



DEPARTMENT INDUSTRIËLE WETENSCHAPPEN
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DHIRUBHAI 1 AND 3 GAS FIELD DEVELOPMENT

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Preface

Going abroad looked evident for me. At that time I was hoping for something new to see. New people, a new culture, a new country, etc. it all seemed very attractive.

I decided to contact NV Jan De Nul and NV Dredging International [DI]. Four (4) of my study companions did the same. Jan de Nul was the first to tell us that they had some places. They had two (2) and we were five (5) and they told us that we should decide who would take the two (2) places. A big problem arose because it was hard to decide who would go. So we decided to wait and see what DI could offer us. To many mails and phone calls later I received the news I could go to India, Kakinada. This explains why I chose DI and not Jan De Nul.

Special thanks to Evy De Leeuw who arranged most of my stay. It would have been a lot harder for me to arrange everything on my own.

Also special thanks to the people of DI for giving me this opportunity and the responsibility bestowed upon me. The people on site were very friendly and made me feel at home after a short time.

Especially ing. Peter Dudinck helped me a lot. I enjoyed working together.

Thanks to ing. Michiel Clinckaert of the Survey department who took a look at this script and made some corrections.

As this script is more technical and scientific, my personal feelings can be read on a blog I made during my stay: <http://www.koenwildemeersch.be/india>

<p>Because I wanted to use a lot of pictures and still wanted to limit the number of pages I used one of the \LaTeX advantages. The small thumbnails are actually high resolution pictures. When zoomed in more details become visible. This also explains the large size of this document.</p>

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1 DEME

1.1 What/who is DEME?

DEME (Dredging, Environmental and Marine Engineering) is a Belgian group specializing in dredging and hydraulic works. On the international market there are only four (4) main dredging companies. Two (2) of them are Belgian and two (2) of them are from the Netherlands. DEME is one of the main four (4).

The others are Jan de Nul (B), Boskalis (NL) and Van Oord (NL). This project is a joint venture between DEME and Boskalis.

DEME's headquarters are in Zwijndrecht, Antwerp (B). Technical Department (TD), Research and Development (RD), survey, etc. is all centralized in one building. Abroad there are only project based departments with few people. When a big project starts the population is increased.

DEME is the joining of:

- Dredging International: dredging activities
- Tideway: Offshore activities
- DEC: soil works
- ...

With more than one hundred and fifty (150) years of experience DEME is creating jobs for over three thousand persons. And has more than eighty (80) specialized ships, each with their own specific job to do.

Their new slogan declares: "Creating land for the future".

1.2 Who is doing what?

As I see it, there are four (4) levels. The highest ranking person is the company's authorised representative, the Project Manager. There is generally only one project manager, he/she will be the point of first contact from the client. When the Project Manager goes on leave he is replaced by an appointed Works Manager.

The Works Managers are the second (2nd) level. Their numbers are dependent on the size of the project. Every Works Manager has a designated task (Example; Rock Loading). The third (3rd) tier of management are the superintendents. They are the responsible persons for the day-to-day execution of the job. They ensure everything is achieved in time and in the appropriate method. Again the number of superintendents will vary according to the project size. Together with the survey department, finance department, technical department, commercial contract department, safety department, purchase department and project engineers all play an important role in orchestrating the project.

Last but not least is the fourth (4th) level. Generally, these persons include purchasers, record keepers, administration, paramedics, safety officers, travel organisers, camp personnel, laborers, chefs, kitchen staff, cleaners and an endless list of helpful local personnel to ensure that the wheels keep turning.

Figure 1 (page 7) shows the exact structure for this project. I was the replacer of J. Scholten (TSHD, Offshore)



BOSKALIS INTERNATIONAL & DREDGING INTERNATIONAL CV
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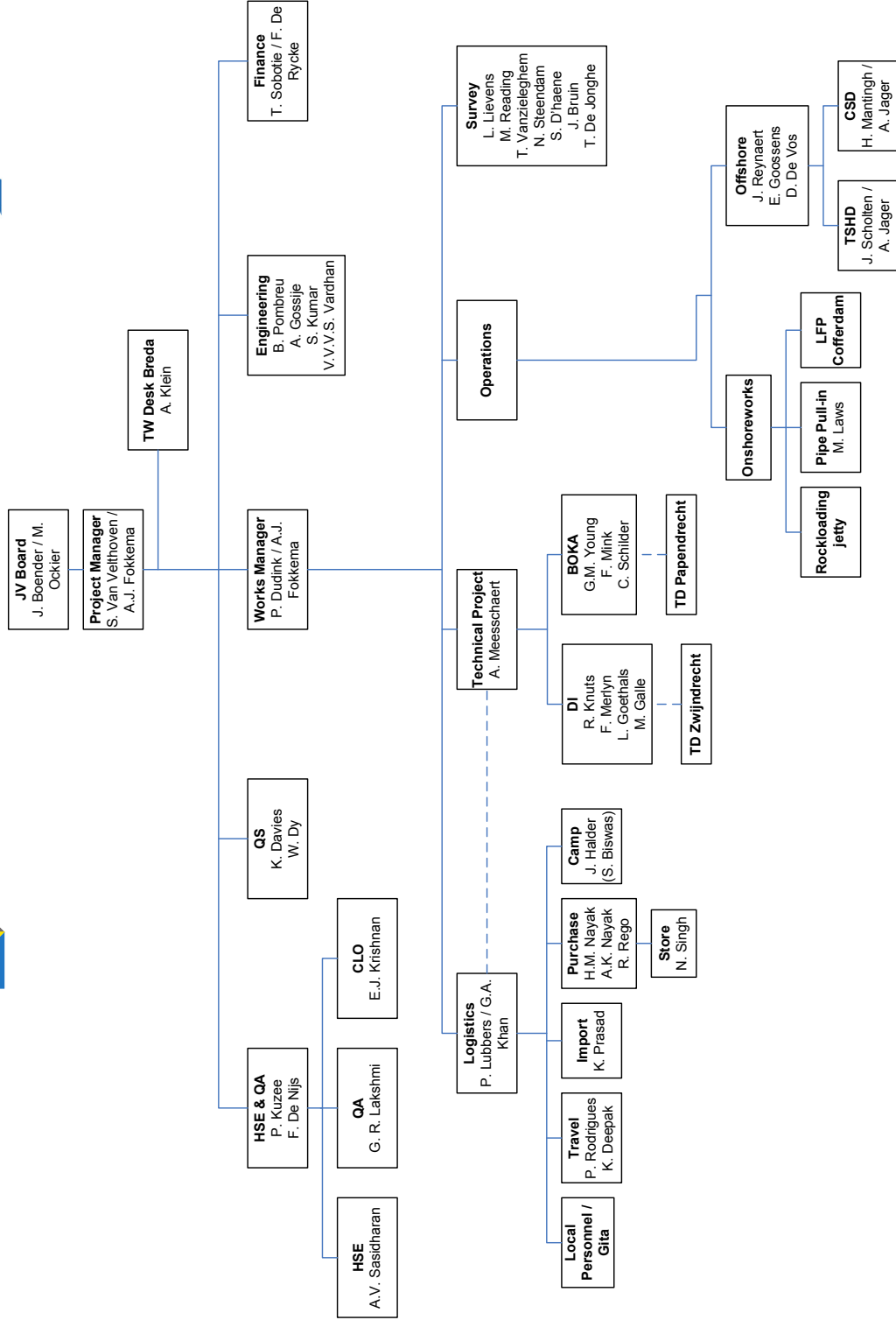


