DETAILED CAREER HISTORY : JOHN WHITE

LAPORTE CHEMICALS/WARRINGTON TECHNICAL COLLEGE (1963 to 1965)

After leaving school with "O" Levels, I took up employment with Laporte Chemicals Limited, Warrington as a Laboratory Assistant. As such I carried out routine and non-routine analysis, using classical and modern techniques. This included analysis for a Hydrogen Peroxide unit and associated processes such as the hydrogen plant (steam reforming of butane). This work brought me into contact with Chemical Engineers, who encouraged me to use my ONC in Chemistry, which I was studying on a day release basis at the local Technical College, to gain entry to a degree course in Chemical Engineering. I chose a Sandwich Course at the University of Bradford, having already recognised the value of industrial experience whilst at Laporte's.

UNIVERSITY OF BRADFORD: FOUR YEAR SANDWICH COURSE IN CHEMICAL ENGINEERING (1965 to 1969)

After four years' of general chemical engineering and other appropriate subjects, and after carrying out a design project in the final year, I gained an upper second honours degree. The four industrial periods (each of six months' duration) were spent with:

Sturtevant Engineering, Manchester (1966).	Pilot plant work on crushing and grinding equipment.
B.A.S.F., Ludwigshafen, Germany (1967).	Chemical Process plant operation. Research in the Fuel Technology Department.
British Petroleum Research, Sunbury on Thames (1968).	Took part in lube oil extracts research project.
Ciba-Geigy (now Novartis), Basle, Switzerland (1969).	Laboratory work. Pilot plant work. Workshop training.

UNIVERSITY OF BRADFORD: MSc IN CONTROL ENGINEERING (1969 to 1970)

This post-graduate degree course followed immediately after my four-year course in chemical engineering. It was of one year's duration. The first six months were spent studying classical and modern control engineering and related subjects such as computing. There was an emphasis on process industry options. This study culminated in examinations, which were followed by six months' practical work on the computer control of a rotary solids drier, for which I wrote a dissertation entitled *DDC Algorithm Tuning For A Rotary Solids Drier*. This involved writing a control program for a Ferranti Argus 400 in FORTRAN with APRIL (the Ferranti assembler) inserts.

On gaining the MSc, I joined Esso Petroleum at their since-closed Milford Haven Refinery, in Wales.

ESSO REFINERY, MILFORD HAVEN (1970 to 1973)

I was employed at the refinery for just under three years as a Control Engineer. As such I was responsible for the refinery process control computer (Ferranti ARGUS 500), which was used for the control and monitoring of selected refinery units. I had a trouble shooting and technical services provision function, on both hardware (including associated instrumentation such as on-line analysers) and software, especially the latter. This consisted of a mixture of FORTRAN, CONSUL (Ferranti Control Engineering Language), and APRIL. I was also responsible for new computer control and monitoring applications from inception to implementation, in particular for a capacity expansion at the Refinery.

I also wrote a number of technical programs in FORTRAN, including a refinery fuels fired program and an orifice sizing program.

As well as gaining a lot of experience in process control computing and programming, my time with Esso enabled me to get a good practical knowledge of refinery process engineering (necessary when implementing advanced control schemes such as interactive control on crude distillation units), i.e. although having the job title of "Control Engineer", my chemical engineering training at University was fundamental to carrying out the job in the best manner.

PROCON (GREAT BRITAIN) LIMITED, LONDON

(FORMER CONTRACTORS TO THE OIL INDUSTRY) (1973 to 1975)

I joined Procon, a UOP affiliate, as a Computer Applications Engineer, immediately after leaving Esso. I was later promoted to a senior engineer, before being transferred to the Process Department. My work in the computer applications and process departments overlapped to a great extent. In the computer applications department, I was involved in the preparation of linear programming (LP) models (blending of distillate fuels and gasoline), technical programming (mainly FORTRAN), the evaluation of process simulation packages, used for the design of refinery process units, and the evaluation of process control computers for a large grass roots refinery in Sines, in Portugal. Programs written included LP report writers, a tower sizing program and an air pollution/stack height program.

In the Process Department, I spent a lot of time on gasoline blending problems connected with a new Refinery being built by Procon, in Bejaia, Algeria. On the linear programming side, I developed models of the gasoline blending system, using the matrix generation packages PDS and MAGEN. The matrix generated by these packages was optimised using the APEX/MPSX packages. I wrote FORTRAN report writers to present the APEX generated solutions. I taught myself LP technology whilst at Procon, knowing from my previous employment with Esso that it was used to solve scheduling problems, including gasoline blending. LP had not been used within Procon prior to this.

