MAMMOET MAIL

House magazine of Mammoet Transport B.V.

SPRING 1996 NUMBER 27

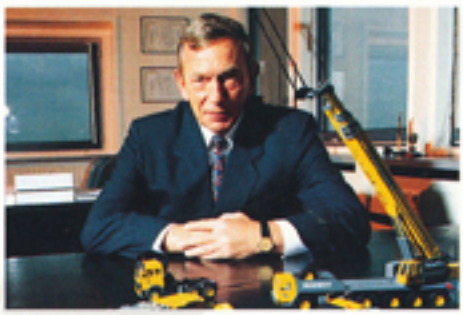
MAMMOET DECALIFT INTERNATIONAL

INTEGRATED TRANSPORT FROM ITALY TO FLORIDA

MAMMOET COLOURS

NEWBUILDING MAMMOET SHIPPING

MAMMOET CONTENTS



MAMMOET MAIL

COLOPHON

Editor-in-chief:
Aad van Leeuwen

Contributing editors:
Alan Ensor
Immie van Kalken
Aad van Leeuwen

Translation:
Immie van Kalken

Photography:
Duncan Cook
Aad van Leeuwen
Nico Orie
Ben Wind
and others

Lay-out:
Aart Schuddeboom

Printing:
Beursdrukkerij Costra B.V.

Editorial address:
Public Relations Department
Mammoet Decalift International B.V.
De Ruijterkade 7
1013 AA Amsterdam (NL)
Tel. +31-20-6387171
Fax +31-20-6386949

10.000-05-96

Mammoet Shipping and Mammoet Stoof were involved in the transportation of heavy units for the Elsta heat-power station presently being built at Hoek in Zeeland, The Netherlands. All heat exchangers were uprighted and positioned with Mammoet's Hydra Jack lifting system.

J. Umker, C. De Vizia, H. Meijer, G. Povero

Mammoet Decalift International

On November 28 of last year, Mammoet Transport B.V. in Amsterdam and Decafin SpA in Turin entered into a joint venture agreement for their heavy lift and transport activities. The new company's name is Mammoet Decalift International B.V. Decafin participates with a 33% share and Mammoet Transport for the remaining 67%. By bringing in the heavy cranes of Decafin-daughter Decalift SpA, Mammoet's programme has been greatly enhanced in the tail end of the heavy transport chain.

To shed some light on the new co-operation Mammoet Mail interviewed Mammoet's President Jan IJmker, who will retire next Autumn after working for the company right from the early days in 1971.

Mammoet Mail: "Late 1994, early 1995 Mammoet Shipping was in the publicity for Spliethoff's buying Mammoet Shipping shares. Is there any connection between those two activities?"
Jan IJmker: "These agreements have to be seen as separate exercises with different purposes. The similarity in these moves can, however, be found in our striving to find continuity for the Mammoet organisation in the long run and strengthening the integrated transport principle. This goes for both companies. Decalift's owner wanted to strengthen his company in horizontal heavy transport and stay involved in the transportation business, rather than sell his heavy cranes to Mammoet. The beauty of the deal lies in the fact that the activities of Mammoet and Decalift are strongly complementary, especially in the United States. Moreover, we are not creating any over-capacity in the market, since we speak of existing equipment and not of new investments. Where the venture with Spliethoff in Mammoet Shipping is concerned we found a partner to invest in new heavy lift ships. These companies complement each other too."

MM: "Heavy-lift vessels, a huge number of axle lines, a variety of lifting, skidding and jacking equipment; and now an additional number of heavy cranes — is the result a monopoly in the heavy lift market?"
Jan IJmker: "Certainly not. There is strong competition in the heavy lift sector — fortunate for our clients — whereby we do not strive to be a monopolist. Our competitors are, for example, clearly present in Europe and Japan and we respect them for their professionalism. Anyhow, it is impossible to keep a monopoly position for a long time."

ERIK WINS

Jan IJmker has been part of the Mammoet organisation for the full 25 years. His strong influence and vision has made the company to what it is now. The turnover has grown tenfold, from a mere Dfl 30 million to almost Dfl 300 million. In the Autumn he will retire and he is proud to leave behind an organisation with very good prospects for the future.

Enhancing the integrated transport philosophy

MM: "Recently Mammoet invested in three Manitowoc M1200 ringer cranes for the high end of the lifting market. These are cranes built with a certain philosophy. The Demag and Gottwald cranes of Decalift are of a different technical design; they have superlift configuration or outrigger supports. Is Mammoet changing its lifting principles?"
Jan IJmker: "There is an obvious difference in the use of these cranes. The advantage of the big ringer cranes is that the core crane, the M250, can be used separately without the ringer. The disadvantage of the ringer system is that you

Decalift Spa was formed in 1985 to administer and manage the heavy crane hire and lifting operations of De Vizia Transport Spa. A considerable investment in large-capacity cranes enabled Decalift to offer a prodigious range of heavy lift crawler and truck cranes — up to 3000 tonnes with the company's flagship, the Demag CC12000 crawler crane. Over the years, Decalift Spa has built up an excellent reputation in construction worldwide.

are more tied to a fixed lifting position. As a comparison, the Demag / Gottwald type can be moved around easier, in certain cases with the load in the hook. However, this type of crane requires more space on site than the ringer type. A good example is the construction of a blast furnace for a steel plant which was carried out last year at BHP in Wollongong, Australia. From one fixed position the whole furnace could be assembled by the M1200R, because of the crane's enormous outreach. In other cases an outrigger type of crane is preferred. As a matter of fact, the lay-out of the plant dictates what specific type of crane will be used. In Mammoet Decalift International the variety in heavy cranes allows us to offer the best lifting proposal."

MM: "In this issue of Mammoet Mail a story features the lifting of four heavy columns in Japan by means of the Hydra Jack system. Will this system become redundant in the new situation?"

AAD VAN LEEUWEN

Jan Ijmker: "The issue is what method is feasible and most economical. The client will always look at the pros and cons. The decisive factor could be foundation requirements. And sometimes the Hydra Jack system is cheaper than the use of heavy cranes. Through Decalift we acquired an additional lifting system which can be used free standing. It adds more flexibility to the lifting possibilities of Mammoet's integrated heavy transport philosophy."

Worldwide coverage

MM: "Mammoet is a worldwide organisation with subsidiaries in the industrial areas. Will the cranes remain in the areas where they are now located?"
Jan Ijmker: "The use of the cranes is not restricted to one area. Depending on the project and time schedule the cranes and other lifting and transport systems can be mobilised anywhere. For the time being, these cranes are stationed in Europe, the USA and Asia. On project basis, however, it is possible to ship them to whatever country or continent."

Future in heavy transport

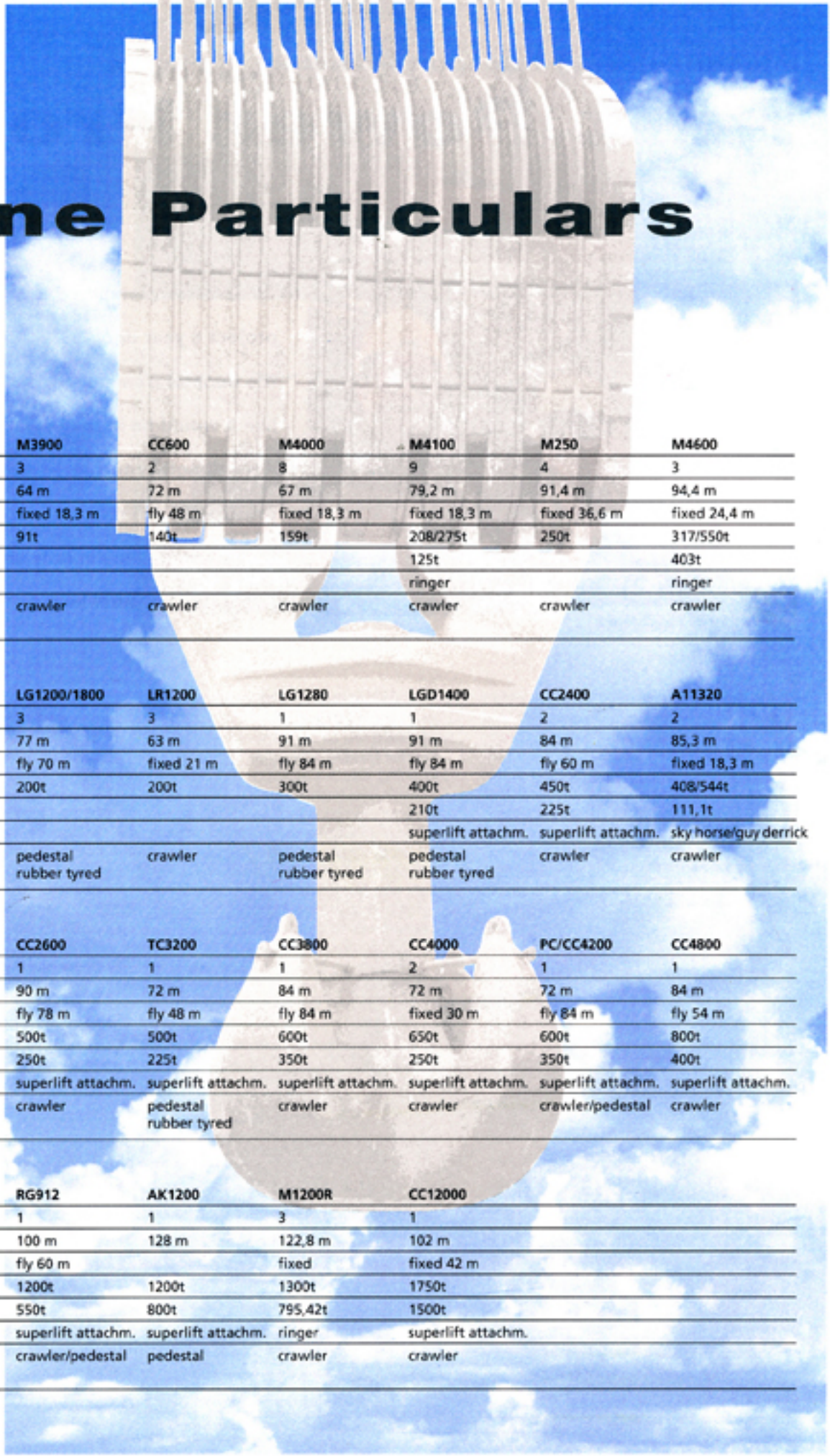
MM: "What is your forecast for the coming years with regard to the development in lifting technology?"
Jan Ijmker: "I do not foresee big changes in the near future but striving for heavier lifting capacities will always have the closest attention. In fact, development in the lifting business never stops. We know that the weights of the reactors are increasing and we are looking at solutions to lift them. A more practical development which we are now facing is easier dismantling for transportation of the crane. The latest model of the Demag CC 2600 which was delivered in Hong Kong, is much simpler to handle in the shipping/transport mode. This is a benefit in countries where transport access is restricted."

MM: "Could you give a short answer on the question what the strong point is of Mammoet Decalift International?"
Jan Ijmker: "The factory to foundation concept, executed with own equipment; that we can carry out a project with means and people from our own organisation without having to join forces with another party. Mammoet is unique for that concept, has been for 25 years."

