Case: Mighty Mining Company

(inspired by) McKinsey, Round 2

Problem statement narrative

Your client is a global mining company with a location in South Africa. This particular location is performing below average financially. McKinsey has been hired to identify the problem and make recommendations to address it. What would you do first to approach this problem?

(Note to interviewer: This leadoff question is meant to focus on actions one would take before diving into the framework – actions such as collecting data, visiting the location to observe operations, interviewing employees, etc)

Overview for interviewer

This question is intentionally vague, as many Partner level cases can be, to encourage the candidate to ask questions at this stage.

This is command and control, so start with the first question, then provide the detail to the right and ask for a full analysis (framework). After the framework is developed by the candidate, dive deeper into cost and operations and ask follow-up questions.

Case Type: Operations
Case Style: Command & Control

Information to be provided after actions identified

The processing plant is located 160 miles inland and it uses a fleet of large trucks to transport minerals from the plant (which is located near the mineral source) to a port city. The minerals are then loaded onto barges and shipped to clients around the world. The plant needs to operate at maximum capacity to meet customer demand.

The minerals produced are commodities with low margins.

Potential Issue Tree & Approach to Solving the Case

Key elements of analysis to solve the case

Revenues

Revenue: explore historical data, trends, product specific data

Benchmark against competitors and other corporate locations.

Possible follow-up and guidance to interviewer

Although important to mention, the focus of this case is cost and operations so don't let the candidate spend too much time here.

Costs

Costs: explore fixed costs (PP&E, overhead) and variable costs (material, labor)
Transportation: considering this product is a commodity, transportation makes up a large portion of the product cost and should be separated out.

Possible follow-up and guidance to interviewer

If the candidate has not already done so, ask them to identify the key cost line items on the income statement and elaborate on the COGS for this industry.
COGS: Labor, Materials, Shipping/Logistics
Operating Expenses
Administrative, Overhead, D&A

Operations

Explore operational issues that might lead to poor performance such as interruptions in operations (is plant operating at full capacity, is it running 100% of the time or are there power outages or other disruptions, are there local protests, is theft or local unrest impacting plant), employee skill level, employee morale, etc

Possible follow-up and guidance to interviewer

If the interviewer gives a vague response such as "I would want to understand the local market conditions" then push for specific examples of operational issues that would impact a plant in the middle of South Africa.
It is important that the candidate identify general operating issues and locally impacted issues.

Follow-up Questions

Follow-up question #1

In gathering data from the client, you find that transportation costs are significantly higher as a portion of COGS than any other African plant location. Why might this be? (If the 160 mile trip from plant to port has not been mentioned, inform interviewer of the transportation details here)

Guidance for interviewer:

Response should cover a range of ideas as the interviewer is looking for out of the box thinking. Some ideas might be: the plant is sending trucks that are not full increasing trips needed, drivers are not going directly to the port (poor route planning, sleeping on the job, etc), trucks are hijacked along the route, drivers must pay bribes to get through certain road blocks.

