

ENTREPRISE DE RECHERCHES ET D'ACTIVITES PETROLIERES

FFG. G. 701. 9. FRF001

elf NORGE

FRIGG FIELD PRODUCTION FACILITIES

MONTHLY REPORT

JANUARY 1976

DEPARTMENT CISEMENTS	
Article to: 33 FEB 1976	
Mr. Tolson <input checked="" type="checkbox"/> Mr. Mohr <input checked="" type="checkbox"/> Mr. DeLoach <input checked="" type="checkbox"/> Mr. Casper <input checked="" type="checkbox"/> Mr. Callahan <input checked="" type="checkbox"/> Mr. Conrad <input checked="" type="checkbox"/> Mr. Felt <input checked="" type="checkbox"/> Mr. Gale <input checked="" type="checkbox"/> Mr. Rosen <input checked="" type="checkbox"/> Mr. Sullivan <input checked="" type="checkbox"/> Mr. Tavel <input checked="" type="checkbox"/> Mr. Trotter <input checked="" type="checkbox"/> Tele. Room <input checked="" type="checkbox"/> Mr. Holmes <input checked="" type="checkbox"/> Miss Gandy <input checked="" type="checkbox"/>	Mr. Griffin <input checked="" type="checkbox"/> Mr. Harbo <input checked="" type="checkbox"/> Mr. Mohr <input checked="" type="checkbox"/> Mr. Parsons <input checked="" type="checkbox"/> Mr. Sizoo <input checked="" type="checkbox"/> Mr. Tavel <input checked="" type="checkbox"/> Mr. Trotter <input checked="" type="checkbox"/> Tele. Room <input checked="" type="checkbox"/> Mr. Holmes <input checked="" type="checkbox"/> Miss Gandy <input checked="" type="checkbox"/>
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D. E. P.
4061 N° 6/390

FRIGG FIELD

PRODUCTION FACILITIES

MONTHLY REPORT

JANUARY 1976

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LIST OF ATTACHMENTS

- . ELF NORGE - FRIGG FIELD : Construction schedule of production facilities.
- . CDP1 CONCRETE DRILLING PF 1 : Planning
- . DP2 DRILLING PLATFORM NR. 2 : Planning
- . QP LIVING QUARTERS PLATFORM : Planning
- . TCP2 TREATMENT AND COMPRESSION PLATFORM NR. 2 : Planning
- . TP1 TREATMENT PLATFORM NR. 1 : Planning

Offshore operations have practically been brought to a standstill, except for hook-up operations of the CDP1 deck.

A solution, entailing the minimum of modifications on TP1 seems to have been found for the metering, owing to the acceptance by the governments of an increase in the differential pressure through the orifice meters.

The assembly of the gantry crane on CDP1 shall only be started at the end of February. The delays on CDP1 have a direct influence on the number of wells that could be drilled before the beginning of gas deliveries.

The support frame will be installed on TP1 in one element in the LOCH FYNE. Construction work is progressing according to programme. The engineering of the modules has been frozen, but new delays in the delivery of fittings postpone the construction.

It is anticipated to load the QP modules on barges during the month of April. The functional tests are in progress in the control room.

Further to the approval of the lay-out diagram of the lines, detail studies relative to the installation procedures are in progress.

The preparation of the hook-up operations are progressing. The SELTRUST proposal is expected for the beginning of February.

The towing out of TCP2 occurred on January 9. The structure is now anchored in the deep water site. The slipforming of the upper part of the cells restarted on the 23rd of January.

It appears imperative that AKER sub-contracts part of the fabrication of the more complex elements of the support frame.

The work on the TCP2 modules in ORKANGER is progressing very slowly, mainly due to the lack of qualified welders.

Contacts were made with TOM in order to finalize the compression study. Several technical solutions were proposed to the Associates at the last technical committee.

I. OFFSHORE OPERATIONS

1.2. QP installation

- . No progress was made during this month.
- . Four technicians were hoisted onto QP on January 8, to perform a general survey and a winterization of the equipment inside the drilling and stifleg modules.
- . The remaining modules are stored at OCB BERGEN. The cementing equipment will be installed inside the stiffleg substructure for use when DM3 will be self operational.
- . The horn and light have not been working since January 10.

1.3. Flare status

The horn and light are working.

1.4. DPl status

The measurement cabin was stored in BERGEN. The horn and light are working.

1.5. CDPl structure

The bad weather did disturb and delay all operations.

The following work was completed during the month of January :

- Installation of NATIONAL crane (EUMECH)
- Installation of hydraulic clamps and sheave blocks in tunnels A and F. (EUMECH).
- Fabrication of supports for lifeboats davits (EUMECH)

The following operations are in progress :

- Installation of the 26" risers, 8" Kill line, 4" condensate line, anchor lines, utility piping and electrical cable trays in the central core and tunnels. (EUMECH).
- Testing of tunnels C and D (DORIS).
- Cathodic protection (cable trays). (EUMECH).
- Installation anodes for 26" and 8" risers.
- Slab drilling : Due to several mechanical incidents, the FORAKI equipment was only able to drill a 68 cm hole with an 8" diameter. It has been decided to replace this equipment by the DST equipment, as had initially been anticipated, as the latter was now available. The DST equipment should be operational towards February 20.
- Preparation for installation of the skid beams.
- Installation of dewatering pumps.
- Installation stairway access to SD2.
- Removal of sand ballasting manifold pipe.
- Preparation of equipment and clearing deck for erection of gantry crane.

The total settling of the platform, since its positioning is 11,5 cm.

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II. PRODUCTION FACILITIES - PHASE 1

2.0. General engineering

The general engineering for Phase 1 has been frozen. The last remaining uncertainties relative to metering seem to have been settled at a meeting between the governments and associates, in Paris on January 29.

The operator proposed to comply to the requests of the two governments, by performing metering operations on two tubes in parallel on TCP2 and by reducing the flow rate to 10.10^6 Sm³/day per line on TP1, as soon as a third party will be entering the system. However, dispositions will be taken to allow the offshore installation of a second metering line per train in order to re-establish the full TP1 capacity if necessary.

This solution was found because the two governments accepted to up to 200" water the differential pressure on the Daniels orifice meters. The formal approval of the two governments will be submitted after the examination of the receptioning procedures of the manufacturer.

The later installation of a chromatograph in line and of a densimeter are still being studied.

