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**ASIA PACIFIC COLLEGE**

**SCHOOL OF ENGINEERING**

**COMPUTER ENGINEERING**

**SY 2018-2019, TERM 2**

**MINUTES OF THE MEETING**

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| **Date** | **:** | December 10, 2018 |
| **Time** | **:** | 10:00 am – 11:00 am |
| **Venue** | **:** | 1515, L and S Building, Roxas Boulevard, Manila, 1000 Metro Manila |
| **Attendance** | **:** |  |

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| **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Hamill Marinda**  **Student**  **Asia Pacific College** | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Engr. Kenneth Solidum**  **Geodetic Engineer**  **DENR-MRB MIMAROPA** |

***Current Equipment***

MRB MIMAROPA Region only have 1 total station to utilize to conduct the stockpile validation. The new equipment that was purchased last 2017 as published on the agency website is for the central office. They do have a bigger budget since they monitor all the sites. As for a regional office, they only have 1 total station because surveying equipment is expensive, and the government long procurement process.

The equipment is not portable. The total station weighs about 6-7 kgs excluding the iron tripod, prism and its rod. Its heavy and difficult to transfer from one place to another during data gathering.

They sometimes loan equipment to the mining company. They request the equipment prior to their trip so once they arrived it would be ready. They sometimes let the companies designated survey team do the measuring since total station varies its interface depending on the brand and button location.

***Importance of Stockpile***

Every shipment requires the company to apply for a permit prior to shipment. The tonnage has its corresponding taxes the company must pay. They need to verify the data on the permit if within the limit which is +10% of the allowable volume. The inventory reflects the capability of the company to ship. They conduct quarterly monitoring of the stockyard. The number of monitoring varies depending on the number of shipments a company can accommodate. Also, illegal hauling is determined by validating the stockpile.

***Data Acquisition and Accuracy of Volume***

Ideally, all stockpiles should be validated and verified. Due to time limitation and the size of the stockyard, they cannot survey all the stockpile. Instead, they randomly conduct a Volume Estimation and compare it on the inventory. They usually get 3-4 stockpiles in the inventory to represent the whole stackyard. They surveyed the smallest group of the stockpile which is more feasible to survey in a day.

Due to limited time, they lessen the point density which affects the volume. If the stockpile is triangle-like in form, they get 3 points. 1 on top and 2 on the base. The more irregular the shape of the stockpile, the more points are needed to accurately compute for the volume of the stockpile.

Volume may vary depending on compaction factor. A newly hauled stockpile has bigger volume because its porous. Once compacted, its Volume changed significantly. The mining engineer are the one that computes the compaction.

***Software***

The data gathered needs to be processed to generate a contour line prior to getting the volume. Processing of the gathered sample data takes 30 minutes to 1 hours for an experienced user of an AutoCAD software. It doesn’t directly compute the volume and requires more steps and data manipulation before getting the output.

**Proposed Project to Speed up Stockpile Validation**

He mentioned that if the proponents were able to create a low-cost device producing the same output, the agency might get it anytime. So, the proponents proposed a stockpile a scanning device that will use a remote sensing technology which produces cloud point data that is portable, low cost, and time efficient and an application that can accurately compute the volume.