



# Schedule Integration Management

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## Approvals

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## 1.0 PURPOSE

Schedule integration is one of the critical aspects of schedule development for mega scale projects and it is recognized as key to the success for all Owner project stakeholders.

The purpose of Schedule integration management process is to provide Owner the ability to manage the program in terms of schedule integration between all Contractors.

This procedure outlines a set of ground rules, roles and responsibilities based upon which all integration OSBL interfaces can be identified and managed.

## 2.0 SCOPE

This procedure is applicable to all Contractors and Owner. The schedule integration procedure is intended to ensure that all program execution needs between Contractors are identified and managed during design, fabrication, construction, pre-commissioning, commissioning and start-up.

## 3.0 DEFINITIONS

Term	Description
Interface Point	A point in execution at which the completion of a task or activity by one or more Contractors will become a pre-requisite to perform work for another Contractor.
Schedule Integration Point (SIP)	It is an event that is identified in the schedule between two or more Contractors that are related. These can be: <ul style="list-style-type: none"> <li>Physical interface such as required sequence in erection of piperack modules between two Contractors, installation of cable trays to allow pulling cable by another Contractor etc.</li> <li>Completion of a system and care custody transfer to Commissioning team.</li> </ul>
SIM	Owner Schedule Integration Manager (Owner Planning lead)
CM	Construction Manager
SIP Receiver	Contractor or party that requires receiving SIP as a pre-requisite to perform work
SIP Provider	Contractor or party that is responsible for timely delivery of SIP
SBS	Schedule Breakdown Structure
CSS	Common Site Services
SICT	Schedule Integration Coordination Team (Consist of SIM, CM, and Contractor's representatives)
Master Schedule Integration Log (MSIL)	List of Schedule Integration Points updated/maintained by Owner

OSBL	Outside Battery Limit
ISBL	Inside Battery Limit

## 4.0 STAKEHOLDERS

- SIP Receiver(s): Contractor/Party that requires receiving SIP as a pre-requisite to perform work.
- SIP Provider(s): Contractor/Party that is responsible for timely delivery of SIP and subsequent reporting of status thereto.
- Schedule Integration Manager (SIM): Owner Schedule Integration Manager (Owner Planning lead), is responsible for liaising discussion between all parties for resolution of conflicts (if any).
- Schedule Integration Coordination Team (SICT): this team is consisting of Owner and all Contractors' representatives
- Construction Managers (CMs): Responsible for verifying the validity of the Schedule Integration Points identified by SIP Receiver(s)

## 5.0 GROUND RULES

- Participation of all Contractors in this process is mandatory and each Contractor shall have a representative for all schedule integration coordination matters.
- SIP integration is considered as horizontal and cross boundaries integration. The vertical integration within scope of work (ISBL) shall be managed via each Contractor's level III integrated EPMC schedule.
- It is the responsibility of all SIP receiver contractors to identify and communicate their execution needs as integration points with others in the schedule. Please see Appendix A, in this document, for SIP request form.
- SIP shall be clearly defined as completion of a task or activity by one or more Contractors (Provider) which will become a pre-requisite to perform work for Contractor (Receiver) with a finish to start relationship.
- All SIPs must have a clear definition, scope and required by date and all Receiver Contractors must clearly explain as to how the SIP will affect their work.
- All Schedule Integration Points (SIPs) shall be submitted to Owner for approval. Once approved it will be registered on the Master Schedule Integration Log (see Appendix B, in this document, for MSIL format). This log will be a controlled documented and maintained by Owner Schedule Integration team. A copy of updated MSIL will be issued to all Contractors on twice a month basis.

- All schedules (Level 1, 2, 3) shall have a specific SBS band to include SIP milestones as per the CKPCO-GEN-0000-PC-PRO-00004 Schedule Development and Control.
- Schedule Integration Points can be start/completion of an activity such as xyz module installed, completion of deep underground, installation of modules or equipment, main or unit sub-station energization, completion of pulling cable and termination, construction completion of utilities such as Steam, Instrument Air availability, Water Treatment or energization of 240kV main substation, etc.
- Schedule Integration points will not be:
  - Technical interface activities such as battery limit condition, utility summaries, etc. that are being managed through technical integration procedure.
  - Mac technical interface shall be considered as SIP.
  - Site-wide and common resources, horizontal contracts will be managed by common resource coding and by filtering and resource code from schedules.

## 6.0 IDENTIFICATION

The Owner Schedule Integration Manager (SIM) will work closely with Schedule Integration Coordination Team (SICT) in order to review, establish and implement SIPs.

All Schedule Integration points are to be initiated by using SIP Form (Refer Appendix A) and to be forwarded to Schedule Integration Manager (SIM) for review, discussion and approval in line with process work flow diagrams.