MM: "Weak points?"
Jan Ijmker: "Being a heavy transport company with basically a lot of technically orientated people, the commercial attitude in our organisation needs improvement."

MM: "What did we forget to ask you?"
Jan Ijmker: "Mammoet wants to be a partner for the client in his needs for heavy lift and project transportation, based on quality and safety for a reasonable price."

AvL



Crane Particulars

Serie number	M3900	CC600	M4000	M4100	M250	M4600
Units	3	2	8	9	4	3
Mainboom	64 m	72 m	67 m	79,2 m	91,4 m	94,4 m
Jib	fixed 18,3 m	fly 48 m	fixed 18,3 m	fixed 18,3 m	fixed 36,6 m	fixed 24,4 m
Maximum capacity	91t	140t	159t	208/275t	250t	317/550t
Superlift/Counterweight				125t		403t
Construction				ringer		ringer
Type	crawler	crawler	crawler	crawler	crawler	crawler

Serie number	LG1200/1800	LR1200	LG1280	LGD1400	CC2400	A11320
Units	3	3	1	1	2	2
Mainboom	77 m	63 m	91 m	91 m	84 m	85,3 m
Jib	fly 70 m	fixed 21 m	fly 84 m	fly 84 m	fly 60 m	fixed 18,3 m
Maximum capacity	200t	200t	300t	400t	450t	408/544t
Superlift/Counterweight				210t	225t	111,1t
Construction				superlift attachm.	superlift attachm.	sky horse/guy derrick
Type	pedestal rubber tyred	crawler	pedestal rubber tyred	pedestal rubber tyred	crawler	crawler

Serie number	CC2600	TC3200	CC3800	CC4000	PC/CC4200	CC4800
Units	1	1	1	2	1	1
Mainboom	90 m	72 m	84 m	72 m	72 m	84 m
Jib	fly 78 m	fly 48 m	fly 84 m	fixed 30 m	fly 84 m	fly 54 m
Maximum capacity	500t	500t	600t	650t	600t	800t
Superlift/Counterweight	250t	225t	350t	250t	350t	400t
Construction	superlift attachm.	superlift attachm.	superlift attachm.	superlift attachm.	superlift attachm.	superlift attachm.
Type	crawler	pedestal rubber tyred	crawler	crawler	crawler/pedestal	crawler

Serie number	RG912	AK1200	M1200R	CC12000
Units	1	1	3	1
Mainboom	100 m	128 m	122,8 m	102 m
Jib	fly 60 m		fixed	fixed 42 m
Maximum capacity	1200t	1200t	1300t	1750t
Superlift/Counterweight	550t	800t	795,42t	1500t
Construction	superlift attachm.	superlift attachm.	ringer	superlift attachm.
Type	crawler/pedestal	pedestal	crawler	crawler

Integrated heavy transport from Italy to Florida

Polk Power Project

Steve Jenkins and Mike Rivers

"We started planning this transportation project a year ago, pretty much on advice of the Bechtel transportation people. They felt like it would be in the project's best interest if we directly contracted with someone to provide the full range of service from picking it up at the facility in Italy and putting it into the structural steel here."

"The unique thing about this project for Tampa Electric and what makes it different from the construction of all our other power plants is the international co-operation. If we just look at the radiant syngas cooler; we signed the contract with a company in Germany, the tubing came from Japan, the soot blowers came in from France, the shell and internals for the cooler came from Italy, it was transported by a company from the Netherlands, lifted by a company again from Italy, while using a chief engineer from Russia. One of my colleagues referred to the group as the United Nations for what it takes to get this thing done; unlike the UN we actually completed the project successfully."

Stephen D. Jenkins (41), deputy project manager for the Polk Power Station relaxes after the tension of this morning's lift with a smile and continues: "I received a report just a few minutes ago from our mechanical engineer, who is responsible for the co-ordination of all the companies to get the syngas cooler into place and aligned and he says that he'll be releasing the crane — may be it's already released — at ten o'clock. So that means the bundle is in, it's aligned. You guys did your job and there it is."

Steve explains that his prime task in this project is to administer large contracts in the gasification area of the plant. The construction part is the biggest section of it, but other things are also going on, such as the environmental permits and the administration of some of the large contracts with major suppliers. Another important aspect is keeping contact with Texaco who is the licensor for the process that will be used and also the contact with the Department of Energy, which provides funding to demonstrate this promising new technology.
"It is the first integrated gasification combined cycle power plant built in the United States on a new power plant site. It is a brand new power plant built from scratch, there was nothing here a year ago. It is funded by the US Department of Energy under their clean coal technology programme which is trying to further the use of the abundant coal resources we have in this country. This coal with a high sulphur content must be used in an environmentally superior manner to make electricity. The process is 10% to 12% more efficient than a conventional coal-fired unit."

New technology

The Polk Power Station-Unit 1 project is one of three pilot projects for integrated gasification combined cycle technology; another can be found in the State of Indiana. However, this is actually a conversion of an existing coal-fired unit at Public Service Indiana. The third project is at Buggenum, the Netherlands, where Mammoet also took care of the transportation and (Hydra Jack) lifting of the heavy components in 1993.
Jenkins: "The whole world waits for these three units to prove in three different processes with three different companies that gasification combined cycle power generation is affordable, clean, efficient and above all, that the technique works. We hope to show in about 1997, when we have been in operation for a year, that the system meets with all requirements and that people will say: this process is something we have to consider in future power plant construction."

Demonstration period

Most of the power plants that will be built in the USA will be located in the Mid West, right on top of abundant coal supplies. This coal is more difficult to use because of the high sulphur content. Nuclear power is not on the energy list anymore and with all the hundreds of thousands of tons of coal available, Tampa Electric is convinced they are doing the right thing.
"We have a four year demonstration period," Jenkins continues, "in exchange for getting considerable financial support from our Department of Energy to help build this plant and demonstrate the technology. During the first two years we have to test four different

kinds of coal that other utilities are likely to use in the United States and we will bring in that coal from different areas to show how we can use it in the gasification process. During the next two years other things have to be tested and since it is the taxpayers' money we have to report our findings to the public. It will be a busy time with all the testing while making electricity."

that their obligation was only to have it available at the dock in Italy where Belleli, the manufacturer, should place it on our barge. After the modification of the contract we went out for a bid to find someone who could pick up the cargo at Belleli, transport it down the Po River to Porto Marghera, ship it to Port Manatee, bring it over land in Florida and erect it in the structure."

Commissioning

Jenkins says that he will stay on the project until the commercial operation date which is planned for September 1996. When the construction is complete, a separate operations crew will take over with a general manager who is hiring and training his people right now. They will also be involved in the start-up.

About Mammoet's performance Jenkins is quite enthusiastic: "When we first bid for the radiant syngas cooler, the contract included the delivery to the site. After we got Bechtel on board as our engineer and construction manager we looked at what we really needed to do. Basically this was the shipment from Italy to Florida, the transport over land and the erecting and positioning in the structure. On that part of the contract we thought we could save some money. We talked it over with MAN GHH and we modified the contract so

Performance

In the end the lowest evaluated bid was Mammoet's, taking over all responsibility for transportation. Then we evaluated the kind of crane and the space we had available and it seemed that the type of crane that Decalift had was going to work out best in this application. So it was our own and Mammoet's choice to subcontract that part out to Decalift, but all under Mammoet responsibility. We only had to call Albert Slikker (Managing Director Davenport Mammoet) and we did not care whether it was Fagioli, Mammoet Shipping, Davenport Mammoet or Decalift; it all went under one contact and that made it easy for us."

Steve Jenkins closes with: "It was Albert's job to co-ordinate the whole job from Italy to here and I can say that we are exceptionally pleased with Mammoet's performance, we are all smiling!"

"One of the things we did not realise was how much planning it takes to make this kind of thing happen. And how much easier and smoother it can be for everyone involved if the guy that has to lift it, is working in conjunction with the guy that has to transport it and is working with the guy that's designing it."

Michael Rivers (40), Construction Manager at the Polk Power Station-Unit 1 Project and part of the construction management team, at last can sit down behind his desk after an early start that morning for the final lifting operation. He underlines the importance of meticulous preparations and says: "A good example is the head attachment which we used this morning. It took them six months to get the final design. It all depends on how we're going to lift it; we gave it a cone shape and there were so many little things that these people with the experience of your business have done before and I'm sure they learned their lesson as well as I learned mine from a construction standpoint. We have to take advantage of all that knowledge and then people say: 'Oh, that looks easy.' They see 15 minutes worth of work, which took a year to plan. They cannot understand that it takes time and money to have such a smooth operation."

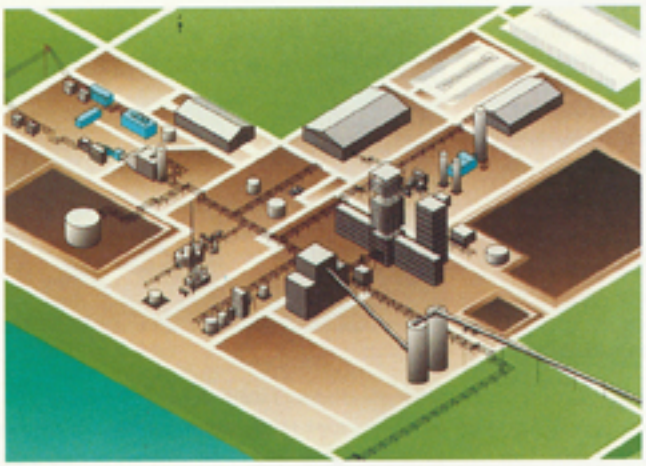
Rivers is very pleased with the services that Mammoet provided: "I know this is a different contractual relationship for Mammoet. You normally don't work with subcontractors; in this case you are what we call a 'turnkey contractor'. You are responsible for the Fagioli river barging part, for the Decalift lifting operations, the utility relocations, the permits, anything and everything to do with this project. It's the way we do business as Tampa Electric; we like to be able to look at one party as the controlling factor and say: 'We've got a deal with you, Mr Mammoet' and that's the way we like it."

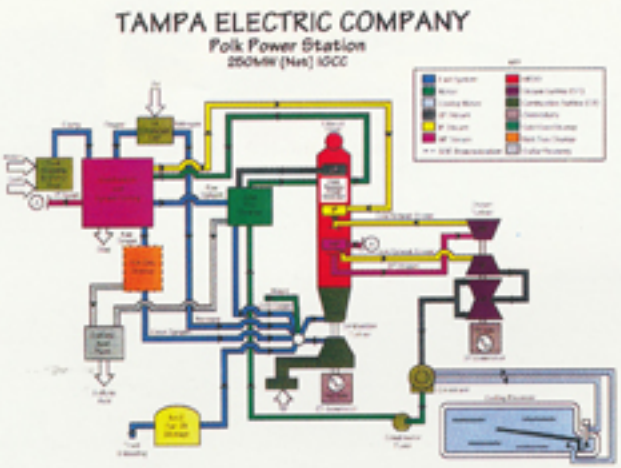
Interstate crossing

The most spectacular part of the overland transportation in Florida was the crossing of Interstate 75. It had to take place in two separate moves, a week apart. First, the 500 ton shell, then the 250 ton internal tube bundle. Rivers: "My worst fear was that when you were going across I 75 for the first time, something would go wrong and the County would say: 'You're not going the second time'. Then I'd have got that big tube bundle sitting at the port and no way of getting it here! That would have caused us monumental problems. However, it went so smooth, I've never heard a peep from the State Agencies or anyone else. For the first transport 15 minutes to get across the highway, then 7 minutes for the bundle to cross the highway a week later. It really was my biggest fear that during the crossing something would go wrong and the highway patrol would say: 'You're not coming across again.' I'm still amazed at how easy Mammoet made it look, you did a super job."

