

SOP PS-010: Schedule Health Check (14-Point / DCMA)

PS-010 | v01

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1. Purpose & Scope

This SOP defines the process for conducting a structured schedule health check using the 14-point assessment framework derived from DCMA (Defence Contract Management Agency) criteria and the Sasol Schedule Health Check methodology. It establishes when health checks must be performed, who performs them, how results are scored, and what actions are required when thresholds are breached.

Scope: Applicable to all Faolan-managed and Faolan-reviewed schedules at Class 3 and above. Mandatory before baseline approval, at each major project phase gate, and on request from the client, PMO, or Domain Head. Also applicable to contractor schedule submissions where schedule quality review is a contract deliverable.

Out of scope: Detailed forensic schedule analysis and delay quantification (refer SOP PS-009). Schedule risk analysis (refer SOP PS-007). This SOP covers the diagnostic procedure only. Supporting templates (automated health check calculators) will be delivered by Pulse (#3) in Phase 2.

2. Definitions and Abbreviations

Term	Definition
DCMA	Defence Contract Management Agency (US). Publisher of the 14-point schedule assessment criteria widely adopted in capital projects
Health Check	A structured diagnostic review of schedule quality against defined metric thresholds
Logic	Predecessor-successor relationships between activities (also called dependencies)
Open End	An activity with no predecessor (other than the project start milestone) or no successor (other than the project end milestone). Indicates incomplete logic
Hard Constraint	A date constraint that overrides calculated dates (e.g., Must Start On, Must Finish On). Masks the true critical path
Soft Constraint	A date constraint that only affects dates in one direction (e.g., Start No Earlier Than). Lower risk than hard constraints
LOE	Level of Effort — a type of activity that spans the duration of other activities and is not logic-driven. Must be handled carefully in health checks
SS	Start-to-Start relationship
FF	Finish-to-Finish relationship

Term	Definition
SF	Start-to-Finish relationship (rare, generally discouraged)
BEI	Baseline Execution Index — actual activities completed on time vs. planned to complete (where baseline exists)
TSPI	To Complete Schedule Performance Index — schedule efficiency required to meet the target completion date
Float	Total Float — available time before an activity impacts the project end date

3. Roles and Responsibilities (RACI)

Activity	Lead Planner	Controls Manager	Project Manager	Client / PMO
Perform health check analysis	R	C	I	I
Interpret results and score	R	C	I	I
Write health check report	R	A	I	I
Resolve identified issues	R	A	C	I
Re-run check after remediation	R	C	I	I
Submit health check to client	I	A	R	A
Escalate FAIL results	C	R	A	A

R = Responsible, A = Accountable, C = Consulted, I = Informed

4. Procedure

4.1 When to Conduct a Health Check

A schedule health check is mandatory at the following points:

Trigger	Minimum Check
Before baseline approval	Full 14-point check. All thresholds must PASS
Monthly update submission	Abbreviated 8-point check (Points 1-6, 10, 13)
Phase gate review	Full 14-point check
Client or PMO request	Full 14-point check within 5 working days
Recovery plan submission	Full 14-point check on the recovery schedule
Contractor schedule review	Full 14-point check. Provide written report to contractor

4.2 Data Extraction

Before running the health check, extract the following from P6:

1. Export the schedule to XER or P6XML for version control.
2. Generate the following P6 standard reports (or equivalent query outputs):
 - Activity list with predecessors, successors, constraints, float, durations, and resource assignments
 - Logic report (predecessor-successor pairs)
 - Open-end report (activities with missing predecessors or successors)
 - Constraint report
3. Record the total activity count (excluding Level of Effort activities and milestones where noted in each check below).

4.3 The 14-Point Health Check

Perform each check in sequence. Record the raw count, percentage, and PASS/FAIL result against the threshold.

Point 1 — Logic (Missing Predecessors / Successors)

- Count activities with no predecessor (excluding the project start milestone).
- Count activities with no successor (excluding the project end milestone).
- Threshold: less than or equal to 5% of total activities for each.
- PASS: both counts are at or below threshold.
- Action if FAIL: identify open-end activities, add logic where technically justifiable, and document exceptions in the BEP.

Point 2 — Leads (Negative Lags)

- Count relationships with a negative lag value (lead time — one activity starts before its predecessor finishes).
- Threshold: less than or equal to 5% of total relationships.
- PASS: count is at or below threshold.
- Action if FAIL: review each negative lag. Replace with explicit parallel activities where the overlap is genuine. Remove if unjustified.

