mg / L, Oils / fats of 10000 mg / L, a Phenol Phenol Compound at 10 mg / L.

Based on Table 4.5 Results Identification and Measurement of Water Quality Waste in Area III (Otomona River) shows only a small portion that meets the quality standards of water based on Government Regulation No. 82 of 2001 antarlain: fluoride, nitrate as (NO₃-N), Nitrate as (NO₂ -), Iron (Fe), chromium (VI), Detergent as MBAs. In addition to the parameters above did not meet water quality standards, namely: Solids Dissolved (TDS), Solids Suspended (TSS) Chemical Oxygen Deman (COD), Desolved Oxygen (DO), ammonia as (NH₃-N), chloride (Cl⁻), phosphate as (PO₄-P), Silfat (SO₄), arsenic (as), cadmium (Cd) Manganese (Mn), Mercury (Hg), Lead (Pb), Copper (Cu), Zinc (Zn), Oil / fats, Phenol compounds as phenol.

Based on Table 4.5 shows that the levels of COD in river huge Otomona exceed quality standards which is equal to 3000 mg / L, it can affect the presence of organic material that can be oxidized biologically and which is difficult to be oxidized biologically. Based on Table 4.5 shows that the amount of chlorine (Cl) is above the quality standard that chlorine (Cl) of 1055 mg / L and Manganese (Mn) of 1.267 mg / L.

Based on Table 4.5 shows that the amount of phosphate (PO₄) and sulfate (SO₄) is above the quality standard that is phosphate (PO₄) of 7.4 mg / L and sulfate (SO₄) of 1225 mg / L. Based on Table 4.3 shows that the compound of arsenic (As) of 1.810 mg / L, Metal Cadmium (Cd) sebesar 0.026 mg / L, Metal Mercury (Hg) of 0.513 mg / L, Metals Lead or Plumbum (Pb) of 0.196 mg / L Metals Copper (Cu) of 1.104 mg / L, Zinc (Zn) of 0,702 mg / L, Oils / fats amounted to 73 333 mg / L, a Phenol Phenol Compound at 6 mg/L.

2. Regulation of the GOI on Tailings Waste Treatment And Jetting PT. Freeport Indonesia 2015 Ajikwa deposition area at the start of Otomona Bride and bounded by West Dike and Dike East. Western and Eastern dike embankment function to keep sedimentation Tailing remain at the focal point and does not make a move literal (laterally) to menancam kKota Mimika next baat and Wildlife Nasonal Lorensz to the east.

Tailings distribution showed 60% settles above ttanggul, 35% settle in the peat swamps and 5% tailings left behind and carried to Muara Ajikwa and the Arafura Sea.

1. Government Regulation No. 85 of 1999 (About the Hazardous Materials and Toxic) Controversy Tailings categorized B3 waste (hazardous and toxic materials) containing various long debate. Government Regulation on B3 increasingly refined started the Government Regulation No. 18 of 1999, turned into a Government Regulation No. 85 of 1999, the study is not meant to see the differences between them but saw an increase in quality, which in turn can support the management of environmental quality. The initial step of determining B3 identify the type of waste produced by industrial sources or source of the waste, then match the type of waste to the list of B3 waste from specific sources, if not match forwarded to a specific source.

Tailings produced by PT. Freeport Indonesia has been running a determination procedure, talk B3 then the determination conducted by a lot of test, the first test is testing the toxic of the waste that is to test the characteristics (of Government Regulation No. 81 of 1999, Article 8, paragraph 3) continued with toxicology test procedures TDP (Toxicity).

3. Government Regulation Number 35 of 1991 (About Tailings)

Based on Government Regulation No. 35 of 1991. Article 7 Paragraph 1 and 2 mentioned that the river as a source of water is a natural resource that has versatile functions for life and livelihood. Then mentioned that the river should be protected and maintained, enhanced functionality and damaged power utilization and controlled environment. Article 27 has been said that prohibited throwing objects / materials of solid and / or liquid or in the form of waste into or around the river to be estimated

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causing contamination or reduce water quality so dangerous and / or detrimental to the use of other side and the environment.

4. Law No. 11 of 1974 (On Water) Law No. 11 of 1974 Article 3 Paragraph (2) of the Right to master the State in the control of water and its sources including natural resources that contained therein be given to the government to regulate, authorize and or permitted designated use, water supply and or resources water. Their rights only conducting by that State causing authority to do the interests of the broad outline as manage, organize, compile, validate and determine the legal acts and relationships-ties punished person or legal entity in matters of water and or source-Suber water.

The status of Tailing PT. Freeport of Law No. 11 of 1974 on Water Resources indicate that the government has the authority to review the permit diberian to PT. Freeport Indonesia, with the consideration that the efforts to rescue and prevent fouling of the river as a result of tailings is not optimal for rivers Ajikwa and Otomona River, river Aghawagon used as a tailings disposal.