Figure 1: DEME Structure

2 The Project

2.1 Introduction

The project, which is being carried out for the Swiss based Allseas Group SA., concerns the construction of a trench for pipelines to an offshore gas field in the Bay of Bengal. This gas field is developed by Reliance Energy (RIL) for the supply of gas to an onshore terminal near the city of Kakinada (see Figure 4 (page 8)). The project is being carried out in a joint venture named: Boskalis International - Dredging International CV (TIBO). The completion of the work is scheduled for June 2008.

The project concerns a trench 18 meters wide and 21 kilometers long, for the positioning of three main gas pipelines that will pass through the Godavari River for the mainland connection of the offshore field (see Figure 2 (page 8)). The joint venture's activities in the project include:

- The dredging of the trench in the sea- and riverbeds. The project required the deployment of at least one cutter suction dredger and three trailing suction hoppers. (The completion of trenching was achieved during my stay)
- The backfilling of the trench with sand and rock. In order to minimize the impact on local communities, TIBO (joint venture Tideway Boskalis) constructed it's own roads to carry out the rock transport. One million (1000000) tons of rock will be transported over four (4) kilometer of road. The trucks carry up to twenty (20) tonnes of rock each trip and a suitable road is needed.
- The landfall. The landfall is the transit zone where the offshore pipelines approach the shore.

More information may be found in section 3: The Entire picture (page 9).



Figure 2: Trench to be dredged: 21 km long

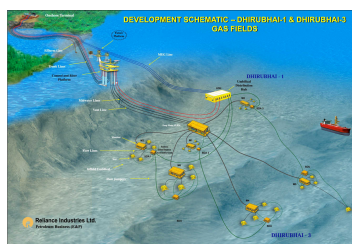


Figure 3: Project overview: off-shore

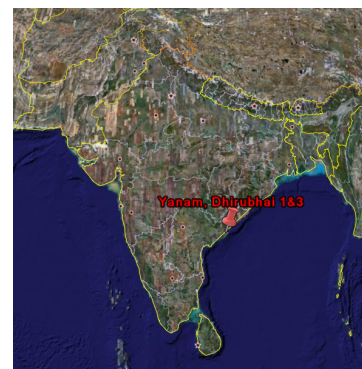


Figure 4: Where in India?

The gas and oil industry follows very strict standards and RIL is no exception. The agreed methodology must be adhered to. Details contained within the Method Statements are noteworthy. Because of the length of these files I did not include them in this paper but I do have them on CD.

3 The Entire Picture

3.1 Camp

The Camp, also called Office site, and is also the place where accommodation is provided. There is a restaurant, pool table, gym, bar, computer room, television room, etc. Also it is possible to play badminton and beach volleybal. All this has been placed on the office site because it would be close to the Office. By doing this not much time is lost for transportation.



Figure 5: Overview Office Site

Figure 6: My container, n. 129

Figure 7: Camp: Overview

3.2 Personnel Jetty

The entire project has more than 10 ships. At any moment there was at least one (1) boat standby at the personal jetty in case something happened Offshore. Especially the hoppers went far away from the office so transport was needed. The crew boats were used for transport, crew changes and also for the updates needed for the hoppers. At the Personnel Jetty there were also two (2) speedboats. The speedboats were used to go into shallow water.

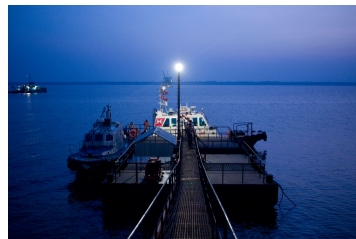


Figure 8: Personnel Jetty: Overview

Figure 9: Personnel Jetty: Crew boat The Argus

3.3 RGL Site

This area is used for stocking all kind of items. Little work is done over here. It is named after a building. When someone needs something this is the first place to check.



Figure 10: RGL Heavy equipment



Figure 11: RGL overview



Figure 12: RGL: Workplace

3.4 Ice Factory Jetty

When something needs to go to one of the big ships, the Ice Factory Jetty is the starting place. Here small boats can load and unload. When loaded they can launch to the larger crafts that have their own crane and the goods can be taken on board. They named it Ice Factory jetty because there used to be an Ice Factory here.

3.5 Rock Loading Jetty

When the pipes are placed a layer of sand will come on top of them and on top of the sand a layer of stones will be placed (like a filter). Estimated one million (1000000) tons of stone will be needed. At the Rock Loading Jetty the rocks will be loaded into the rock dumpers. It has its own site office and facilities.



Figure 13: Rock Loading Jetty: road to Jetty



Figure 14: Rock Loading Jetty: Office



Figure 15: Rock Loading Jetty: Rock transport and large crane

3.6 Rock Stockpile

Because of the building progress at the Rock Loading Jetty and the limited duration of the project it was necessary to stock the stones before the completion of the Rock Loading Jetty. This area will also act as a buffer or back-up in the event of any stoppages at the main stockpile yard. The rock stockpile is a huge terrain full of stones surrounded by coconut plantation. Roads were made so truck traffic was possible. Because of the day and night shift streetlight was installed. When trucks enter the terrain they are weighed and when they leave the same action is repeated. This makes it possible to check the total tonnage of used stones.



