ADVANCED WORK PACKAGING & WORKFACE PLANNING SCORECARD

Project: _____ **SCORE** **Date:** _____

	Description	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Comments / Observations
		1	2	3	4	5	
1.0	**Project Definition & Planning**						
1.1	Early Scope definition documents include construction sequencing, phases, and limits to support packaging of design and construction.						
1.2	Early allowance is made to develop high level divisions of responsibility to support contracting plan and procurement.						
1.3	A detailed project execution plan is developed at the earliest stages of planning and includes basic construction sequencing planning.						

1.4	Early decisions are made relevant to the level of detail required in engineering deliverables to support down-stream work packaging. **Clarification: Steel design & connections, min sized piping to be incorporated in isometrics, design detail for physical raceways & conduit.**						
1.5	A responsibility matrix has been developed that tracks the work packaging process through the phases of planning, design, procurement and execution.						
1.6	Construction sequence is integrated into the engineering plan.						
1.7	Physical site constraints, procurement constraints, environmental constraints, permitting constraints, etc., are incorporated into the CWP and EWP development.						
1.8	An ongoing feedback loop exists between the construction planning and engineering planning so that both are proceeding in alignment with work packaging planning.						
1.9	A level two schedule has been developed that reflects the construction execution plan, engineering plan, established boundaries, and constraints.						
	Section 1.0 Total (out of 45)						

2.0	**Installation Work Package**						
2.1	Work is always packaged in Installation Work Packages (IWP).						
2.2	IWPs always identify the work to be completed by the team c/w technical data, drawings, and specifications.						
2.3	All IWPs identify the general sequence of the work and the labor necessary to complete the work. **Clarification: The planned job task steps and the actual crew allocation for planned activities is a foreman's responsibility.**						
2.4	All IWPs identify all required material necessary to complete the work. **Clarification: The Bill of Material is segregated by IWP.**						
2.5	Work face Planners start creating virtual IWPs as soon as the level three schedule has been issued.						
2.6	All virtually created IWPs are backed up in a safe location.						
2.7	IWPs are generally retained in virtual format and are not issued in hard copy format until 1 to 2 weeks prior to execution and/or until known constraints have been met.						
2.8	IWPs are not being issued too far in advance, which would cause un-issued packages to build up.						
2.9	The IWP process is well documented in a written procedure with input from Planning and Document Control.						

2.10	IWP issuance and status is controlled through the formal use of transmittals.						
2.11	IWPs released by Document Control are complete and bound, i.e., not partial and no loose documents.						
2.12	All IWPs identify all required specialty tools, scaffolding, and construction equipment necessary to complete the work.						
2.13	All IWPs identify all relevant special conditions. **Clarification: Examples of special conditions include: Elevated, Confined Space.**						
2.14	All IWPs include or reference all quality control and NDE requirements.						
2.15	Appropriate stakeholders have signed off on issued IWPs that constraints have been met.						
2.16	IWPs include or reference all major execution risk response plans. **Clarification: The foreman is responsible at the beginning of each shift to prepare a detailed Field Level Risk or Safety Task Analysis, specific to the site conditions**						
2.17	All IWPs identify their interdependencies. **Clarification: Interdependencies refer to other IWPs that could impact the completion of this IWP; these could be from any discipline.**						
2.18	Issued IWP progress in the field is monitored on a daily basis by the planner.						

2.19	assigned to key individuals for the correct close-out of an issued IWP.						
2.20	Requirements for verification of as built quantities, man hours and redlines are communicated effectively for proper IWP close-out.						
2.20	Periodic audits are conducted to ensure the IWP close out process is working and is accurately collecting and validating planned versus actual data.						
2.21	Lessons learned are being captured in the IWP close-out process.						
2.22	There are adequate controls to ensure all resources required to complete the IWP are identified and are available prior to construction mobilization, and in place before IWP release. **Clarification: Release refers to issuance by parties completing the IWP. Parties could include engineering, procurement, construction, or commissioning.**						
2.23	Dedicated Planner completes IWP and signs-off as ready before IWP is released to crew. **Clarification: An IWP Checklist is discipline specific (civil, structural, piping, electrical, etc.) and itemizes all the information and documentation that should be part of the completed IWP.**						
2.24	The General Area Superintendent has a sufficient backlog of IWPs that can be issued to replace a scheduled IWP delayed due to unforeseen circumstances.						