The SIP Receiver(s) shall make a request for new SIP with clear definition, required date and describe how the SIP will impact their work. This request shall be via a formal SIP request form. See Appendix C, in this document, for Process Work Flow Diagrams

Contractors shall discuss the requirement and reach agreement prior to submitting request form to Owner (SIM).

The SIM will facilitate meeting on a regular basis to discuss the SIPs including definition and required date and to resolve any conflicts (if any).

Once all parties agreed to the definition and required dates then the SIP will be registered on the Master Schedule Integration Log (MSIL) and an activity ID will be issued to respective Contractors (See Appendix B, in this document, for MSIL).

## 7.0 IMPLEMENTATION

Once the SIP is approved by Owner and registered in the MSIL, the following steps shall be taken to ensure proper schedule integration across interfacing parties is in place:

## 7.1 Receiver Contractor

- Contractor shall coordinate with Owner to obtain a unique SIP number and corresponding Activity ID for SIP milestone in the schedule.
- The Receiver Contractors shall create SIP Start milestones in the schedule with provided Activity ID
- The Receiver SIP does not have any predecessor, but it shall be tied to all downstream activities in the Level 3 Work Schedule.
- The Receiver SIP shall have a “Start on or After” Constraint date as required date.

## 7.2 Provider Contractor

- The Provider Contractor shall create SIP milestones in the schedule with provided Activity ID.
- The Provider SIP does not have any successor, but it shall be logic driven by activities in the Level 3 Work Schedule.
- The Provider SIP shall have a “Finish on or Before” Constraint date.
- Provider will own the free float determined based on early finish date and constrain date (if any).

## 7.3 Activity ID

- XXX - Y - ZZ - SIP#
- XXX: Unit Designation per WBS
- Y: Phase Designation
- ZZ: Prime Discipline Designation
- SIP#: Unique Number for each SIP issued by Owner

## 7.4 Activity Code

All Contractors shall assign the activity in accordance with code #10 in the CKPCO-GEN-0000-PC-PRO-00007 Schedule ID and Coding Dictionary.

## 7.5 Activity Name

To ensure uniformity in the activity name, following naming convention shall be followed by all Contractors:

**Unit WBS - SIP#-Receiver/Provider-Description-From/To-Unit WBS**

## 8.0 ROLES AND RESPONSIBILITIES

Activity	Responsibility	
	Receiver Contractors	Provider Contractors
Timely identification of SIPs and submit the request form to Owner	P	
Discuss and reach agreement on scope and timing of SIP	P	P
Issue Activity ID, Integrate Schedule through Owner database, review and monitor free float, issue schedule variance report	S	S
Participate in Schedule Integration Meetings	P	P
Manage Overall Program of Schedule Integration	S	S
Resolve issue and conflicts between Contractors schedule	P	P
Update and submit SIP schedule (P6) – twice a month as per Owner reporting calendar	P	P
Update and submit MSIL to all stakeholders		

P = Prime responsible, S = Support

- CKPC:
  - Responsible for facilitating schedule integration meetings twice a month as per Owner reporting calendar
  - Managing the overall schedule integrated program in accordance with the procedure herein
  - Responsible for liaising with Contractors seeking for resolution on any existing conflicts (when needed). See process work flow diagram Appendix C, in this document
  - Register SIPs in the Master Schedule Integration Log (MSIL)
  - Update and issue MSIL to all stakeholders
- Receiver Contractors:
  - Timely identification of their SIP's including scope and required date
  - Laisse discussion with Provider Contractor(s) and reach agreement on scope and timing of SIP
  - Participate in Schedule Integration meetings.
  - Include and maintain all SIP milestones in the Level 3 Work Schedule
- SIP Provider Contractors:
  - Include and maintain all SIP milestones in the Level 3 Work Schedule
  - Timely delivery of SIP as planned

- Early identification of changes that may affect delivery of SIPs as planned
- Work with Receiver Contractors and to reach agreement on scope and timing of SIP
- Participate in Schedule Integration meetings.

Once the integrated schedule is set as baseline then any changes to the interface milestones shall go through Management of Change process for approval.

All conflict shall be resolved by Contractors before being escalated to Owner PMs as per Conflict resolution process (see Appendix C, in this document)

## 9.0 SITE WIDE AND COMMON RESOURCES INTEGRATION

All site-wide resource integration will be managed by utilizing resource coding and filtering.

Contractors shall apply the same resource ID as per the CKPC0-GEN-0000-PC-PRO-00007 Schedule ID and Coding Dictionary for all site-wide resources and common services such as heavy crane, scaffolding, transportation etc.

Contractors shall prepare and issue their resource usage curves as per CKPC0-GEN-0000-PR-PRO-00004 Schedule Development and Control. During construction phase the resource usage curves shall be updated and issued by Contractors based on the most updated schedule.

