ASSIGNMENT 1

INTRODUCTION

The five functional sounds designed for this assignment are for the warning system in a coal mine. As we know mine accident is a notoriously man-made disaster, people died every year all around the world. But when the accident happened miners do have chances to escape if the warning system is perfect and accurate. As the five main causes of mine accident which are the leaking of hydrogen sulphide, methane, dust explosions, fire accident and flooding five different alert sounds have been made, each of them represents the alarm of the sound of the accident testing systems which are Density of Hydrogen Sulphide Testing System, Density of Methane Testing System, Density of Dust Testing System, and also Fire Alarm and Flooding Tester. When the data are collecting by these systems is higher than normal or approach to the dangerous line, miners will hear the alarm and escape.

Generally, coal mines are underground and all the machines and equipments are working at the same time, so the sounds of the alarms have to be in high pitch. High pitch sounds have high frequency and which can help the sounds of the alarms to identify themselves from the low pitch sounds of the machines and the sound resonance of the noise.

ALARM SOUND 1

This is the alarm sound designed for the Hydrogen Sulphide Testing System. Hydrogen Sulphide is the most dangerous gas in the mine, when the density of Hydrogen Sulphide is higher than normal and approach to the dangerous line the alarm will make shrill and sustaining alarm. And as the increase of the density of the gas the frequency and the pitch of the alarm sound will increase simultaneously. The sound generated by using ARP function with a high pitch sound, the speed of the sound will increase 25 times per minute each time to increase the frequency of the ARP system to match up with the increase of the density of the gas.

ALARM SOUND 2

This is the alarm sound designed for the Density of Methane Testing System. Just like the Hydrogen tester when the density of Methane in the mine is increasing and approach to the dangerous line the tester will make a high pitched, continual and harsh alarm sound. The sound generated by using ARP function with a 1/18 rate, the Slope of the sound is high which makes the sound more powerful. There is no pitch change in this alarm sound, the sound will last forever with no speed and frequency changes as well until the density of Methane decreased.

ALARM SOUND 3

This is the sound designed for the fire alarm system in the mine. When there is a fire or the temperature increased unconventionally in the mine the siren will make a lasting and harsh noise which sounds like all the standard fire alarm with short pause in the middle of each piece of sound and in each piece there is a tremendous pitch increase. There is no speed and frequency change in this sound. To generate the sound, use the Line function in pen tool to separate the sound in to piece and leave a short pause between each piece. In Vacuum, change the VTO2 in to Pitch and set up the knob in to ' - ' to make a pitch increase in each piece of sound and turn up the
Slope to 24. This alarm sound is similar to the fire alarm in people's general knowledge so it is easy to identify from the other alarms.

ALARM SOUND 4
This sound is the alarm sound for the Density of Dust Testing System. When the density of the dust above the normal level, the siren will make an alarm to give miners a signal to escape. This alarm sound has a normal pitch but with a high speed. The sound generated by high frequency of ARP. It sounds like the alarm of the car and it can be identified easily from the other alarm.

ALARM SOUND 5
This is the alarm sound designed for the Flooding Tester. When the water line is above the flooding line the siren will make alarm sound as the water level increase continually the pitch and frequency will increase at the same time. As we know the penetrability of the high pitch sound is better in the water so the pitch of this alarm has been made into high pitch, so even the siren covered by the water the sound of the alarm still can be heard. The sound generated by a high pitch sound source with ARP 'on' in Vacuum. As the increase of the water level the speed and the pitch is increase and the pause between each piece of sound is shorten. From the frequency of 'beep' sound miners can identify how high is the water level and escape from the mine as soon as possible.

CONTEXTUAL SIMULATION
This mixed sound track simulates the disastrous condition in a coal mine for around minute. Some crowd sound effects and machine sound effects have been used as background sounds which simulates the real condition in a mine. After 10 seconds, the density of the Hydrogen Sulphide increased dramatically and the siren made a harsh alarm and followed by the increasing of the density of Methane, so we can hear two different sounds of alarm at beginning. After another 10 seconds, there was a fire in the mine and the fire tester began to make a loud alarm. The fire alarm was lasting for 10 second until the fire was extinguished. But unfortunately the water level began to increase and we can hear the alarm of the water level tester and as the level of the water keep increasing the speed and frequency of the alarm was increasing as well. After that, the density of Hydrogen Sulphide and Methane backed to normal so the alarms stopped but the density of the dust increased and we can hear alarm of the dust tester at last.

NAME: JIAN TANG
SID: 310021405