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2.1. CDP1 production facilities2.11 Production modules2.111 Rework PM2 - PM3 - PM4

- Engineering : 85% (increase in scope)
- Procurement : 90%
- Fabrication : 40%

2.112 New modules (production and utilities)

Engineering :

Structural	: 97%
Piping	: 95%
Fire and safety	: 90%
Electrical	: 90%
Instrumentation	: 90%

Procurement :

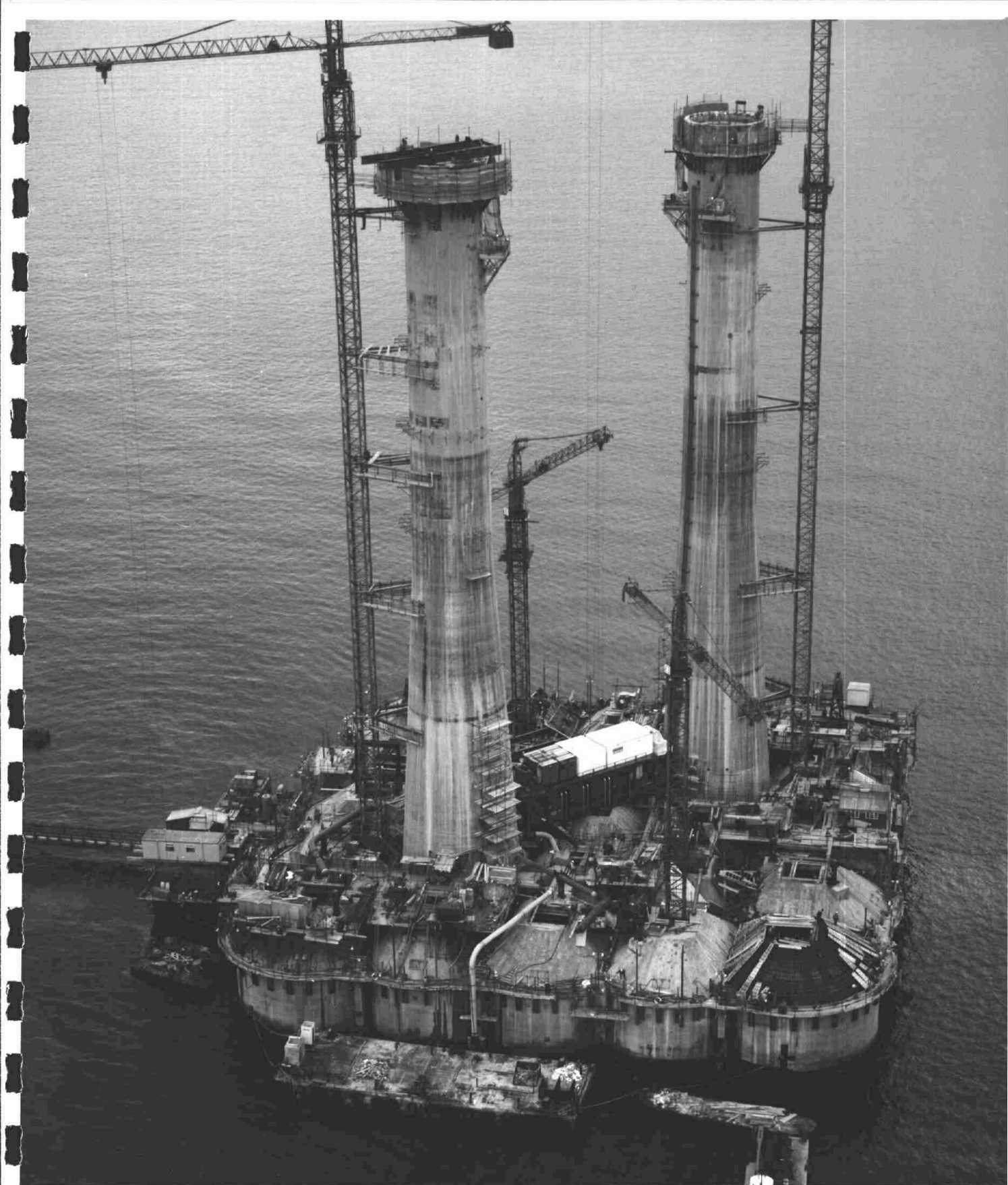
Structural	: 100%
Equipment	: 97%
Electrical	: 95%
Piping	: 95%
Instrumentation	: 85%

Fabrication :

REG BOOTH (SD1-4)	: 98%
PENN & BAUDIN (T1-T2-PH)	: 100%
DE GROOT (WHLA & 1B)	: 56%
WILSON WALTON	: 75%

2.113 Travelling gantry crane

The in-shop fabrication is following a normal course. The first elements are stored in STAVANGER. However the assembly will not be started before the end of February, as prior to the assembly operations, the deck installations need to be completely re-arranged :



75/918/14 ELF FRIGG T. P. 1 PLATFORM FROM NORTH WEST
03.12.75

- By placing the quarters on a cantilever on the northern side (fabrication of cantilever in progress by EUMECH).
- By placing the new BUZICHELLI helideck on a cantilever on the eastern side (fabrication in progress by CFEM).
- By placing the generator packages for the gantry on a semi-cantilever on the northern side.

2.114 Transportation of modules

The studies are in progress by BROWN & ROOT, ELF and NOBLE DENTON.

2.115 Hook-up on platform

The proposal made by EUMECH is being modified with the help of the contractor.

2.116 Soil instrumentation

DORIS must repair the 8" tubes damaged by the storm, as soon as weather will permit.

It is scheduled to drill th three holes anticipated for the installation of the equipment for measures after dismantling of the gantry.

SOLMARINE realises the holes.

SYMINEX will supervise and start the equipment.

2.117 Pull-in line

The studies are progressing.

2.2. Treatment platform nr. 1 - TP1

2.21 Concrete structure

2.211 Installation studies & preparation of marine operationsInstallation of the support frame

The decision has been taken to install the support frame in one element only in LOCH FYNE with either two of the following barges :

- ETPM 1601 and the BLUE WHALE or,
- ETPM 1601 and DB 22.

The erection aids which are being installed on the support frame will allow both alternatives. The final choice will be made at a later date.

Installation of the structure

A preliminary tow-out procedure issued by STC was discussed with NOBLE DENTON, also discussed was the final positioning on the FRIGG Field.

The main problem still being examined is the damage stability. NDA asked that collision mats be installed on the caisson roof during towing operations through the North Channel and for a watertight deck inside the column for tow in deep draft.

The use of collision mats is not easy and is still being examined. Deck inside columns is unpractical.

As the result of a meeting held at the Hydrographic Department (Royal Navy) with SHELL and CHEVRON, additional surveys will be carried out prior to the departure of the TP1 :

- At the exit of the North Channel.
- From North of the Shetlands to the FRIGG FIELD, passing by NINIAN and BRENT fields.

2.212 Construction

Caisson : The cleaning of cells, repairing of walls and vaults is in progress.

Column : The protection of anchorages is nearing completion.

Roofs : Nine roofs (out of 14) have been closed.

Immersion system : Tests (phase III) for the entire system have been started eight days late, but as each component had already been tested separately, and as the first tests are proving to be good we are rather confident to meet the anticipated date for completion.

2.213 Erection of risers

Quite a slow down was noticed for these operations. Work was started again but is still delayed as compared to the initial schedule.

2.214 LOCH FYNE moorings

Work is in progress on the northern leg, where two more blocks were laid. It is planned to proceed with the northern and western legs (tensioning barges), then finish by the end of February with the easter anchor, buoy and easter leg.

