

Pre Start-Up Auditing



Taller ARPEL
“Elementos de Seguridad de Procesos”

Peter Medlam
March 2014

Contents

1. Objective
2. Basis:
 - GIP
 - Scope Definition
3. Process
4. Reporting
5. Follow-Up

Objectives

A Quality Assurance event to:

- Verify that all HSE aspects have been addressed in the design phase, that the minimum handover standards have been met according to the GIP process and that the integrity of the complete production system can be verified.
- Confirm the state of physical readiness of the plant and associated production and export systems for start up, ramp up and steady state operations.
- Assess and verify the effectiveness of the controls that are in place to manage pre-commissioning, implementation of systems / procedures and handover from Projects to Operations.
- Determine the state of “Readiness for Operations” in order to ascertain that there is a safe and solid basis for the introduction of hydrocarbons and initial operation.

Basis – OSHA Guidance on PSM

Pre-Startup Safety Review

For new processes, the employer will find a PHA helpful in improving the design and construction of the process from a reliability and quality point of view. The safe operation of the new process is enhanced by making use of the PHA recommendations before final installations are completed. P&IDs should be completed, the operating procedures put in place, and the operating staff trained to run the process, before startup. **The initial startup procedures and normal operating procedures must be fully evaluated as part of the pre-startup review to ensure a safe transfer into the normal operating mode.**

Basis – Scope

- Confirm that systems are in place for the identification and compliance to the relevant Permits, Consents and Regulations.
- Arrive at an opinion about the overall quality of controls that are in place to manage the start up of the new facilities.
- Identify any weaknesses in controls including the HSE aspects.
- Identify any areas of the Readiness for Operation scope that are not adequately covered.
- Propose the necessary corrective actions.
- Form an opinion on the readiness to safely introduce hydrocarbons.

