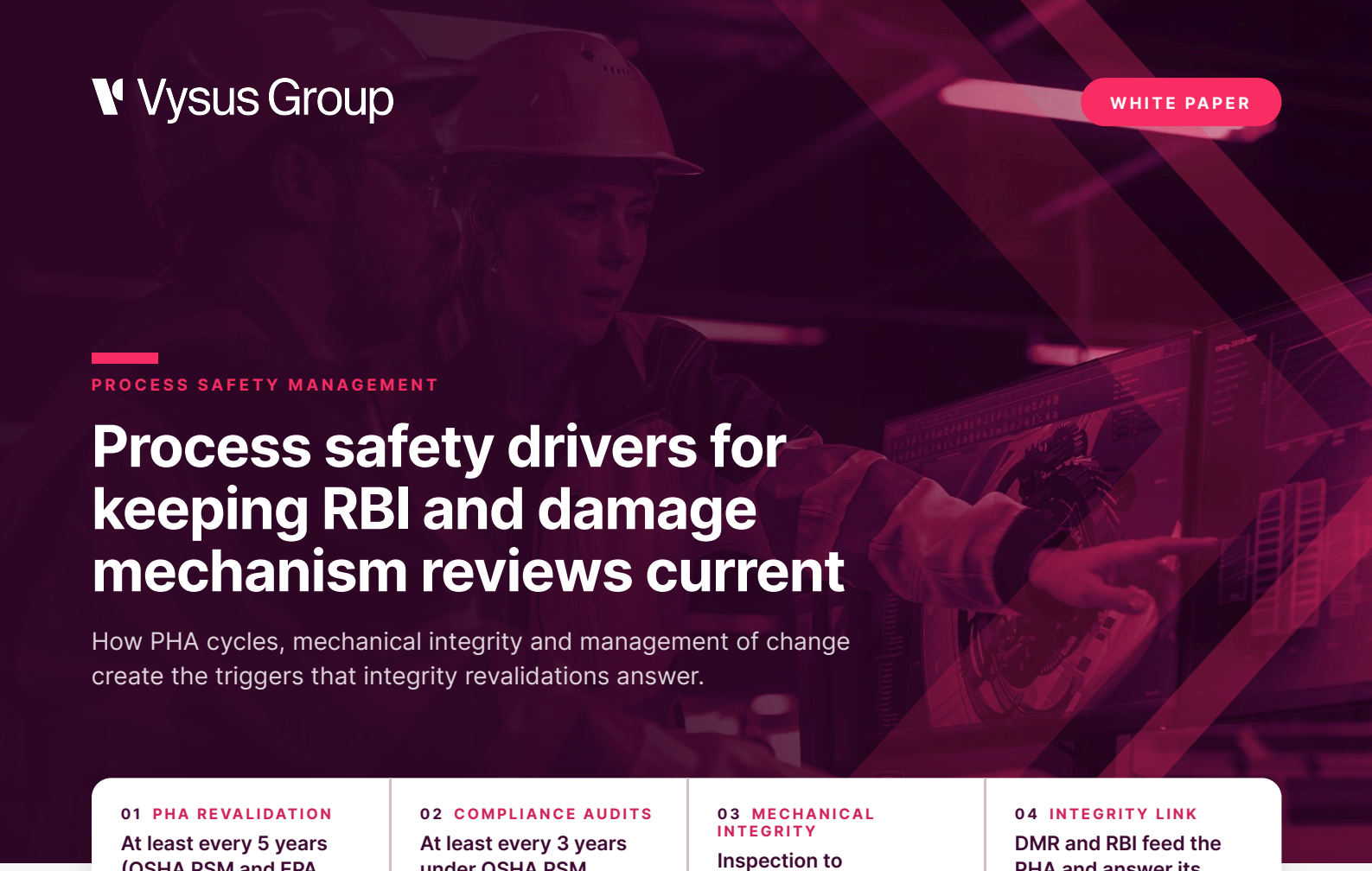
Vysus Group

WHITE PAPER



PROCESS SAFETY MANAGEMENT

Process safety drivers for keeping RBI and damage mechanism reviews current

How PHA cycles, mechanical integrity and management of change create the triggers that integrity revalidations answer.

01 PHA REVALIDATION	02 COMPLIANCE AUDITS	03 MECHANICAL INTEGRITY	04 INTEGRITY LINK
At least every 5 years (OSHA PSM and EPA RMP)	At least every 3 years under OSHA PSM	Inspection to recognized good engineering practice	DMR and RBI feed the PHA and answer its actions

EXECUTIVE SUMMARY

PSM already sets a five-year cycle for integrity work

Process safety management regulations do not usually say “revalidate your RBI every five years.” They do something with the same effect: they require a hazard analysis revalidated on a fixed cycle, a mechanical integrity program that follows recognized engineering practice, and a review whenever the process changes.

Each of those requirements leans on integrity data. A PHA team cannot judge whether equipment will contain the process without current damage mechanisms and inspection results, and PHA recommendations often call for exactly that work.

Aligning damage mechanism review and RBI revalidation with the PSM cycle turns two separate compliance tasks into one program, with less duplicated effort and a stronger record for auditors.

KEY INTERVALS

5 yrs
maximum interval to update and revalidate the PHA

3 yrs
maximum interval between PSM compliance audits

10 yrs
code maximum for RBI review, twice the PSM cycle

Talk to our team

Americas@vysusgroup.com
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THE REGULATORY DRIVERS

Four PSM elements that reach into integrity

29 CFR 1910.119(E)

Process hazard analysis

The PHA must be updated and revalidated at least every five years by a qualified team. EPA's Risk Management Program (40 CFR Part 68) sets the same five-year cycle for Program 3 processes.