2.22 Steel support frame - fabrication2.221 Engineering

(McDERMOTT)

The support frame should be cut and re-assembled to the precise dimensions after measurement of the inter-axial space between the columns at ARDYNE. This work will be realised on barge in DUNKIRK. The studies and drawings

relative to the guiding and sustenance of the longitudinal trusses during cutting are nearly complete. On the other hand, at DNV 's request, it has been decided to add longitudinal stiffeners in the tubulars of 5,5 m diameter. The drawings are complete.

2.222 Fabrication of appurtenances

(SEA TANK CO/CMP)

Fabrication was completed on January 22, a few days ahead of schedule. The last elements are being forwarded to ARDYNE.

2.223 Completion of the support frame

(CMP, under BROWN & ROOT management)

It has been decided to perform if possible all the completion work of the support frame at CMP, the WIMPEY scope of work having been limited to the welding of the main structure on the tie-in cans, at the top of the columns and the connection of the risers.

In consideration of this programme, it is expected that the barge MORLAND 4, with the support frame will leave DUNKIRK towards March 20, 1976.

At the end of January :

- The drawing of the lifting pad-eyes is in progress
- Fabrication of the cutting and re-assembly aids has been started.
- The risers are being fabricated, while some welding procedures are being completed.
- Other completion work is in progress.

The cutting of the support frame is anticipated for the middle of February.

2.23 Temporary decks

(BROWN & ROOT / CMP / MONBERG & THORSEN)

2.231 Engineering

The engineering of decks 21,22,23 is complete. Deck 24 was started in January. The drawings for Deck 22 (helideck) were modified in view of the incorporation of two drinkable water tanks of 120 m3 each. The delivery to the fabrication yards of the free issue equipment and material is continuing.

2.232 Fabrication of decks 13 and 21 (living quarters)

(CMP under BROWN & ROOT management)

Deck unit 13; fabricated by MME in ANTIWERP has been delivered to CMP - DUNKIRK at the beginning of January. The living quarters have also been delivered and assembly should start at the beginning of February for completion on April 1st, 76, in view of installation in LOCH FYNE.

Deck unit 21: the assembly of the trusses and the positioning of the secondary members started while the prefabrication of the last main trusses is being completed. The quarters are being delivered to DUNKIRK

2.233 Fabrication of decks 22 and 23

(MONBERG & THORSEN under BROWN & ROOT management)

Helideck 22 : all additional beam members have been fitted to structure recovered from the QP temporary deck. The deck plates and deck plate supports are being assembled. In spite of the addition of two potable water tanks, delivery is still anticipated for April 1, 1976.

Winch module 23 : The stiffeners are being erected on the structure.

2.24 Engineering of the treatment modules

(McDERMOTT-HUDSON)

The following information reflects the situation at the end of December 75, unless otherwise stated :

2.241 Structural engineering

The study relative to the offshore lifting of the modules using the ETPM 1601 barge is complete: a spread frame will be used for modules 01,03 and 04. Drawings were issued in January. The design and detailing of additional stiffening pipe supports is continuing, as well as that of support assemblies for lighting fixtures.

2.242 Mechanical engineering

Finalization of details on halon system and heating & pressurisation system.

The hydrostat procedures are being reviewed.

2.243 Electrical engineering

The engineering on accoustic treatment of module 05 (electrical plant) is continuing.

2.244 Instrument engineering

The location of the SYMINEX equipment is being studied. The halon wiring diagram has been issued AFC. All fire and safety drawings have been updated and re-issued.

2.25 Construction of the treatment modules and deck units
(MERCANTILE MARINE ENGINEERING under MDH management)

New delays in the delivery of pipe fittings of a large diameter impeded the progress of the prefabrication in the pipe shop and henceforth jeopardize the objective of the crash programme.

Nearly all equipments have been delivered except for two glycol reboilers awaited early in February.

The glycol contactors have been installed in module 03.

Deck unit 13 has been delivered to CMP in DUNKIRK for the assembly of the temporary quarters used during towing of the TP1.

2.251 Erection and painting of painting

The situation at the end of January is as follows :

Module 01	:	95%
Module 02	:	95%
Module 03	:	90%
Module 04	:	95%
Module 05	:	95%

Deck unit 06	:	100%
Deck unit 07	:	100%
Deck unit 08	:	85%
Deck unit 09	:	100%
Deck unit 10	:	100%
Deck unit 11	:	100%
Deck unit 12	:	100%

Bridge to QP	:	70%
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2.252 Prefabrication of piping

Spools in fabrication	:	1125
Spools completed	:	1030

2.253 Module outfitting

The progress at the end of January (%) is as follows :

Modules	01	02	03	04	05
Erection of equip.	90	100	80	85	45
Erection of piping	35	10	0	65	0
Electricity	05	05	05	20	20
Instruments	5	0	0	10	0
Cladding	0	0	0	0	80

2.254 Deck unit outfitting

The progress at the end of January (%) is as follows :

Deck units	06	07	08	09	10	11	12
Erection of equip.	45	0	0	90	85	0	0
Erection of piping	0	20	5	50	30	0	10
Electricity	0	5	0	40	30	0	15
Instruments	0	0	0	0	0	0	0
Cladding	0	0	0	0	0	0	0

2.3. Living quarters platform QP2.31 Engineering of living quarters buildings

(McDERMOTT-HUDSON)

The following information reflects the situation at the end of December 75, unless otherwise stated.

2.311 Structural engineering

The heliangular pad eyes have been redesigned in order to suit the yard installation of the satellite antenna sub-frame.

The gantry for the lifting of the fire pumps has been designed. The design of the wind breakers is continuing.

2.312 Mechanical engineering

Propane and nitrogen bottles are the only outstanding vessels yet to be delivered. Some piping modifications were engineered at the request of the British Authorities.

2.313 Electrical engineering

Coordination with various vendors in order to finalize details is continuing.

2.314 Instrument engineering

Additional gas detectors were added. Some modifications to the fire detection logic drawing are in progress. A study of a proposal for introducing a radar system has been started.

2.32 Construction of the living quarters

(CHANTIERS DE LA GARONNE under MDH management)

The yard entered the completion phase. The complexity of the completion work is such that the contractor can hardly face it all. The most important delays are in the service area of module B and electricity of module A. An important effort was made for the roof units : helihangar and UK telecommunications room.

The delivery of the modules and roof units is anticipated to extend from the 1st till the 31st of March. In consideration of the progress of installation operations of the QP jacket and in consideration of tide conditions in BORDEAUX, the loading dates by skidding on barges of the modules A and B were set for the 7 and the 21 April respectively.



BROWN & ROOT (UK) LTD. ELF PROJECT NO. 78-5714 AT ARDYNE POINT

SHOT NO: 200 Col C2 completed external risers R2 & R2X looking north

DATE: 15th January, 1976.