Follow-up question #2

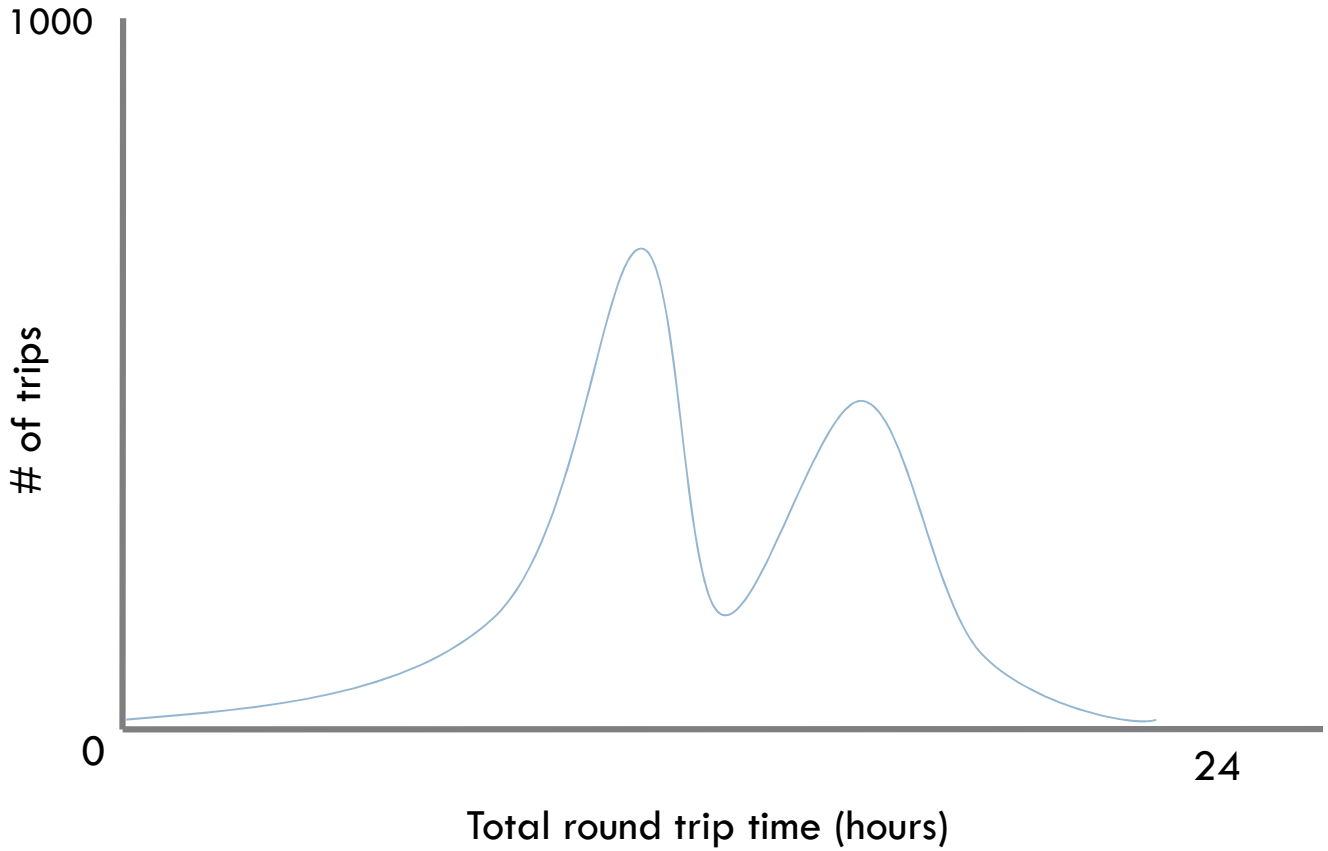
You collect historical data on the average time it takes a truck to make the 200 mile trip from the plant to the port, what should you expect the graph to look like?

Interviewer: (The graph should be a normal distribution) You expected the graph to be normally distributed but your data reveals the following graph. What can you draw from this data?

Guidance for interviewer:

The candidate should identify that the first peak is expected (per the normal distribution) but the second peak needs to be analyzed. Ask for ideas of what might cause the second peak. These could include certain drivers taking too many breaks, traffic patterns, etc.

Mighty Mining Trip Time Distribution



Final Question and Sample Recommendation

Follow-up question
You discover that the port closes at 10pm and any truck that does not arrive by 10pm must wait until the port opens again at 4am to drop off its load and return to the plant. The minimum roundtrip travel time is 7 hours and the plant owns 20 trucks; however, a barge needs 30 truckloads to reach capacity and ship out. What would you recommend Mighty Mining to do about this situation? Remember: the plant must operate at max capacity to meet customer demand

Sample Recommendation	Rather than crunch numbers around optimization, it is sufficient that the candidate identify that there are several bottlenecks in the supply chain (travel time, port hours of operations, capacity of trucks versus barge) and recommend potential solutions that may be considered: • In the short term, the company needs to identify the latest a truck can leave and still arrive by 10pm. They could use employee incentives to encourage drivers to reduce rest stops along route to make the 10pm cut-off. Driver shifts should be rearranged to optimize material delivered to the port. • In the long term, see if they lobby that 24 hour port operations is more profitable for all parties. • Evaluate the costs of setting up a storage facility by the port for night deliveries against purchasing more trucks. • Analyze costs of upgrading fleet to larger size trucks. • Consider leasing trucks vs. purchasing.
Risks	Since location already is poor performing, must analyze cost of capital to ensure that investing in capital improvements is highest NPV alternative (ship from other better plants?). Changes in customer demand could lead to an investment that is not needed long term.
Next Step	I would analyze these options and present a final recommendation for the client including justification for any investment needed by the company to mitigate the risk of senior management not wanting to invest.