Mike Rivers has a degree in civil engineering and a masters degree in business administration. It provides him with a good balance in dealing with contracts and contractors such as Mammoet, for which he is responsible as well.
"As a construction manager," Rivers continues, "you'll need to have an engineering back-ground to understand why you do certain things; you need to have some construction background to

Since the crossings were done on Saturdays, onlookers took their positions along the road very early in the morning to be sure not to miss a thing.





Tampa Electric has four power stations in Florida with a total capacity of 3,300 megawatt. Unit 1 of the Polk Power Station will have a capacity of 250 megawatt, which is an 8% addition to Tampa Electric's generation system; enough to power approximately 60,000 homes. The Polk Power station is a $450 million project and is scheduled to start operations in the Fall of 1996.

TECO Energy is the parent company of Tampa Electric. They are involved in mining and transportation. The Mid South Towing Company transports the coal along the Ohio and Mississippi Rivers. Electro Coal is the name of their coal terminal on the Mississippi river South of New Orleans. Gulfcoast Transit is their ocean shipping company and the largest dry-bulk carrier in the United States.

know why you are building certain things. And you need to have some business background because you deal with a lot of contractual issues."

Just-in-time principle

This power plant is different from any other because it is an integrated plant and it is run on the single-train concept. Rivers: "As the demand for electricity changes when for instance a big customer starts up or shuts down his system, the fuel supply will be increased or decreased as well. That is now done with conventional plants, but for a coal-gasification plant it is a new principle. It's the idea behind this plant and part of the reason why this radiant syngas cooler is very large compared to other plants. As this necessity causes design concerns we have never met, a lot had to be resolved by research and development. When we're going to start up the plant it will be something different."

When Mammoet Mail asks where the coal comes from, Rivers answers: "We'll get it mostly from the central part of the U.S. for the demonstration period. It will come by barge down the Mississippi River to our Big Bend power plant, about 30 miles from here. It will be loaded into trucks which deliver it to the concrete silos here at the plant. From there it will be measured out as we need it, you'll have just enough coal coming in, grind it up and slurry it up, put it through the gasifier and start that process. Everything has to stay in balance: feed rates and demands will be a delicate item during the initial start-up."

Plant location

Polk Power Station is located in the middle of Florida. Rivers has an explanation for that: "In the USA in general, but in the State of Florida in particular, it is very difficult to get permits for a power plant. There are water concerns, air concerns and a lot of environmental restrictions. Before we selected this site, we put together a task force of community people, businessmen, environmental groups and also concerned citizens. We gave them the general outline that the plant had to be situated within so many miles of our base operations here, which limited it to Polk, Hillsborough, the Northern part of Manatee and the Southern part of Pasco County.

Those were all close to Tampa Electric's base operations. The task force evaluated quite a few sites. Finally, they came down to three sites which were feasible. They did a real thorough investigation on the environment, how much it was going to cost us to build a plant at each location. When that study was complete, they felt that this site produced the best balance of impact on the environment and cost to produce the electricity. The closer you are to water, the cheaper your electricity is, but the more impact people think you have on the environment. Usage of water is a big issue with a powerplant. We have a 850 acre

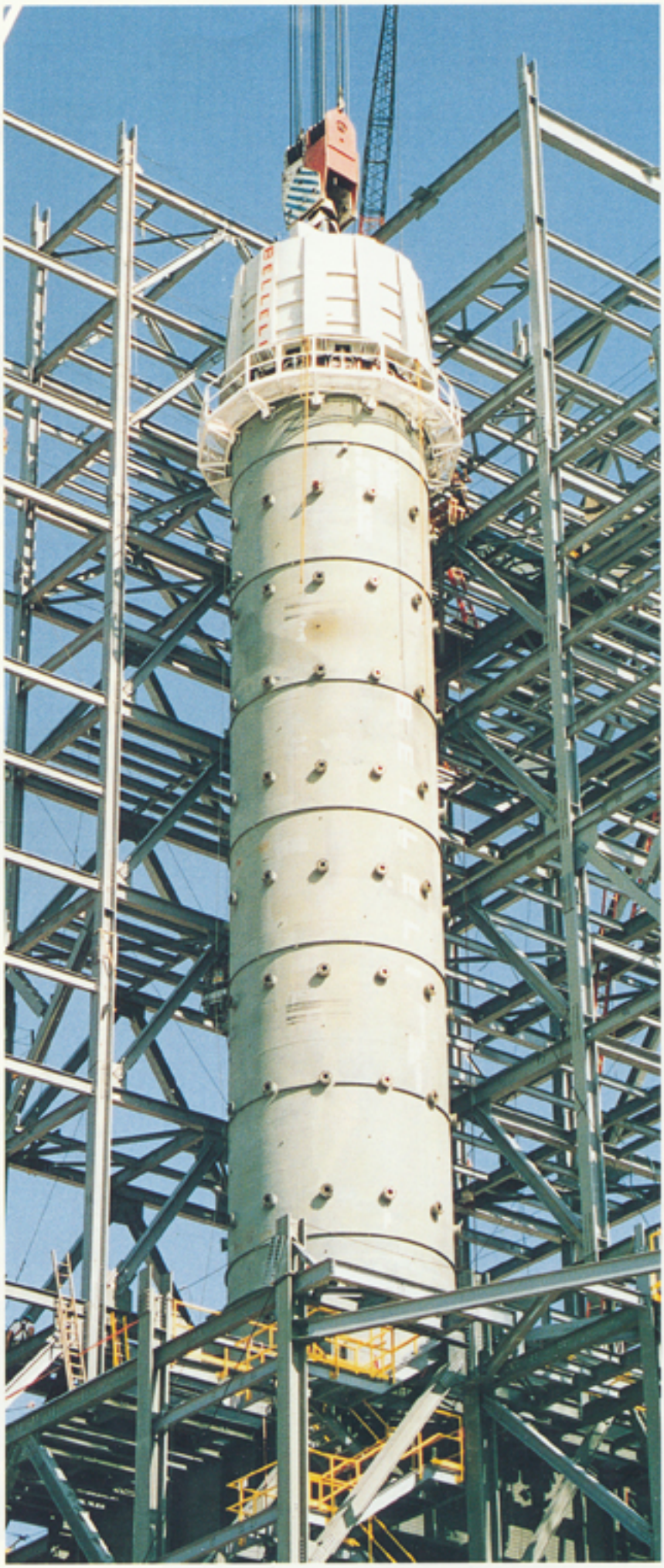
cooling reservoir. This is an old phosphate mine area. The improvements we had to make to the environment to build the plant actually improved the area. It is better now than when we started."

Economic impact

Rivers continues: "The economic impact for this community is beneficial. I have about a thousand people working on the job site right now and all these people in one way or another spend money in Mulberry, the nearest town. They stop to buy some gasoline, a cup of coffee in the morning, a coke in the afternoon or whatever they need. The restaurant there is busy at noon now. So there is a lot of economic benefit to the area. On balance it turned out to be a good place to build the plant. "Mike Rivers tells us that the people realise that they need power and they are not willing to give it up. They want to have light when they turn on the switch; they have a refrigerator, air-conditioning, t.v., radio, microwave and they realise that they need a powerplant for that. On balance, the siting task force figured that the extra cost to build it here instead of near the water provides more benefits to the consumer to offset the environment."

Rivers concludes the interview with: "This has been an extremely challenging project today and it's going to be finished on time. A lot of things have been coming together, we've got good people on the job that work hard, we're fortunate we have a lot of contractors similar to Mammoet who fulfill our high expectations. They have the abilities and the knowledge to perform. You'll get what you paid for: when you hire the best — you expect to get the best, that's what we have done here."

AvL



Newbuildings Mammoet Shipping

Three new vessels for Mammoet Shipping, "Happy River", "Happy Ranger" and "Happy Rover" to be delivered in 1997 by Shipyard "De Merwede".

Mammoet Shipping have placed an order for three multi-purpose heavy lift vessels. This unique type of multi-purpose tweendeck vessel will not only carry heavy lift cargoes, but also any kind of bulk cargo, general cargoes and forest products as well as containers.
The main feature of the vessels will be the 800 tonne lifting capacity, supplied by two cranes with 400 tonnes SWL each. Auxiliary hoists ensure efficient handling of lighter cargoes. The vessels will have an unobstructed, box-shaped cargo hold of 91 x 17,70 x 11,70 m. The overall length of the vessels will be 135 m.

A combination of folding and rolling/lift away hatch covers, hydraulically operated, is fitted on the weatherdeck, so that the hatch opening (91 x 17,70 m) can be opened and closed very fast. The tweendeck covers (pontoon type) can be fitted at a range of various positions horizontally as well as vertically to serve as separation bulk heads. Due to the flexibility of the vessels, efficient port operations and a service speed of 16 knots, shippers can be offered excellent cargo stowage and attractive transit times.

All ships will comply with the highest regulations of Lloyd's Register, including Finnish/Swedish ice class 1A, able to cope with the most extreme winter conditions in the Baltic, Saint Lawrence as well as in the Arctic areas of the former Sovjet Union, where extensive project activity is expected.