NEG NO: 3000 / 67 / 11B

2.321 Structure

The situation at the end of January is as follows :

Module A :

- Fit up : 100%
- Cladding : 100%
- Stairs : 100%
- Windows : 100%
- Passways : 95%

Module B :

- Fit up : 100%
- Cladding : 100%
- Stairs : 100%
- Windows : 100%
- Passways : 90%

Roof units :

- UK telecom room, battery room : 95%
- Norwegian telecom room, helihangar,
radio room : 95%
- Helideck : 95%
- Crane supports : 95%

2.321 Outfitting

The following chart indicates the progress at the end of January 76 (percentages).

Modules	A	B	roof unit
- Inner floors	95	95	50
- Partition walls, doors	95	90	40
- Ceilings	75	45	0
- Bedrooms	90	90	-
- Common rooms	75	70	-
- Laundry, kitchen, workshop	90	-	-
- Service area	-	80	-
- Air conditioning	85	75	0
- Piping	95	90	80
- Electricity and telephone	85	75	10

2.34 Supervisory control and field communications

(COMSIP under MDH management)

2.341 QP modules

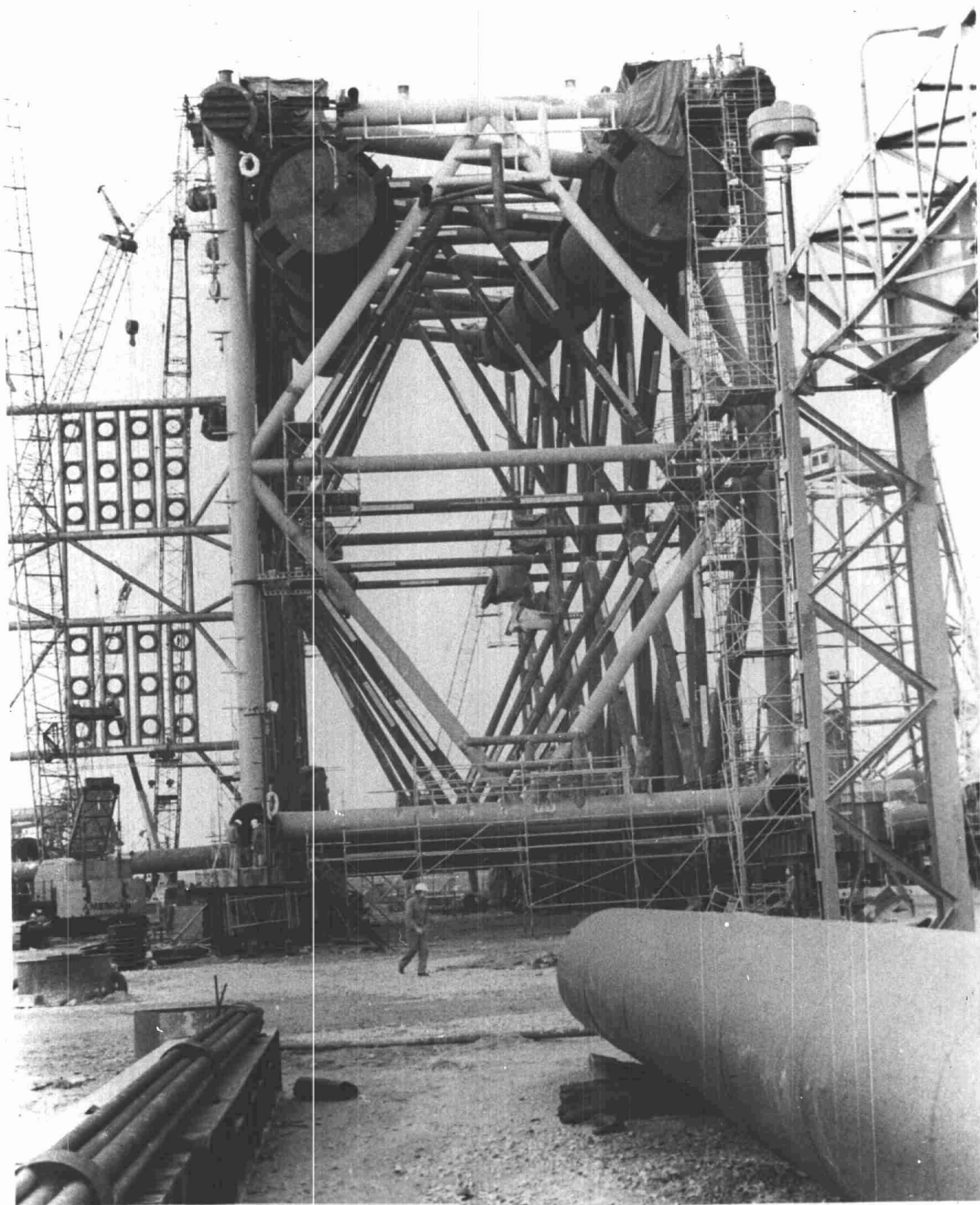
The work relative to Phase I is complete. COMSIP started the functional test as well as the work relative to Phase II.

2.342 TP1 interface room

COMSIP started work on the 19 of January.

2.4. Lines and connections

Further to the acceptance of the lay-out diagram of the lines, detail studies were started, more particularly a study relative to the installation tolerances for TP1. This study shows a zone and an orientation range for the positioning of TP1, so as to meet the requirements set by the lay-out of the lines, by soil quality and by installation of bridges between QP and TP1. The detail adjustments do not basically change the diagram and consequently no modifications of the lines are to be anticipated.



DP2 Jacket Fabrication
UiE Yard (Cherbourg)

Assembly of files 2 & 3

The installation procedures are being drawn up. The results of the hyperbaric welding will apparently not be available before the end of February. At the beginning of March, steel API x 65 pup pieces said to be more easily welded, will be installed wherever hyperbaric welds are required. However, hyperbaric weldability tests will be realised on all the steel, just in case repairs would be necessary during the life span of the field.

The spools of the lines have been ordered.

2.5. Telecommunications

2.51 Telecommunications with the U.K.

CHARPENTE MODERNE started the complete assembly trial of the antenna mast in a horizontal position. The nearly totality of the MARCONI equipment has been delivered to BORDEAUX (TOM responsibility). One tropo antenna is being assembled on module A.

2.52 Telecommunications with NORWAY

The base of the satellite antenna was received in BORDEAUX. It will be installed in February on the roof of the helihangar.

2.6. Hook-up preparation

Further to the conclusions of the technical enquiry supplied to the Associates at the Technical Committee held on January 16, contacts were pursued with the company SELTRUST OFFSHORE SERVICES LTD.

A first meeting has been held and the final proposal should arrive in February. The first time estimations are in accordance with our own anticipations.

III. PRODUCTION FACILITIES - PHASE II3.1. Drilling platform nr. 2 - DP23.11 Jacket - support frame3.111 Engineering - Installation studies

ELF met with DNV, NOBLE DENTON and Associates to review the inspection and control requirements as previously set by DNV. All parties agreed on that which needed to be done and how it should be accomplished. An effort is now being made to supply the required information.