Point 3 — Lags

- Count relationships with a positive lag value greater than zero.
- Threshold: less than or equal to 5% of total relationships.
- PASS: count is at or below threshold.
- Action if FAIL: review each lag. Replace with a discrete activity (e.g., procurement lead time should be a procurement activity, not a lag). Document remaining lags in the BEP with justification.

Point 4 — Relationship Types (FS vs SS/FF/SF)

- Count non-Finish-to-Start (FS) relationships as a percentage of total relationships.
- Threshold: less than or equal to 10% non-FS.
- PASS: count is at or below threshold.

- Action if FAIL: review each non-FS relationship. SS and FF are acceptable where technically justified (e.g., concurrent engineering and procurement). SF (Start-to-Finish) is rarely justified and should be removed unless specifically defended.
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Point 5 — Hard Constraints

- Count activities with hard date constraints (Must Start On, Must Finish On, or equivalent).
 - Threshold: less than or equal to 5% of total activities.
 - PASS: count is at or below threshold.
 - Action if FAIL: review each hard constraint. Replace with soft constraints or logic where possible. Document any hard constraints that must remain in the BEP with contractual or technical justification.
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Point 6 — High Float

- Count activities with Total Float greater than 44 working days (approximately 2 months).
 - Threshold: less than or equal to 5% of total activities (excluding LOE and milestones).
 - PASS: count is at or below threshold.
 - Action if FAIL: high float often indicates missing logic, missing constraints, or scope that is disconnected from the main network. Investigate and connect logic or justify the float in the BEP.
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Point 7 — Negative Float

- Count activities with Total Float less than zero.
 - Threshold: 0% (no negative float at baseline).
 - PASS: zero activities with negative float.
 - Action if FAIL: negative float at baseline indicates the schedule is unachievable given current constraints. Resolve by removing unnecessary hard constraints, shortening durations, adding resources, or revising the project completion date. Do not approve a baseline with negative float unless the client has formally accepted the schedule overrun.
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Point 8 — High Duration

- Count activities with Original Duration greater than 44 working days (approximately 2 months).
 - Threshold: less than or equal to 5% of total activities (excluding LOE and summary activities).
 - PASS: count is at or below threshold.
 - Action if FAIL: long-duration activities hide progress and reduce schedule control. Break down into shorter, measurable work packages. If a single activity genuinely spans more than 2 months (e.g., a major civil package), subdivide into phase milestones.
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Point 9 — Invalid Dates

- Count activities where the current data date falls within the activity (in-progress activities with no actual start recorded) or where actual start is after actual finish.
 - Threshold: 0% (no invalid date sequences).
 - PASS: zero activities with invalid dates.
 - Action if FAIL: update actuals for all in-progress activities. Correct any data entry errors in actual start/finish dates before re-running.
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Point 10 — Resources

- Count activities with no resource assignment.
 - Threshold: less than or equal to 10% of total non-LOE, non-milestone activities (for resource-loaded schedules). If the schedule is not resource-loaded, document this in the BEP as an accepted gap and skip this check.
 - PASS: count is at or below threshold, or schedule is documented as not resource-loaded with client/PMO acceptance.
 - Action if FAIL: assign resources to all unresourced activities, prioritising critical path and near-critical activities first.
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Point 11 — Missed Activities (Baseline Execution Index)

- For schedules with an approved baseline: count activities that were planned to start or finish before the current data date but have not started or finished.
 - Calculate BEI: activities completed on time / activities planned to complete by data date.
 - Threshold: BEI greater than or equal to 0.95.
 - PASS: BEI is at or above threshold.
 - Action if FAIL: identify the activities driving low BEI. Determine whether they are on the critical path. If yes, escalate per SOP PS-006. If no, assess float consumption and update the recovery plan.
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Point 12 — Critical Path Test

- Delete all constraints from a copy of the schedule and run the calculation. Confirm that a single, continuous critical path from start to finish still exists.
 - Threshold: a valid critical path exists in the unconstrained schedule.
 - PASS: valid critical path confirmed.
 - Action if FAIL: the schedule is dependent on constraints rather than logic to define its critical path. Add logic to replace constraints. Refer to SOP PS-006 for critical path validation procedure.
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Point 13 — Critical Path Length Index (CPLI)