Pool partner Mitsui O.S.K. Lines joined the newbuilding programme and will take delivery of a similar vessel early '98.

h/K

Fleet Particulars heavy

HAPPY BUCCANEER

length o.a.	145.89	m
length p.p.	134.00	m
breadth mld	28.30	m
depth u.d.	14.80	m
deadweight	13,740	mt
underdeck	19,800	cbm
ondeck	2210	sqm
teu capacity	1050	
heavy lift gear	2 cranes each 550	mt
ro-ro ramp width	20.30	m
ro-ro ramp capacity	2500	mt
class	Lloyd's ✠ 100A1 ✠ LMC-UMS	

PROJECT ORIENT

length o.a.	138.95	m
length p.p.	128.90	m
breadth mld	21.50	m
depth u.d.	13.00	m
deadweight	12,800	mt
underdeck	12,900	cbm
ondeck	1766	sqm
teu capacity	650	
heavy lift gear	2 derricks each 250	mt
ro-ro ramp width	8.60	m
ro-ro ramp capacity	1000	mt
class	GL+100A4E +MC AUT	

PROJECT ARABIA

length o.a.	138.95	m
length p.p.	128.90	m
breadth mld	21.50	m
depth u.d.	13.00	m
deadweight	12,800	mt
underdeck	12,900	cbm
ondeck	1766	sqm
teu capacity	650	
heavy lift gear	2 derricks each 350	mt
ro-ro ramp width	8.60	m
ro-ro ramp capacity	1000	mt
class	GL+100A4 +MC AUT	

ENLIVENER

length o.a.	161.00	m
length p.p.	152.00	m
breadth mld	25.40	m
depth u.d.	13.50	m
deadweight	20,763	mt
underdeck	23,746	cbm
ondeck	1900	sqm
teu capacity	317	
heavy lift gear	1 crane 630	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	NK+NS*+ MNS*+MO	

ENCOURAGER

length o.a.	161.00	m
length p.p.	152.00	m
breadth mld	25.40	m
depth u.d.	13.50	m
deadweight	20,763	mt
underdeck	23,746	cbm
ondeck	1900	sqm
teu capacity	317	
heavy lift gear	1 crane 375	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	NK+NS*+ MNS*+MO	

GRUZ

length o.a.	104.00	m
length p.p.	93.76	m
breadth mld	20.50	m
depth u.d.	8.90	m
deadweight	4,244	mt
underdeck	8,590	cbm
ondeck	1360	sqm
teu capacity	312	
heavy lift gear	2 cranes each 200	mt
ro-ro ramp width	15.17	m
ro-ro ramp capacity	400	mt
class	LRS+100AI. +LMS+UMS	

lift vessels

PROJECT EUROPA

length o.a.	139.00	m
length p.p.	128.90	m
breadth mld	22.86	m
depth u.d.	13.00	m
deadweight	13,400	mt
underdeck	13,690	cbm
ondeck	1879	sqm
teu capacity	650	
heavy lift gear	2 derricks each 350	mt
ro-ro ramp width	10.00	m
ro-ro ramp capacity	1000	mt
class	GL+100A4 +MC AUT	

TITAN SCAN

length o.a.	123.42	m
length p.p.	112.35	m
breadth mld	20.60	m
depth u.d.	10.30	m
deadweight	9,800	mt
underdeck	11,140	cbm
ondeck	1520	sqm
teu capacity	584	
heavy lift gear	2 derricks each 175	mt
ro-ro ramp width	15.00	m
ro-ro ramp capacity	400	mt
class	GL+100A4 +MC AUT	

THOR SCAN

length o.a.	123.42	m
length p.p.	112.35	m
breadth mld	20.60	m
depth u.d.	10.30	m
deadweight	9,800	mt
underdeck	11,140	cbm
ondeck	1520	sqm
teu capacity	584	
heavy lift gear	2 derricks each 175	mt
ro-ro ramp width	15.00	m
ro-ro ramp capacity	400	mt
class	GL+100A4 +MC AUT	

ENVOYAGER

length o.a.	152.63	m
length p.p.	145.00	m
breadth mld	26.80	m
depth u.d.	13.80	m
deadweight	21,183	mt
underdeck	24,891	cbm
ondeck	2112	sqm
teu capacity	237	
heavy lift gear	1 crane 426	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	NK+NS*+ MNS*+MO-A	

(March '97)

HAPPY RIVER

length o.a.	138.00	m
length p.p.	127.14	m
breadth mld	22.80	m
depth u.d.	12.95	m
deadweight	16,050	mt
underdeck	18,055	cbm
ondeck	2500	sqm
teu capacity	1050	
heavy lift gear	2 cranes each 400	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	Lloyd's ✠ 100A1 ✠ LMC -UMS LA LNC AA Finnish iceclass 1A	

(August '97)

HAPPY ROVER

length o.a.	138.00	m
length p.p.	127.14	m
breadth mld	22.80	m
depth u.d.	12.95	m
deadweight	16,050	mt
underdeck	18,055	cbm
ondeck	2500	sqm
teu capacity	1050	
heavy lift gear	2 cranes each 400	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	Lloyd's ✠ 100A1 ✠ LMC -UMS LA LNC AA Finnish iceclass 1A	

(December '97)

HAPPY RANGER

length o.a.	138.00	m
length p.p.	127.14	m
breadth mld	22.80	m
depth u.d.	12.95	m
deadweight	16,050	mt
underdeck	18,055	cbm
ondeck	2500	sqm
teu capacity	1050	
heavy lift gear	2 cranes each 400	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	Lloyd's ✠ 100A1 ✠ LMC -UMS LA LNC AA Finnish iceclass 1A	

(March '98)

SAILER JUPITER

length o.a.	138.00	m
length p.p.	127.14	m
breadth mld	22.80	m
depth u.d.	12.95	m
deadweight	16,050	mt
underdeck	18,055	cbm
ondeck	2500	sqm
teu capacity	1050	
heavy lift gear	2 cranes each 400	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	Lloyd's ✠ 100A1 ✠ LMC -UMS LA LNC AA	

Fleet Particulars heavy

HAPPY BUCCANEER

length o.a.	145.89	m
length p.p.	134.00	m
breadth mld	28.30	m
depth u.d.	14.80	m
deadweight	13,740	mt
underdeck	19,800	cbm
ondeck	2210	sqm
teu capacity	1050	
heavy lift gear	2 cranes each 550	mt
ro-ro ramp width	20.30	m
ro-ro ramp capacity	2500	mt
class	Lloyd's ✠ 100A1 ✠ LMC-UMS	

PROJECT ORIENT

length o.a.	138.95	m
length p.p.	128.90	m
breadth mld	21.50	m
depth u.d.	13.00	m
deadweight	12,800	mt
underdeck	12,900	cbm
ondeck	1766	sqm
teu capacity	650	
heavy lift gear	2 derricks each 250	mt
ro-ro ramp width	8.60	m
ro-ro ramp capacity	1000	mt
class	GL+100A4E +MC AUT	

PROJECT ARABIA

length o.a.	138.95	m
length p.p.	128.90	m
breadth mld	21.50	m
depth u.d.	13.00	m
deadweight	12,800	mt
underdeck	12,900	cbm
ondeck	1766	sqm
teu capacity	650	
heavy lift gear	2 derricks each 350	mt
ro-ro ramp width	8.60	m
ro-ro ramp capacity	1000	mt
class	GL+100A4 +MC AUT	

ENLIVENER

length o.a.	161.00	m
length p.p.	152.00	m
breadth mld	25.40	m
depth u.d.	13.50	m
deadweight	20,763	mt
underdeck	23,746	cbm
ondeck	1900	sqm
teu capacity	317	
heavy lift gear	1 crane 630	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	NK+NS*+ MNS*+MO	

ENCOURAGER

length o.a.	161.00	m
length p.p.	152.00	m
breadth mld	25.40	m
depth u.d.	13.50	m
deadweight	20,763	mt
underdeck	23,746	cbm
ondeck	1900	sqm
teu capacity	317	
heavy lift gear	1 crane 375	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	NK+NS*+ MNS*+MO	

GRUZ

length o.a.	104.00	m
length p.p.	93.76	m
breadth mld	20.50	m
depth u.d.	8.90	m
deadweight	4,244	mt
underdeck	8,590	cbm
ondeck	1360	sqm
teu capacity	312	
heavy lift gear	2 cranes each 200	mt
ro-ro ramp width	15.17	m
ro-ro ramp capacity	400	mt
class	LRS+100AI. +LMS+UMS	

lift vessels

PROJECT EUROPA

length o.a.	139.00	m
length p.p.	128.90	m
breadth mld	22.86	m
depth u.d.	13.00	m
deadweight	13,400	mt
underdeck	13,690	cbm
ondeck	1879	sqm
teu capacity	650	
heavy lift gear	2 derricks each 350	mt
ro-ro ramp width	10.00	m
ro-ro ramp capacity	1000	mt
class	GL+100A4 +MC AUT	

TITAN SCAN

length o.a.	123.42	m
length p.p.	112.35	m
breadth mld	20.60	m
depth u.d.	10.30	m
deadweight	9,800	mt
underdeck	11,140	cbm
ondeck	1520	sqm
teu capacity	584	
heavy lift gear	2 derricks each 175	mt
ro-ro ramp width	15.00	m
ro-ro ramp capacity	400	mt
class	GL+100A4 +MC AUT	

THOR SCAN

length o.a.	123.42	m
length p.p.	112.35	m
breadth mld	20.60	m
depth u.d.	10.30	m
deadweight	9,800	mt
underdeck	11,140	cbm
ondeck	1520	sqm
teu capacity	584	
heavy lift gear	2 derricks each 175	mt
ro-ro ramp width	15.00	m
ro-ro ramp capacity	400	mt
class	GL+100A4 +MC AUT	

ENVOYAGER

length o.a.	152.63	m
length p.p.	145.00	m
breadth mld	26.80	m
depth u.d.	13.80	m
deadweight	21,183	mt
underdeck	24,891	cbm
ondeck	2112	sqm
teu capacity	237	
heavy lift gear	1 crane 426	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	NK+NS*+ MNS*+MO-A	

(March '97)

HAPPY RIVER

length o.a.	138.00	m
length p.p.	127.14	m
breadth mld	22.80	m
depth u.d.	12.95	m
deadweight	16,050	mt
underdeck	18,055	cbm
ondeck	2500	sqm
teu capacity	1050	
heavy lift gear	2 cranes each 400	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	Lloyd's ✠ 100A1 ✠ LMC -UMS LA LNC AA Finnish iceclass 1A	

(August '97)

HAPPY ROVER

length o.a.	138.00	m
length p.p.	127.14	m
breadth mld	22.80	m
depth u.d.	12.95	m
deadweight	16,050	mt
underdeck	18,055	cbm
ondeck	2500	sqm
teu capacity	1050	
heavy lift gear	2 cranes each 400	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	Lloyd's ✠ 100A1 ✠ LMC -UMS LA LNC AA Finnish iceclass 1A	

(December '97)