The film of the model study was shown at the installation meeting on January 22, 1976.

The overhaul of the control panel has been completed, including repair or replacement of most items found to be defective during the December check out. Only one Barton DP gauge and one pump still need to be added. At the present time, the delivery to CHERBOURG is scheduled before February 1, 1976.

McDERMOTT-HUDSON prepared drawings and a bill of material for modifications to the temporary work deck. BROWN & ROOT is looking after fabrication and inspection. The deck is due to be finished and loaded out by MAY 1, 1976.

All flooding valves were tested in December. Two were found to be unsatisfactory and were sent back to CAMERON to be taken apart and inspected. They have since been re-tested and found to be acceptable. All valves have now been shipped to UIE for installation.

Discussions with DNV made appear that the DP2 will not be up to the still to be issued NPD requirements. Studies have been started to place the risers inside the jacket. Finally, it would seem that the removal of the boatlanding

on the side where the risers are located would be all that is needed to solve the problem and would allow to leave the risers on their initially anticipated location.

3.112 Prefabrication

a) Bottle fabrication

During this month, bottles were repaired and checked. Some defects did appear, however the bottles were finally considered acceptable by all parties.

b) Buovancy tanks

. ACTIME : The job was completed by the middle of this month. Two 100" and nine 62" tanks were transported to CHERBOURG by barge. Some repairs appeared to be necessary after unloading and were performed during these past days.

. SORENAM : The job is progressing. The complete tanks will be transported by train in the middle of March.

c) Boat landings

This job performed by SOCOMET is almost complete.

3.113 Fabrication

a) CHERBOURG yard

The procedure for the 8" riser has now been accepted by all parties. For the 4" riser, a chemical analysis and three Charpy V tests were performed and it appeared that the 8" riser procedure could also cover the 4" riser welding. The filling between files 2 and 3 is now complete, except for the installation of risers. File one is almost terminated and will be lifted at the beginning of next month.



TCP2

b) St. WANDRILLE yard

UIE was asked to complete the support frame by June 1, 1976. UIE intends to lift two storage tanks, the pump-house and the two girders 3 and 4 in a single lift, this will allow them to install all the pumphouse equipment on the floor.

The drawings for the insert piles have now been finalized. The length of the corner primary piles will be increased by 10'.

3.12 Production modules. Engineering :

The general engineering progress is 97%.

The detailed engineering progress is as follows :

- Genral arrangement : 96%
- Model construction : 90%
- Piping arrangement : 92%
- Isoing : 85%

We received the NPD comments relative to the design of module 04 and will accordingly update the partitioning of this module. The next meeting with the NPD is planned for early February 76.

. Procurement :

Procurement progress is 98%.

The material delivered on site : 85% (steels included).

. Fabrication :a) Framing construction

The total progress for the four modules is 78%.

Module 1 : 50%	Module 3 : 75%
Module 2 : 95%	Module 4 : 90%

The contractor concentrated all his efforts on the framing construction (45 welders and 20 fitters).

b) Equipment installation

The total progress is 25% (mainly piping prefabrication)

The completion of the modules is at the present time anticipated for the end of August 1976. A new PERT programme will be issued by the 15th of February, to take into account the new sequence of construction for module 4.

3.2. TCP2 Platform

3.21 Structure

3.211 Yard installation

The dredging of the dock gate for towing-out of the platform is complete, as well as utilities around the platform in the deep water site.

3.212 Management

Discussions have been held between NORCO, BROWN & ROOT and CHRISTIANI NIELSEN to finalize the construction schedule which is now ready for approval.

Change orders 6,7,8,9,10 and 12 have been signed by ELF and amendments covering these change orders are being prepared by our Contrats Techniques.

3.213 Engineering

A meeting was held on January 13, in STAVANGER with the NPD and all parties concerned in order to discuss instrumentation. The ELF proposals have generally been approved, but the NPD would like that some instruments be added. Further discussions will be necessary.

The engineering of the structure is still behind schedule and this situation has led to difficult problems with the contractor. The construction drawings for the upper part of the cells could not be approved by TNO due to a lack of calculations and re-starting of slipforming has been delayed two days.

3.214 Construction

Due to some problems with the air cushion equipment and then adverse weather conditions, towing out operations planned for January 6th occurred on January 9th. The structure is now anchored in the deep water site. The erection of dowels and concreting work has been performed. The second phase of concreting of starcells and lower domes has been achieved. The slipforming of the upper part of the cells re-started on the 23rd January.

3.215 Support frame

The contract with AKER has not yet been signed and it appeared imperative for AKER and this belatedly, to sub-contract the more complex elements of the fabrication (nodes of trusses, steel rings) in order to stay within delays.

Discussions are held at the present time in NORWAY and FRANCE with various manufacturers having the capacity and the experience to perform such work.

A meeting with AKER is schedule for January 30, 1976. The agenda will be as follows :

- Acceptance of the contract.
- Organization of construction and approval of sub-contractors by ELF.
- Nature and organization of STORD WORK.
- Schedule including sub-contractors programmes.

All the additional steels ordered by ELF have arrived on the STORD yard. The additional steels, if need be and the non-structural steels will be directly ordered by AKER.

The engineering performed by KVAERNER ENGINEERING is following a normal course, but DNV and TNO ask KVAERNER to supply additional justificatives. Detail verifications are still needed.

A large part of the drawing has in general been approved by DNV and TNO, however the final approval is dependent upon the additional justificatives requested by the control organizations.

AKER STORD proceeds with the drawing up of shop drawings (approximately 30% are ready) and welding procedures. DNV performed the second test (Charpy V and COD) with stress-relieving on a sample 100 mm thick. The results are not satisfactory. Other tests are performed by AKER on thicknesses of 20 to 60 mm.

3.216 TCP2 riser installation

The progress of the BROWN & ROOT activities is as follows :

- J-tubes 1 to 7 (up to level 16m) : 100%
- Fabrication and installation of external riser R1 : 40%
- Platform in cell 3 : 50%
- Erection of crane and hoist : 50%
- Pad-eyes and anodes on cell walls up to 15m : 100%

3.22 TCP2 treatment modules

3.221 Engineering of treatment modules

The estimated percentages of completion for the month, as performed by McDERMOTT-HUDSON are as follows :

- Process design : 65%
- Structural design : 57%
- Project management services : 26%

The estimated percentage of completion by McDERMOTT-HUDSON has always been related to expenditure against the projected cost forecast.

In comparison to the December report, the estimated percentage of completion of McDERMOTT is reduced for Process design and Structural design because McDERMOTT took into consideration the latest projected forecast.

Structural design :

. A report relative to the study of the installation of the modules on the support frame with a 1600 tons derrick barge was received from McDERMOTT. The study concludes that the modules should be skidded into position and that subject to structural modifications of the module pad-eyes, it will be feasible to lift modules 2 and 3 with the Glycol contactors.

. The position of the LP vent stack in the NE corner of module 4 has been confirmed. The design of the supporting structure is continuing.