On the process side of the blending, I was involved in the selection of the Naphtha reformer and its operating conditions, and in the design of other relevant process equipment such as the de-isopentaniser, in order to improve the chances of meeting difficult contracted gasoline specifications such as SG, RVP, and front-end octane.

In the process department I was also involved in LP work in fuel oil blending, in which a visbreaker was one of the proposed units. I also made great use of the air pollution/stack height program, which I had developed whilst in the computer applications department. This involved selection of stack heights for new refineries, bearing in mind local pollution standards and meteorological conditions.

MOBIL OIL COMPANY. DATA CENTRE, SEVENOAKS AND REFINERY, CORYTON (1975 to 1978)

I joined Mobil, after exactly two years with Procon, in August, 1975. Initially I was employed as a Senior Systems Analyst at their European Data Centre in Sevenoaks. Whilst there, I was the support analyst for Mobil's Engineering Program Library. This involved helping chemical engineers from Mobil locations throughout Europe make maximum use of the computer design tools available within the organisation. I also developed simulation models of processes (both existing and at the design stage). This included a detailed simulation of the crude and vacuum units of their refinery at Coryton, in Essex (which is now a BP (British Petroleum) refinery), and the refrigeration section of a large Indonesian LNG plant. The former was subsequently used to study the effect of such changes to the unit as pumparound duties, side draw rates and crude changes (e.g. to the newly available North Sea crude).

I was also involved in LP applications at Coryton, especially day to day gasoline scheduling. Whilst at Sevenoaks I attended a course in the United States entitled "Modern Refining Technology".

After a year at Sevenoaks I was transferred to Mobil’s Coryton refinery. I worked initially in the production control department: I had direct responsibility for the refinery LP. This large and complex model of the whole refinery was used to prepare ninety day schedules. As well as preparing the input for the model (MAGEN/APEX), I was involved in the detailed analysis of the LP output, and the subsequent liaison with the supply and distribution departments, at the head office in London. I also carried out refinery economic studies and cost estimates, and provided the weekend cover for the day to day refinery scheduling engineers of the department.

In January 1977 I transferred to the refinery computer control section. This section had responsibility for both existing and future process control applications on the refinery. After a couple of months I was promoted, becoming the supervisor of the section; I had four people reporting to me. On the existing process control computer (Ferranti ARGUS 500), I initiated the commissioning of high pay back advanced controls (including schemes having multi-million dollar benefits such as interactive and feedforward control of the crude units). I also made significant changes to management reports, to enable process units such as the crude unit to be run more efficiently. I was the Mobil project manager for two other process computer projects, one of which was to control and monitor the refinery boiler plant.

I also made a large contribution to the selection of a process computer, and the instrumentation interfacing to it, for the large expansion taking place at the refinery (FCC complex involving ten principal process units). I had a major rôle in the development of the detailed Bid Specification for this computer.

The computer control section was also responsible for the efficient use of Mobil Engineering Programs. A model pinpointing poor crude unit gasoil recovery, was one of the programs developed, under my guidance.

IMPERIAL CHEMICAL INDUSTRIES PLC

NORTH WEST REGION CONTROL ENGINEERING GROUP, RUNCORN (1978 to 1980)

In October 1978, I left Mobil to join ICI as a Senior Computer Applications Engineer, at their specialist control engineering group (NWRCEG), based in Runcorn. This group, (which is now part of the Control Development Section of the Control and Electrical Group of the ICI Engineering Department), provided control engineering expertise to three ICI Divisions based in the North West of England, i.e. Mond (Heavy Chemicals,) Organics and Pharmaceuticals Divisions. Initially on joining ICI, I worked on a large scale salt process in the Runcorn area. A DEC PDP 11/35 had been installed on the plant a few years earlier, but was not producing the benefits expected. After studying the process (multiple effect evaporation), I designed and programmed, in RTL/2, a control scheme to maximise the steam rate to the plant (subject to pressure vessel constraints), and thereby increase salt production. In the first four days of its use the works acknowledged that it was responsible for the production of 500 tons of extra salt (conservatively £100,000 on an annual basis, a very large benefit for such a process). I also instigated other control schemes and management reports on the plant.

