Essences 2000 - A French Partnering Experience

TRUE GAIN & PAIN SHARING PARTNERING CONTRACTS ARE STILL QUITE RARE IN FRANCE, HERE TECHNIP AND ELF ANTAR SHARE THEIR EXPERIENCES ON THE DOGNES & GRANDPUITS REFINERY PROJECTS

Last year, the contractor, Technip, signed a partnering agreement with Elf Antar for the construction of new facilities at the Dognes and Grandpuits refineries under the *Essences 2000* programme. These twin projects, to produce gasoline meeting the new EU specification (with significantly lower benzene content) involved an investment of $10M at each site for splitters, 40 new pieces of equipment, 400 tonnes of piping with over 300 tie-ins and 40 new control loops. The entire package was to be delivered to a fast track programme, deploying more than 120,000 man hours, all within an exemplary safety regime.

The project was mechanically completed in October 1999 and start-up took place in early November. All Technip and Elf's objectives were delivered and both parties are convinced that partnering contributed a great deal to the success of the project.

The following article, by two of the project's leading figures, considers the key points which were considered in implementing this (very successful) experience of the 'French Partnering Approach'.

First of all, how did Elf begin the process of selecting a potential partnering contractor?

In fact, in the spirit of seeking joint advantage, both Elf Antar and Technip were very keen on implementing a partnering approach in France. Their respective management teams signed a Partnering Agreement for the Engineering/ Procurement / Construction / Management contract (EPCM lump sum services). The features of this agreement are reviewed later in this article.

Secondly, what are the client / owner objectives on these Essences 2000 projects?

Elf's first objective is, of course, to use the partnering agreement to reduce project costs by working with the contractor more effectively through the removal of adversarial attitudes. From a general point of view, the core project objectives obviously remain the same, delivering the project:

- within (or below) the budget
- on (or ahead of the) schedule
- to high quality and safety standards.

In particular, Elf sought to work closely with Technip to drive down the project costs wherever possible. This meant a collaborative approach at every phase of the project (detailed engineering, procurement, site construction, etc).

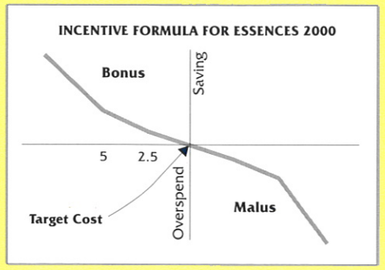
To work, this approach needs two ingredients - good practice and motivation.

Good practice means using optimisation studies, good procurement negotiations or excellent site monitoring to deliver a joint benefit and attack cost items at every opportunity.

Motivation means using a well crafted contract to fairly apportion the savings so gained. It is a fair and powerfully motivating force for the contractor and the client to share the benefit of their labour and ingenuity. This motivation is something which we saw from the very beginning of the project, with both sides seeking and finding cost savings. In other words the Partnering approach served as an efficient *catalyst* to reduce the project costs.

It should also be noted that a totally fixed scope, agreed by both client and contractor, means no variation orders coming in (except for a possible change of the original design basis) so costs are inherently more manageable. This does, however, call for greater rigour during the early stages of the project (front end engineering package) because the project definition and related cost estimate have to be both accurate and durable. In fact this process was a crucial step in making the relationship and the project perform. Reviewing cost estimates for every project in detail **together**, and agreeing to these estimates up-front, meant fewer surprises and less friction later on.

To formalise the gain and pain sharing mechanisms, we agreed to a mutual risk/reward scheme (Bonus/Malus for the contractor) as illustrated below.



The potential gains and risks on the projects are shared equally between Elf and Technip up to preset limits.

Beyond the financial gains there were two other key benefits delivered by the partnering approach:

As 'fast track' projects (with just 13 months for the PIP/C phase) we should highlight that partnering helped us meet the tight schedule because everybody was aware of the critical deadline (needed to get the new gasoline on petrol station forecourts by 1 January 2000) and was motivated to achieve this objective.