. The design of the generator package (pancake 8 and 9) incorporating a permanent roof and temporary sidings is continuing.

. Equipment weight schedule - Major revisions are being made to structural steel weight for pancake 7, due to re-appraisal of pipe and valve platforms and high level lifting frame, and for pancakes 8 and 9, due to the addition of a roof, temporary sidings and high level lifting frames.

Process engineering :

. The data sheet for the condensate recycle tank (item CV-33) has been prepared and forwarded to the Mechanical engineering Department for enquiry issue.

. The utility tie-in points required by KVAERNER/TECHNIP were clarified and will be included in the piping design.

. A meeting was held with NPD, DNV, ELF NORGE and McDERMOTT to discuss the process and ESD system.

. A meeting was held with B.S. & B and McDERMOTT to clear outstanding queries for both parties and progress of the vendor on the Glycol Regeneration Units.

Mechanical engineering :

. The specification and enquiry requisition for the Condensate Recycle Tank (item CV-33) has been prepared and distributed.

. The technical analysis for the water curtain pumps has now been completed and the specification and requisition for this item has been revised for purchase and distributed.

. Work is proceeding on the review of the flexibility of various piping systems.

Electrical engineering :

. A specification has been prepared for the flare local control panel which is to be installed on the TCP2 platform. This specification will not be issued until information on a possible modification to the TP1 control panel is confirmed.

. All three generators have now been delivered to KONGSBERG for mounting on skids.

KONGSBERG is carrying out modifications to turbine generator skids to incorporate three point antivibration mountings.

Implications of semi-modular form of construction for pancakes 8 and 9 which involves the installation of a permanent roof and temporary sides, have been discussed with KONGSBERG, to establish whether or not their equipment will be affected by the change and it seems that the modifications required will be very small. PARSONS PEEBLES will be affected to a much larger extent.

An improvement in the delivery schedule for the KONGSBERG turbines has been effected with the promise of the two sets being ready for dispatch at the end of April and the third set early in May.

Instrument engineering :

A detailed study of the proposed metering scheme has been realised in conjunction with piping and structural departments. This scheme, together with quotations where available, or budget prices for the necessary instrumentation and metering tubes will be ready for submission to the client by January 23, 1976.

3.222 Project management services

Procurement :

The procurement situation is as follows :

- Number of inquiries issued this month : 3
- Number of inquiries under evaluation : 12
- Bid summaries issued this month : 18

- Telex orders placed this month : 9
- Formal purchase orders issued : 12
- Purchase order supplement issued : 24

3.223 Construction of the TCP2 treatment modules

Prefabrication work at EGBERSUND :

The total percentage of work per module/deck or pancake/deck is as follows :

Modules	Main deck	Upper deck
Module 01	100%	98%
Module 02	100%	51%
Module 03	98%	10%
Module 04	98%	84%
Pancakes		
Pancake 05	39%	
Pancake 06	100%	
Pancake 07	24%	
Pancake 08	99%	
Pancake 09	100%	
Pancake 11	98%	

The aforementioned figures result in an overall completion of 75,5% (Scheduled 77,5%)

Fabrication work at ORKANGER

Work progress :

Pipe fabrication progressed slowly with impediments from non-qualification of automatic welding procedure. This procedure has been in TRONDHEIM at the Technical College since January 7, 1976 awaiting mechanical test results.

The contractor has promised twenty more welders for qualification this month but the emphasis will be on structural welders.

It has been necessary to call the attention of the contractor on the poor quality of the preparatory work being carried out on the truss members for module 1.

The problem with the paint specification qualification exposer system did delay the painting to some extent.

Non-destructive progress :

Welders : Structural : 10 tested , 3 accepted
 Pipe : 7 tested , 5 accepted

Manpower figures :

Production : 90
 Staff : 26
Total : 116

Percentage of progress (week ending 18/1/76)

	Module	Pancake	Total
Structure	2,32%	-	1,45%
equipment			
electrical	1,23%	-	0,58%
instrumentation			
load out	0,96%		0,54%

3.23 Compression

The feasibility study made by KVAERNER/TECHNIP relative to compression in two lines has been forwarded to our associates.

It is now up to ELF to take a decision as to the retained diagram and the installation date. The engineering slowed down the work, awaiting the decision, but each delay may now compromise an installation for 1979.

Contacts were made with TOTAL in order to harmonize the studies relative to compression for TCP2 and MP.

A meeting was held with the corrosion experts in order to determine the options to be anticipated for the sea water circuits.

3.24 Lines and connections

All lines have been purchased. The fabrication of pipe is in progress.

IV. CONTRACTS

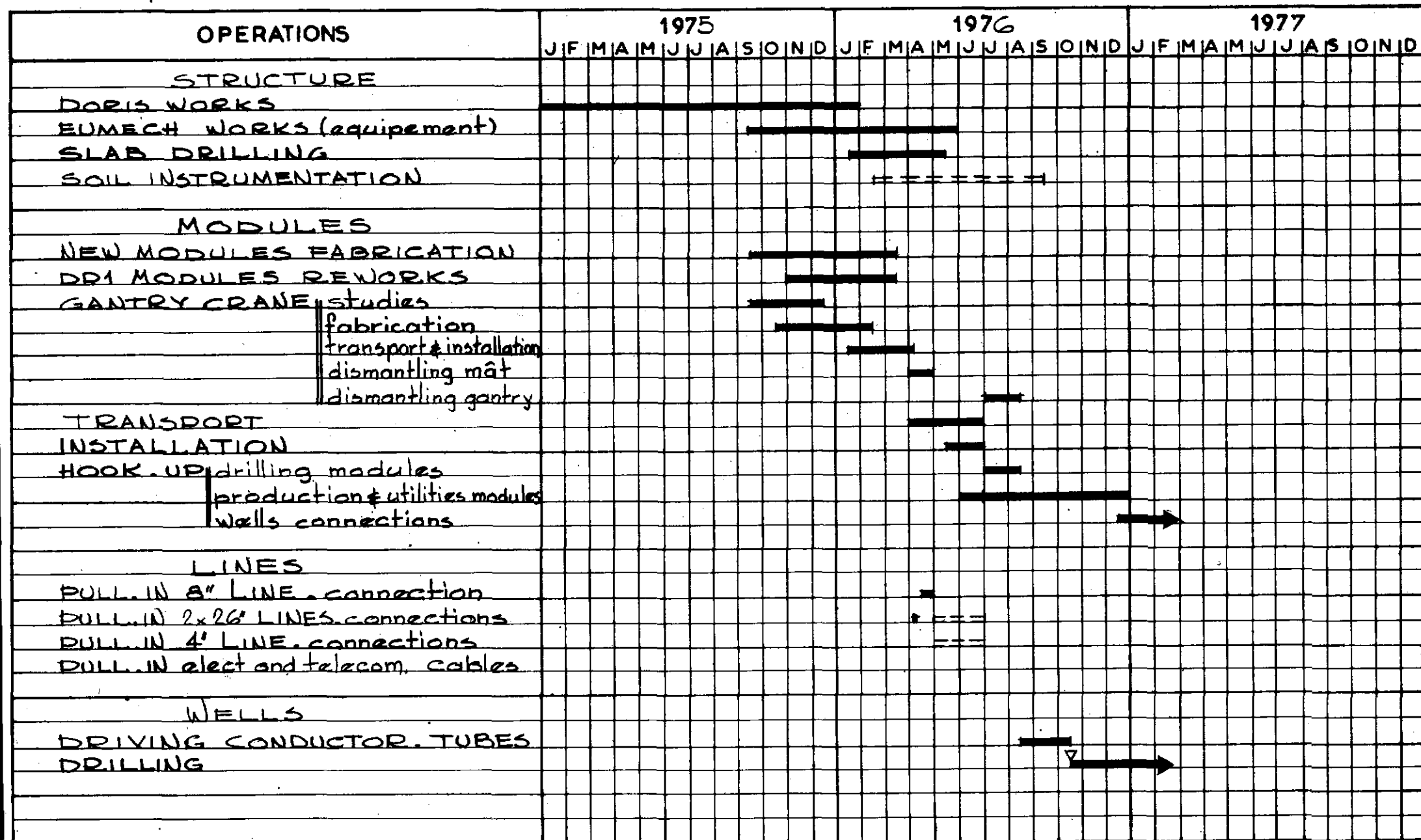
- . Contract E. 38 - (WILSON WALTON). Amendment 1.
Additional work as defined by change order E.38/003,004,005,006,009 and 010. Amount : 75.980 .
- . Contract S. 117 - (McDERMOTT). Future amendment.
Telex of intent to McDERMOTT "new pile capacity analysis" amount : 7500
Amount : 7500 US Dollars.
- . Contract E. 13 - (MERCANTILE). Amendment 5.
Addition of per unit prices. No commitment.
- . Contract E.13 - (MERCANTILE). Amendment 6.
Regularization of seventeen change orders. Amount : BF. 5.451.614,-
- . Contract S. 174 - (ACTIME).
Unloading and control of the flotation tanks QP and DP1 and repairs for use on DP2. Amount : 590.000 FF.
- . Telex of intent to SYMINEX - S. 180 - (SYMINEX)
Mechanical and geotechnical measures for CDP1. Amount : 1228 KF.