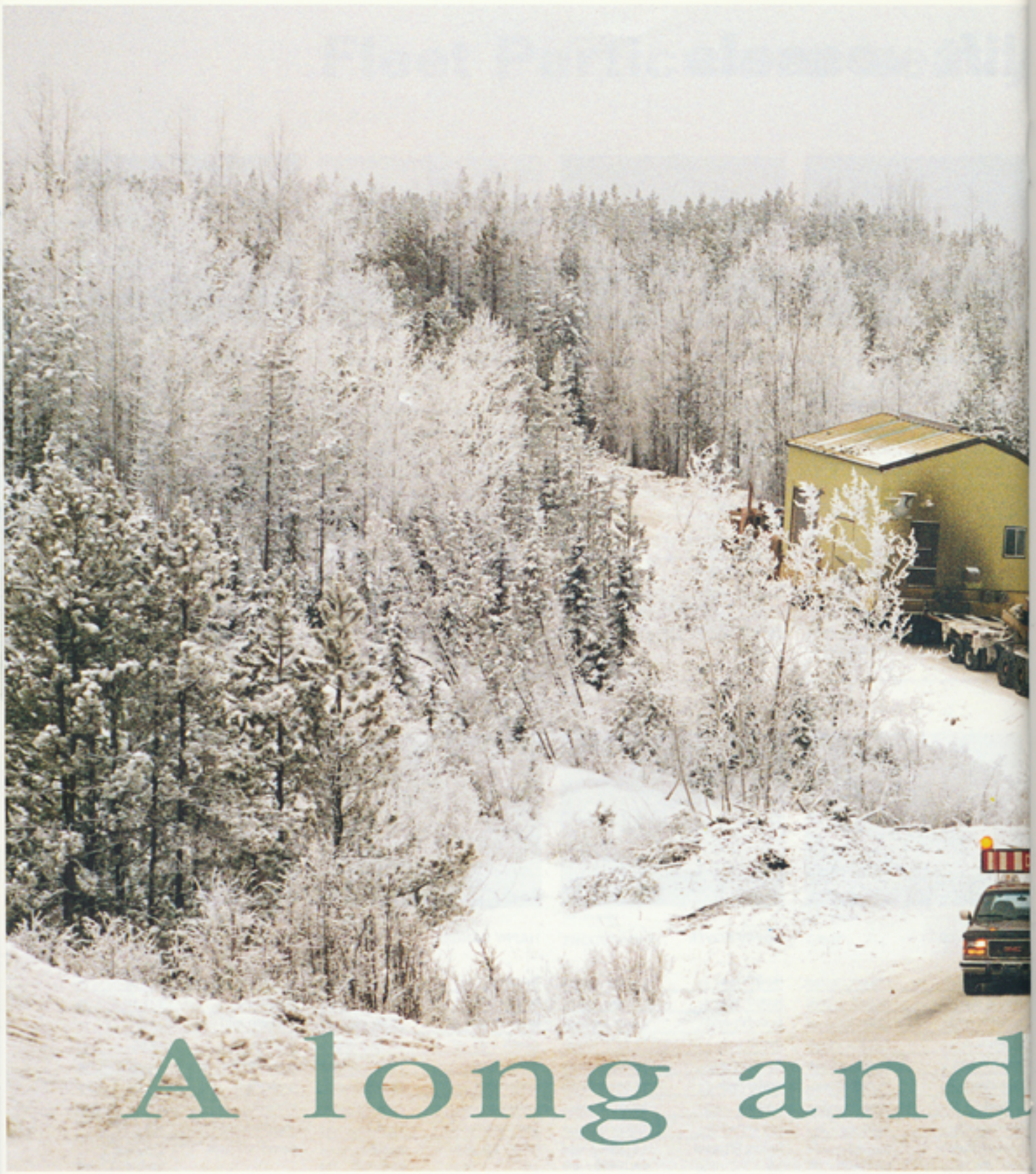
HAPPY RANGER

length o.a.	138.00	m
length p.p.	127.14	m
breadth mld	22.80	m
depth u.d.	12.95	m
deadweight	16,050	mt
underdeck	18,055	cbm
ondeck	2500	sqm
teu capacity	1050	
heavy lift gear	2 cranes each 400	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	Lloyd's ✠ 100A1 ✠ LMC -UMS LA LNC AA Finnish iceclass 1A	

(March '98)

SAILER JUPITER

length o.a.	138.00	m
length p.p.	127.14	m
breadth mld	22.80	m
depth u.d.	12.95	m
deadweight	16,050	mt
underdeck	18,055	cbm
ondeck	2500	sqm
teu capacity	1050	
heavy lift gear	2 cranes each 400	mt
ro-ro ramp width	–	
ro-ro ramp capacity	–	
class	Lloyd's ✠ 100A1 ✠ LMC -UMS LA LNC AA	



A long and

Mammoet Canada Inc. was contracted by Colt Engineering Corporation for the transportation of 11 skid-mounted natural gas process equipment components to a remote location 750 kilometers Northwest of Edmonton in Alberta (Canada). The largest components were two compressor units, each weighing 90 tonnes. These units were transported over a distance of 1500 kilometers from the manufacturer in Calgary, Alberta, to the site. Due to an overal transport height of 24'9" (about 7.5 m),

icy road

DUNCAN COOK

routing was restricted to high load corridors. During the voyage utility company escorts were present to raise obstructing power lines. The final leg consisted of 160 kilometers well-maintained forestry roads and 80 kilometers winter access road with river crossings of ice bridges. The last stretch took 8 hours with push and pull trucks requiring assistance from D8 Cat and 14 G motor grader. The transportation was completed on schedule.

Mammoet in Focus

LAKE CHARLES — A 480 t vessel was transferred from a railcar onto a 20 axle lines SPMT with Davenport Mammoet's gantry system. It was brought under a free standing lifting portal, after which erection and positioning onto foundation followed.

EEMSHAVEN — Ninety four wind turbines were installed at the Windpark Eemsmond in the Northern part of the Netherlands. Mammoet Stoof carried out the transportation and crane lifting of the separate components. The Windpark Eemsmond is the largest park of its kind in Europe with a yearly production of 73 million kWh.

EUROPOORT
At the European Container Terminus Mammoet Stoof moved a complete container crane with their SPMT trailer system. A total of 4 x 20 axle lines were needed to bring the 1300 tonne container crane to its final position.

AMSTERDAM - In two successive weekends Mammoet's telescope cranes placed concrete slabs for the foundation of the new Science and Technology Center in Amsterdam. A very special construction site, as the museum is being built on top of the entrance to the IJ-tunnel. During the lifting operation one tunnel lane was closed for all traffic.

RILLAND - Moving house got a completely new meaning in Zeeland, The Netherlands, when a whole house was transported on Mammoet's Self propelled Modular Transporters. The 400 tonne brick house was jacked up and moved on 10-axle lines of SPMT (40 wheels) over 300 metres to make space for the expansion of an industrial area. The furniture and all other interior items could stay in place during the move; so apart from saving money on newbuilding, the owner also saved a penny on removal expenses.

HONG KONG - Construction is well underway for the new airport at Check Lap Kok in Hong Kong. One of the main contracts is the modular construction of the airport terminal. Walter Wright Mammoet (HK) was contracted for the transportation and lifting of 129 modules. The picture shows the first module for the roof construction just after it had been painted white. Hereafter, transportation by SPMT followed to the terminal building. The roof module was lifted in place on December 31 of last year. The roof is scheduled to be finished at the end of this year with the complete airport being fully operational by April 1998.

ALPHEN A/D RIJN
For Ericsson Mammoet Stoof placed a 750 kilo transmittal cabinet. The combination of high altitude and a large span required thorough preparation and mobilisation. Libertel is extending its cellular phone network rapidly and Mammoet's cranes are rapid movers to assist at the same pace.

EUROPOORT - Almost the complete office crew of Mammoet Ferry Transport in the Europoort was gathered in front of the first of the newly ordered tilt trailers. In total 31 trailers were delivered with the adjusted Mammoet logo on the side. Mammoet Ferry Transport will keep its own red house style color, contrary to the rest of the Mammoet land-based companies, where recently a new yellow and grey colour scheme was introduced.

Mammoet shows its colours

Aad van Leeuwen, Mammoet's P.R. manager resides in the Mammoet Transport head office on the 11th floor of the Amsterdam Port Building. From there he has a splendid view over the center of Amsterdam with its magnificent merchant houses from the Golden Age boarding the canals. However, he has no eye for all this splendour when explaining the drastic change in the company's house-style colours.

"When Mammoet Transport was founded in the seventies, the house style was developed by an advertising agency. It introduced the well-known Mammoet logo which is still used on stationary and equipment. The red in this house style was a mere adaptation of the old red that was in use at the former Stoof company in Breda. It was reintroduced in a brighter version presently in use at the Mammoet Stoof subsidiary in Breda."
An SPMT model in Mammoet red is on display on the table next to a version in the new grey and yellow. The difference is striking and Mammoet Mail's interviewer poses the question why such a drastic change is made.

"The change of the house style is intentionally connected with Mammoet's 25th anniversary. That is the commercial explanation. The decisive factor is, however, that due to successive acquisitions and joint ventures abroad different house styles are being used. For example the yellow and green of Walter Wright Mammoet in Singapore and Alatas Mammoet's orange in Saudi Arabia, whereas Davenport Mammoet and Mammoet Western used other colours again. In a combined project a multitude of house styles was on display which did not underline the unity in the Mammoet group of companies. Moreover, other transport companies more or less adopted the same red, so that from a distance the onlooker could not be certain of the identity of the company on the job. It seems that the Mammoet red has become a household colour for most heavy transport equipment."

It seems that the Mammoet red has become a household colour for most heavy transport equipment

Aad van Leeuwen shows two other SPMT models in different colours and explains: "This model of a yellow and red trailer was the first effort for a new house style. The underlying idea was to use the main colours of the largest Mammoet subsidiaries, Mammoet Stoof in Breda and Walter Wright Mammoet in Singapore. The result was not bad, but it resembles the Shell company colours and when we found out that there are crane companies both in Dordrecht and Singapore who sport an almost identical colour scheme, it was clear that something different was required. Another attempt was ultramarine (a blue) and orange. We even had a truck painted and in spite of the blunt combination it definitely showed its own face.

So it was back to the drawing board

Soon one of my colleagues turned up with a brochure of a competitor, which was printed as you might guess, in these very same colours. So, it was back to the drawing board.
The last and now definite version was initiated by Mr Theo van der Zon, who is a professional model builder of trailers and cranes. He came up with a SPMT version in grey and yellow. After a slight correction of the yellow, which was effectuated after consulting the Breda technical department and a paint supplier, a splendid combination was born with a meaningful background. Grey (FLINT code 7000 - RAL code 7011) is of course the colour of an elephant, while yellow (FLINT code 1001 — unfortunately no RAL code) approaches the house colour of Decalift, our partner in Mammoet Decalift International."

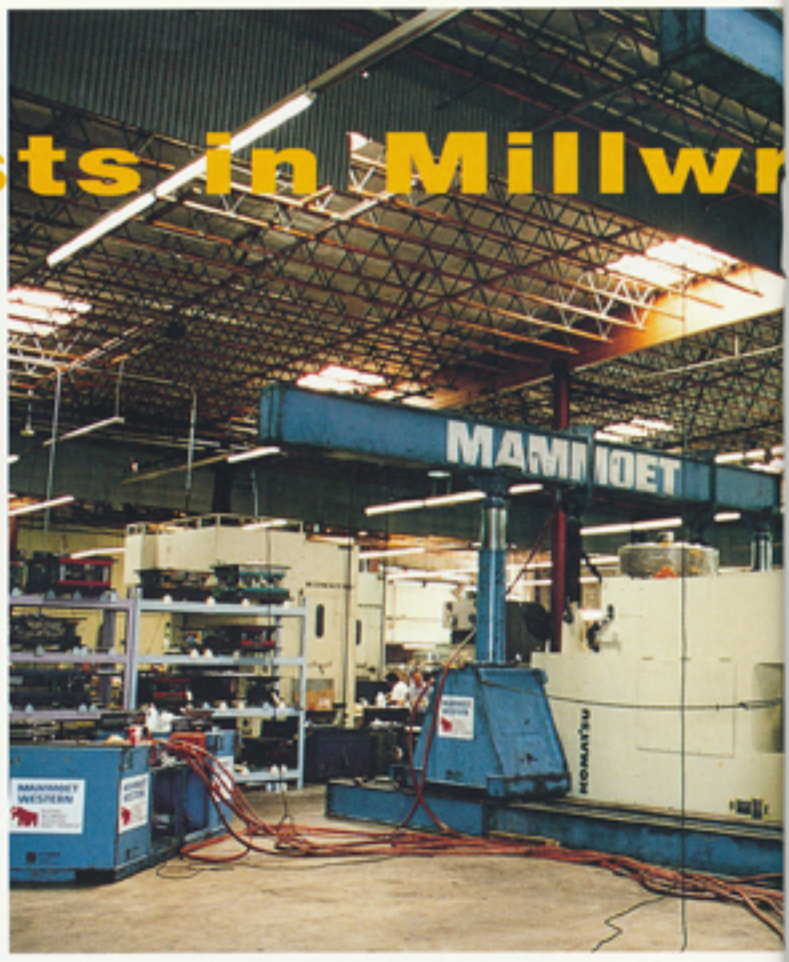
Repainting all equipment and printing all stationery seems to be a time consuming affair, leaving aside the costs involved. Mammoet Mail asks if this exercise is worthwhile and what the benefits are.
"Certainly this will cost money, but if one realises that painting is a regular maintenance activity and that all equipment will not necessarily be painted at the same time, it is not so drastic. New deliveries must be painted in the new colours immediately and we expect that the entire Mammoet (land based) fleet will fly the new colours within two years from now.
The benefit of this new house style lies in the uniform presentation towards the client and a corporate image which can be recognised without any effort".