The safety performance of Essences 2000 was exemplary. Excluding prefabrication, the project required in excess of 120,000 man-hours and yet there were:

- NO lost work day cases
- NO restricted work cases and
- NO medical treatment cases.

A truly outstanding example of how improved communications and team integration can translate into real results on the ground.

Communication Principles Of The Relationship

Working together in new ways means that it is a good idea to revisit the basics of how we work. Communications must be open and honest in a partnering team or the team will fail. For us the following ground rules were established:

- Common, clearly identified objectives must be well known and understood by everyone.
- Joint actions and joint efforts have to be made so that these objectives will be achieved i.e. work as a team.
- Use common, positive behaviour to solve possible problems before they become critical.
- Jointly review cost control data and discuss possible corrective actions early.
- Use innovation to seek out cost effective technical solutions.
- Share your knowledge (eg. compare company construction standards).
- Think about how you communicate to foster better mutual understanding.
- Trust your team and your partner's team equally.
- Help both teams to take pride in their participation and celebrate common acheivements (take positive steps to enhance team spirit).

So much for the 'soft' side. But how did these culture shifts unlock the creativity of the team and deliver results?

Delivering excellence

On both projects, the improved relationships within the project team and the improved communications which this allowed led to some predictable improvements in integration dependent activities. In both cases safety aspects, particularly during the 'HAZOP review', co-ordination with refinery shutdown works and cost control reporting improved significantly. What was less predictable, but nonetheless welcome, was the way the team responded with good, innovative and cost effective technical solutions:

At Dognes

- The heat system circuit was integrated with existing facilities.
- Air coolers were replaced by small water heat-exchangers.
- A more cost effective demolition solution was designed for foundations located in the middle of the plot (very close to the running plant).
- A competitive piping subcontractor was selected without previous references within the Elf Group.
- How to operate and optimise the reformat splitter (with four product withdrawals) was reviewed in detail.
- 'Biflux' chromatographs were installed after technical studies and discussions.

For Grandpuits

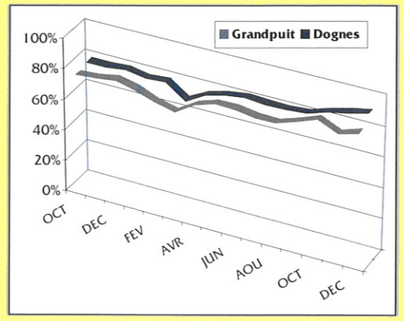
- A detailed review of the plot plan was completed as room to install the new equipment was very limited (some pumps were even installed vertically).
- Specific short-procedures were used (eg. urgent purchase of materials to meet the tight schedule requirements).
- Definition and integration of the Honeywell distributed control system in the existing architecture scheme.

Partnering Evaluation

The partnering approach itself, *in terms of relationships and project performance*, was evaluated throughout the project. How this was implemented as a contractual mechanism might also be called client satisfaction scoring. Firstly, it was necessary to define the criteria to be measured, mainly relating to the mutual relationship and on the general performance of the project. For the Essences 2000 projects we used:

1. achievement of project targets
2. performance
3. client queries - speed of response
4. meetings preparation
5. contractor/client personal relations
6. contractor site staff/refinery relations
7. contractor site works/refinery operation
8. flexibility to 'change'
9. initiative in solving problems
10. need for guidance from the client.

Using these criteria, monthly scores were agreed between Elf and Technip, usually after the project's regular monthly progress meeting. This method meant that the scoring process was open and based on dialogue so that it could be used as a platform for improvement rather than blame. The graph below shows how the relationship fared through the lifecycle of the projects.



Alain Pierru, Project Director with Total-Fina-Elf Group and Jérôme Illouz, Technip's Sales Manager Western Europe, address the ECI Conference in Milan

The major benefit of implementing this management tool is to show a regular, general picture of the partnering approach in terms of relationship and performance. Specifically, it is critical to indicate where intervention is required to correct poor practice or attitudes early enough. In particular the questions one needs to ask of the overall scores are:

- How are we working together?
- How can we improve the situation together?
- Is there a significant problem between us and what can we do about it?