- . Contract E. 16 - Amendment 7
Regularization of eighteen change orders relative to the construction of the DP2 jacket. Amount : 6.455.118 FF
- . Contract E.13. (MERCANTILE). Amendment 7.
Regularization of a claim for delay in delivery of equipment not imputable to the company. Amount : 11.417.464 BF.
- . Contract E.2 - Amendment 14.
Modifications to modules DP1. Amount : 4.148.129,70 FF
- . Contract E. 2. Amendment 15.
Final settlement of contract DP1 jacket. Amount : 6.180.000 FF.
- . Contract S.196 - (NEPTUN).
Rental of the barge HEBE II from NEPTUNE from January 26, till April 30.
Amount : 9.900.000 FF.
- . Telex of intent to MONBERG & THORSEN. Contract E. 34, amendment 3.
Fabrication of the temporary deck for DP2. Amount : 4.500.000 FF
- . Contract S. 194. (SYMINEX). Mechanical and geotechnical measures for DP2. Amount : 5.053.150 FF.
- . Contract E. 34 + Amendment 1 - (MONBERG & THORSEN)
Fabrication of a temporary deck for QP (contract). Stopping of work.
Amount : 5.243.600 FF.
- . Contract S. 192 - (SOFRESID) - Amendment 2
Study of the BUZICHELLI gantry of 800 tons for the installation of the CDP1 modules. Amount : 251.000 FF.