The entire Mammoet (land based) fleet will fly new colours two years from now

MM: "What about the heavy lift vessels, will they be repainted as well?"
"No, Mammoet Shipping will maintain their present house style with their yellow vessels and a blue "elephant". They already used a separate house style in which the blue logo represents the ocean-going activities. There is no reason to change this as it is perfectly suitable in their present state.
The real exception can be found in Mammoet Ferry Transport, where the tilt trailers will retain their red colour and logo."

MAMMOET WESTERN

Specialists in Millwr



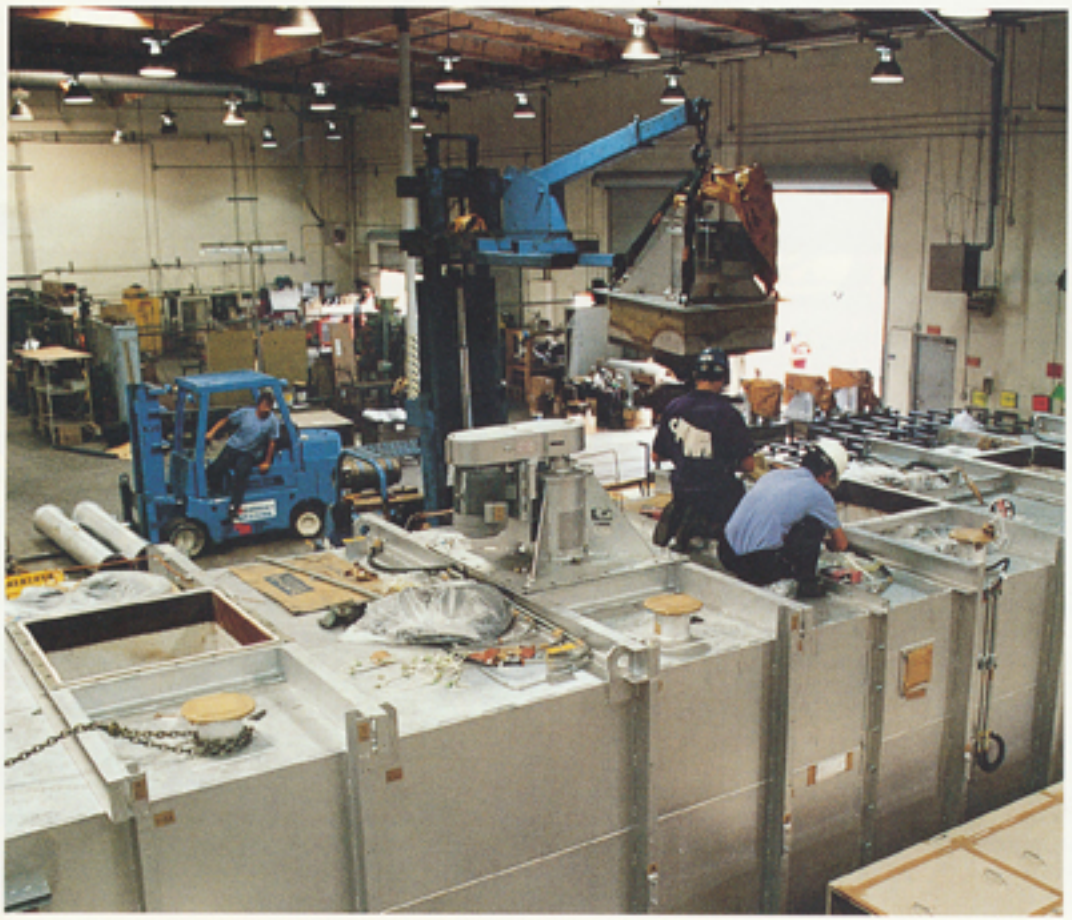
A 400 ton Komatsu punch press was erected and installed by Mammoet Western's gantry system at Simpson Strong Tie in Brea, Ca. Other equipment to be installed were a travelling coil craddle, a loop feeder and a straightener. The versatile Mammoet gantry system has proven its value in transferring, erecting and positioning heavy components such as forging hammers, presses and a wide range of industrial equipment.

Mammoet Western has extensive experience in dismantling, rigging, transporting and erecting all types of industrial machinery and equipment, irrespective of weight and size.

Mammoet Western has the ability to handle and schedule plant moves on a turnkey basis. Their expertise quarantees proper engineering and transport logistics, with minimal down time throughout the U.S. and overseas. Highly skilled millwright crews maintain the close tolerances required when installing specialized machinery and equipment. Mammoet Western has the people and the tools to carry out your transport and installation requirements from beginning to end.

AAD VAN LEEUWEN

At the Miller Brewery in Irwindale, CA, an unusual rigging job was completed. Only by removing a wall panel a tank and additional material could be installed. A forklift with a special attachment was used for the installation.



For Sumitomo Metal Mining USA, Inc. in Oceanside, CA, a complete production line was assembled for the production of frames for cathode ray tubes for television sets. The so-called CRT frame is part of the Trinitron color television manufactured by the Sony corporation. Mammoet Western also took care of the transportation from Los Angeles port and finished the job according to schedule.

First Mammoet lifting job in Japan

We meet Léon Schöpping (36) at the Showa Shell project in Japan. He has been working for the Project Department of Mammoet Stoof in Breda for three years. He started his career in steel construction, where he developed an interest for heavy cranes. His first contact with Mammoet Stoof happened while on a job for Koninklijke Van Leer in Amstelveen, the Netherlands, where one floor in an office building was jacked down in order to obtain additional floor space. Since then, Mammoet stayed in his mind and after some years working for the competition he joined forces with the real heavy lift experts.

"This is the first job for Mammoet in Japan with lifting equipment of this kind. Thanks to a number of Mammoet people, including Mammoet Tokyo, we succeeded in licensing the Hydra Jack system in Japan and we consider this a major achievement. The legal demands here are quite stringent. Compared to other countries you have to comply with the strictest rules in the world." Léon tells how the co-operation with partners JGC and Nippon Express Co. Ltd. started: "When we were lifting and positioning the heavy pressure vessels for the Bintulu project in August 1991, JGC and Nippon were quite impressed with the capabilities of the Hydra Jack System. They felt that this system was the right solution for the uprighting and positioning of the RHDS (Residue Hydro DeSulphurisation) units at the Showa refinery."

Co-operation

Léon Schöpping's personal opinion about the co-operation with his Japanese counterparts is very positive. "This is all new for me. People here have a group mentality. At first, when talking to an individual, you think he has the authority to make a decision right away, but that is not the case. It takes time to find out the hierarchy in the group and who you should address; who has the decisive power. This group mentality can already be seen early in the morning, when all the personnel join the gymnastic exercises. Everybody is present, office workers and site people, the lower ranks and higher ranks, even the top brass. On Saturday afternoon everybody participates in tidying up the site. This reflects their philosophy that order and a clean working environment is in the common interest of all people. Even the boss of JGC can be seen in an overall, walking around with a waste bag in his hand to clean up the site. Another symbol for this group mentality is the clothing. Basically, everybody wears the same uniform and although it takes time to get used to it, I see the big advantages of this system."

High productivity

"When we conducted an introduction course, we were familiarised with the working hours and after deduction of lunch time, coffee breaks and the gymnastics followed by a peptalk in the morning, only six hours were left for the actual work. I was quite worried how we could build up the Hydra Jack system in that limited time span. But it turned out that when Japanese start to work, they do it in a very efficient way; not a single minute is wasted. The productivity as such is enormous in these six hours. Thanks to a meticulous preparation, everybody knows what to do and where and this is done in a very quiet and seemingly effortless manner. You could compare it to a well-oiled machine."

Why is the Hydra Jack system used in this project, taking into consideration that Mammoet also have the heavy cranes to carry out such a job?
Leon: "A strong point of the Hydra Jack system is that with relatively small units you can lift a huge weight. If you take this project for instance, the gantry poles do not require a lot of space. They do not affect the accessibility of

AAD VAN LEEUWEN

the area and when not in operation everybody can do his own job; it is not blocking the site. Contrary to that, a large crane with the same lifting capacity requires much more space and is constantly blocking the site, whether in operation or not. Another feature of the Hydra Jack lifting system is the constant lifting capacity of 650 tonnes per unit, which stays the same in every position or stage under the gantry beam. With two units this is 1300 tonnes, for which you would probably need a tandem (crane) lift anyway. Apart from blocking the area, a crane would give the other disadvantage that your lifting capacity reduces when you need more outreach. The client has recognised this very well and decided to go for the Hydra jack system."

Léon Schöpping is impressed by Japan. He concludes this interview as follows: "I would like to come back for a future project, because I became interested in the Japanese culture and the way people co-operate with each other."

Upgrading Showa Yokkaichi refinery

Showa Yokkaichi Sekiyu is a 75/25 joint venture between Showa Shell and Mitsubishi, operating one of the largest refineries in Japan. The Showa Yokkaichi Refinery was started up in 1958 and the refinery has been growing steadily in size and complexity over the years. It is preparing itself now for a major expansion with the construction of the "Resic" complex.

The Resic project aims to achieve two things at one time. The first is to replace some of the existing facilities with newer and larger equipment, which is the case in the construction of a new residue catcracker and a new continuous catalyst regeneration type platformer. The second purpose is to enable the refinery to proces a more heavy crude oil package. As most of the oil processed in Japan is imported from the Middle East, the Yokkaichi refinery will be able to handle the heaviest types from that region.

The refinery's feedstock from the Middle East contains a considerable quantity of sulphur. Practically all must be removed from the oil before it can leave the refinery as finished product. The residu hydrosulphurisation unit serves to achieve this purpose. The reactors are filled with special catalysts that remove sulphur species from crude oil. This is a difficult task conducted at high temperatures and assisted by high pressures. Thus, it will not come as a surprise that the reactors lifted by Mammoet's Hydra Jack system weigh some 1100 tonnes each.