Gestión Integrado de Proyectos

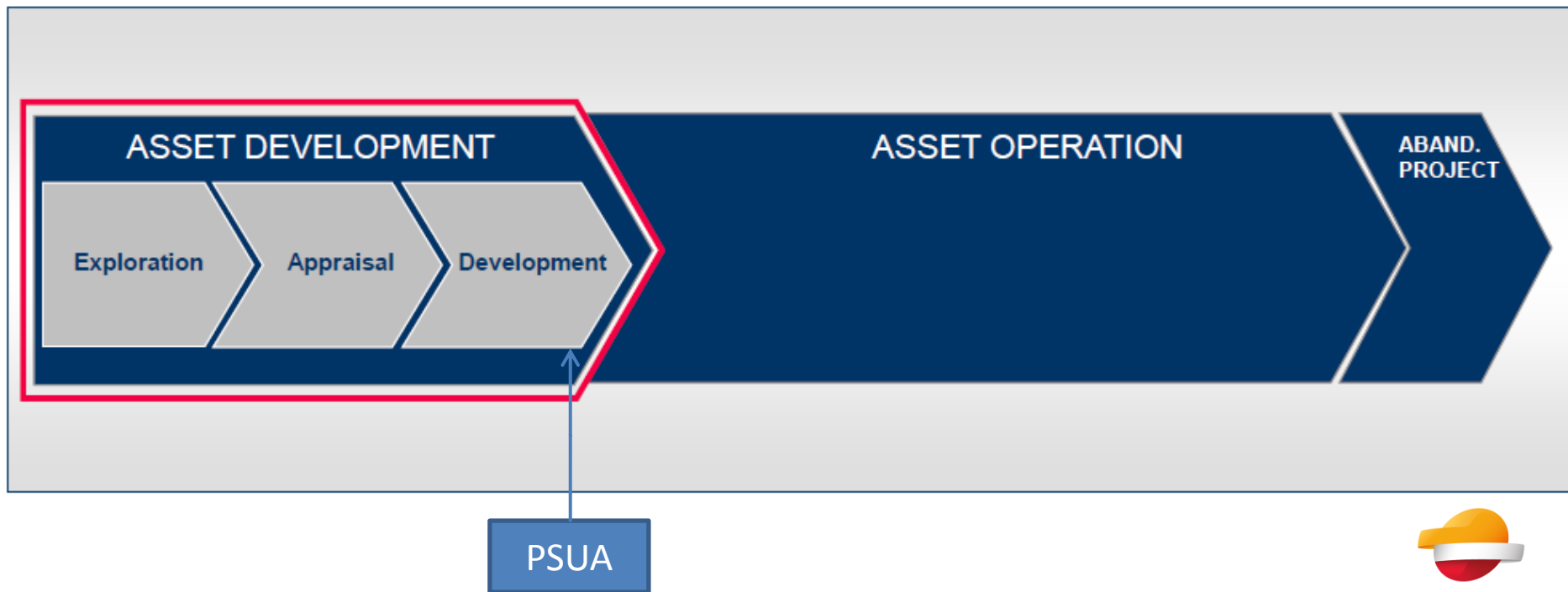
– GIP Concept



Process Safety Management

- Spans the complete life cycle of the asset and **includes surface & sub-surface facilities.**
- **Engineering** (inc. Wells) are responsible for **Establishing** Technical Integrity (e.g. definition and application of design specifications and performance standards).
- **Operations** (inc. Wells) are responsible for the **Safeguarding** of Technical Integrity (e.g. application and verification of operating and maintenance practices and performance standards, Management of Change).

E&P Asset Lifecycle



Basis – Scope

- Well Handover;
- HS&E Management and Emergency Response;
- System Design Integrity and Verification;
- Key Documents
- Maintenance Management;
- Readiness for Operations and Handover preparedness; Review of high level punch list (class A or Class 1) item management (if any)
- Organisation, staff competence and ongoing competence assurance;
- Change Management, deviation control and contingency plans;
- Previous reviews and HAZOPS and status of close out
- Minimum Environmental Standards
- Logistics readiness including spares, warehouse and supply base.

Process - 1

Team formed depending on scope of project. Usually a member from O&M, HSE and Facilities not connected with the project. Also required dedicated members from the BU O&M and Project teams.

A Pre Start-Up Review (PRSU) is carried out when the project has passed to the commissioning phase. This will normally allow the project team to close all urgent, high priority findings before the Pre Start-Up Audit (PSUA) which is carried out during the week before introduction of hydrocarbons.

The PSUA is an audit of the completion of the findings of the PRSU.



Process - References

The main documentation to be used as reference during the review will include, but not limited to:

- HAZOP reports of plant and Well Systems;
- Basis of Design;
- Project Specifications and Standards;
- Process Flow Diagrams, P&ID's and related drawings;
- Management of Change procedure;
- Review Tracking Records and follow up for commissioning, audits and reviews;
- Production Integrity associated documentation
- In field completion, hook-up, commissioning and startup plans and procedures;
- Operating and Maintenance Procedures and systems including SAP PM and MM;
- Handover and Acceptance Procedures;
- Start-up plans and procedures;
- Emergency Response procedures;
- Organisation charts

Process – Main Topics

1. Project Plan
2. HSE
3. Management of Change
4. Handover Procedures
5. Staff and Training
6. Operations and Maintenance Manuals
7. Maintenance Preparation
8. Logistics
9. Interfaces with 3rd Parties
10. Preparation for Start-Up
11. Proving Period and Handover

Process – On site

1. Interviews with Operations Management

- Asset Manager
- Planning Manager
- HSE Manager
- Development Manager
- Etc

2. Site visit

- Site Manager
- Planning team
- Commissioning team
- EPC Contractors
- Interview everyone!

3. Observations

4. Check and confirm findings

Reporting

- The Review Team will deliver a draft report prior to the end of the initial on-site review.
- The formal report will be issued to the BU Director within two weeks of completion of the Review or before introduction of hydrocarbons as appropriate. This will be updated after each subsequent on-site or video conference review as appropriate.
- The report will contain findings, their significance and recommendations, where appropriate, for their resolution.
- The final report will also include an overall assessment rating of readiness for introduction of hydrocarbons

Reporting – Classification of Findings

- U = Urgent. No action has been taken and the subject is not included in the Project Plan
- 1 = Is included in the Project Plan and in progress but must be finished before the introduction of hydrocarbons.
- 2 = Is in the Project scope but it is not essential that it is finished before introduction of hydrocarbons.
- O = Observations that are useful for future projects or in matters not related to the project. Should be used as Lessons Learned for other projects.
- Checked – Items in the PRSU/PSUA scope that are complete and require no further action.

Follow-Up

Depending on the PRSU findings, the follow-up plan is agreed.

Pre Start-Up Audit is the final follow-up of the Pre Start-up Review.

PSUA is a revision of the progress of the PRSU findings and requires clear evidence to show that they have been adequately completed before the Ready For Start-Up can be approved.

PSUA report is an update of the PRSU report but the team must confirm that nothing has changed outside of the original PRSU scope.

PSUA report is an input to the BU Director for the final start-up decision.



PRSU/PSUA in Repsol E&P

- Margarita CPF Phase 1
- Margarita CPF Phase 2
- Montanazo y Lubina
- Kinteroni
- OCOT



REPSOL

Inventemos el futuro