Common examples of construction resource integration may include, but are not limited to:

- Heavy Haul road
- Heavy Lift crane
- Horizontal Contracts such as scaffold

## 10.0 APPENDICES



## APPENDIX A: ALL SITE SIP REQUEST FORM

	Schedule Integration Point (SIP) Request Form		
	Receiver:	SIP ID*:	Date:
Provider:	Revision:		

<b>Definition and Scope of Schedule Integration Point (SIP):-</b>	
<b>Brief description of impact on the SIP receiver :-</b>	
<b>Required date by Receiver:</b>	
<b>Comments</b>	
<b>Reviewed and Approved by CKPC:</b>	<b>Date:</b>
<b>Approved Date (Agreed by Receiver and Provider):</b>	

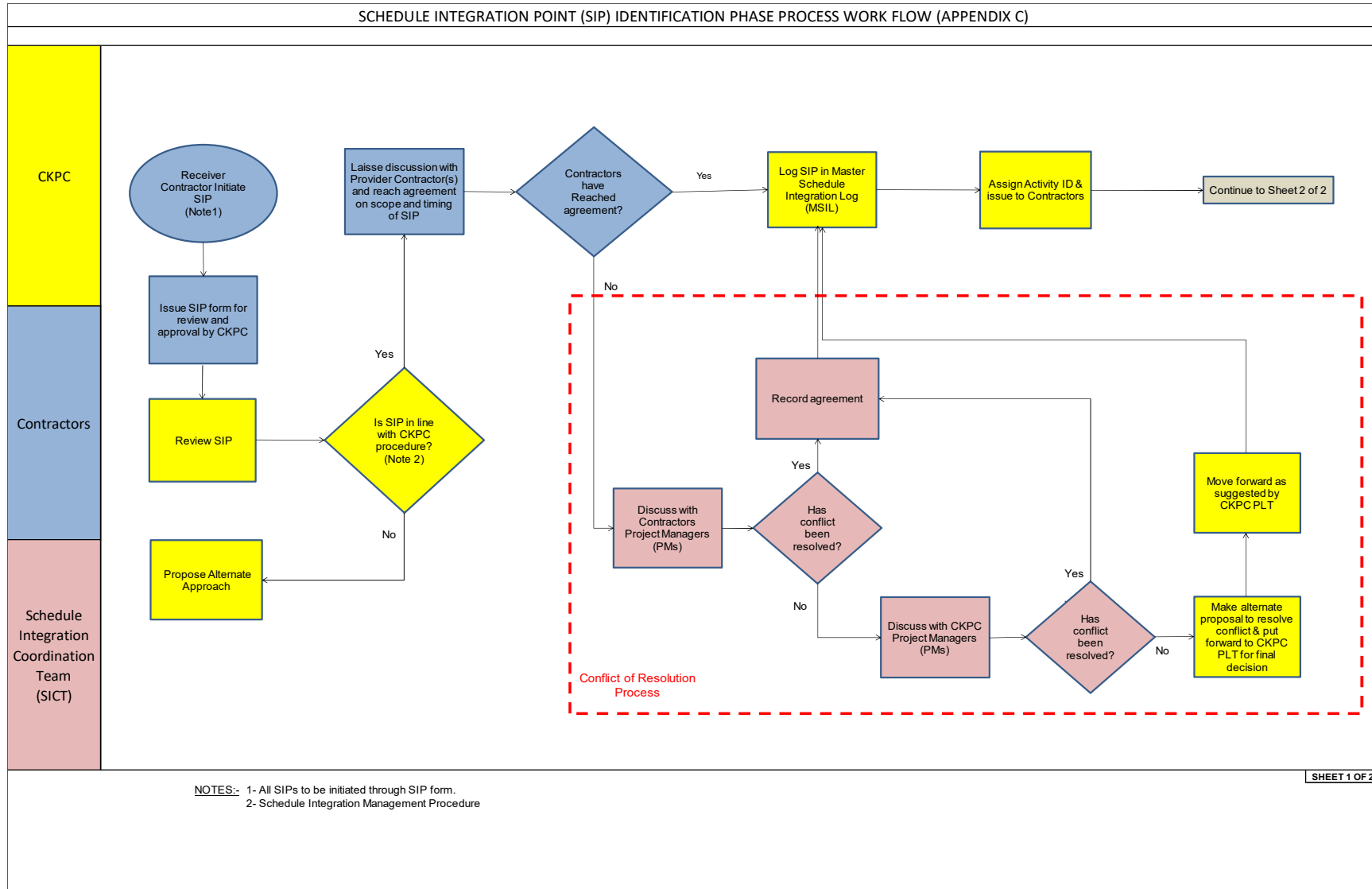
Note – If there is any conflict, please use conflict resolution form.