All in all, after the start-up of the complete Resic project, the Yokkaichi refinery will produce more valuable products from lower quality feedstocks, thereby generating a higher added value for the Showa Shell group of companies in Japan.

AvL

Weights and measurements
reactor vessels

Reactor	R-2001
Length	33,260 mm
Diameter	5,100 mm
Diameter skirt	8,300 mm
Lifting weight	1,100 tonnes

Reactors	R-2002/3/4
Length	32,500 mm
Diameter	5,100 mm
Diameter skirt	8,300 mm
Lifting weight	1,056 tonnes

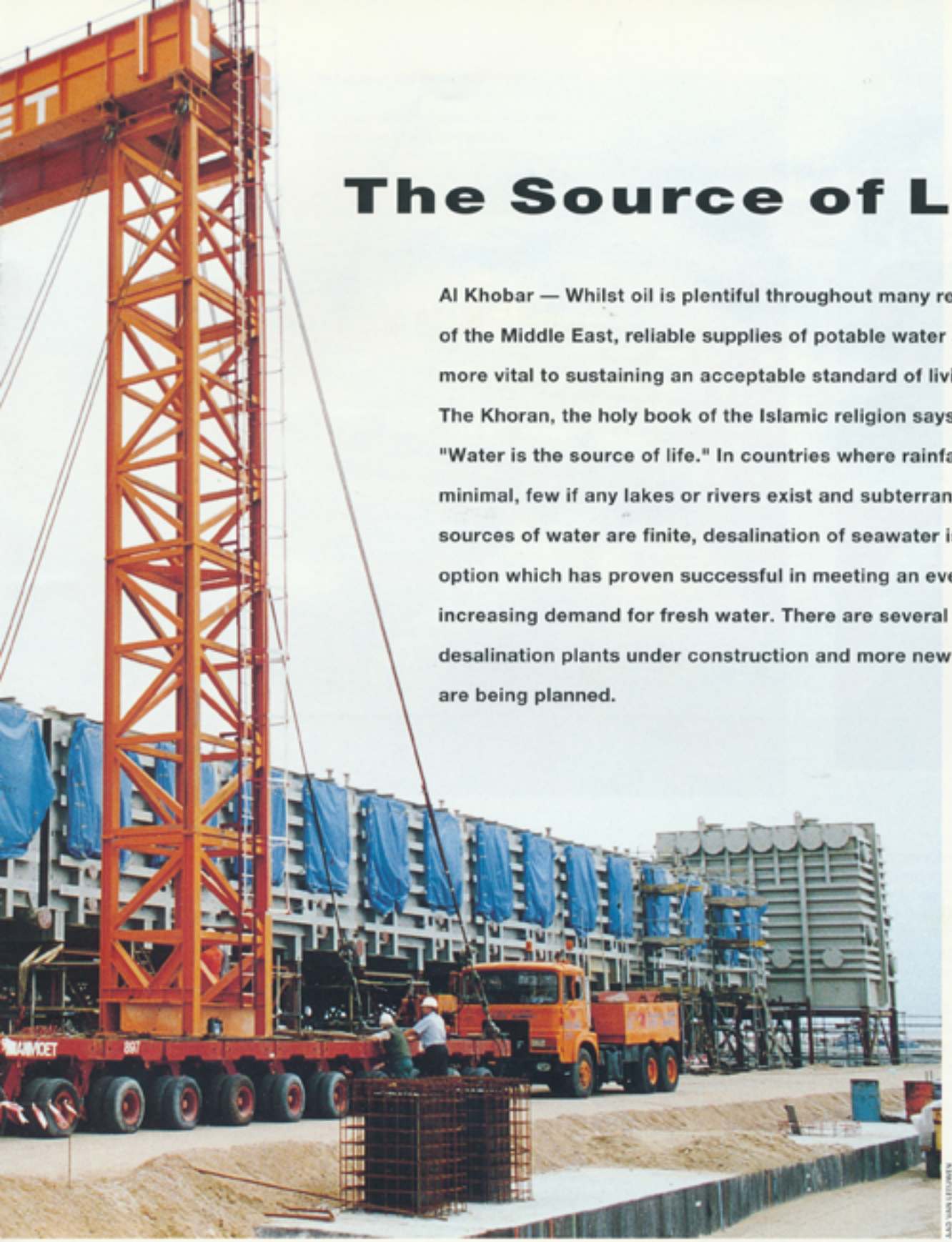
These reactor vessels were manufactured by Japan Steel Works in Muroran, Hokkaido.

Saudi Arabia is a wealthy country with an increasing population. General housing standards are good and the demand for reliable supplies of good fresh water will continue to increase in the foreseeable future.

The desalination process is in essence very simple. Large quantities of seawater are boiled, the evaporated steam is condensed to pure water, leaving behind the unwanted salts and minerals which made the water undrinkable in the first place. The concentrated brine left behind after oiling off most of the water is discharged back in to the sea. In Saudi Arabia the

The Source of Life

Al Khobar — Whilst oil is plentiful throughout many regions of the Middle East, reliable supplies of potable water are more vital to sustaining an acceptable standard of living. The Khoran, the holy book of the Islamic religion says "Water is the source of life." In countries where rainfall is minimal, few if any lakes or rivers exist and subterranean sources of water are finite, desalination of seawater is an option which has proven successful in meeting an ever increasing demand for fresh water. There are several new desalination plants under construction and more new plants are being planned.



process involves burning oil to produce large amounts of hot water. This fact leads to desalination plants often being combined with electricity generating power stations permitting a higher overall efficiency for the combined process.

The description of the process explained above is obviously very much simplified, and a typical desalination plant is a complex assembly of boilers, pressure vessels, evaporators, condensers and masses of large scale interconnecting pipe work.
Fortunately, some of the vessels and condenser units are very large indeed and hence require the special capabilities of the Alatas Mammoet Co. Ltd to transport them from the seaport to the construction site. Over the years, Alatas Mammoet have been involved in most of the major desalination projects in Saudi Arabia.

Alatas Mammoet are currently carrying out such a contract on the Al Khobar III Desalination Project where the main contractor is the Hitachi Zosen Corporation. Mr Teiro Akama, Hitachi Zosen's Site Manager confirmed that Al Khobar III is a combined powerplant / desalination plant, which is an extension to the existing facility.

Teiro Akama

Mike McCallum

Akama is responsible for execution of the project and his clients are Saline Water Conversion Corporation (S.W.C.C.) and the Ministry of Agriculture. Mr Akama explains that these two organisations have been important clients of Hitachi Zosen since '78.

Akama goes on to explain that one of the problems with desalination plants is corrosion caused by the salts, necessitating regular renewal of main components, which in turn permits ongoing improvements in desalination technology to be implemented.

Mr Mike McCallum, Construction Superintendent for Hitachi Zosen, is responsible for the co-ordination of the activities of the various subcontractors involved on the Al Khobar site. Alatas Mammoet is the subcontractor responsible for the heavy lifting and transportation aspects of the Al Khobar Project.

McCallum explains: "It took one year of negotiations with the authorities to get permission for the route from Dammam port to the site. Actually a long way - 52 km - and luckily, we did not have to make any major changes to the route. Logistically it was quite a feat to organize. Alatas Mammoet did all of the co-ordination with the municipality and various departments, like the electrical and the road department. So far, it has gone extremely well with no major problems."

McCallum continues: "Every transport took five to six hours to complete. The main difficulty was the physical size of the pieces in terms of manoeuvrability and handling. Add to this the fact that all transportation of heavy pieces was only allowed at night and not possible over the Islamic weekend of Thursday and Friday, when the tourist traffic along the coastal roads is extremely heavy, and you can begin to appreciate the job that was done by Alatas Mammoet."

On the day prior to the interview with McCallum, Mammoet Shipping's heavy lift vessel "Project Orient" had docked at Dammam with the last of the giant evaporator vessels, brine heaters and deaeraters on board. In total 20 heavy pieces were offloaded using the ship's own gear, for temporary storage in Dammam port.

McCallum goes on to explain: "On arrival at site each individual block has to be installed on a steel structure and the jointing tolerances

between adjacent units are extremely small. To carry out the installation work, Alatas Mammoet have used a specially designed and built gantry lifting system to accurately align each module with the next, before welding. Alignment problems are further complicated by the large temperature changes between day and night, causing differential expansion. Alatas Mammoet have helped overcome these problems by starting work very early every day so that the tempera-

DESALINATION PRINCIPLE

The plant takes in raw seawater 700 meters out at sea through four intake heads. After passing a build-in rejection system to prevent marine growth, the seawater arrives in a purpose-built pumpstation. From there the water runs through the stages of the evaporator as the cooling medium. In doing so it picks up heat from the distillation of the multi-stage flash system. Then the now heated raw seawater actually becomes the feedwater for the evaporator. The exhaust steam from the turbine heats up the seawater to the optimum temperature. The hot brine passes through the brine heater and then flows into the first stage of the evaporator. In the flash chambers, the pressure is lower than the saturation pressure of the incoming recirculated brine. This causes the vapour to condense in the individual stage condensers. It is then collected in distillate trays. The condensation process is triggered by the continuous flow of seawater that comes in as a cooling medium. In the end, the result is pure distilled water.
The high salinity brine concentration of the remaining salt water increases through the extraction of the salt-free distillate. A portion of this brine is constantly blown back into the sea.
With a daily plant capacity of 470 million gallons a day it will give a major contribution to the Kingdom's sweet water production.

ture is nearly the same each time a vessel is set. The new Alatas Mammoet lifting system has worked extremely well."

In total Alatas Mammoet transported and installed 80 units on the Al Khobar site. All transportation was completed by 10 February 1996 and installation by late March 1996.

ArL

MAMMOET NEWS

When the new shareholders structure for Mammoet Shipping was concluded between Spliethoff's Bevrachtingskantoor B.V. (51%) and Mammoet Transport B.V. (49%) parties agreed on the option that Spliethoff could buy another 19% of the Mammoet Shipping shares from Mammoet Transport. This option was taken on October 30, 1995. Since that date Spliethoff owns 70% of the shares and Mammoet Transport 30%. It underlines Spliethoff's confidence and commitment in Mammoet Shipping's future.

Mammoet Transport's President Jan IJmker will retire in the Autumn and be succeeded by the present Walter Wright Mammoet Director Rolf de Ruijter de Wildt.
De Ruijter de Wildt started his career with the former heavy lift company "Big Lift". After a period in the Middle East he was transferred to Singapore to manage the take over of Walter Wright in 1986. His new desk will be with Mammoet Transport B.V., De Ruijterkade 7,1013 AA in Amsterdam.

Mammoet Stoof in Breda moved house in February. In fact they kept the same address in Breda, Veilingkade 15, but settled into a new office building with new work and maintenance shops. Apart from the housing, the telephone number changed to +31 76 5724444 and faxnumber to +31-76-5712164.

Mammoet Ferry Transport, the ferry trailer specialists between the Continent and the UK, have also moved house. They too are still at the same address, Moezelweg 230, 3198 LS Europoort rt and can be reached by telephone +31 181 282828 and telefax +31 181 282829.