Figure 16: Rock Stockpile: Stones and surroundings



Figure 17: Rock Stockpile: Weigh bridge for the stone trucks



Figure 18: Rock Stockpile: A few more stones

3.7 Rock Transportation Route

The distance between the Rock Stockpile and the Rock Loading Jetty is about four thousand (4000) m. To carry out the works so as not to interfere unnecessarily with local community separate roads have been constructed away from the public. The new road is a private road and after the project it will be handed over to the local community.



Figure 19: Formation of temporary access road



Figure 20: Road construction



Figure 21: Road: Environmental degradation

3.8 Landfill Point

This is the most important onshore place. Here the pipes go into the water. The work done here has to be very precise. Figure 23 (page 12) and 24 (page 12) show the pipes. The connection between the pipes onshore and the offshore pipes is done by Reliance. There also is a Jetty built by Reliance.



Figure 22: Landfill point: Local Equipment



Figure 23: Landfill point: Pipes entering the water 1



Figure 24: Landfill point: Pipes entering the water 2

3.9 Dry Dump (Anchoring assistance)



Figure 25: Dry Dump: Container and Truck



Figure 26: Dry Dump: Equipment on the island



Figure 27: Dry Dump: How to get on the boat?

The Tog Mor will place the pipes into the dredged trench. This needs to happen in a precise way and therefore it will be anchored. Between KP 10 and 12 the water is not deep enough so anchors will be placed on the beach (actually it is an island). Four (4) ten (10) tonne anchors are used and are secured in. Unfortunately I have no pictures of the anchors.

3.10 Offshore (Vessels)

My main activities were on the Vlaanderen XX and the Pallieter. Because I was superintendent for these ships I also spent some time on the ships. When I arrived I got an introduction and saw almost all the parts of the vessels. This was interesting to see! The crew of the Vlaanderen XX differs with the Pallieter, which made it even more interesting.

I visited the Tog Mor (placing the pipes) and the Cetus (rock dumping) and other smaller crafts but I will limit this paper and only discuss the Vlaanderen XX and the Pallieter because I was superintendent for this ships.

3.10.1 Vlaanderen XX



Figure 28: Vlaanderen XX: Overview

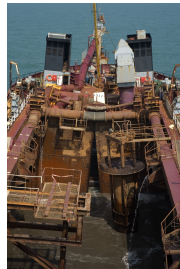


Figure 29: Vlaanderen XX: Opening and dumping



Figure 30: Vlaanderen XX: Willy and the wheelhouse

The Vlaanderen XX was built in 1982 although dated it is still suitable for dredging. Due to deadlines the company first wanted the dredging works done before it could leave the project and dock. Regrettably one of the hydraulic pumps necessary for door closure broke. Without the hydraulic pump there could be no dredging. A local company promised to deliver a new pump but when they arrived three (3) days later they brought everything except the pump. This is one of the frustrations of the job.

Figure 29 (page 13) illustrates the opening of the Vlaanderen XX. The ship is built out of two (2) separate parts. The ship opens under its own weight. The hydraulic pumps are used to close the ship so it can sail.

The Vlaanderen XX has 2 pipes. One on starboard and one on portside. They can be used together or separate. I only used them separate because of the precision of the work and the instability of the ship when using them both.

Table 2 (page 15) gives some information about the ship:

3.10.2 Pallieter



Figure 31: Pallieter: Pipe and Head



Figure 32: Pallieter: Overview



Figure 33: Pallieter: Deck view

The Pallieter is a younger vessel but it had to dock as well. When the dredging became too deep it went to Vishakapnam to change the suction pipe. The Pallieter dredged the deeper parts, because it has a longer pipe than the Vlaanderen XX. When the dredging was done the Vlaanderen XX left the project and went to Qatar. The Pallieter had to come back for the backfilling. For the backfilling they needed a shorter pipe.

The Pallieter is able to rainbow, see figure 32 (page 14). This is something the Vlaanderen XX can't do. As also visible on the same figure, there is a possibility to connect a hose and pump the sand onshore. I never saw the Pallieter rain bowing because all the sand was dumped to be reused (backfilling).

Figure 31 (page 14) shows the head and the suction pipe. The head has big 'teeth' which scrape the sand. The suction pipe is attached to 2 cables so the height and corner can be changed. The cranes carrying the cables have a stabilizer to avoid damaging the connection point between the ship and the pipe.

Figure 33 (page 14) shows a deck view of the Pallieter. Typical for the dredging ships is the fact that there is not much on the deck. The ship is used to store the dredged material. The colorless water coming out of the sprinklers indicates that at the time the picture was taken there was no dredging activity. This water was used while dumping. Seawater is then used for cleaning the bulk (removing all the dredged materials). During the dredging, the water has a brown color, due to the sand.

The Pallieter opens in an other way than the Vlaanderen XX. The Pallieter is constructed in one piece. In the bottom of the ship there are bottom doors. They can be opened separately. This allows the Pallieter to dump in a more precise way.

Table 1 (page 15) gives some information about the ship:

3.10.3 Information Pallieter and Vlaanderen XX

Specification Pallieter	
Type	Trailing suction hopper dredger
Owner	DEME / Dredging International
Built by	IHC Holland / Van der Giessen - de Noord, Krimpen aan de IJssel
Year	2004
Total installed power	6776 kW
Hopper capacity	5400 m ³
Loading capacity	7800 ton
Length (over all)	97,5 m
Length (between perpendiculars)	85 m
Breadth	21,6 m
Draught	7,1 m
Speed	15,7 m
Suction pipe standard	1 x 1000 mm
Dredging depth standard	33 m
Suction pipe deep dredging	1 x 700 mm
Dredging depth deep	60 m

Table 1: Specification Pallieter

Specification Vlaanderen XX	
Type	Trailing suction hopper dredger
Owner	DEME
Built by	IHC Holland, Kinderdijk
Year	1982
Total installed power	10000 kW
Hopper capacity	5072 m ³
Loading capacity	7000 ton
Length (over all)	109,4 m
Length (between perpendiculars)	101,0 m
Breadth	21,5 m
Draught	6,7 m
Speed	14,4 m
Suction pipes	2 x 800 mm
Dredging depth standard	30 m
Dredging depth extended	35 m

Table 2: Specification Vlaanderen XX

4 What was I doing?

4.1 Trainee Superintendent Offshore

4.1.1 Daily Routine

According to the contract every employee has only one day off and there should be worked 12 hours a day. This means we work 6/7 and 12 hours a day. In reality most people work 7/7 and more than 14 hours a day, including myself. I have to say that time passed by very fast so I did not mind working that much.

