

BP Oil's *Project Management Praxis*

PM Praxis, a CD-ROM of helpful project management documentation, is one innovative way BP Oil is fighting the loss of corporate PM knowledge and expertise that occurs with project team demobilization.

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In recent years British Petroleum, like many companies, has seen changes that affect the way capital projects are managed—reductions in staffing, elimination of central engineering groups, loss of experienced people, lack of young people being developed to follow them, and a capital-investment climate that makes future project workload uncertain. These changing conditions suggest the need for new techniques for preserving project management expertise and promoting good project management practices.

Four years ago BP Oil initiated a major new program to upgrade its U.S. refineries, largely to support Clean Air Act initiatives. A Major Projects Group composed of six project teams was established to manage the various projects. A core staff of functional experts was also assembled to sup-

port the project teams. Because of a previous dearth of major projects, the people and organizations for managing big jobs had virtually disappeared. The new group had to recruit personnel from BP Exploration (the “upstream” part of the oil business), BP Engineering in London, individual refineries, and outside contractors. The organization went through the usual periods of adjusting to new people in new roles and developing policies and procedures, while pushing forward with fast-track, complex projects. During this shakedown period there were problems and mistakes, but by the end of three years an efficient operating group was in place. Unfortunately, by that time the projects were being completed and, with no new ones in sight, it was time to demobilize the organization.

Table 1. Major Project Milestones

MANAGEMENT		OPERATIONS	
1.	Corporate Planning		
		1.1 Needs/options review	
2.	Pre-Project		
2.1	Name project manager	2.6	Define objectives
2.2	Assemble initial team	2.7	Select engineering contractor
2.3	Prepare initial Project Execution Plan	2.8	Award contract
2.4	Obtain Pre-Project funding	2.9	Produce design books
2.5	Obtain FEED funds		
3.	Front-End Engineering Design (Feed)		
3.1	Assemble full project team	3.5	Define/select/award FEED contract
3.2	Prepare/implement Project Execution Plan	3.6	Kick off FEED contractor
3.3	Prepare operating procedures	3.7	Freeze design basis
3.4	Obtain full sanction funding	3.8	Prepare Class 2 estimate
		3.9	Define/award detailed design contract
4.	Design/Procurement		
4.1	Refine Project Execution Plan	4.3	Kick off detailed design
4.2	Set up/staff field offices	4.4	Place purchase orders
		4.5	Deliver equipment/materials
		4.6	Prepare contract packages
		4.7	Select/award construction contract(s)
5.	Construction		
5.1	Refine Project Execution Plan	5.2	Kick off construction contractor(s)
		5.3	Monitor construction activities
		5.4	Turnover facilities for pre-commissioning
6.	Commissioning		
6.1	Close out project	6.2	Pre-commissioning/start-up
		6.3	Final turnover

This organizational build-and-demolish cycle has been repeated many times in the last two decades by BP in the United States (formerly Standard Oil of Ohio). After a big job is done and a good project management team has been developed, most of the people drift off to other organizations, taking away newly enhanced skills and knowledge. The operating practices, so painstakingly developed, evaporate as people leave, and the policy/procedures binders go into storage or the wastebasket. When the next big project comes along, the project team starts from scratch to repeat the cycle. Some of the mistakes made before are likely to be repeated.

BP Oil was determined to end this cycle and find better ways to manage projects. A system was needed that would:

- Preserve the best guidance, policy, and procedure documents in a readily accessible format
- Capture some of the expertise of the key project-team members in a form easily passed on to the next team

- Present all of the information in a way that would encourage its use by future teams.

Something new was needed to meet these objectives. Too often, earlier attempts to preserve expertise had been lost or ignored when the next project started. BP Oil's answer to the need for a new system is the *Project Management Praxis*. The *PM Praxis* is composed of three major components, all included in a single CD-ROM disk: Checklists, Reference Library, and Information-Management Software.

Checklists. Before BP Oil's Major Projects Group demobilized, key members were asked to develop detailed checklists of the steps that should be taken for successful project execution. The checklists begin with earliest project conceptual studies and follow through the project life to commissioning of completed facilities. Nearly 1000 steps are identified and presented in six individual checklists for various project functions: organization/staffing, engi-

neering/quality management, project control, contracts/purchasing, construction, and handover/commissioning. The checklists are organized by a common set of project phases and major milestones, as shown in Table 1.

Table 2 is a sample page from the Checklists. Some of the activities are followed by annotations in columns headed "Guidance" and "Warnings." These refer to specific pages in documents contained the Reference Library. The "Guidance" references provide background or assistance in how to carry out the activity. The "Warning" references note what to watch out for to avoid problems. Most of these warnings come from a booklet of lessons learned that was distilled by the BP Group from post-project appraisals of worldwide projects over a ten-year period.

Reference Library. The *PM Praxis* includes over 6000 pages in documents or sets of documents collected from many sources. Important quality-management, contracts, and other guidelines

Table 2. Example from Checklist

PROJECT CONTROL			
Activity		Guidance	Warning
2. Pre-Project			
2.3 Prepare Initial Project Execution Plan			
Develop Project Master Schedule - Level 1		2/6-3/5	1/21
Establish general timing of project phases			
Identify long-lead procurement items			
Define Pre-Project project control plan		2/6-3/5•8/48	1/16
Define preliminary eng project control organization			
Define roles and responsibilities		9/1/1-6	8/77 thru 8/85
Develop minimum project control procedures	14/Eng project contr functions		8/95
Establish project reporting requirements	9/2/1-8		9-8
Implement information management plan			
Develop project work breakdown structure		2/6-3/6•2/6-3/14•2/6-3/24	
Define BP accounting/tax interface			
Develop cost/org breakdown structure		9/3	
Cost code of accounts			
2.5 Obtain FEED funds			
Refine conceptual estimate to Class III		2/6-3/6•2/6-2/4	2/6-2/7; 1/23
Construction site labor surveys			
Assess work force availability			
Determine labor rates and productivity		2/2-3/6	
Equipment and bulk material quotes			
Define equipment factors for manhour estimate			
Develop/implement trend procedure		18/#9	
Prepare FM for partial sanction		1/8•8/24	1/10; 1/18
Liaise with operations/econ groups		1/21	1/9; 1/32
Develop capital/expense AFEs			

were developed by BP Oil's Major Projects Group. For years BP maintained a central engineering group in London that produced many detailed guidance texts on project management. Several good contributions came from BP Exploration's various projects for Alaskan oil fields.

