



# SAFETY MATTERS



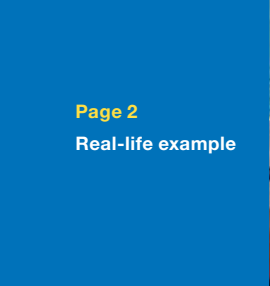
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## The weakest link

### The importance of proper selection, training and monitoring of subcontractors

**To put it bluntly, a client will only consider Boskalis as good as its worst subcontractor. If the subcontractor performs below par, the client will blame Boskalis. Subcontractors must therefore be properly selected, trained and monitored for each project.**

The old adage that the chain is only as strong as its weakest link applies to all parts of the job: the quality of the work itself, environmental protection and safety. Therefore, when selecting subcontractors, it is important to 'test their metal'. Arco van Marion, SHE-Q department Quality Specialist, thinks there is a lot of room for improvement in this regard at Boskalis. "More and more clients have a look at how we work beforehand, but we don't always do the same with our subcontractors."

#### Guidelines

Until recently, Boskalis did not have any explicit policy for selecting subcontractors, but instead left the decision to the individual project manager's discretion. Drafting contracts was handled in the same way. However, Boskalis has changed drastically over the last ten years or so. Projects are larger and more wide-ranging, and quality, environmental and safety standards are higher. Heading a large-scale, multi-faceted project means contracting out activities that fall outside the scope of your own industry. Arco van Marion says, "We therefore have to start thinking about finding the right subcontractors at an early stage - either in the preliminary phase or sometimes as early as the tendering phase. In the last year, we worked with people from the Boskalis Operational Development Program (BODP), Sales and Legal and Finance staff to develop guidelines to support project managers and others involved in this process. The guidelines provide a frame of reference for implementing this process in practice and have been included in the 2010 version of Q-Aid (see RBW 576)."

As a company, we need to develop a broader view of subcontractors. Of course the relationship between price on the one hand and technical knowledge and experience on the other will remain important. However, since the arrival of NINA, that's not enough. Safety has to be considered part of quality. This shift is clearly reflected in the Q-Aid guidelines. It's about a package deal. Although not everyone shares that mentality yet, if we develop a thorough selection process, the proper training and intensive supervision, all with NINA in mind, we can make great strides forward.



# Real-life example

## Cuyutlan, Mexico



Frans Thomassen

**Project Manager Frans Thomassen:**  
“There are dilemmas involved in selecting subcontractors.”

“I think the selection guidelines are helpful. If the preliminary investigation reveals that a subcontractor has no money to provide the required PPE, you can consider that as well when you assess the bid. You can also offer assistance to get the subcontractor up to standard. From the NINA standpoint, that’s a big step. Subcontractors’ performances must also be judged based on uniform standards.

We should share that information worldwide.” However, in practice, some situations can be hard to manage: “Sometimes you are faced with dilemmas, particularly when it comes to availability. We searched for a big 385 caterpillar for months in Cuyutlan. Finally we opted for the best solution we could find, but we weren’t really satisfied. So, once I realized I needed more heavy equipment, I called the Dutch company Snijder, instead of going hunting for the equipment myself. Several of the cranes - including the operators - now come from Snijder, and everything and everybody works according to our standards. I’ve also had many other dilemmas. We searched intensively for a diving company that shared our standards, but to no avail. But we still had to perform diving operations, so we called in a company that had worked for us before. A former marine diver was assigned to the job, but he had to work with a sub-standard compressor. The diver did a fantastic job, though we did have to compromise on our own standards.

### Training

The problems start when agreements are made with a company’s managers who do not have a strong working relationship with the operational

staff. In other words, the company supplies staff who are incompetent or inexperienced. If you have no other choice, you have to train these staff in the NINA values and rules and monitor performance through audits and inspections. This approach works well. When the 385 caterpillar had to be transported from A to B, a lowboy had to be used that did not have the capacity to support the caterpillar - our mistake. The owner of the caterpillar filmed it as it was being transported and told me he thought this was irresponsible. The fact that he pointed out a dangerous situation showed that he understood the importance of safety. However, if he had truly understood the message of NINA, he would have put down the camera and shouted ‘STOP’ at the top of his lungs. Daring to take that step takes time. For the time being, I think training is the best approach, but for the longer term, we have to encourage the management of these companies to invest in their staff. Boskalis can do that by agreeing either sanctions or rewards in contracts with subcontractors.”