The routine (everyday except Sunday):

- 6:30 - Rise and shine, a new day awaits
- 6:50 - Call Pallieter and Vlaanderen XX to check if they had problems.
- 7:00 - Daily meeting for Works managers, Superintendents and all who's interested. Work for that day and problems are discussed.
- 7:45 - Mostly around this time I took breakfast
- 8:00 - To the office, check mail and weather forecast
- 13:00 - Around this hour I mostly ate. At the restaurant on the base camp or on one of the ships.
- 15:00 - Analyze of the survey data. Deciding what area's needed some attention.
- 15:00 - Survey data sent to the ships, sometimes I did it myself other ways it was brought by a small crew boat.
- 19:30 - Evening meal.
- 22:30 - End of the day.

In between I was mostly making phone calls to arrange things and working at the office. India was full of problems and punctuality was unknown.

4.1.2 The Job

During my stay I bought a book to make notes. As I got called a lot it was important to write everything down right away. Otherwise I would forget something or mix it up. When I take a look at what I did these are my main activities:

- I made and discussed Dump tests with the captain. These tests needed to be done to know the best way to backfill.
- Arranging the survey. This was necessary to make sure that the boats knew exactly what to do. This means I had to talk to the (chief) survey and discuss what to survey.

- Take care of crew changes. Make sure that the hotels and flights are booked. Make sure new crew is safety briefed.
- Deal with the requisitions of purchase. Making sure the ships get the right thing and on the right moment. In India this is 'mission impossible'.
- Arranging prepaying for captains. It was not unusual that I took off to a ship with Rs 50000 (about EUR 1000). At the end of the month I had to check everything so nobody got paid too much
- Analyze the survey results and make decisions where to dredge. Most of the time I discussed this with the works manager because mistakes would cost a lot too the project.
- Fuel reports, Daily reports, weekly reports, monthly reports, ...
- Arrange that the ships get water, can bunker and give sludge. And also that they can change garbage containers.
- Taking care of the food supplies. Mostly this gave some problems because the suppliers always came late and didn't bring the right goods.
- Listening to the complaining of the captains about the office. As Superintendent I was in-between the management and ship. I think it was important that they had someone who listened to there complaints.
- Installing updates on the ships.
- ...

I was responsible for the two (2) hoppers and if they had any problems, or any questions , I took care of it.

4.1.3 Example

To clear out what I was doing, best way to do this with an example.

Figure 34 (page 19) gives an example of the progress survey for one KP (Kilometer Point). The KP mentioned is KP 19.670. Every ten (10) m a cross section like this one is made. Doing this for twenty one (21) km gives a lot of cross sections (around 2100 sections). Most of the time a survey was done between two (2) KP's, Ex. KP 16.000-21.000.

The colored lines represent:

- green: the trench as mentioned in the contract (theoretical)
- light blue: the trench as TIBO wanted it (theoretical)
- pink: the dredged trench on the mentioned day
- dark blue: the dredged trench one day before the mentioned day

The numbers represent the depth. In the flat part of the trench the height variation is limited to sixty (60) cm. When working more than thirty (30) meters below the water level this is a high precision work.

Figure 34 (page 19) shows the situation on thirteen (13) February. The down part of the trench was almost flat but there still was a difference of more than sixty (60) cm. This needed to be corrected.

To do this I (we, because I always checked with the captain and the works manager) decided to hang the pipe at a certain height and keep it at this height. By doing this all the peaks would be pushed into the over dredged parts.

The result was not what it was supposed to be. On seventeen (17) February the survey shown in figure 35 (page 20) was made. What happened? The pipe had gone to deep and holes were created. It was called a "pattattenveld".

To solve this the trench was jetted. Instead of pumping the soil into the ship, water was pumped out of the ship. This was done under high pressure. Doing this a mixture of soil and water was created. After a few days, twenty (20) February, leaving it untouched the survey shown in Figure 36 (page 21) was made. The result was amazing.