I wrote computer specifications for new plant, including one for a chlorine process using membrane technology, a new area for ICI, at the time. I made recommendations on the type of computer to be used on the process, which were accepted by the project management.

At this time I started work on reliability studies of large scale heating and ventilation plant (HVAC), used to control environmental conditions in experimental areas of the ICI research establishment at Alderley Park, near Macclesfield. I also began the work necessary to specify a digital system to provide a whole site monitoring system for Alderley Park. (Loss of the environmental conditions of an experiment could have a profound affect on ICI's financial success, the Pharmaceuticals Division being one of the most profitable. The Pharmaceuticals Division now finds itself in a group of other ICI divisions or business areas, of a fine chemicals nature, trading under the name "Astra-Zeneca".) This work required the evaluation of a number of solutions to the problem. Systems evaluated included those that are generally used to provide energy management and access and security features for large buildings.

ICI ENGINEERING DEPARTMENT, FINE CHEMICALS GROUP, ALDERLEY PARK (1980 to February 1984)

In July 1980, I was transferred to Alderley Park to set up a Control Engineering Group Outpost, with the objective of increasing the awareness of control engineering technology, within the Pharmaceuticals Division of ICI. In accordance with this aim I took part in a "Modern Technology" seminar for senior management (to Director level), at which I gave a practical insight into the power and flexibility of programmable logic controllers (PLCs). I devised the scope of this demonstration and accompanying presentation and programmed the PLC.

Once at Alderley Park I continued my work on whole site monitoring and designed a system, which was not installed because of the financial situation prevailing at the time. I subsequently specified and installed smaller systems for individual areas, based on such as PET computers, using Kratos Instem Link-ons to interface with the HVAC plant and the environmental sensors in the research areas.

Whilst at Alderley Park the Engineering Department of Pharmaceuticals Division merged with its Organics Division counterpart to become the Fine Chemicals Group of the ICI Engineering Department. During this time, I assumed project responsibility for all control work on the Alderley Park site. To carry out this rôle I had control/electrical designers reporting to me.

On HVAC projects, I specified modern microprocessor based systems with energy management features such as Honeywell "Excel". I introduced HAZOP (Hazard and Operability) studies into the design of such HVAC plant and commissioned reliability assessments by the Systems Reliability Service of the UKAEA. I used the hazard rate trees of their report as an initial basis for the input list for the HVAC plant monitoring system.

On the boiler plant I recommended and subsequently implemented a number of energy saving proposals and updates to instrumentation. These included installation of a system to continuously monitor boiler efficiencies; putting certain boilers into mothballs; installation of a PLC based boiler sequencer; monitoring and control of flue gas oxygen.

Although most of my work at Alderley Park was based on projects actually taking place on the site, I also initiated an energy conservation project and a steam monitoring system based on Turnbull Control Systems (TCS) instrumentation at the Pharmaceuticals production site in Macclesfield.

I presented a paper entitled "Energy Management and Control Systems in Pharmaceuticals Division" at the 1982 ICI Energy Co-ordinators' Conference, in which I described my work on the boiler plant at Alderley Park, and energy saving features on HVAC plant, with special reference to the use of microprocessor based techniques.

On transferring to Alderley Park I initially retained an interest in the Mond Division Salt Works, via a project which Manchester University carried out on the implementation of novel advanced control strategies. On hearing of their project, I recommended that the salt process would be an ideal vehicle to test out their techniques on a real process, and this was agreed by the works management. I acted as the link between the university and the works, and provided a technical input.

ICI ENGINEERING DEPARTMENT, FINE CHEMICALS GROUP, ALDERLEY PARK. (continued)

I left ICI in February 1984 to join Lindsey Oil Refinery on Humberside, having sold microprocessor control technology, hazard and operability techniques, etc to non-traditional recipients such as Doctors, Vets, Biochemists and Civil Engineers.

TOTAL LINDSEY OIL REFINERY LIMITED, KILLINGHOLME, IMMINGHAM (February 1984 to March 1996)

Lindsey Oil Refinery (LOR) is owned by TOTAL, based in Paris. TOTAL has no other refining capacity in the UK.