## 2 Gorgon, Australia

**SHE Manager Lyn Barrat:**  
“More commitment due to better communication.”

“To support subcontractor selection, a questionnaire was developed touching on topics such as the identification of hazards, KPI’s with regard to safety, accreditation, execution plans, keeping up with legislation, et cetera. Once a subcontractor is engaged, we then monitor their safety behaviour and performance through regular audits by the safety team. However, in day to day practice this

turned out to be not enough to keep the machine running smoothly. As the Gorgon project grew and more subcontractors appeared on site, the Gorgon project management team experienced a lack of cohesion.

That is when we decided to organize workshops for the subcontractor’s senior management to provide open engagement and support them to take an active role in promoting an incident and injury free culture. During these sessions, subcontractors were able to identify that they felt disengaged and kept in the dark about the project as a whole with the key issue being lack of communication. Every two months we come together, provide information about the overall project progress and safety performance. After this the interactive part of the workshops start, called ‘How We Are Tracking. Subcontractors can bring in their experiences, share their safety initiatives and talk about issues they have encountered in an open forum. Further, subcontractors are invited to participate in our weekly safety engagement

sessions on site, in which we communicate and consult with each other on varying safety topics.

### Better safety performance

At first the smaller companies in particular were not too enthusiastic about all this attention. They found it difficult to align and did not have enough resources. The project supported them as much as we could. Now that we have ‘bitten the bullet’ we are all seeing the benefits. All in all I would say this process costs a lot of commitment, energy and resources, but it is definitely worth the effort. Our safety performance has improved significantly: our total recordable incident frequency rate has dropped from 2.14 in the first quarter to 0.5 in the second quarter. We also see a better engagement of workers on site. They are now more aware of our NINA Values and Rules. They are not afraid to stop work if they see a hazardous situation. They are more able to identify hazards and are more pro-active in reporting safety behaviour observations (the Australian SHOC card). Instead of working for us, our subcontractors are now working with us.”



Lyn Barrat

# This time in...



■ >2,000,000 man-hours worked without LTIs

■ The working conditions for Project Gorgon are difficult

■ Proper preparation, strict safety guidelines and thorough incident reports are paying off

Overview Gorgon Project MOF (Material Offloading Facility)

## Gorgon, Australia

The word 'challenge' is heard repeatedly on the lips of Gorgon Project staff. And it's no wonder: this large-scale project 'down under' is full of challenges.

In a telephone interview with Safety Matters, Deputy Project Manager Civil Works Hans Mooij remarks casually, "Two whales just swam by - less than 200 meters away." "We are

working in the middle of an area inhabited by dolphins, sharks and turtles - it's quite extraordinary." This area is near Barrow Island, located some 60 kilometers off the coast

of northwestern Australia, where some unique plant and wildlife have flourished in this isolated location. The area also has two large gasfields, Gorgon and Jansz-Lo, which the Chevron-operated Gorgon Project plans to tap. The unique weather and working conditions, along with those other factors, combine to make a really unusual project.


## A brief description of the project

The Gorgon Project is one of the world's largest natural gas projects and the largest single resource natural gas project in Australia's history.

The Gorgon Project will develop the Gorgon and Jansz-Lo gas fields, located within the Greater Gorgon area, about 130 kilometres off the north-west coast of Western Australia. Barrow Island will be Gorgon's home - occupying 1.3 percent of its un-cleared land mass. Although a Class A Nature Reserve, it is recognized internationally as a location where industry and the environment co-exist.

Chevron commissioned Boskalis to build the infrastructure for a gas processing

plant on the island. Boskalis is reclaiming an artificial peninsula off the coast of the island, where ships carrying construction materials for the plant can dock. It is also laying pipelines leading to a second harbor basin several kilometers away. That harbor basin, where LNG tankers will one day moor and load, is currently being dredged out of the sea. Boskalis is responsible for dredging, stone work and quay wall construction. The following vessels are being used: Cornelis Zanen,

Taurus II, Gateway, Baldur and Goomai. After intensive preparation, the project started in May 2010 and it is scheduled for completion in spring 2012. Boskalis has joined hands with 25 subcontractors to realize this massive project, including the contractor Murray & Roberts, which is responsible for the civil engineering work. 