An invaluable part of the Reference Library is 30 booklets on project management topics prepared by the Construction Industry Institute. Inclusion of the CII guidance in the *PM Praxis* makes it available and readily usable by many in BP who might not otherwise be aware of it. The CII booklets are heavily referenced throughout the Checklists.

A list of the contents of the Reference Library is shown in Table 3.

Information Management. The software program selected for the *PM Praxis* is Interleaf Worldview. *The Praxis* was loaded into this software by UNISCAN,

the firm representing Interleaf Worldview in the Cleveland area (BP Oil had already adopted the software for its refinery technical standards). Features of this software that make it attractive for the *PM Praxis* include:

- "Hyperlinks" are easily established between different points in the *PM Praxis*. For example, hyperlinks enable the user to click on an icon next to a reference by a Checklist activity and jump directly to the relevant page in one of the Reference Library documents. Likewise, clicking on the title of one of the Reference Library documents jumps to its Table of Contents; another click moves to a chosen section.
- The user can leave "bookmarks" to quickly return to the sections marked.
- "Sticky" notes can be inserted anywhere and easily recovered when needed.

- Any part of the text or graphics in the *PM Praxis* can be printed with good quality.

- Text can be imported to the user's word processing program and tailored to meet one's needs.

All of the *PM Praxis* material and software is incorporated in a single CD-ROM disk that can be run on a PC with Windows or on a Macintosh. It is easy to install and begin using without special training.

The Future for *PM Praxis*

The *PM Praxis* is just becoming available for use within BP. Like any management tool, its benefits will depend on how users choose to implement it. The hoped for and intended uses include:

- Even experienced project managers and their teams are usually grateful for a good checklist to assist in planning and executing projects. The

Table 3. Reference Library List

TITLE	SOURCE	DATE	DESCRIPTION
1. Project Development and Control	BP Group Internal Audit	Mar 1989	Lessons learned from ten years post-project appraisals.
2. CII Booklets (30)	Construction Industry Institute	1986–1991	CII Task Forces produced guidance publications.
3. Documented Project Management System	BP Oil Grangemouth Refinery	Nov 1992	Provides documentation permitting audit of project quality.
4. Project Orientation and Procedures Manual	BP Exploration (Alaska)	Jul 1991	Organization, responsibilities and procedures for a major Prudhoe Bay project.
5. Project Control Manual	Marcus Hook Refinery	Nov 1992	A project-execution manual for U.S. refineries.
6. Project Management Guide, Volumes 1 & 2	Sohio Construction Company	Oct 1983	Matrix-management issues are addressed.
7. Project Management Manual	BP Group Engineering	Jun 1987	Project management principles and guidance.
8. Project Management	BP Engineering (J. K. Bradie)	Mar 1992	Concise review of project management fundamentals.
9. Project Control Procedures	BP Engineering	Aug 1989	Detailed project cost-control guidelines/procedures.
10. Introduction to Project Management	BP Engineering	Apr 1989	Project fundamentals and terms for new people.
11. Project Coordination Procedure	BP Engineering and Technical Centre	1983–1985	Scope/relationships/responsibilities between Client/Operator/Contractor.
14. The Project Manager's Manual, a User's Guide	Stanford (for Sohio)	1984	Detailed checklists of project activities.
15. Project Quality Management System	BP OUS Projects Group	Apr 1992	Quality-management system for project execution.
16. QM-10 Guidelines for Site Construction Work	BP OUS Projects Group	Oct 1992	Inspection forms/procedures/certificates/records.
17. Master ITB (Invitation to Bid)	BP OUS Projects Group	Dec 1991	Format for construction-contract bid documents.
18. Projects Group Policies and Procedures	BP OUS Projects Group	Mar 1991	Policies/procedures for a major-projects group.
19. Construction Safety Manual	BP OUS Projects Group	Oct 1991	Guidelines for a construction safety program.
20. Project Procurement Procedures	BP OUS Projects Group	Feb 1991	Procedures for contracts and purchase orders.
21. Project Engineering; Guidance and Warnings	BP OUS Projects Group	Nov 1993	Notes reflecting recent experience.

Checklists in the *PM Praxis* provide a starting point for developing a checklist tailored to a specific project.

- A senior manager with limited staff can monitor the plans and progress of many projects if they are all structured by the common milestones in the *PM Praxis*.
- People who are new to project work can find training in the step-by-step guidance on project management, with as much background explana-

tory information and assistance as needed.

- If project teams refer to the Checklists on a daily or weekly basis, they will be reminded to review relevant lessons learned, CII publications, etc. The visibility of the reminders and the quick, easy access to guidance and warnings should make them more likely to be used than now, when too often good guidance sits forgotten on the shelf in the press of project activities.

These are the objectives and the hopes for BP Oil's *Project Management Praxis*. We have done something new and different. We will be finding out in future years whether or not it really helps us to do things better. ■

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