Senior Control Engineer: Head of Instrumentation Upgrade Taskforce

I was specifically recruited by LOR, as a Senior Control Engineer, to head a task force empowered to come up with detailed proposals for the replacement of obsolete electronic instrumentation, installed in the late sixties, on the process and boiler plant areas of the refinery. This involved the production of a detailed cost estimate, based on a recommended approach and selected vendor, and the identification of additional [advanced] controls, to provide a return on investment for LOR's owners.

The aims of the task force were met in March 1985 and it was disbanded. I was immediately appointed the Technical Manager of the project resulting from its recommendations.

Technical Manager, Instrumentation Project

The instrumentation project (apart from advanced controls: see later) was completed in April 1989. Everyone was in agreement that the project was a major success.

Outline features of the instrumentation project, resulting mainly from my recommendations as head of the task force, are as follows:

- replacement of the existing panel instruments with new microprocessor based panel instruments, manufactured by TCS. (Note that TCS was then renamed to reflect its ownership by Eurotherm, i.e. it was then known as "Eurotherm Process Automation" - EPA, this subsequently being absorbed into Invensys. Certain of its instruments retain the TCS name.) The TCS instruments were installed in new panels housed in existing control rooms.

  The panel instruments are augmented by operator consoles housing VDUs and keyboards, that are the normal operational interface to the processes. A DECNET link between the redundant DEC VAX processors, driving the operator displays, communicates with another VAX computer. This computer is used to develop new displays, provide an interface to MIS computers and provide non-operational staff with the same displays, but read-only, that the operational staff have access to.

LINDSEY OIL REFINERY LIMITED (continued)

Most new projects and instrument revamps on refineries have been implemented using "Distributed Control Systems" (DCS), of which Honeywell TDC 3000 was particularly popular at the time. By analogy with the DP manager, who for all new projects, at this time, specified IBM, it would therefore have been safe to specify a system familiar to the oil industry for the LOR project. The projects that I worked on at ICI were not of oil industry size, and I therefore became familiar with systems such as TCS, which can be used economically for very small projects, unlike most well known distributed systems, with their prohibitive cost, below a certain loop count. This exposure to such instruments led me to consider them for the LOR project, as an alternative to the TDC type. Once it was found that they were substantially cheaper than the usual approach - there was a difference of over a million pounds - with the bonus of panel backup to the VDU based operator consoles, I recommended the option, and subsequently the vendor, to the refinery's owners. This followed a bid evaluation, using a detailed specification prepared by myself. After protracted discussion TCS were accepted. During this time, many parties, including vendors of rival systems, tried very hard to persuade the owners of the refinery and the LOR general manager that we were doing the wrong thing. This, of course, amplified the problems associated with getting approval. Such approval is difficult to obtain at the best of times in LOR, because of the need to satisfy two parties, from abroad, who meet infrequently. It should be noted that there was no technical compromise going TCS; ability to meet the specification was regarded as more important than lowest cost, i.e. the system installed compares favourably with the most well known DCS, even with their current offerings. Important requirements such as fast mimic invocation time and speed to find the right screen in emergency, for action on the plant, are particularly good;

- the original loop count of over 600 PID controllers was increased by the addition of advanced controls. The advanced controls are providing the bulk of the financial return of the project, by, for example, improving yield patterns on process units and reducing energy consumption. It was planned that the commissioning of the advanced controls would commence six months after completion of the main project, to allow the operators to gain familiarity with the existing controls implemented with a new control scheme. The advanced control schemes are now in place and are being highly utilised.

I proposed the advanced control applications, after a feasibility study that I set up. The control schemes commissioned are producing a very acceptable return on investment on the high cost project. I initiated automatic utilisation monitoring of the advanced control schemes. The utilisation reports show management that they are getting the multi-million dollar annual return on investment claimed, and provide early pinpointing of problems and hence solutions, thus keeping utilisation high. There is no return on investment from a control scheme which is not utilised! The instruments chosen have the power to implement the advanced control schemes at the instrument level, as opposed to using a process computer. The return on investment is therefore truly from the instruments, a requirement of the refinery's owners. Note that this would not have been possible with most of the well proven distributed systems, available for consideration, at the time. Overall loop availability is higher using this approach;

LINDSEY OIL REFINERY LIMITED (continued)