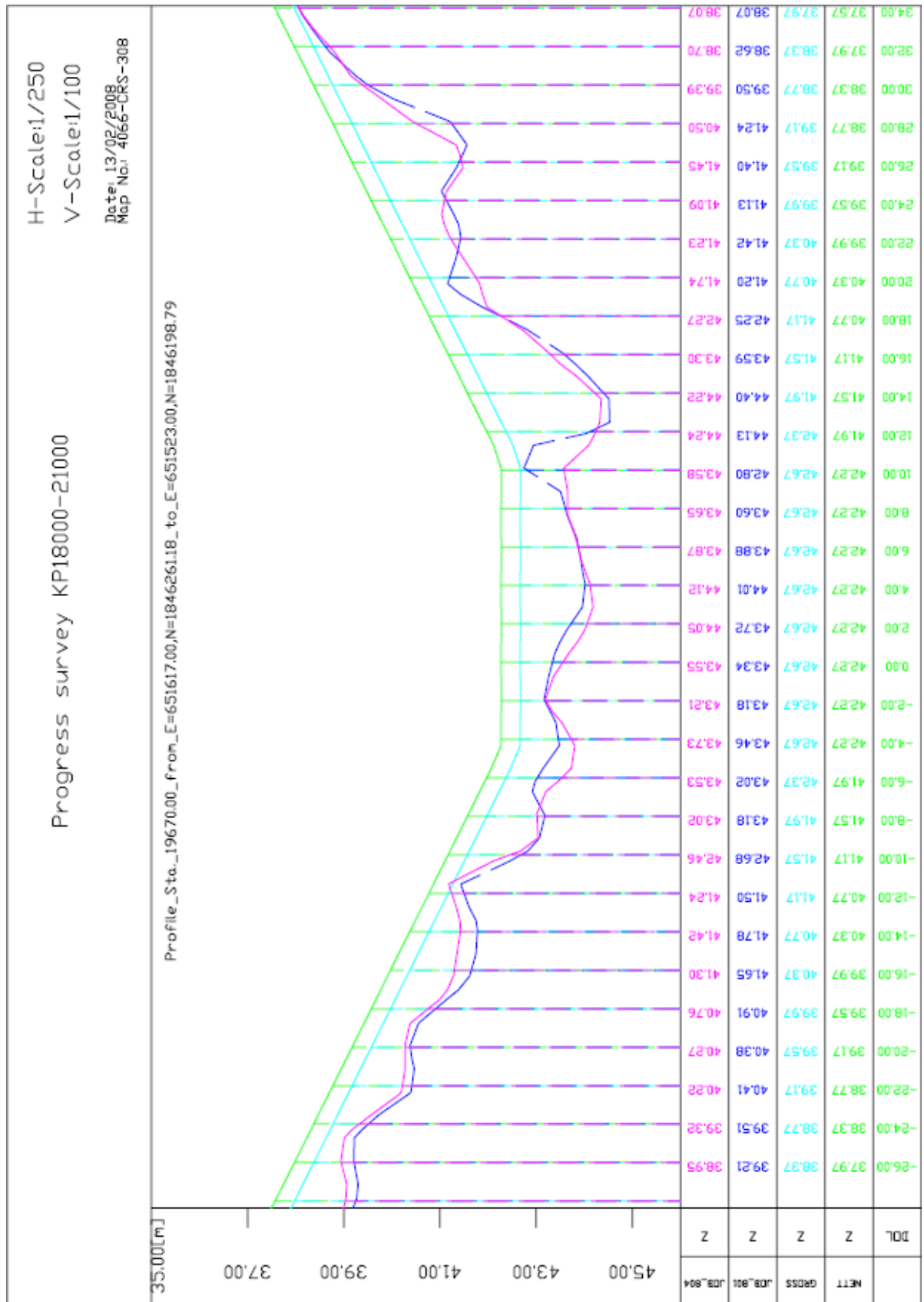


Figure 34: Progress Survey: 13/02/2008

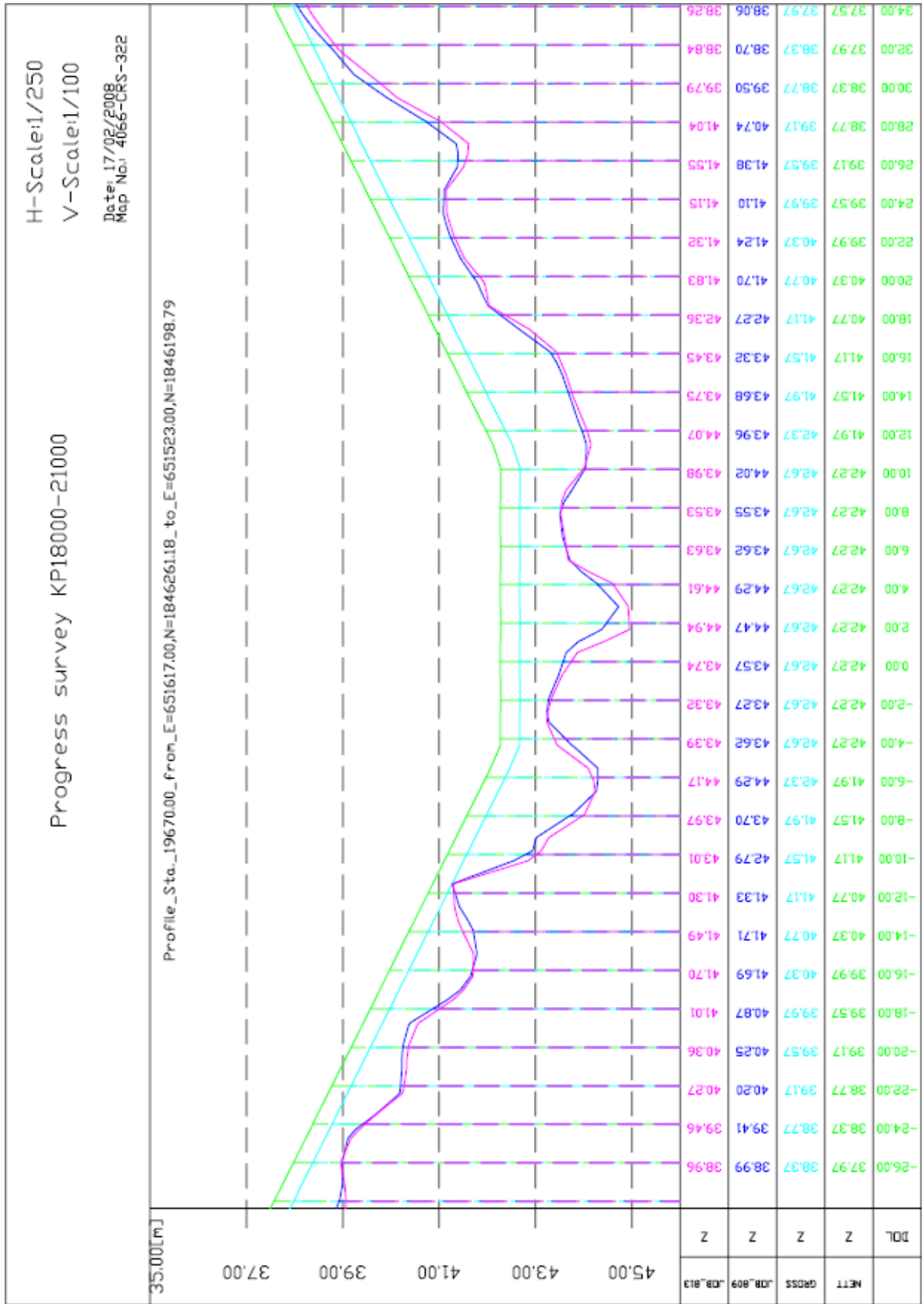


Figure 35: Progress Survey: 17/02/2008

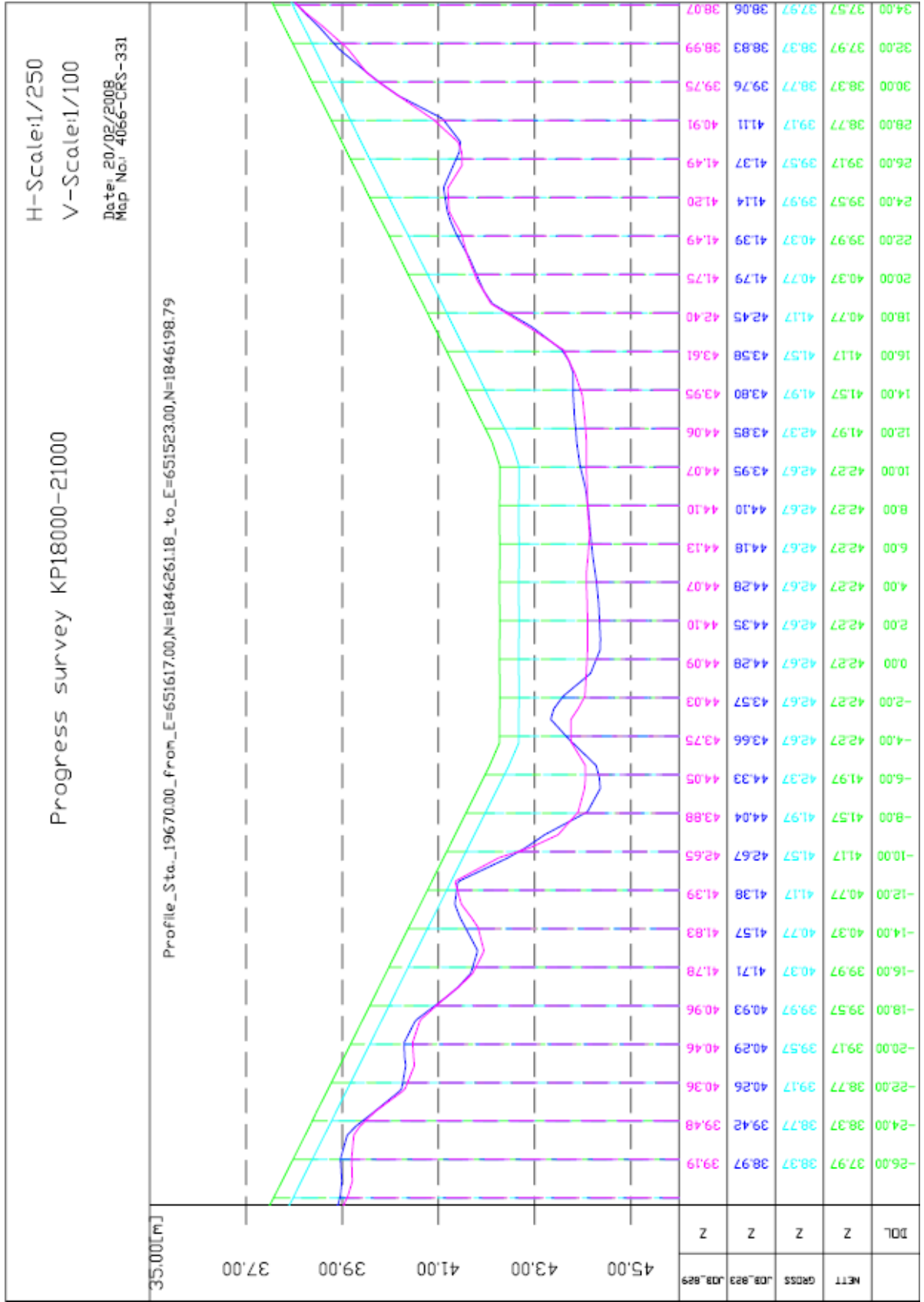


Figure 36: Progress Survey: 20/02/2008

4.2 Mini projects

At the end of February I had less to do because the Pallieter and the Vlaanderen XX had finished most of the dredging work. I filled the free time with some mini projects but never stopped my job as Superintendent Offshore. Even if the ships don't dredge they still need a superintendent.

4.2.1 Internet connection at Rock Loading Jetty

At the Rock Loading Jetty an office for the engineers was necessary. Because I have knowledge and experience with networking I was asked to follow that up. This was my first experience with the local staff.

India is a developing country and the methods of working sometimes seem unconventional to the European way. The local staff brought in for the internet connection arrived without a drill, no laptop and they putted all the wires outside the building. Instructions had to be very precise due to the language differences and constant supervision and checking was essential.

4.2.2 Site set-up of the Rock Loading Jetty Office

After the internet connection I was asked to oversee the site set-up of the Office. Here again they just don't think before they do something. Some of them were more senior than I and I was surprised that everybody listened to what i said. In all the site set-up was a successful one and I'd like to think I gained a lot of respect from the team.

4.2.3 Deployment of resources for anchoring assistance

Because of upcoming works on an island called the Drydump, materials (excavators, container, wheel loader, generator, lights ...) needed to be transported. I had the opportunity to follow this up. I was just asked to have a look; An Indian Superintendent would do the execution. It was amazing to see how the job was done. Heavy equipment including excavators, wheel loaders, a pontoon and a push boat did the hard work job.

5 Conclusions

For me, working independently as well as with a team was very important. I like to be faced with a problem and solve it in my own way. Before my arrival I was afraid that I would become a paper slave of somebody and would get no responsibility. The first days of my stay I got the opportunity to have a look at all the aspects of the project. I worked closely with the superintendents and learned a lot.