2.25	The requirement for Work Face Planning, including the expectations of contractor/sub-contractor/planner and owner role and responsibilities, is written into all contracts and/or sub-contracts.						
	Section 2.0 Total (out of 125)						

3.0	**Planners**						
3.1	Dedicated planner(s) develop the Field IWP. **Clarification: A dedicated planner spends virtually all of their time developing IWPs.**						
3.2	All dedicated planners have the experience as described in the job description developed during the FEED phase.						
3.3	Dedicated planners are on the distribution list for all project documentation or have access to the latest information required for preparation of IWPs.						
3.4	Work processes have been established to ensure planners have access to the latest information.						
3.5	The information provided to the dedicated planners is clear and complete.						
	Section 3.0 Total (out of 25)						

4.0	**EWP/CWP Release Plan and Approvals**						
4.1	A schedule is developed, prior to the start of detailed engineering, for all Construction and Engineering Work Packages (CWP/EWP), required to maintain the agreed path of construction and the Engineering and Procurement sequence to support the construction plan. **Clarification: The work breakdown structure for a specific design area consists of a series of EWPs/CWPs by discipline and sub-area. The schedule for release of EWPs/CWPs is determined by the priority of the process systems and the required path of construction.**						
4.2	Experienced construction personnel approve the schedule, scope, sequence, and timing of EWPs/CWPs.						
	Section 4.0 Total (out of 10)						

5.0	**IWP Release Plan and Approvals**						
5.1	A schedule and release plan is developed for all Field IWPs, based on the CWP.						
5.2	General foremen, planners, and construction superintendents review and agree to the schedule, scope, sequence, and timing of the IWP.						
5.3	Final approval by Construction superintendent (or their designate) of the schedule, scope, sequence, and timing of the IWP.						
	Section 5.0 Total (out of 15)						

6.0	Integration and Coordination of IWP						
6.1	Responsibility for integration planning has been determined to resolve anticipated conflicts proactively between IWPs.						
6.2	Responsibility for material coordination of IWPs has been assigned to dedicated Coordinator(s).						
6.3	Responsibility for specialty tools and construction equipment coordination of IWP has been assigned to dedicated Coordinator(s).						
6.4	The tracking levels and coordination procedures are established for the planners, general foremen, construction superintendent, and resource coordinators to drive the performance during the construction phase. **Clarification: Consider the use of a "war room", a space dedicated to the planning group that allows the planners, coordinators, construction supervisors, and senior construction management to graphically display the schedule for updates to progress status and make timely decisions to resolve conflicts.**						
6.5	IWP Status (progress and cost) is tracked in a visible way, including completion of IWP against targets. **Clarification: The project control tools are capable of providing the information on cost and schedule for the agreed IWP status tracking level.**						

6.6	Adequate management audits undertaken to ensure that the above rules are being followed.						
	Section 6.0 Total (out of 30)						