Mammoet in Focus

VENICE - For the construction of a completely new methanol plant at Tjeldbergodden Mammoet's m.v. "Happy Buccaneer" loaded some 25,770 cbm of cargo at Porto Marghera, the port of Venice. By special permission of the Venice Port Authorities the Mammoet vessel was allowed to use Venice's old searoute to the Adriatic Sea.

KOPER - A 1170 tonne unloader, built by Metalna in Slovania, was rolled aboard via the stern ramp of m.v. "Happy Buccaneer". Rails had been laid out from the shore onto the vessel, so that the crane had an easy ride. Special care had been taken in regard to the seafastening.
The additional cargo belonging to the crane was loaded earlier by the ship's own cranes. Two columns visible as deck cargo had been loaded before in Porto Marghera. They were destined for Lake Charles (USA), where Davenport Mammoet would arrange further landtransport and positioning on site. The unloader will stay on board as far as Mobile (USA), where she will be unloaded in the same fashion.

FELIXSTOWE - Two container cranes were loaded in the Port of Felixstowe and shipped to the Canary Islands. One of the cranes had to be turned 160° for the loading operation. Mammoet UK's SPMTs executed the exercise at the Felixstowe quayside, whereas the reverse operation was performed at Gran Canaria on arrival.

HIBI - M.v "Envoyager" loaded two knocked-down engines at the port of Hibi in Japan. The shipment was destined for the Macau G-8 power plant in Hong Kong.

AMSTERDAM - Mammoet's "Project Orient" was part of Mammoet's integrated heavy transport chain for the transportation of 4000 cbm heavy cargo for BASF in Freeport, USA. Mammoet Stoof, Mammoet Shipping and Davenport Mammoet had their share of the heavy transport operation from Germany to the USA. Two huge columns and a heat exchanger were shipped as deck cargo with transhipment at Rotterdam. The picture was taken at the start of the ocean crossing to the States.

Mammoet Shipping's agency network

Nedlloyd Schiffsmakler GmbH
Gertigstrasse 24
22303 Hamburg (Germany)
tel: +49-40-270941/0, tlx: 215004
fax: +49-40-2794633

World Shipping, Inc.
35150 Nankin Boulevard, Suite 105
Westland, MI 48185 (U.S.A.)
tel: +1-313-4214500
fax: +1-313-4213240

Tai Li Co. Limited
18 Chang An East Road Sec.1, 7th fl.
Taipei, (Taiwan R.O.C.)
tel: +886-2-5636011, tlx: 21622
fax: +886-2-5620731

WLB Shipping Pty. Ltd
Level 6, AAMI Bldg
500 Queen Street
Brisbane (Australia)
G.P.O. Box 540, Brisbane 4001
Queensland (Australia)
tel: +61-7-2113088, tlx: 140004
fax: +61-7-2113560

WLB Shipping Pty. Ltd
11-17 Cliff Street
Fremantle (Australia)
P.O. Box 497, Fremantle 6160
(Australia)
tel: +61-9-4300400, tlx: 92205
fax: +61-9-4300423

Arcadia Shipping Ltd
222, Tulsiani Chambers
Nariman Point,
Bombay 400021 (India)
tel: +91-22-2831549, tlx: 113059
fax: +91-22-2872664

Correspondents

Frank A.G.
Uferstrasse 90
Postbox
CH-4002 Basel, Switzerland
tel. +41-61-6315030
fax +41-61-6215023

Ms K. Sidorova
Nab. Shevchenko 1/2, KV 204
121059 Moscow, Russia
tel/fax +7-095-2433391

Mammoet Shipping B.V.
Mr D. Andreani
c/o Siamar S.r.l.
Via XII Ottobre, 2
16121 Genoa, Italy
tel. +39-10-5710352
fax +39-10-566570

MAMMOET

EUROPE

Mammoet Transport B.V.
De Ruijterkade 7
1013 AA Amsterdam (NL)
tel. +31 20 6387171, fax +31 20 6386949

Mammoet Decalift International B.V.
De Ruijterkade 7
1013 AA Amsterdam (NL)
tel. +31 20 6387171, fax +31 20 6386949

Mammoet Shipping B.V.
Radarweg 36
P.O. Box 2599, 1000 CN Amsterdam (NL)
tel. +31 20 4488300, fax +31 20 4488333
tlx. 15540

Mammoet Stoof V.O.F.
Veilingkade 15
P.O. Box 3469, 4800 DL Breda (NL)
tel. +31 76 5724444
fax +31 76 5712164

Mammoet Stoof V.O.F.
P.O. Box 1114, 4530 GC Terneuzen (NL)
tel. +31 115 648050
fax +31 115 630724

Mammoet Stoof V.O.F.
Moezelweg 230
3198 LS Europoort rt (NL)
tel. +31 181 282898, fax +31 181 282829

Mammoet Stoof V.O.F.
Industriestraat 12
6135 KH Sittard (NL)
tel. +31 46 4525100, fax +31 46 4526040

Mammoet Ferry Transport B.V.
Moezelweg 230
3198 LS Europoort rt (NL)
tel. +31 181 282828, fax +31 181 282829

Mammoet Ferry Transport België B.V.B.A.
Koggestraat 3
8380 Zeebrugge (Belgium)
tel. +32 50 546003, fax +32 50 546179

Mammoet Ferry Transport GmbH
Dieselstrasse 2
47228 Duisburg-Rheinhausen (Germany)
tel. +49 2065 77560
fax +49 2065 775656

Mammoet Ferry Transport UK Ltd
North Side, King George Dock
Hull HU9 5PR (United Kingdom)
tel. +44 1482 791465
fax +44 1482 791474

Mammoet Ferry Transport UK Ltd
New Tech. Square, Deeside Industrial Park
Deeside, Clwyd, CH5 2NT (United Kingdom)
tel. +44 1244 280700
fax +44 1244 280148

Mammoet Ferry Transport UK Ltd
Nedlloyd House, Parker Avenue
Felixstowe, Suffolk IP11 8HF
(United Kingdom)
tel. +44 1394 673202, fax +44 1394 673207

Mammoet Ferry Transport UK Ltd
Unit 3, New Albion Industrial Estate
Halley Street, Glasgow G13 4DT
(United Kingdom)
tel. +44 141 9514404, fax +44 141 9514301

Mammoet Transport N.V. (België)
Nieuwelandenweg 9
2030 Antwerp (Belgium)
tel. +32 3 5416610, fax +32 3 5416664

Mammoet Transport Norge A/S
Strandgaten 15
P.O. Box 332, 5001 Bergen (Norway)
tel. +47 55 322380, fax +47 55 231676

Mammouth Transport France Sàrl
3, rue du Maréchal de Lattre de Tassigny
78150 Le Chesnay (France)
tel. +33 1 39633737, fax +33 1 39558149

Mammoet Transport (UK) Ltd
Tees Offshore Base, Dockside Road
Middlesbrough, Cleveland TS6 6UZ
(United Kingdom)
tel. +44 1642 440400, fax +44 1642 440494

Mammoet Shipping B.V.
3rd floor, 5, St Helen's Place
London EC3A 6AU (United Kingdom)
tel. +44 171 6281967, fax +44 171 6281972
tlx. 893444

Mammoet Decalift International B.V.
Via Duino 136
10127 Turin (Italy)
tel. +39 11 6192112, fax +39 11 613638

USA

Mammoet Transport USA LLC
400 N. Sam Houston Parkway E., Suite 315
Houston, Tx 77060 (USA)
tel. +1 713 9312175, fax +1 713 4489309

Mammoet Western Inc.
1419 Potrero Avenue
South El Monte, Ca 91733-3014 (USA)
tel. +1 818 4425542
fax +1 818 4420841

Davenport Mammoet LLC
20525 Farm Road 521
Rosharon, Tx 77583 (USA)
tel. +1 713 3692200, fax +1 713 3692178

CANADA

Mammoet Canada Inc.
404, 22nd Avenue
Nisku, AB T9E 7W8 (Canada)
tel. +1 403 9553955, fax +1 403 9553794

Mammoet Canada Inc.
3300 Bloor Street West
Suite 700, West Tower
Etobicoke, Ontario M8X 2X2 (Canada)
tel. +1 416 2375415
fax +1 416 2392163

SOUTH AMERICA

Mamut de Colombia S.A.
Carrera 7, 32-33, Piso 24, Of. 2401
Apartado Aéreo 10029
Bogota, D.E. (Colombia)
tel. +57 1 2324425, fax +57 1 2859736

Mamut de Colombia S.A.
Apartado Aéreo 3110
Barranquilla (Colombia)
tel. +57 53 422647, fax +57 53 423568

MIDDLE EAST

Alatas Mammoet Co. Ltd
P.O. Box 33277
Jeddah 21448 (Saudi Arabia)
tel. +966 2 6570493
fax +966 2 6534537

Alatas Mammoet Co. Ltd
P.O. Box 737
Al Jubail 31951 (Saudi Arabia)
tel. +966 3 3418133
fax +966 3 3415728

Mammoth Gulf
P.O. Box 2297
Dubai (United Arab Emirates)
tel. +971 4 331252, fax +971 4 331366

Navigation Mammoth Gulf
P.O. Box 153, Doha (Qatar)
tel. +974 468666, fax +974 468777

Pecon Transport Division
P.O. Box 3262
Abu Dhabi (United Arab Emirates)
tel. +971 2 331140, fax +971 2 327730

ASIA

Mammoet Transport B.V.
Branch Office Japan
AS Nanbuzaka 4th fl, 2-22-21 Akasaka
Minato-ku, Tokyo 107 (Japan)
tel. +81 3 55630274, fax +81 3 55639641

Mammoet Shipping B.V.
Branch Office Korea
Baiknam Bldg. 5th fl, 188-3, Ulchiro 1-GA
Chung-ku, Seoul (Korea)
tel +82 2 7551666, fax +82 2 7794710

Walter Wright Mammoet (S) Pte. Ltd
19 Tuas Crescent, Jurong
Singapore 638713
tel. +65 8611638, fax +65 8612718
e-mail: mammoet @ singnet.com.sg

Walter Wright Mammoet (HK) Ltd
Guangdong Textile Centre, Room 402, 4/f
22-26 Minden Avenue, Kowloon
G.P.O. Box 9398 (Hong Kong)
tel. +852 7221622, fax +852 3661155

Walter Wright Mammoet (Thailand) Ltd
12/555 Kulab Building, 10/f
Suite A-1, Bang Na-Trad Rd.
K.M. 5.5. Bang Kaew, Bangphlee
Samut Prakarn 10540 (Thailand)
tel. +66 2 722622, fax +66 2 3681155

Walter Wright Mammoet (M) Sdn Bhd
Lot 3427, 3rd Mile, Klang-Kuala Lumpur
Federal Highway, 41300 Klang
Selangor Darul Ehsan (Malaysia)
tel. +60 3 5599300, fax +60 3 5595300

Syarikat Walter Wright (B) Sdn Bhd
Unit 1, Block A, 1/f
Abdul Razak Complex, Jalan Gadong
Bandar Seri Begawan
Negara Brunei Darussalam
tel. +673 2 444326, fax +673 2 420070

Vermerk Limited
House 8, Sonargoan Janapath
Sector 9, Uttara, Dhaka 1230 (Bangladesh)
tel. +880 2 895862, fax +880 2 895863