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1.2.76

CDP.1



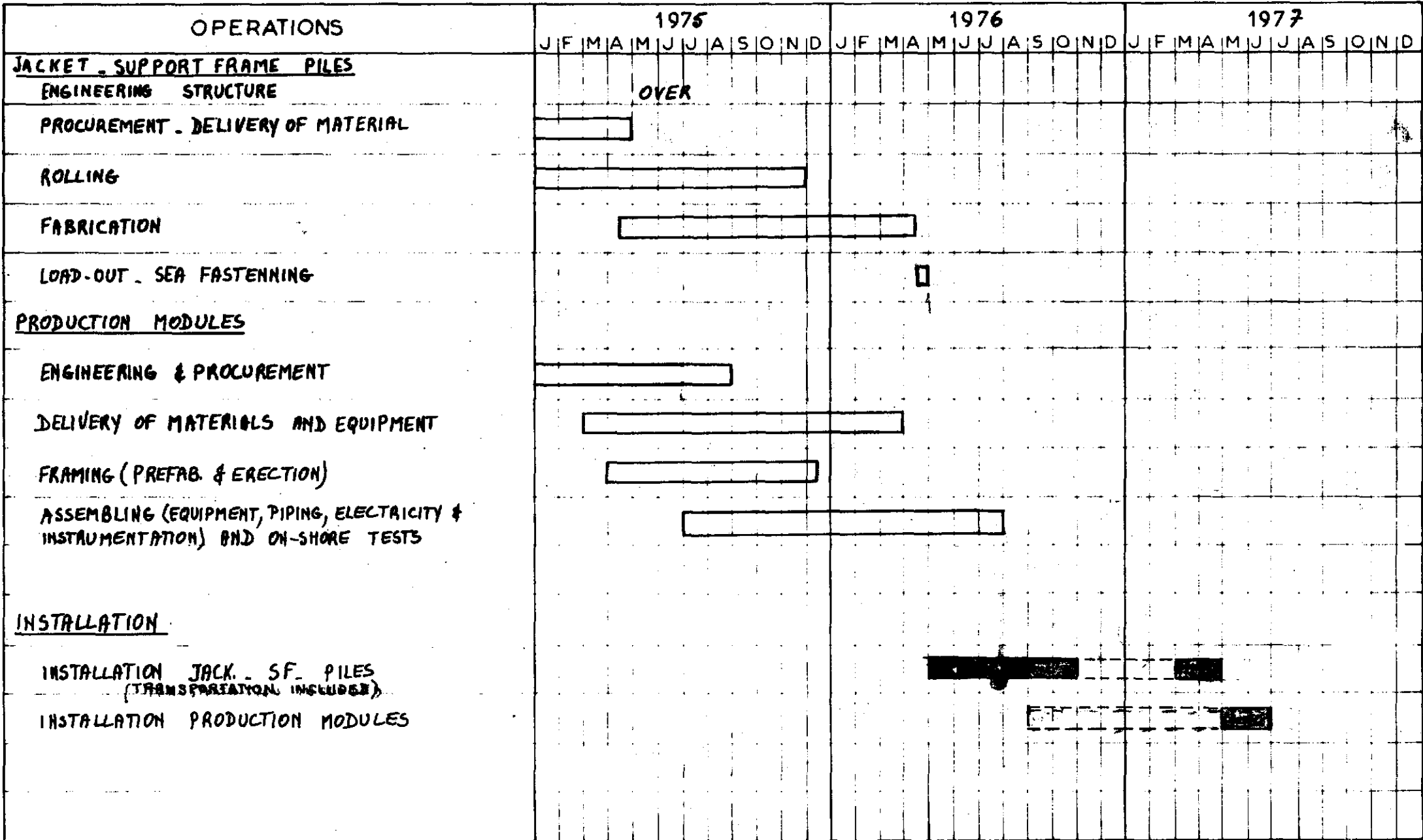
CDP.1

CONCRETE DRILLING
PLATFORM N°1

ef
NORGE

FRIGG FIELD
PRODUCTION FACILITIES
ISSUED: JANUARY 31th 1976

CDP.1



OPERATIONS	1974												1975												1976														
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D			
Delivery of Plates in ANTWERP (3 shipments)					•	•	•																																
Jacket & Support Frame Rolling					Jacket																																		
					Support Frame																																		
Jacket & Support Frame Préfabrication					Jacket																																		
					Support Frame																																		
Jacket Assembly & Load-Out																																							
Support Frame Assembly & Load-Out																																							
Flotation Tanks Fabrication																																							
Piles & Pile Followers Fabrication																																							
Living Quarters Framing					Mod. A																																		
					Mod. B																																		
					Others Packages																																		
Living Quarters Outfitting					Module A																																		
					Module B																																		
					Others Packages																																		
Control Room, Telemetry, Radio Installation																																							
Jacket, Support Frame & Piling Transport & Installation																																							
Living Quarters Modules Transport & Set Up																																							
Living Quarters Hook Up & Commissioning Including Control Room, Radio, Telemetry etc.																																							
Norwegian Satellite Communication Link Fabrication of Equipment																																							
Installation & Startup																																							

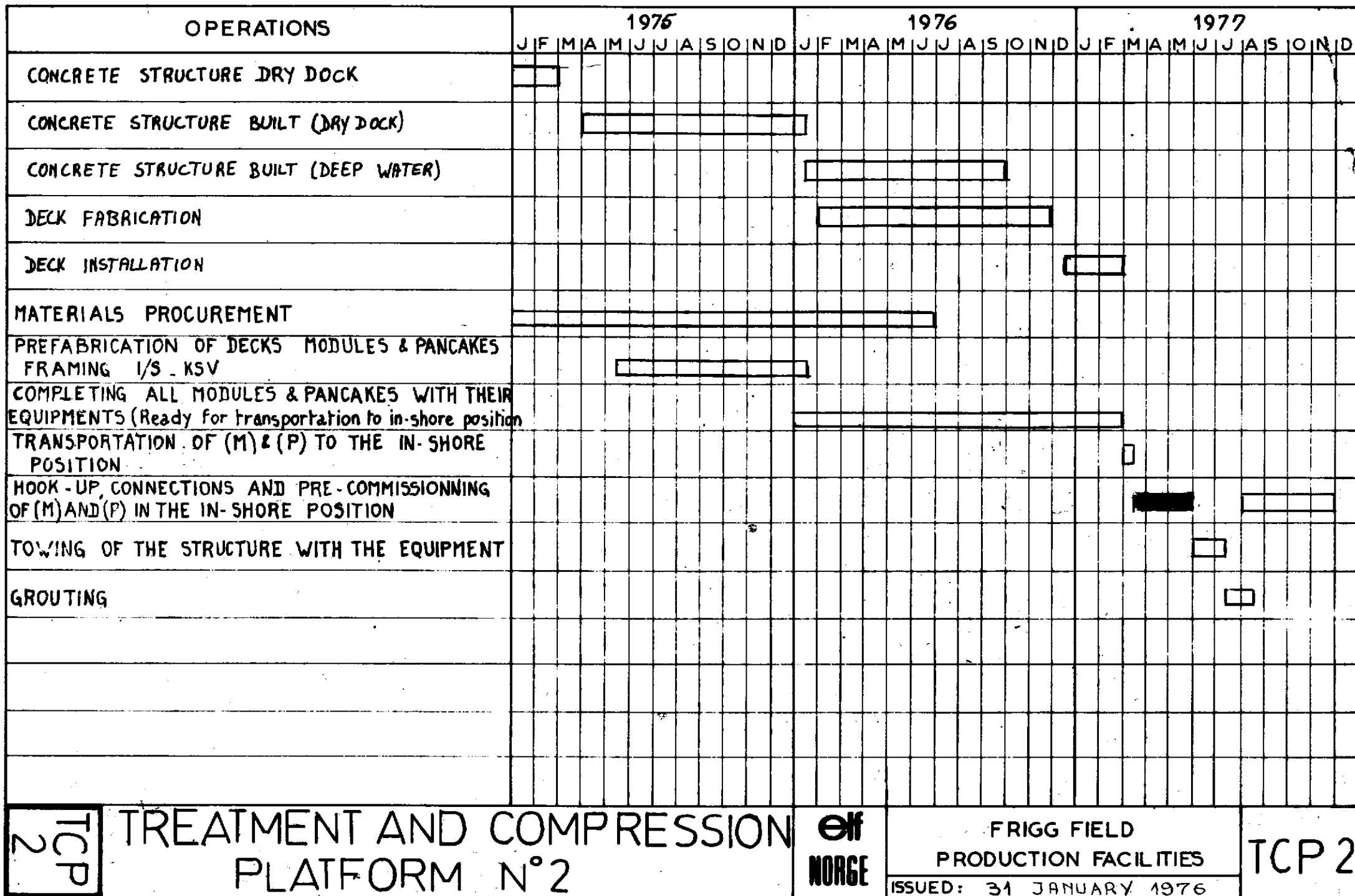


LIVING QUARTERS PLATE^m

elf
NORGE

FRIGG FIELD
PRODUCTION FACILITIES
ISSUED: 31st JAN 1976

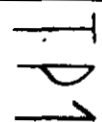
QP



OPERATIONS	1974												1975												1976													
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D		
Concrete Structure Graving Dock																																						
Concrete Structure 1 st Stage Construction																																						
Concrete Structure 2 nd Stage Construction																																						
Temporary Modules Fabrication																																						
Support Frame Rollins & Prefab																																						
Support Frame Assembly																																						
Loch Fyne Operation																																						
Concrete Structure Towage & Installation																																						
Grouting Under Slab																																						
Rip Rap Protection																																						
Deck Units Framing																																						
Deck Units Out Fitting																																						
Modules & Bridge Framing																																						
Modules & Bridge, Out Fitting																																						
Decks Units, Modules & Bridge Transport & Set Up																																						
Deck Units, Modules & Bridge Hook Up & Commissioning																																						

(end 01.05.77)

(end 01-05-76)



TREATMENT PLATFORM N° 1

Elf
NORGE

FRIGG FIELD
PRODUCTION FACILITIES

ISSUED: 31st JAN 1976

TP1