- $CPLI = (\text{Critical Path Length} + \text{Total Float of Project End Milestone}) / \text{Critical Path Length}$.
 - A CPLI of 1.0 means the project is on schedule. Below 1.0 indicates the project is behind schedule.
 - Threshold: CPLI greater than or equal to 0.95 (for schedule submissions). Flag for review if below 0.95.
 - PASS: CPLI is at or above threshold.
 - Action if FAIL: escalate to Project Manager. Trigger recovery analysis per SOP PS-006, Section 4.4.
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Point 14 — Baseline Execution Index (BEI) — Repeat Check

- Same calculation as Point 11 but applied specifically to the most recent monthly update period (not the full project).
 - This is a trend check: is schedule execution performance improving or deteriorating?
 - Threshold: BEI trend is stable or improving over the last 3 reporting periods.
 - PASS: BEI trend is flat or positive over the last 3 periods.
 - Action if FAIL: deteriorating BEI trend is an early warning of compounding delay. Escalate to Project Manager and Controls Manager. Present a trend chart in the next monthly report.
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4.4 Scoring and Reporting

1. Record each check as PASS or FAIL in the Health Check Summary Table (TMP-PS-010).
2. Calculate the overall score: number of PASSES out of 14 (or out of the applicable subset for an abbreviated check).
3. Assign an overall health rating:

Score	Rating	Action
14/14	GREEN	No mandatory action. Document and proceed
12-13/14	AMBER	Document all FAILs with remediation plan. Re-check within 2 weeks
10-11/14	AMBER-RED	Do not submit for baseline approval. Remediate all FAILs before resubmission
Below 10/14	RED	Halt submission. Escalate to Controls Manager and Project Manager. Full remediation required

4. Write the health check report documenting: check date, data date, schedule version, individual check results, remediation actions, and overall rating.
5. If the schedule is GREEN, proceed to submission or approval as planned.
6. If AMBER or below, complete remediation, re-run the failed checks, and update the report before proceeding.

5. Inputs and Outputs

Stage	Inputs	Outputs
Data extraction	P6 schedule (XER or live), BEP	Activity export, logic report, open-end report, constraint report
Health check execution	Extracted data, BEP	Completed 14-point check worksheet (TMP-PS-010)
Reporting	Completed worksheet	Health Check Report, overall rating, remediation action list
Remediation	FAILED check details	Updated schedule, re-run check results, revised report

6. Tools and Templates

Tool / Template	Purpose
Primavera P6	Schedule source data, standard reports
Faolan 14-Point Health Check Worksheet (TMP-PS-010)	Recording individual check results and overall score (to be delivered by Pulse in Phase 2)
Faolan Health Check Report Template (TMP-PS-010b)	Formatted client-ready health check report
Python health check script (SchedIQ)	Automated calculation of all 14 metrics from database (ScheduleIQ platform)

7. References

Reference	Description
DCMA 14-Point Assessment	Original DCMA criteria and threshold definitions
Sasol Schedule 14-Point Check	Sasol adaptation of DCMA criteria for capital projects context
Sasol Tier 4 QMS 801P Vol G	Planning Health Check requirements and process
AACE 49r-06	Schedule Update: Schedule Update and Monitoring
PMI Scheduling Standard 3rd Ed.	Practice Standard for Scheduling — schedule quality chapter

8. Quality Criteria / Checklist

#	Check	PASS Criteria
1	Health check triggered correctly	Check was performed at a mandatory trigger point (baseline, phase gate, monthly, or on request)
2	Correct schedule version used	Health check was run on the version to be submitted or approved, not a working draft
3	All 14 points assessed	No checks skipped without documented justification
4	Results recorded in TMP-PS-010	Worksheet completed with raw counts, percentages, and PASS/FAIL for each point
5	Overall rating assigned	GREEN / AMBER / AMBER-RED / RED rating is documented
6	Remediation actions logged	All FAIL items have a documented action, owner, and resolution date
7	Re-check completed after remediation	If any FAIL was recorded, a re-check is on file confirming resolution
8	Report filed in project register	Health check report (with date and schedule version) is filed in the Schedule Register
9	Escalation actioned	Any RED rating was escalated to Controls Manager and Project Manager on the same day
10	BEI trend tracked	BEI trend chart covers at least 3 reporting periods for active projects

9. Revision History

Version	Date	Author	Description
v01	2026-04-03	Tracker (#2)	Initial draft — Phase 1 SOP Sprint. Note: automated TMP-PS-010 worksheet to be delivered by Pulse (#3) in Phase 2

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