- conventional alarm annunciators were replaced by video alarm systems dedicated to Priority 1 alarms. These are driven by dual PLCs. Priority 2 alarms are generated by the panel instruments and made available to the operator consoles. My recommendation to handle priority 1 alarms in this novel way was accepted by the operations department and the owners of the refinery, despite a cost differential. The system I designed is novel but intuitively simple. It has been extremely well accepted by operations;
- certain field transmitters were replaced. Additional transmitters and analysers were installed for advanced controls;
- the refinery's owners accepted Bechtel, my choice of main contractor for the project, although they were not the cheapest;
- although controversial, I persuaded the owners of the refinery to carry out the changeover from old to new instruments on a loop by loop basis, generally without shutdown of the appropriate process units;
- I carried out a detailed design of replacement combustion control schemes for the refinery furnaces and boilers. Novel safety features have been incorporated into the control schemes. I conducted extensive operator training, using simulators to drive instruments in a training panel. The operating procedures for the processes controlled by the new instruments were written by myself, developed from the operator training notes that I produced. I was deeply involved in the successful commissioning in 1988, subsequent to which the controls have been trouble free. They are some of the most sophisticated, yet safe, combustion controls installed in the process industries;
- to keep my hand in, I coded up some of the advanced control schemes myself, using a test rack full of instruments and a programming terminal. This followed a FORTH language course at a Grimsby College, and detailed training and liaison with TCS applications engineers.

Process Control Group Head

Once my duties on the instrumentation project were complete, I was appointed the Head of the newly formed refinery Process Control Group. As such I had a number of graduate process control engineers reporting to me. They carried out all aspects of the work required to commission the advanced controls resulting from the instrumentation and other projects, under my guidance. Where appropriate I used the PC-based planning tool "SuperProject Expert" to schedule the other resources required for such work: instrument, computer and operations personnel. Other PC software with which I have practical experience includes the spreadsheet package "Microsoft EXCEL", and the wordprocessor Microsoft "Word". I used the latter to produce this experience report!

LINDSEY OIL REFINERY LIMITED (continued)

In this position I also provided significant input to a project in the off-sites area of the refinery, particularly in the replacement and enhancement of gasoline and gasoil blending systems. Based on my recommendations an order for the gasoline blending system was made with Foxboro; Veba Oel were appointed the main contractor. This followed a detailed study to select a system which would provide the best return on investment. The Foxboro system provides optimised control of the ratios of the blend components. The ratio setpoints of a digital version of a conventional blender are adjusted by an on-line LP-based optimiser, running in conjunction with new on-line analysers. System commissioning, initially deliberately without using the optimiser, took place, on schedule, in August 1990. Within six weeks of commissioning of the simple ratio blender the bulk of blends subsequently produced have been made with the optimiser in use. This was much faster than envisaged, bearing in mind the complexity of the package.

I had a major involvement in all aspects of application software expediting and system hardware and software testing and commissioning of the gasoline blending system. I conducted the extensive tightly scheduled Factory Acceptance Test, for which I had the sign off responsibility. Other related work included the planning, organisation and detailed participation in the training required for personnel such as operations, planning and the refinery instrument department. Ironically, bearing in mind the relatively low I/O count for this project, compared to the previously described Instrumentation Upgrade Project, the technology leap forward was far greater, i.e. from simple control of flows ratios and dips, optimised blending based on qualities and product costs had to be "sold" to operators, in order that they use the system, and thereby provide the return on investment expected of the system. Since commissioning, the benefits of the system are immediately obvious and maximum co-operation is being obtained from operations personnel, who are very enthusiastic about it. Maximum use is being made of the cheapest components in the blend whilst minimising quality giveaway. Although this would be expected of an LP based optimiser, it is being achieved, in practice, blend after blend, providing an annual seven figure return.

I subsequently provided a consultancy input to the equivalent gasoil project, commissioning of which successfully took place in mid 1992. Software support of the Foxboro system providing these functions is the Process Control Group's responsibility. Consequently I was involved in a project to provide Movements Monitoring and Recording. Interesting alarm aspects of this project, which I had a major hand in specifying, include alerting the operator when a storage tank, for which it is expected that the level will remain static, moves or when a tank, which is expected to move, has a level change in the wrong direction. This reduces the chances of pollution and product contamination.