Appendix A: AWP Maturity Model

Advanced Work Packaging Implementation Maturity Model

	Level 1: AWP Early Stages	Level 2: AWP Effectiveness	Level 3: AWP Business Transformation
View of AWP	The potential of the implementation of AWP strategy is not understood and has few champions. AWP is not a priority within the corporate vision.	AWP is seen as part of the business solution - being both an opportunity and a challenge.	AWP is fully integrated with the business strategy and is seen as invaluable. It enables true differentiation between you and the competition.
Project AWP Strategy	AWP is developed on an ad hoc basis - most often driven by customer demands.	Integration of AWP strategies are routinely developed and updated. These often seek to overcome integration and communication issues across project organizational units (silos). AWP is now included in all contracts.	Barriers to implementation of AWP strategies are minimal and project-specific planning focuses more on advancing strategic business needs and interests. Contracts include AWP language and supported by commercial terms, plans and procedures.
Work Processes & Deliverables	Work process and deliverables are in development stage. They are not well defined and are not structured for implementation across business units (silos). Inputs and outputs required of stakeholders to support the strategy are not defined and no discipline involved. Most processes support individuals or isolated work groups and not fully integrated.	Work processes and deliverables for individual business functions or departments are mostly well defined and standardized. Integration of these processes are still problematic across functional unit lines. Frustration will be experienced when some functions are progressing towards AWP implementation but are set back by other silos who are not supporting the integration.	Work processes and deliverables are fully integrated across functional units. Each stakeholder understands their responsibilities to provide accurate and timely deliverables to support the strategy. This allows more time for productive analysis of deliverables and supports flexible, adaptable integrated work processes. Work processes represent best-in-class use of corporate knowledge and AWP practices.
Organization Culture & Performance Metrics	Most work occurs inside functional units with minimal collaboration or integration. "Over the wall" approaches are common. The culture embraces silos. Performance metrics are silo-oriented. For example engineering performance is based on percentage of hours "burned" vs. budget and not focused on the deliverables (EWPs) delivered to meet the Path of Construction.	Functional responsibilities for AWP are clearly defined and integration is occurring across key functional lines. Many silos have been bridged, but some still exist. Overcoming these is viewed as an opportunity for advancement. Integrated approaches are valued. Performance metrics are a mix of silo and team oriented basis. For example status is based on percentage of complete EWP's and IWP's that have been delivered on or before required to support the Path of Construction.	Silos are no longer a barrier to implementation of AWP and the organization has seamless boundaries between work functions and major project stakeholders. Silos that do exist remain for business, not technical reasons. Integrated approaches and associated benefits are ingrained in the culture. Performance metrics focus on business performance, customer satisfaction and team success. Continuous improvement processes in place.
Training & Support	Some training standards are in place based on job descriptions to support AWP. Team members may take the training but are still not supported within their organization to implement what they have learned.	Training to fully support a successful AWP implementation is fully available, valued and supported within the organization.	Training is continuous and the organization is considered an industry leader.


You Know You're Stuck at this Level When ...
You Know You've Achieved this Level When ...
Level 1: AWP Early Stages
AWP strategy does not have any management support.
AWP business processes are not well defined and not standardized across the organization.
AWP initiatives are ad-hoc and usually a result of client demands.
AWP performance metrics are based on discipline/department level vs. across the organization.
AWP training is either not available or management does not support the time required for employees to take training.
Integration of AWP processes and procedures are still internally focused (within discipline/department) vs. across the organization.
AWP performance metrics are beginning to be applied across the organization - with some disciplines/departments still reluctant to implement.
Some AWP training is available and employees are allowed time for this training, however there is still some reluctance for the associated disciplines/departments to implement the necessary changes.
Level 2: AWP Effectiveness
Management is starting to view AWP as part of business strategy but struggles with the challenges to implement.
AWP strategies starting to be integrated across discipline/department borders but still have some "hold-outs" that prevent complete integration across the organization.
AWP business processes and deliverables are reasonably developed and standardized within disciplines/departments but not standardized across the organization.
Level 3: AWP Business Transformation
AWP is fully integrated within the business strategy and is seen as invaluable. It enables true differentiation between you and the competition.
AWP strategies fully developed and supported across the Organization.
AWP work processes and deliverables are fully integrated across disciplines/departments.
AWP processes represent best-in-class use of corporate knowledge and practices.
Individual disciplines/departments are no longer a barrier to implementation of AWP and the organization has seamless boundaries between work functions and major project stakeholders.
AWP performance metrics focus on business performance, customer satisfaction and team success.