To extract maximum benefit from the process, however, we need to keep our minds open all the time, challenging today's norms every day and bearing in mind that there is always some room to improve on current performance.

Conclusion

In conclusion, our joint experience of partnering in the French refinery project market has been a challenging but rewarding venture. The Essences 2000 projects' objectives have been achieved successfully, particularly in terms of budget, which was beaten, and within our original schedule. We believe that this partnering concept could be extended across many other European countries, regardless of cultural differences, to achieve some goals which are common to all of us, reduce project costs and increase our competitive position by improving all that can be improved - together.

Alain Pierru, Total-Fina-Elf Group &. Jérôme Illouz, Technip

The satisfaction percentage is the ratio between the aggregated actual total marks on each evaluated criteria and the maximum total possible for a perfect score.

Gainsharing as the key to partnering success

IMRE CSOTI & NIGEL GODDARD OF NEREFCO'S HYDROFINER ALLIANCE SHOW THAT THE RELATIONSHIP BETWEEN CONTRACT, OBJECTIVES AND RESULTS IS CLOSER THAN EVER...

Nearly a year after achieving steady operation on their newly unified Europoort site, the Nerefco Alliance is proving in operation what it had already proven in construction; that partnering is **the** way for those with sufficient flexibility and nerve to achieve truly remarkable results. Nerefco Project Director, Nigel Goddard and Imre Csoti of Raytheon E&C, Project Manager of the Hydrofiner Alliance explain.

Background and the challenge

Nerefco is a joint venture between BP and Texaco which was formed in 1989 to rationalise refining capacity in Rotterdam. It achieved this by restructuring the capacity between BP's Europoort facility and Texaco's Pernis refinery. By January 1996, it was clear that commercial performance was being hindered by the cost of dual-site operation and the outdated configuration of Pernis. A three-phase strategy was adopted to reposition Nerefco against its local competitors delivering similar capacity (400 kilo barrels per stream day) with improved plant efficiency and huge manpower savings (39%). These phases were:

1	Restructure	Close Pernis Make Europoort stand alone
2	Optimise	Europoort plant to pacesetter performance
3	Reposition	Invest in upgrading capacity

Nerefco decided to achieve this, and exploit the potential of Europoort, by recommissioning a crude distillation unit which had been shut down, without preservation, in 1989. This work was coupled with new units to replace the capacity at Pernis (particularly a hydrofiner and its sulphur treatment facilities) and infrastructure for the single site.

The restructuring had to be completed within a very tight time scale and budgetary constraints.

The old and the new

To succeed, we needed an exceptional result and this demanded an exceptional approach. We began by looking at the very structure of traditional contractual relationships. We saw:

The old structure clearly served no party very well, so Nerefco introduced a different approach, based on new and better working relationships with key contractors. The key principles of this 'Alliance' approach were that:

- No member is forced to join.
- Each member requires the commitment of all other members to the *whole* project; not just their individual scope of work.
- Extraordinary success will be rewarded with a share of the gains.
- All parties share poor performance risk , regardless of individual performance.
- Members will not carry unreasonable commercial risks and all risk will be capped at appropriate levels.
- 'Project performance' will consider the beneficial operation of the completed facility, not just capital expenditure.
- The owner shares in the overall risk/reward as an Alliance member.
- Rewards are tied to specific *criteria of satisfaction* on schedule, quality & operation.

The new approach established a set of common objectives and mutual success criteria for all parties, i.e. a 'win-win' scenario. This, and the removal of adversarial relationships enabled the team to focus on its common purpose.

Team selection and tendering

To deliver, the selection processes for choosing the partners had to mirror the Alliances overall objectives. For the Hydrofiner Alliance, Nerefco used the same process to select Raytheon and then Fabricom and NBM.