Environmental excellence award issued to CSD Taurus II by Client environmental representative

### Living and working at sea

Particularly striking is the fact that the Gorgon Project staff both live and work at sea. Besides an airfield, Barrow Island has no facilities for marine operations, so the entire staff, 550-strong at peak capacity, stays on the accommodation vessel 'the Finnmarken' while large quantities of groceries are shipped in daily to sustain them. From a logistics standpoint, orchestrating the shipments is something of a juggling act - with the logistics department at the Dampier office in charge of keeping all the balls in the air. Each day, hundreds of workers per vessel are transported to and from the project site. Given the known risks of boarding and changing vessels, this part of the job was a key focus of the preliminary phase. For example, a few technical modifications were made to several crew-change boats to minimize the safety risks during transfers. Toolbox meetings also cover the subject regularly. This approach has proven effective: some 450,000 transfers have been carried out safely since the project started. Living together at sea for months on end also presents social challenges. "And that's why we changed the leave schedule and offer a lot of activities", says Project Manager Marine Anne Jan Fokkema. "Being forced to live



View of MCSV (Marine construction support vessel) Finnmarken providing accommodation to the personnel on the project

and work together can be oppressive", says Frank Duijnhouwer, Works Manager Dredging, "though it does have its advantages." "You get to know each other really well, which improves communication on the job, too. That's definitely a boon for NINA."

### The environment

The Barrow Island environment is also a priority. Measures have to be taken to protect the unique plant and wildlife on the island and in the surrounding area (see the box entitled 'quarantine'). According to Anne Jan Fokkema, "We have to observe a whole range of environmental standards, regulating everything from the use of biodegradable hydraulic oil and waste separation to the use of turtle lights and tickler chains to minimize impact on turtles."


### Safety

When it comes to safety, Chevron has a reputation as a stickler. At the start of the project, Boskalis Safety Advisor Gary Beer was faced with 98 Chevron safety specifications. "We combined the Chevron safety program, IIF, with Q-Aid and NINA, eventually culminating in a single Safety Management Program based on Australian legislation. The key is ensuring that the staff understand the reasons behind the measures. That's something that we go over during the project's comprehensive orientation process and continue to stress through inspections, workshops and HAZOBs ('Hazard Observations', the Australian version of the SHOC Cards)."

## Cyclones? It all comes down to a thorough risk inventory

Barrow Island is located in the middle of a cyclone basin. Boskalis therefore appointed Frank Duijnhouwer as the project's Cyclone Response Manager. "When a report comes in that a cyclone might be approaching, the cyclone committee decides whether or not to evacuate. During the preliminary phase we found a protected area, where we placed one buoy for each vessel. If we need to evacuate, that's where everything will go. Last season (November to May) we had to discontinue operations twelve times, for spans varying from a few days to a couple of weeks. So it can be pretty bad."

Fortunately, everything worked out fine each time. Frank believes that most surprises were avoided thanks to the thorough risk inventory. "For example, we have developed a procedure for tying the vessels to the buoys in the event of an evacuation and we practice the procedure regularly. The safety coaches allocated to the project played a unique role in

this process: experience people such as Hans van Rooij share their knowledge and give younger skippers and captains advice about the best approach. To me, being well-prepared is a typical example of how NINA works." 



# This time in... continuation



Offloading of 14.4t Xblobs from barge for installation into works

Everyone interviewed agreed: the emphasis on safe working is paying off. Sometimes all the rules from the petrochemical industry seem much too nitpicky. Works

Manager Rock, Oscar Fischer says, "Some of the staff on this project lack experience, such as plumbers, farmers and crane operators from the construction industry. They are not as familiar with marine operations and so they see a lot more risks than there actually are. Sometimes that makes the job difficult, so we continue to talk with them and explain the safety issues. Fortunately, everyone is familiar with the NINA values and they tie in perfectly with the Chevron program (IIF), which also deals with behavior. People tend to watch each other more, but do so with a positive attitude."