1. Government Regulation No. 22 of Year 1982 (About Regulation Water Management) Law No. 11 Year 1974 On Watering, then in Government Regulation No. 22 of 1982 Article 16 Paragraph (2) of the use of water from water sources referred to in paragraph (1) the pawl can be done to the extent not inflict damage on water resources and the environment or building MUM concerned. Use of water referred to in Article 16 include the use for business purposes of urban, agricultural, energy, industrial, mining, water traffic, drone, recreation, health and other purposes in accordance with the development. It was also stated in article 22 that the use of water and / or water sources for industrial and mining business activities, including mining activities oli and petroleum jointly by the Minister and the Minister concerned.
2. The status of tailing PT. Freeport Indonesia Government Regulation No. 22 of 1982 on the arrangements river water showed that River Aghawagon, Otomona, and Ajikwa licensing need to be revisited, given the lack of water regulation watching the interest of the protection, development and priority of water use and / or water.

2. Government Regulation Year No. 82, 2001 (Water Pollution Control) and LH No. Decree 51 of 2995 (About the Liquid Waste Quality Standard). Comparing the quality of river water Aghawagon, Otomona, Ajikwa using the classification of water quality standards, it is not appropriate for a body of water containing waste in the form of tailings. Quality standard of waste intended listed on the Minister of Environment Decree No. 51 of 1995 concerning the Liquid Waste Quality Standards. Until this time to determine the starting point for the determination of the class of river Aghawagon, Otomona and Ajikwa still in talks demanding agreements consistent.

5. CONCLUSION

The city of Timika that is in the area Aghawagon rivers, streams and rivers Ajikwa Otomona used by PT. Freeport Indonesia as river drainage tailings and waste rock. Based on the analysis results showed that the Discussion.

COD levels in the river were eagerly great Aghawagon exceed quality standards which is equal to 4200mg / L, it can affect the presence of organic material that can be oxidized biologically and which is difficult to be oxidized biologically.

The amount of dissolved oxygen (DO) indicates that the quality standards totally as much as DO above 5.8 mg / L so it did not rule out increasing the organic matter along river flow Aghawagon. Based on Table 4.3 shows that the amount of phosphate (PO₄) and sulfate (SO₄) is above the quality standard that is phosphate (PO₄) at 3.5 mg / L and sulfate (SO₄) of 2250 mg / L. Based on Table 4.3 shows that the compound of arsenic (As) of 2.847 mg / L, Metal Cadmium (Cd) totally 0,049, Metal Mercury (Hg) of 1,258mg / L, Metal Timbbal or Plumbum (Pb) of 0,151mg / L, Metal Copper (Cu) of 0,871mg / L, Zinc (Zn) of 0,285mg / L, oil / Fat for 16667 mg / L, a Phenolic compound at 5 mg / L.

Results Identification and Measurement of Water Quality Waste in Area II (River Ajikwa) shows only a small portion that meets the quality standards of water based on Government Regulation No. 82 of 2001 antarlain: fluoride, nitrate as (NO₃-N), Iron (Fe), chromium (VI), Detergent as MBAs. In addition to the parameters above did not meet water quality standards, namely: Solids Dissolved (TDS), suspended solids (TSS), Chemical Oxygen Deman (COD), Desolved

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Oxygen (DO), ammonia as (NH₃-N), chloride (Cl), phosphate as (PO₄-P), sulfate (SO₄), arsenic (As), cadmium (Cd), manganese (Mn), Mercury (Hg), Lead (Pb), Copper (Cu), Zinc (Zn), Oil / fats, Phenol compounds as phenol.

Results Identification of COD in river Aghawagon sanat big surpass quality standards yakni of 5100 mg / L, it can affect the presence of organic material that can be oxidized biologically and which is difficult to be oxidized biologically.

The amount of dissolved oxygen (DO) DO above indicates that the quality standard of 4.8 mg / L so it did not rule out increasing the organic matter along river flow Ajikwa. The identification results showed that the amount of Chloride (Cl) is above the quality standard that chlorine (Cl) of 2788 mg / and Manganese (Mn) of 0.200mg/L.

The result of identification showed that the amount of phosphate (PO₄) and sulfate (SO₄) is above the quality standard that is phosphate (PO₄) was 4.8 mg / L and sulfate (SO₄) of 3000 mg/L. The results show that the identification of compounds Arsenic (As) of 0.557 mg / L, Metal Cadmium (Cd) totally.

2. It has been seen that the Regulation Law No. 22 Year 1982 more effective than the Government Regulation Year No. 82, 2001 (Water Pollution Control) and LH No. Decree 51 of 1995 (About the Liquid Waste Quality Standard).

3. Based on Government Regulation No. 35 of 1991. Article 7 Paragraph 1 and 2 mentioned that the river as a source of water is a natural resource that has versatile functions for life and livelihood. As the basic law for tailing measurement.

6. SUGGESTION

1. The action from the Indonesian Government staff to processing tailing and determinate concentrate pollution to flow through river District of Mimika city should be very strict and according to the highest level of B3 pollutant.

2. Regulation law from government of Indonesia against PT Freeport to renew the newest equipments on

processing tailing and B3 pollutant that produce more minimalizing the concentration of pollutant B3

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