After a few days I had seen most of it and had the impression that they had not really planned something else for me. Another trainee was doing paperwork for a works manager and that was not a thing I would have liked to do. I went to one of the works managers and told him what I wanted to do as a trainee. I explained the purpose of my stay.

What I got was more than I had hoped for. I was expecting to get some workmen and do some little works but they gave me something totally different. Normally when a superintendent goes home they are replaced by another one. For the replacer of the superintendent Offshore they chose me and I became (trainee) superintendent Offshore. I am honored that TIBO chose to bestow this responsibility upon me.

For me this was perfect. I did not get a stupid job they invented but I got the 'real deal'. In my job I had to make important decisions. Mistakes would have cost a lot. The price of a ship not working one day or doing the wrong work is higher than the year salary of most people. I felt very responsible and took my job very serious. I must say that I still think that in some way it was irresponsible that they gave a trainee such a responsibility. As for me, I was very happy and gladly accepted!

The moment I started I knew almost nothing and had no experience. Days past and my knowledge and experience grew. I started to understand the picture and was able to make the right analyses and take the correct decisions. After being appointed a week results of a survey showed that, in the past, an area was dredged in a way that was not acceptable. At first I was happy that the problem was not one I was responsible for. Afterwards the project manager and I had to visit the ship that needed to fix it and at first nobody had an idea. At that time I had already started reading the VOUB (Voortgezette opleiding uitvoering Baggeren) and I was able to find a (possible) solution. I must say that I was very self pleased.

Nobody tried to take away my independence and I got to do as I wanted. Because I wanted to be sure to make no mistakes I held regular meetings with one of the works managers. They are experienced and have an unbelievable knowledge. In the beginning they sometimes had to correct me. Not because of errors but because of factors I did not pay attention to. As for me the most difficult part, but also one of the most interesting parts, was that you start of nothing. No experience, no idea what was the normal way of doing and a serious shortage of knowledge. At first when I made decisions there where some things I just did not pay attention to because I did not now it existed.