29 CFR 1910.119(J)

Mechanical integrity

Inspection and testing must follow recognized and generally accepted good engineering practices, which for fixed equipment means API 510, 570 and 653, including their RBI review requirements.

29 CFR 1910.119(L)

Management of change

Changes to process chemistry, technology, equipment and procedures must be reviewed before implementation. Many of these are the same events the API codes name as RBI review triggers.

29 CFR 1910.119(O)

Compliance audits

Compliance with the standard must be certified at least every three years. Auditors look for evidence that integrity assessments reflect current conditions.

California's refinery PSM rule (Title 8 CCR §5189.1) goes further and requires damage mechanism reviews, with Washington State following. In Canada, CSA Z767 sets out a comparable process safety management framework.

HOW PHAS TRIGGER INTEGRITY WORK

Where the hazard analysis meets the integrity program

1 PHA recommendations

Hazard reviews regularly produce actions to confirm damage mechanisms, check corrosion rates or review inspection coverage for specific equipment. A DMR or RBI revalidation closes those actions with evidence.

2 New scenarios

When the PHA identifies a new loss-of-containment scenario, the integrity program has to confirm the mechanism is understood and inspected for.

3 Changes found in the PHA

Revalidation often uncovers process changes that never went through a full integrity review. Each is an event-based trigger under API 510, 570 and 653.

4 Safeguards depend on integrity

Many PHA safeguards assume the equipment is fit for service. If the DMR and RBI are out of date, the safeguard credit is harder to justify.

ONE CYCLE, THREE REVIEWS

Aligning the work

Activity	Driver	Best timing
Damage mechanism review revalidation	PSM mechanical integrity, California and Washington refinery rules, good practice	6 to 12 months before the PHA so the team works from current data
RBI revalidation	API 510, 570, 653 (10-year maximum plus event triggers)	After the DMR and ahead of the turnaround that follows
PHA revalidation	OSHA PSM and EPA RMP, at least every 5 years	Uses the refreshed DMR and RBI outputs; its actions feed the next integrity cycle

THE COST OF RUNNING THEM SEPARATELY

What budget approvers should weigh

Duplicated effort

Separate teams gather the same process, inspection and operating data three times on three schedules.

Inconsistent records

When the PHA, DMR and RBI were built from different snapshots, auditors find conflicts, and each one is a finding to close.

Open PHA actions

Recommendations that need integrity input remain open until the work is funded, and overdue actions are a common audit finding.

Weaker safeguard justification

Safeguards that rely on equipment integrity are harder to justify when the integrity data is years older than the hazard review.

FOR THE BUDGET CONVERSATION

Questions your approver will ask

Is this a regulatory requirement?

The five-year PHA cycle and the three-year audit are. Integrity data current enough to support them is what makes both defensible, and in California and Washington refineries the DMR is required outright.

Why not wait for the 10-year RBI limit?

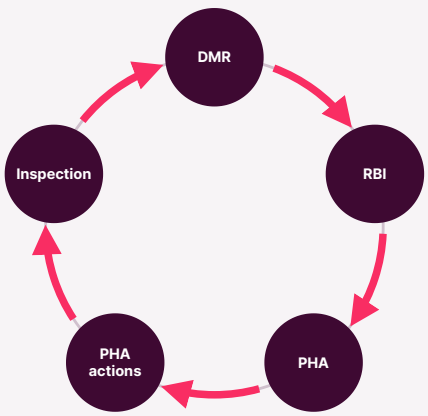
Two PHA cycles would pass in that time, both relying on integrity data that is increasingly out of date.

What does aligning them save?

One data gathering exercise, one specialist team and one consistent record, instead of three separate efforts and the gaps between them.

CLOSING THE LOOP

How the reviews connect



The DMR sets the mechanisms, RBI turns them into risk and inspection plans, the PHA tests the safeguards against current integrity, its actions return to the integrity program, and inspection results feed the next DMR.

Run on a single five-year cycle, the three reviews share data gathering and specialist time, and auditors see one consistent set of records.

HOW VYSUS SUPPORTS THE PSM CYCLE

Integrity work scheduled around your PHA

- Damage mechanism review revalidation scheduled ahead of the PHA
- RBI revalidation and updated inspection plans in your existing platform
- Integrity input to PHA teams and evidence to close PHA actions
- A single record of mechanisms, risk and inspection for auditors

We work in the major integrity software platforms on the market, so outputs go straight into the system your team already uses.

GETTING STARTED

Aligning integrity with your PSM calendar

01

Map the dates

Last PHA, DMR, RBI and audit, side by side.

02

Set the sequence

DMR, then RBI, then PHA, on a single cycle.

03

Close open actions

Integrity evidence for outstanding PHA items.

04

Maintain between reviews

Event-based updates as changes occur.

WHY VYSUS GROUP

About Vysus Group

200+
consultants across our global team

270+
customers served every year

4.9/5
customer satisfaction score

Our Americas team works from Calgary, Houston and Trinidad, and draws on specialists across the wider group for corrosion, materials and process safety.

Planning your next PHA? Let's align the integrity work.
Email **Americas@vysusgroup.com** or visit **vysusgroup.com**

Calgary
Houston
Trinidad

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