LINDSEY OIL REFINERY LIMITED (continued)

Following assessment in August 1991 by Lloyd's Register Quality Assurance Limited, LOR's Quality Management System was approved for registration - at the first attempt a month later - to the British Standard: BS 5750:Part 2: 987. (This is exactly equivalent to registration to international standard ISO 9002 and the European standard EN 29002.) LOR had to draw up appropriate Quality Assurance (QA) procedures to get the Quality System approved. I initiated the production of appropriate procedures for the Foxboro system, necessary because product quality results predicted by its Quality Integration software are used directly on product Certificates of Quality. The procedures initiate laboratory checks on the Quality Integration, following software or configuration changes to the Foxboro system.

Vendor selection for the off-sites project was made difficult because:

- the first vendor had proven hardware but no blending optimisation software, although their technical literature and sales representatives said otherwise;
- the other principal vendor considered had a new system. Their blending optimisation software was successfully in use on a process computer, but not on the target processor of their new system, and required coding in a different language.

After visiting sites where the two systems were installed I persuaded the project team and the owners of LOR to go for the second option. I subsequently planned an expediting programme, to ensure delivery to schedule and to specification.

I also provided a major input to a project to improve DCS alarm handling on the refinery. I headed a group empowered to come up with recommendations for doing this. Following a major power loss at the refinery, which resulted in operators being swamped with alarms, to the detriment of operating on the process, I recommended that the group be set up. After initiating a detailed survey of available technology, by visiting control system vendors and other refiners, I prepared a detailed enquiry document. In addition to incorporating the latest thinking in alarm handling, it contained many ideas of my own. I presented the project justification to senior management and the LOR's owners, and it was approved and subsequently successfully commissioned. A number of novel alarm handling techniques have been implemented, which I was confident would greatly help the operator get safely through similar incidents, should they occur in the future.

In 1992 I prepared a detailed specification for a study into the upgrading of instrumentation in another major area of the refinery, which includes the cracking complex (UOP FCC). This involved: replacing instruments with high availability controls; adding advanced controls and optimisation identified as providing a high payback; and upgrades to trip systems to meet plant availability requirements and current or projected HSE guidelines or equivalent (particularly IEC 1508/11). The study was not undertaken, since budget constraints would not allow the follow-on project to go ahead. A few years later, this area of the refinery was the subject of a complete reinstrumentation, which is covered below.

LINDSEY OIL REFINERY LIMITED (continued)

I subsequently provided a process control input to a Combined Heat and Power (CHP) project, particularly the design of the combustion controls for its supplementary fuel-fired boiler, and I worked on a project to implement multivariable control on an LPG unit, justified on financial return, and on evaluation of the technology. I was also involved in a crude unit inferential analyser control project. This provides a significant additional financial return to that already being obtained from the other high payback controls, that I introduced, as part of the previously mentioned Instrumentation Upgrade Project.

Whilst at Lindsey Oil I presented papers on instrumentation upgrades, advanced controls, combustion controls and optimised blending at seminars in the UK, Europe and the United States. Articles of mine published externally include: "Innovative Boiler Control", in *Hydrocarbon Technology International '89/'90*; "Optimised Gasoline Blending at Lindsey Oil Refinery" in the July 1992 edition of the Institute of Petroleum's *Petroleum Review*; "Gasoline Blending Optimisation Cuts Use Of Expensive Components", in the 9th of November 1992 edition of the *Oil & Gas Journal*; and "Blend Optimisation to Improve Refinery Profitability", in the Spring '95 edition of *Hydrocarbon Technology International*.

As part of the refinery's ISRS (International Safety Rating System) safety initiative (it currently is at level 7), I chaired monthly meetings on safety topics.

TOTAL RAFFINAGE DISTRIBUTION, RAFFINERIE DE NORMANDIE, GONFREVILLE-L'ORCHER, FRANCE
(March 1996 to February 1997)

After a month's intensive French course (one-to-one) at TOTAL's headquarters in Paris, I transferred from Lindsey Oil, for assignments to TOTAL installations in France. First stop was to TOTAL's Normandy Refinery, at Gonfreville-L'Orcher, near Le Havre. This is one of the biggest refineries in France, the biggest and most complex in the TOTAL group.

At the Normandy Refinery (RN) I headed the "Process Control and Distributed Control Systems Group" (Chef de Secteur Contrôle des Procédés et Systèmes). As such I had similar responsibilities to those which I had at Lindsey Oil Refinery, i.e. I supervised a team of four technicians, an engineer and a student.

I recommended updates to existing advanced controls on the refinery's major crude unit and gas plant. These have been implemented; they provide a very large return for no capital investment, being implemented on existing instrumentation/process computers.