As you talk and discuss, and I always do, I started to understand the whole operation and my decisions started to match with those the manager would have taken. During my stay I saw a lot of new technology and techniques. For example the bridge of the hopper has a lot of buttons, switches, screens, lights, etc. Most of it was explained to me. As I see it I had the opportunity to see a lot but it was impossible to see it all. The first days of my stay, when I got introduced to the site I also got to see a lot. It still makes me happy when I think back

and realize how everybody made some time for me and showed me around. Best way to learn about the techniques is by listening to the experts while seeing it.

I experienced that everything is solvable, even if the problem looks very hard. Before I came I thought that everything would be very well planned. In reality I saw little being finished at the proposed date. Also there were lots of problems with the local suppliers. Indian companies do not succeed in delivering the agreed products and they are always late. Most of the ordered issues had to be sent back twice.

I also experienced that my expectations of precision were wrong. Only the pipe placing had to be a bit precise and even here I speak of a precision of 0.1 meter. Sometimes theory is difficult to achieve in practice.

I had expected to be the youngest guy on the project. In the office that was correct. But offshore there were a lot of younger guys. In the office it surprised me that there were a lot of young men that got a lot of responsibility. They gave orders to persons a lot older. It pleased me to see this. Because I thought it would take a long time to get a high position where you can really do something, clearly DEME seek to encourage its workers.

I learned how to analyze the survey results and make the right decisions. I spent a lot of time on the ships so I had the opportunity to learn about the dredging process and the dredging ships as well. Because I replaced someone I got to do the real job. I had to manage everything on my own and doing this I learned a lot. I think there is no better preparation for the real work than the one I got. The way I started was exactly the way a new employee should start.

Thank you DEME!

6 Evaluation

Halfway I went to the work manager who looked after me. I prefer having an evaluation halfway instead of at end of the period. By doing this got to know my weak and strong points. If I would have asked it at the end of my stay then there would not be any time left to work on my weak points.

The evaluation I got, on 21 February, is shown in scan figure 37 (page 26). Of course I also got an evaluation on the end. This evaluation, the official one, is shown in scan figure 38 (page 27).

The Grade Peter Dudinck wanted to give me was 75 percent, shown in 39 (page 28).

I must ad that it took me a long time to get Mr. Dudinck place the crosses. He thought the list was irrelevant and I agree. It took me more than one (1) hour to get the crosses I needed to complete this form. The crosses placed are placed to get a total grade of 30/40 and I do not agree with the places of the crosses. In fact I was very disappointed to get a 4 on the question about working in an independent way. This can't be true in any way because I had to do everything on my own. I replaced someone without the knowledge and skills. I think only few of the trainees have worked on such an independent way and for that I do not agree.

Evaluatieformulier bedrijfscontact in te vullen door de buitenpromotor

(40 punten)

De student was <u>altijd</u> aanwezig op de door de school geplande bedrijfscontactdagen (met uitzondering van gewettigde afwezigheid en mits verwittigen).							Ja / Neen
(MAWC1) Onderzoek- of werkmethoden kunnen hanteren (10 punten): de student							
	1	2	3	4	5	6	
heeft geen inzicht in de opdracht.							Koen begrijpt zijn opdrachten zeer goed. Hij kan ook zijn opdrachten overbrengen
gaat slordig te werk.							is steeds nauwgezet en methodisch bij de uitvoering van zijn opdrachten
maakt geen vorderingen.							Koen heeft voldoende beheersing en competentie in het uitvoeren van zijn opdrachten. Hij maakt steeds goede vorderingen.
neemt geen enkel initiatief.							Koen heeft voldoende initiatief. neemt zelfstandig initiatief om zijn opdracht, onderzoek, meting succesvol af te ronden.
volgt een onderzoek, meting, opdracht niet op, maakt geen enkele kritische bedenking.							Bij problemen worden alternatieven gezocht. interpreteert zijn onderzoek- en meetresultaten kritisch, evalueert zijn opdracht en stelt zo mogelijk verbeteringen voor.
(MAWC3) Samenwerken in een multidisciplinaire omgeving (20 punten): de student							
legt geen contacten met andere personen.							Gemakkelijk in de omgang. legt gemakkelijk contacten met andere personen, is snel ingeburgerd in de organisatie.
respecteert medewerkers niet.							Respectvol al de medewerkers. respecteert alle medewerkers van hoog tot laag.
zet zich niet in om met anderen de vooropgestelde doelen te bereiken.							zet zich in om samen met anderen de vooropgestelde doelen te bereiken. Ja, in goede harmonie.
reageert niet of uitgesproken negatief op ideeën en kritiek van andere personen.							reageert actief en kritisch constructief op ideeën en kritiek van andere personen. Ja.
is frequent te laat.							is steeds stipt aanwezig Ja.
is niet loyaal tegenover zijn teamgenoten en volgt de gemaakte afspraken niet op.							is loyaal tegenover zijn teamgenoten en volgt de gemaakte afspraken goed op. Ja.
(MWC3) Het bezitten van specifieke bij het vakgebied horende vaardigheden (10 punten): de student							
is niet geïnteresseerd in de aanwezige/gebruikte techniek/technologie in het bedrijf/onderzoeksinstelling.							vertoont duidelijke interesse in de aanwezige gebruikte techniek/technologie in het bedrijf/onderzoeksinstelling. volgt de cursus baggeren.
schuwt het zelfstandig gebruiken van apparatuur, nieuwe software of machines. Hij laat het steeds door iemand anders doen.							is vertrouwd met de gebruikte apparatuur, nieuwe software of machines of leert ze vlug te gebruiken. Inlevan de apparatuur.
beheerst onvoldoende de elementaire informatica vaardigheden (Word, Excel, e-mail, ...).							bezit de nodige informatica basisvaardigheden (Word, Excel, e-mail, ...).
slaagt er niet in om de nodige informatie te vinden (bibliotheek, Internet, ...).							vindt vlot de nodige informatie. Is mondig en kan informatie van mede collega's gemakkelijk verkrijgen.
is niet bereid om meer dan strikt noodzakelijk te doen (loopt de kantjes af).							wilt duidelijk meer weten, is positief nieuwsgierig. Koen is erg nieuwsgierig.
houdt zich afzijdig ook al zou hij hulp kunnen bieden.							stelt spontaan voor om te helpen waar mogelijk. Koen heeft een positieve inzet.