The aim was to select companies whose people could deliver best value to the project; not those offering modest savings in a narrow cost based evaluation. Low project cost later took precedent over low man-hour costs now.

Briefing sessions were held for all bidders to explain what was required and these focused on commitment, innovation and, above all, people. Earlier rounds had placed corporate track record beyond doubt.

During tender preparation, the Nerefco project team coached contractors on the quality of their submission, the principles underlying an Alliance concept and the criteria that would be used to evaluate tenders. Moreover, where phased selection took place, previously selected Alliance members joined the evaluation team.

All Alliance Partners were selected on a competitive basis. The selection criteria, however, were weighted towards soft issues, behaviour and people, not price. These factors made up 70% of the score with technical issues given 20% and 10% for the presentation.

Establishing the Alliance Contract

The structure of the Alliance was designed over three months following Raytheon's selection as engineering contractor. The key commercial point was that everyone bid on an open-book, reimbursable basis with **no** individual risk. All major suppliers and sub-contractors were contracted *"for and on behalf of Nerefco"* with the Alliance assuming accountability for performance.

Innovative contractual relationships were developed, with two main levels of document; Works Contracts for each member and an overall Alliance Agreement. Works Contracts resembled more traditional contracts for each portion of the project scope but conditions were modified to reflect the less adversarial approach. The Alliance Agreement above individual Works Contracts encapsulated the Alliance structure, desired behaviours, the execution plan and gainshare scheme.

The team comprised Nerefco, Raytheon Engineers & Constructors, two divisions of Fabricom N.V. and NBM Amstelland who executed the civil works.

A team of PMs from all partners was formed to manage day-to-day execution of the works. This group determined strategy and endorsed all major decisions. An integrated project team was created below this and staffed on a *'best person for the job'* basis, drawing on the skillbase of each team member, and regardless of 'home' organisation. The Alliance board meanwhile consisted of senior representatives from each partner acting as corporate link with the project, supporting the needs of the PM team and addressing major issues affecting the project's business outcome.

Counting up

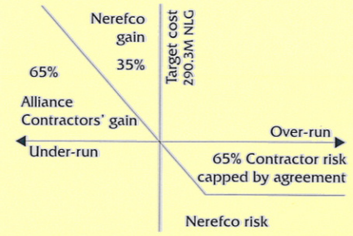
Once project strategy was agreed in March 1996, the Alliance took six months to form. In addition to intense contracting activity, technical definition started from scratch, making this the most frenetic stage of the project. With all partners in place, only 6 weeks remained to agree the target cost estimates Nerefco would submit to shareholders.

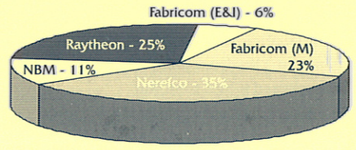
An appropriate target cost was fundamental to project success. Too low, and motivation and ability to perform would both drop. Too high and the business case for the project would fall.

Each party prepared its own cost estimate to generate ownership of the resulting budgets and these were submitted to review. Always a difficult period, the Alliance also faced the additional challenge of scope uncertainties and incomplete project definition. Some expected benefits of the Alliance strategy were also priced in at this stage creating, for example, a saving of over 3M NLG against construction management before agreeing the target cost.

Sanction was obtained just before Christmas 1996 and contracts and the Alliance agreement were signed. This enabled a seamless flow into detailed engineering and was a prime factor in meeting the short schedule. On day one of the EPC phase, 70 engineering staff were already busy and 10M NLG of critical equipment had been purchased.

With the target cost established, the risk/reward model had to be fine tuned. The graph above depicts the chosen solution. You will note that upside gain is unlimited but this has to be seen in the context of a very aggressive target cost - both BP and IPA agreed that just meeting the target would be very good performance. Another sobering aspect is that the Alliance had allowed for zero profit within the target cost - all profit had to be generated from gainshare. Downside risk was capped at a level determined by the Alliance partners and usually represented all or a part of their overhead percentage quoted during the bid phase.





