



Plant Structural Integrity

Risk-Based Inspection and Remaining Life Assessment of aging civil assets

Refineries · Petrochemicals · Fertilisers · Power · Chemicals · Ports and Marine

Transparency. Competence. Reliability.

October 2026

Established 1973 · NABL (NABLT0726MH18640) ISO/IEC 17025:2017 · NADCAP AC7101 · BIS, IBR, BMC, CIDCO Approved

Your plant already holds most of the evidence. We turn it into a ranked, defensible inspection plan, and test only what is missing

THE ANSWER

Aging civil assets are a data problem before they are a testing problem. The answer is a programme that reads first, ranks by risk, and proves every number.

It matters now. More than half of India's refining capacity runs on civil structures commissioned before 1996, under a five-yearly statutory clock, with corrosion the governing mechanism.

We turn your record into a ranked plan. Five phases take what you already hold to a gap register, a remaining-life range per asset class, and one risk scale built on probability and consequence of failure.

The result stands up to scrutiny. Every number clears five verification gates, the method is stated before the result, and a fifty-three-year evidence base sits behind every judgement.

Why this matters now

Five facts about the Indian process industry that decide how urgent this work is.

More than half of India's operating refining capacity sits on civil structures commissioned before 1996

FACT 01

13 of 23

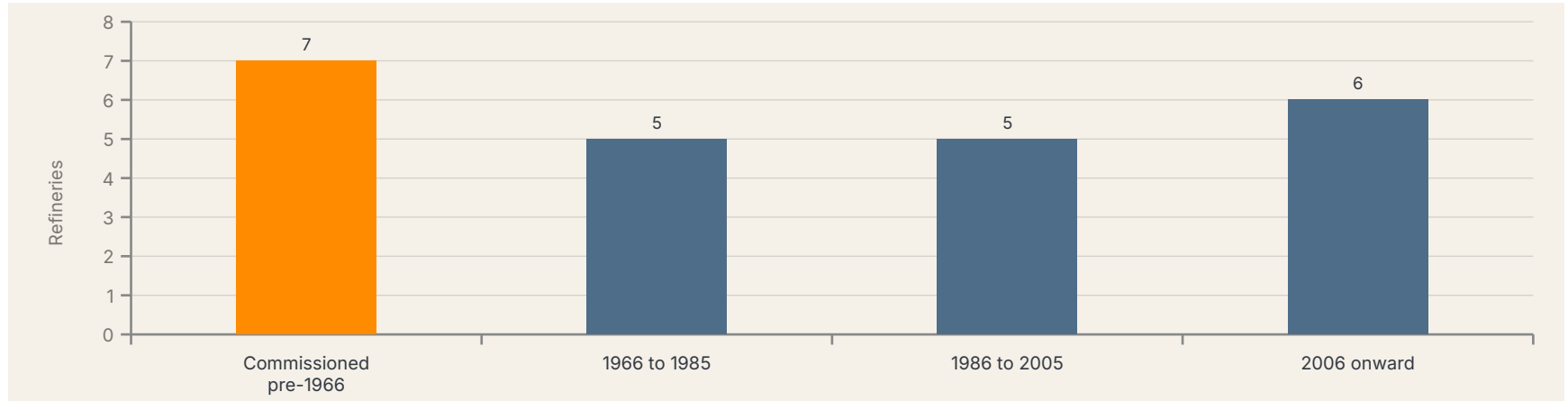
refineries 30 years or older

12 of 23

refineries 40 years or older

125 years

oldest, Digboi, 1901



A refinery commissioned in 1965 is running on foundations, racks and dykes designed to the codes and load assumptions of 1965.

Total installed capacity 267,116 MMTPA across 23 refineries, PPAC as on 01.04.2026.

The one OISD standard written specifically for the inspection and rehabilitation of foundations and structures has not been revised in 29 years

THE CIVIL STANDARD

OISD-STD-170

Inspection, Maintenance, Repairs and Rehabilitation of Foundations and Structures. Current edition in vogue: July 1997. Twenty nine years without a revision, while the concrete it governs has aged the same twenty nine years.

FIREPROOFING

OISD-STD-164

Fire Proofing of Steel Supporting Structures in Oil and Gas Industry. Current edition July 2012. Corrosion under fireproofing is concealed by definition and is the most common severe finding on aging structural steel.

LAYOUT AND DYKES

OISD-STD-118

Layouts for Oil and Gas Installations. Current edition June 2025. Governs tank spacing, dyke capacity and freeboard, which is where containment adequacy is decided.

ACCESS AND DRAINS

OISD-STD-105 · OISD-STD-109

Work Permit System (August 2023) and Process Design and Operating Philosophies on Blow Down and Sewer System (January 2015). Together these govern when civil work can be done on a live unit.

An old standard is not a weak standard. It is a standard that predates the measurement techniques now available, which is why the method matters more than the citation.