Koen is nu twee weken op het werk al stagair.
 Hij heeft meteen twee grote bagger vacatures onder zijn
 vrede gelanceerd voor de opvolging van het baggerproces en
 de communicatie van het vacature naar de wal (kantjes).
 Hij doet dit zeer goed, met een goede inzet en inzicht.
 Koen zou direct aangenomen worden.

Figure 37: Evaluation: Halfway

Evaluatieformulier bedrijfscontact in te vullen door de buitenpromotor

(40 punten)

De student was <u>altijd</u> aanwezig op de door de school geplande bedrijfscontactdagen (met uitzondering van gewettigde afwezigheid en mits verwittigen).							Ja / Neen	
(MAWC1) Onderzoek- of werkmethoden kunnen hanteren (10 punten): de student								
	1	2	3	4	5	6		
heeft geen inzicht in de opdracht.				X				begrijpt zijn opdracht volledig.
gaat slordig te werk.					X			is steeds nauwgezet en methodisch bij de uitvoering van zijn opdrachten.
maakt geen vorderingen.					X			maakt steeds goede vorderingen.
neemt geen enkel initiatief.				X				neemt zelfstandig initiatief om zijn opdracht, onderzoek, meting succesvol af te ronden.
volgt een onderzoek, meting, opdracht niet op, maakt geen enkele kritische bedenking.					X			interpreteert zijn onderzoek- en meetresultaten kritisch, evalueert zijn opdracht en stelt zo mogelijk verbeteringen voor.
(MAWC3) Samenwerken in een multidisciplinaire omgeving (20 punten): de student								
legt geen contacten met andere personen.					X			legt gemakkelijk contacten met andere personen, is snel ingeburgerd in de organisatie.
respecteert medewerkers niet.					X			respecteert alle medewerkers van hoog tot laag.
zet zich niet in om met anderen de vooropgestelde doelen te bereiken.					X			zet zich in om samen met anderen de vooropgestelde doelen te bereiken.
reageert niet of uitgesproken negatief op ideeën en kritiek van andere personen.					X			reageert actief en kritisch constructief op ideeën en kritiek van andere personen.
is frequent te laat.					X			is steeds stipt aanwezig
is niet loyaal tegenover zijn teamgenoten en volgt de gemaakte afspraken niet op.						X		is loyaal tegenover zijn teamgenoten en volgt de gemaakte afspraken goed op.
(MWC3) Het bezitten van specifieke bij het vakgebied horende vaardigheden (10 punten): de student								
is niet geïnteresseerd in de aanwezige/gebruikte techniek/technologie in het bedrijf/onderzoeksinstelling.					X			vertoont duidelijke interesse in de aanwezige gebruikte techniek/technologie in het bedrijf/onderzoeksinstelling.
schuwt het zelfstandig gebruiken van apparatuur, nieuwe software of machines. Hij laat het steeds door iemand anders doen.				X				is vertrouwd met de gebruikte apparatuur, nieuwe software of machines of leert ze vlug te gebruiken
beheerst onvoldoende de elementaire informatica vaardigheden (Word, Excel, e-mail, ...).					X			bezit de nodige informatica basisvaardigheden (Word, Excel, e-mail, ...).
slaagt er niet in om de nodige informatie te vinden (bibliotheek, Internet, ...).					X			vindt vlot de nodige informatie.
is niet bereid om meer dan strikt noodzakelijk te doen (loopt de kantjes af).					X			wilt duidelijk meer weten, is positief nieuwsgierig.
houdt zich afzijdig ook al zou hij hulp kunnen bieden.					X			stelt spontaan voor om te helpen waar mogelijk.

Er zijn twee evaluaties gemaakt.

A.Lauwers: voorstel masterproef versie 15/9/2007
Een welke besproken is en speciaal en op technisch gebied een goed inzicht geeft van Koen 6/3/08
Een zoals de school het bedoeld heeft voor een algemeen beeld en algemeen beeld geeft van de competentie van de leerling en van de school.

20

Figure 38: Evaluation: End

Bedrijfscontact los van de onderwijsleeractiviteit masterproef

Na vier weken bedrijfscontact heeft de student nog twee weken om verder te werken aan zijn masterproef. Het bedrijfscontact wordt door de student afgerond met een bondig verslag met volgende elementen:

- Titelblad,
- inhoudsopgave,
- beknopte beschrijving van de algemene organisatie en fabricatieprogramma van de firma of van onderzoeksgebieden van de instelling,
- korte opsomming van de uitgevoerde activiteiten in het bedrijfscontact,
- besluit: reflectie over de opgedane ervaringen en het eigen functioneren in de professionele omgeving:
 - in welke mate kan ik zelfstandig werken,
 - leer ik uit de door mij gemaakte fouten,
 - bekijk ik ook de gebruikte of aanwezige technieken/technologie die niet rechtstreeks met mijn bedrijfscontact te maken heeft,
 - wat zijn de belangrijkste ervaringen die ik opdoe tijdens mijn bedrijfscontact.

3.3.1 Evaluatie bedrijfscontact in te vullen door de buitenpromotor

De buitenpromotor, verantwoordelijk voor de begeleiding van de student bij zijn bedrijfscontact, evalueert de student voor zijn bedrijfscontact aan de hand van een evaluatieblad. Per competentie geeft de buitenpromotor op een beperkt aantal indicatoren een score van 1 tot 6.

Ter verduidelijking worden de scores in de tabel verbonden met punten en vertaald naar de kansen dat de student zou hebben mocht hij bij een vacature solliciteren voor een functie binnen het bedrijf/instelling

Score	Globale omschrijving	Punten (%)
1	Het omschreven gedrag is manifest afwezig, er is zelfs sprake van negatief gedrag en tegenwerking. De student zou zeker niet in aanmerking komen voor aanwerving.	20
2	Het omschreven gedrag is in minimale hoeveelheid aanwezig maar absoluut niet voldoende, zou zeker niet in aanmerking komen voor aanwerving.	40
3	Het omschreven gedrag is op een juist voldoende mate aanwezig maar echt goed is het niet. Bij sollicitatie zou de student gans onderaan de lijst staan.	55
4	Het omschreven gedrag is voldoende aanwezig. De student zou een kans maken bij sollicitatie maar zou zeker niet de eerste keus zijn.	65
5	Het omschreven gedrag is sterk aanwezig. De student laat zich positief opmerken, hij zou zeker in aanmerking komen voor aanwerving.	75
6	De beste stagiair sinds jaren. Het bedrijf zou extra inspanningen leveren om de student aan te werven.	90

P. Audinle
6/3/08