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## APPENDIX B: MASTER SCHEDULE INTEGRATION LOG (MSIL)

SP Number	Description of SP	Baseline as of xx/xx/xx				Update (Current)								Change Management					
		SIP Receiver		SIP Provider		Date Required (By receiver) (1)	Date Provided (By provider) (2)	Delta (working days) (3)=(1-2)	Date Required (By Receiver)	Variance from Baseline (6)=1-5)	Date Provided - (Forecast) (5)	Actual/Forecast	Variance from Baseline (8)=(2-7)	Delta (working days) (9)=(5-7)	Negative Float (Y/N)	Change Approved	Area Of Change (in compare with the last Update)	CKPC Construction Manager (Unit Provider)	Remarks
		WBS	Unit Receiver	WBS	Unit Provider														
SP0049	Early work completed and site & laydown area handover to CUB contractor Rough grading and road network to be completed before handover.		CUB		EWK														
SP0001	Completion of the xx" Natural Gas line by TCPL		CSU		EXT														
SP0050	Early work completed and site & laydown area handover to INF contractor Rough grading and road network to be completed before handover.		INF		EWK														
SP0051	Early work completed and site & laydown area handover to Rail contractor Rough grading and road network to be completed before handover.		RIL		EWK														
SP0052	Early work completed and site & laydown area handover to PPA contractor Rough grading and road network to be completed before handover.		PPA		EWK														
SP0053	Early work completed and site & laydown area handover to PDH contractor Rough grading and road network to be completed before handover.		PDH		EWK	01-Jun-20	01-Mar-20												
SP0056	Site wide high mast lighting complete		ALL		EWK														
SP0057	Availability of construction power to CUB contractor		CUB		EWK														
SP0058	Availability of construction power to INF contractor		INF		EWK														
SP0059	Availability of construction power to Rail contractor		RIL		EWK														
SP0060	Availability of construction power to PPA contractor		PPA		EWK														
SP0061	Availability of construction power to PDH contractor		PDH		EWK	01-Jun-20	01-Mar-20												
SP0002	Completion of the xx" Potable Water line (Municipal) by sturgeon county.		CSU		EXT														
SP0003	Completion of the xx" Municipal Sewer line from the sturgeon county. Sanitary Sewer in service (County)		CSU		EXT														
SP0004	Natural Gas/Sewer/Potable water available for Admin building		CSU		EXT														
SP0005	Completion of LP Non-Odorized Natural Gas line from ATCO in preparation for charging the line.		CSU		EXT														
SP0006	Completion of the xx" Propane line (Feed line)		CSU		EXT														
SP0008	Firewater available to admin building and site security building		INF		EXT														
SP0007	Completion of the xx" Ethylene (Feed line)		CSU		EXT														
SP0009	Construction completion of the Administration/Control Room Building TCP		CSU		INF														
SP0010	240kv line - Completion of the 240 KV Transmission line (MC)		CSU		EXT														
SP0011	240kv line ready to be energized - Completion of the 240 KV substation, cables pulled & terminated (MC)		CSU		EXT														
SP0012	CUB Substation 34.5 KV (B01-001) MC'd and ready to be energized		CSU		CUB														
SP0042	Compacted and clear access into admin building area at B Avenue just west of 2nd street for installation of Piperack Module by CUB		CUB		INF														
SP0043	Compacted and clear access into CUB unit at C Avenue west of 2nd street for installation of piperack module by PDH		PDH		CUB														
SP0044	Compacted & clear access into PDH unit at 2nd street south of C Avenue for installation of piperack module by PPA		PPA		PDH	01-Jul-21	01-Jul-21												
SP0016	Road Crossing Bridge Module installation B Avenue just west of 2nd street		ALL		CUB														
SP0017	Road Crossing Bridge Module installation 2nd Street just north of C Avenue		ALL		CUB														
SP0018	Road Crossing Bridge Module installation C Avenue just west of 2nd street		ALL		PDH														
SP0020	Road Crossing Bridge Module installation 2nd Str PDH to PPA		ALL		PPA														
SP0021	E&I Buildings C01-301/C01-301, VFD Bldg. , Piperack & Flare Mechanically Complete		CSU		PDH	30-Jun-22	30-Jun-22												
SP0022	Reaction & Regeneration - CCR Mechanically Complete		CSU		PDH	31-Jul-22	31-Jul-22												
SP0023	Reactor Effluent Compression & Treating Mechanically Complete		CSU		PDH	31-Aug-22	31-Aug-22												

**APPENDIX C:**



Document Title:  
Schedule Integration Management

SCHEDULE INTEGRATION POINT (SIP) MONITORING PROCESS WORK FLOW (APPENDIX C)