Appendix B: AWP Contractor Qualification Assessment

AWP Pre-qualification Questionnaire

The following list of questions is aimed at pre-qualifying companies on AWP. A typical set of pre-qualification questions would also include other areas, such as safety. This list should be customized, depending on the stakeholder that is asking the questions. Examples of stakeholders that can use this set of questions are owners qualifying EPC companies, or EPC companies qualifying subcontractors.

1. List and describe your work packaging tools and procedures.

2. Describe the work breakdown philosophy and content of typical work packages.

3. How do you ensure that vendor documentation and material and equipment deliveries support the path of construction?

4. How do you ensure that timing of engineering deliverables supports path of construction?

5. Describe your constructability review process with respect to content and timing.

6. How are design areas defined in your projects?

7. Describe your materials management system.

8. How do you integrate your work packages into your scheduling and cost control processes ?

9. Provide a project organizational chart from previous projects similar to this project, and identify the position(s) that support work packaging?

10. How do you ensure quality and compliance to procedures?

Appendix C: AWP Project Definition Assessment Tool

	Project:	SCORE					Date:
	Description	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Comments/Observations**
		1	**2**	**3**	**4**	**5**	
1.0	**Project Definition**						
1.1	Do you have a construction sequencing plan?						
1.2	Do you have a construction contracting plan?						
1.3	Do you have a procurement plan?						
1.4	Have you made decisions regarding level of design for technical deliverables to support work packaging? (For example, will small bore piping have isometrics?)						
	Section 1.0 Total (out of 20)						

2.0	**Construction Planning**						
2.1	Has a project work packaging plan been developed?						
2.2	Does the project work packaging plan include consideration of contractors' work packaging processes?						
2.3	Have information flows been aligned across all parties?						
2.4	Is the engineering work packaging execution sequence compatible with the sequence of construction?						
2.5	Is the plan for offsite fabrication compatible with the sequence of construction?						
2.6	Has material procurement been integrated with the construction plan?						

	Project:	SCORE					Date:
	Description	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Comments/Observations**
2.7	Does the materials management process and system integrate with work packaging process and systems?						
2.8	Is the project risk register reflected in the construction sequence and work packaging plan?						
2.9	Does the work packaging plan include considerations for site logistics and support services?						
2.10	Have system turnover designations been added to the coding systems for all work packages (to allow future sorting by system requirements)?						
	Section 2.0 Total (out of 50)						

3.0	**Engineering Planning**						
3.1	Has the project been broken into distinct areas to support logical work packaging?						
3.2	Is there a process in place to assure engineering understanding and acceptance of the IWP execution philosophy (for example, engineering to provide valves to isolate a piping system for testing)?						
3.3	Has a data integration plan been put in place to assure compatibility between systems and minimize the need for data re-entry?						
	Section 3.0 Total (out of 15)						

	Project:	SCORE					Date:
	Description	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Comments/Observations**
4.0	**Refinement of Schedule WBS**						
4.1	Is the WBS aligned with owner, engineering, and construction needs and plans?						
4.2	Has an IWP release plan been developed and issued?						
	Section 4.0 Total (out of 10)						
5.0	**CWP Boundary Development**						
5.1	Have specific work packaging requirements been written into every subcontract and major purchase order, including formatting, level of detail, and frequency?						
5.2	Does the schedule reflect the work packaging plan?						
5.3	Have work packaging plans included an assessment of craft availability by discipline?						
5.4	Have work packaging plans included an assessment of long-lead items?						
	Section 5.0 Total (out of 20)						
6.0	**EWP Boundary Development**						
6.1	Has an engineering project standard that correlates to the WBS been developed to allow for revision control?						
	Section 6.0 Total (out of 5)						