With the basic model in place, share negotiations continued. Nerefco expected a 35% cut themselves and the remaining 65% would be shared between the Contractors. The factors that determined this split were contract value, willingness to share risk and the company's ability to influence the project outcome (ie. NBM's contract value was less than 11% of the total, but other factors made it desirable to award them a larger share).

Getting it done

In looking at how the Alliance approach integrated with the project management strategy, it is worth noting that the CRINE initiatives of eliminating waste, avoiding duplication and integrating processes were fundamental. Creating a *challenge friendly* environment was also important as was pro-active safety, risk and change management from the whole team, not just the PM. To help this, individuals were coached to act even if it was *"not their job"* and significant use was made of external facilitation to stimulate individual responsibility. JMJ Associates worked with the Alliance from project start to break down traditional attitudes and help individuals and groups to clarify their roles, commitments and expectations.

This facilitation demanded substantial resources and benefits from this pre-investment can only be measured later in terms of project success.

To help commit each team member to the project objectives, a formal sign-up process was used in the workshops. Two days were needed to achieve consensus on the targets the team were committing to, and these included the commitment to save a huge sum of money at a time when nobody knew where the savings would come from. In the end 99% of the team physically signed up to the Project Commitment Statement.

Value engineering

Efficient execution and risk management go a long way to delivering gainshare but they are no equals to eliminating items which fail to add value to the project. This was the focus of the cost saving plan where we set ourselves the target of saving 40M NLG against a TIC of nearly 300M NLG at the first project team workshop. This would be achieved through engineering innovation, effective procurement and improved construction efficiency.

This sum was broken down into manageable amounts and allocated to individuals who were tasked with delivering the saving. Wide cost performance feedback was also given to the project team so they could see the impact of their decisions.

Contract and procurement initiatives

The procurement effort in its widest sense generated substantial value. Suppliers were invited to think *with us* about the best way to achieve our aims, and mechanisms were devised to share any rewards. Aligning the major sub-contractors with the Alliance in the same way ensured that they also contributed to the broad aims of the project. This required ongoing contact with critical suppliers and sub-contractors' senior management from the start - stark contrast to the traditional approach of contracts in reaction to a problem.

Construction

Construction offered us perhaps the greatest opportunity for integration and co-locating the entire Alliance team (including sub-contractors) helped to achieve this aim. Design of the organisation still took time, matching people and skills to positions and functions. Adjustments had to made before the team really bedded in and started to perform and, once again, external facilitation helped us to overcome any cultural barriers.

The other main benefit of having the key construction companies as partners was joint determination of strategy. This 'visioning' process of deciding how to do a job together was an important team building exercise in its own right and also reaped collateral benefits in the form of better risk management and enhanced constructability.

The results and the lessons learned

The use of alliancing delivered significant savings for Nerefco in terms of cost and time, despite the aggressive and challenging targets set. Quality, safety and environmental targets were met. The workforce, both on the project and within the refinery, gained greater job satisfaction. In terms of the construction of the new hydrofiner and related scope:

- all interim project milestones were met
- steady operation was achieved 30 days ahead of schedule
- safety performance was close to target
- cost under-run was over 8% of original budget.

The restructuring project was a great success. A 'win-win' scenario was achieved for all parties: Nerefco, its owners and the contractors on the one hand, and the individuals involved on the other. Success was based on a fundamental change in attitudes and the case demonstrates the benefits for all in such an approach. Our hard-earned experience has taught us to look for the following success factors:

- Commitment - as an individual undertaking.
- Common goals - must be clear, well communicated and no private agendas can be tolerated.
- Mutual trust - has to be freely given at the outset as there is no time to earn it.
- Exceptional teamwork - continuous team building is a must, it is not a one off exercise.
- Continuous search for value - cost savings will not appear by themselves.

This can be further summed up in one word: flexibility. The flexibility to change the habits of a lifetime and challenge 'business as usual'. We wish you success if you try this - the journey is not easy but it is well worth the effort.