With my background in optimised blending at Lindsey Oil, I was also asked to get involved in the latter stages of the corresponding project at RN. I took part in the audit of the system, i.e. before and after analysis to provide management with the proof that it is providing the return on investment expected. Honeywell was the chosen system for optimised blending at RN; it is much improved compared to when it was evaluated for the Lindsey Oil project, as described earlier. The Honeywell system has two major options for blend optimisation: minimise giveaways; or minimise blend cost. I initiated discussions, with the refinery's Planning and Performance Control Departments, with the aim of ensuring that the best option is used. The outcome of this was that that my recommendation to change options used is to be carried out.

Whilst at the refinery I was asked to participate in a process control survey of TOTAL's three North American refineries; they have since been sold (on merging with the Belgian company, Petrofina, it subsequently acquired its North American refineries). This three week long study resulted in a large report detailing a number of recommendations, including: staffing requirements; advanced control implementation, some requiring capital investment, some not; and control systems upgrades.

TOTAL: Centre Européen de Recherche et Technique, Harfleur, France (February 1997 to March 1999)

At TOTAL's European Research and Technical Centre (CERT), which is next door to their Normandy Refinery, I was an Ingénieur Automatisation (Process Control Specialist). I mainly worked on advanced control and instrumentation projects (revamps and grassroots). I provided significant input to a major advanced control project at the TOTAL refinery in the Netherlands. This involves the implementation of Multivariable Control technology on the hydrocracking complex. It was the biggest project of its type ever undertaken in the whole TOTAL group. I prepared the detailed enquiry document. I was deeply involved in vendor evaluation (which included organising and participating in vendor and refinery visits in Scotland, Germany and the USA) and selection. I remained on the project right through to commissioning and performance auditing. I also had a major role in reinstrumentation projects covering the whole of the process side of the refinery, i.e. the crude complex in addition to hydrocracking.

At CERT, as I did at the Normandy Refinery, I had weekly, one-to-one French lessons.

I completed the translation from French to English of TOTAL's DCS and Emergency Shutdown (ESD) Specifications. These are in total over 180 pages long. These had been previously translated by personnel with the wrong technical background, such that they were of limited use for the many projects, which TOTAL are currently undertaking, which require high quality English language specifications. They were, for example, used for the previously mentioned Dutch reinstrumentation project (for which I produced the project specific amendments to the base specifications), and a TOTAL refinery project in Indonesia, for which I participated in a HAZOP, and attended DCS/ESD Specification meetings. As a follow on from the specification translation work, I was frequently asked to carry out other technical translation work.

Other work undertaken whilst assigned to TOTAL, away from the UK, included participation in a HAZOP for a bitumen unit for a TOTAL refinery in Cameroon. I also carried out promotional work in refineries in the TOTAL group, for example, trying to persuade them to implement Multivariable Control projects.

TOTAL LINDSEY OIL REFINERY LIMITED, KILLINGHOLME, IMMINGHAM (March 1999 to June 2003)

My main responsibility on return from the three-year assignment to TOTAL affiliates in France and The Netherlands was another major reinstrumentation project, this time on the whole of the Lindsey Oil Refinery. Particular responsibilities included: production of the project bid books, which incorporate DCS specifications prepared by myself; and the advanced control aspects of the project. I was also deeply involved in DCS vendor selection, this being Honeywell.

AVAILABLE FOR PROCESS CONTROL CONSULTANCY & FRENCH TO ENGLISH TRANSLATION (JUNE 2003 to date)

I retired from Total in June, 2003. I am available for consultancy work in the fields of Process Control and DCS, and for French to English Translation. Consultancy work undertaken has included: having the "Lead Control Engineer" role on a feasibility study for a grassroots refinery in Brazil; and providing the Control/Instrumentation input to HAZOPs (Hazard and Operability Studies) on process units within the Petroplus Refinery (former British Petroleum (BP) Refinery), in Coryton, Essex. These HAZOPs were undertaken using the PHAWorks package from PrimaTech (www.primatech.com).

My current customers for translation work include refiners (supply contracts), chemical and detergent manufacturers, brewers and legal firms. The English pages of www.festivalbruxellensis.be are examples of my translation work. I also have the hobby job of "Beer Hunt Organiser", see www.whitebeertravels.com. This website was built by myself and is maintained by myself.

John White:jw, john@whitebeertravels.com. June, 2007.