Superintendent Phil Lamb agrees, "All the men playing key roles in this project, such as the dumper operators and the supervisors, are given a two-way radio. I often hear them talking

to each other on their radios. When a dumper operator drives too close to the edge or someone spots a pedestrian, I can hear the men warning each other over the radio. These developments really do promote safety."

## Incident reports

Like Boskalis, Chevron also has a strict incident report policy. However, Chevron was somewhat surprised at Boskalis' detailed adherence to the policy. "The number of incidents may have seemed enormous, but that's because we really were reporting everything", says Anne Jan Fokkema. "We explained to Chevron that Boskalis does not care so much about the statistics as we do about the cause of each incident, because we want to learn from them. We said that's why communication is so important to us: when something goes wrong on board, we inform the others to prevent the same thing from happening elsewhere." It is interesting to note that safety measures are prompted more by inspections and to a lesser degree by incidents. According to Frank Duijnhouwer, "That goes to show that we are proactive when it comes to safety." Anne Jan Fokkema thinks that clients notice that as well: "Now they like our approach, because they feel they can trust us."

## NINA moments



### NINA is covered at every meeting

Each project start meeting (for project managers, on-site staff and department heads) opens with a personal 'NINA moment', to ensure that safety remains at the top of the agenda. The day before the meeting, someone is appointed to prepare the 'NINA moment'. The meeting minutes are sent directly to the Perth office and to the large dredging vessels, which in turn can

integrate the information into their own meetings.

According to Superintendent Phil Lamb,

"We invite the HSE Officers and hold a toolbox meeting, or talk about a NINA moment. We try to keep it varied and make it fun so that people don't get tired of participating."

### NINA moment: safety is everyone's responsibility

Deputy Project Manager Civil Works, Hans Mooij relates, "The safety officers used to be in charge of handling incidents, whereas now, it's the job of the operational employee directly responsible (the site supervisor or the captain). He is the one who drafts the report and is directly responsible for

any action that has to be taken in response to the incident. The incident report also describes what action is to be taken so that follow-up can be implemented properly. That's how you get everyone to consciously take responsibility for safety."



Boskalis takes safety seriously - and our clients have noticed. As a token of appreciation, the entire team was recently awarded this certificate.


Since the start of the Gorgon Project, over 2,000,000 man hours have been worked without a single LTI (Lost Time Injury) and no serious incidents have occurred.

## Quarantine

**Australia's quarantine rules are notoriously strict; each and every tourist who sets foot on the continent is subjected to searches - not a single ounce of foreign food is allowed to enter the country.**

And those who fly or sail to Barrow Island are subject to a second - maybe even stricter - search to prevent the introduction of non-native plants and animals that could disturb the island's ecology. For example, the hull of all vessels has to be thoroughly cleaned, often in dry dock. Every last bit of dry equipment is brought to a specially designated, demarcated area where everything is taken apart and meticulously inspected for any seeds, substances, small animals or insects. Boskalis trained its own multidisciplinary inspection team - including biologists - to carry out these inspections.

Chevron also has an inspection team. All supplies transported to the project site from the Dampier and Perth supply base are shrink-wrapped in plastic fumigated with a pesticide and re-inspected later. Only after all inspections are passed and all quarantine requirements have been met, are the goods allowed to continue on to Barrow Island where they are again inspected before off loading on to the island.

"Proper preparation is everything because the quarantine procedure is so robust", says Deputy Project Director Peter Hottentot. "You have to plan out your work in detail, so that you know exactly when you will need what and have it organized in time. That's how we keep surprises to a minimum." 




**We look forward to hearing your ideas on how to improve safety. Please send them to: [safety@boskalis.nl](mailto:safety@boskalis.nl)**

## Inspection: allowing staff to voice concerns

**In a Loss Prevention Inspection (LPI), a representative of the client and, where applicable, the subcontractor, accompany inspectors to inspect one specific aspect of the site.**

A checklist for electrical tools or hoisting equipment is one example. According to Deputy Project Manager Civil Works, Hans Mooij, "We aren't even that interested in the inspection itself, as we are in the ensuing discussion. We want to

sit down together and allow staff to voice their concerns. This is important to me because you get to hear where improvements can be or need to be made and we can act collectively to take the necessary steps quickly and efficiently." 

*View on reclamation and dynamic compaction by Cofra*



## Colophon

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