The statutory clock on plant buildings runs on a five-year cycle, and it is enforced by the factory inspectorate, not by your integrity department

FACT 03

Instrument	What it requires	Cycle
The Factories Act, 1948, Section 40	Where any building or part of it is in such a condition that it is dangerous to human life or safety, the Inspector may order remedial measures, and may prohibit use where danger is imminent	On finding
The Factories Act, 1948, Section 40A	Where a building is in such a state of disrepair as is likely to lead to conditions detrimental to the health and welfare of workers, the Inspector may order the measures required	On finding
Maharashtra Factories Rules, 1963, Rule 3A	Certificate of Stability in Form 1-A from a competent person for every work of engineering construction, sent to and approved by the Chief Inspector of Factories	Every 5 years, and after any extension, alteration, repair or addition
Mumbai Municipal Corporation Act, 1888, Section 353B	Structural inspection by a registered structural engineer for buildings in existence and in use for more than 30 years	On the 30-year trigger

MCGM public notice D.M.C./R.E./901 dated 11.06.2013 on the 30-year trigger. State Factories Rules differ; Maharashtra is shown as the worked example and the equivalent rule is confirmed per state at programme start.

Rule 3A is the one that binds a refinery. A five-yearly Form 1-A stability certificate is a recurring statutory obligation, not a one-off.

Many plant inspection specifications in India still call up a concrete test standard that the Bureau of Indian Standards withdrew

FACT 04

WITHDRAWN

IS 13311 (Part 1):1992

Ultrasonic pulse velocity. The BIS record for this standard shows it withdrawn and superseded. A report issued today against it is issued against a standard that no longer exists.

THE STANDARD IN FORCE

IS 516 (Part 5/Sec 1):2018 (First Revision)

Hardened Concrete, Methods of Test, Part 5 Non-Destructive Testing of Concrete, Section 1 Ultrasonic Pulse Velocity Testing. Amendment No. 1, November 2019.

REBOUND HAMMER

IS 516 (Part 5/Sec 4):2020

First Revision. BIS record shows no supersession and no withdrawal flag. IS 516 (Part 5/Sec 4):2020 covers rebound hammer as a First Revision.

WHY IT MATTERS

Edition, not just number

Two editions of the same standard do not always grade a result identically. We record the edition and year of every method behind every number we use, and we say so on the face of the report.

This is the cheapest finding in the whole programme, and it is in almost every plant specification we are asked to work to.

Corrosion alone costs India an estimated 4.2 per cent of gross domestic product, and reinforcement corrosion is the governing mechanism on most aging plant concrete

FACT 05

US\$70.3 bn

estimated annual cost of corrosion to India

NACE IMPACT, India data 2011-12

4.2%

of gross domestic product

against GDP of US\$1,670 bn

US\$20.3 bn

of that borne by industry

agriculture US\$17.7 bn, services US\$32.3 bn

Chloride-induced corrosion dominates coastal sites. Every port-side and coastal plant. Depth-profiled chloride is mandatory there, because a single-point reading cannot establish the ingress front.

Carbonation-induced corrosion dominates inland sites. The measurement that matters is carbonation depth against actual cover, not against design cover. Actual cover is the strongest single predictor of time to corrosion initiation.

Cooling towers are the fastest-corroding concrete on any site. Continuous wetting plus a chlorination regime. They are also, in our experience, the least frequently surveyed.

From your record to a ranked plan

Read first, test only the gaps, and rank every civil asset on one scale of probability and consequence.

Five phases, each with a defined owner, a defined output, and a defined condition that stops it proceeding

01	Ingest and baseline inspection	Existing reports, drawings, design basis, repair records and prior surveys normalised to your asset tags. Baseline visual and instrument survey run in parallel.	<i>TCR asset integrity data team with Civil Testing</i>
02	Gap analysis	The dataset scored line by line against thirteen checklists. Output is a gap register per facility per asset class, and the confidence ceiling it sets.	<i>Civil Testing with TCR Advanced Reliability</i>
03	Gap closure in the field	Only the gaps are tested. Concrete and steel NDT under NABL scope, underwater survey through the marine alliance, laser and drone baseline capture.	<i>TCR Engineering NDT and Civil Testing</i>
04	Assessment: RLA then RBI	Remaining life first, per facility per asset class. Risk ranking then runs on the RLA output. Never the other way round, never merged.	<i>TCR Advanced Asset Integrity</i>
05	Five-gate verification and issue	Data integrity, technical peer review, structural engineer of record, quality release under ISO/IEC 17025:2017, President's clearance.	<i>TCR Quality Assurance and the Office of the President</i>

The hard gate is between Phase 2 and Phase 4. An asset class with no gap register is not assessed, and we say so rather than assessing it anyway.

A worked example: a fertiliser plant ammonia block, 214 civil assets, and what four weeks of Phase 1 actually returned

PHASE 01 · EXAMPLE

WEEK 1

Register built, 214 assets

Client tags reconciled against drawings. 31 assets found on the ground with no drawing reference at all, which became the first finding of the programme.

WEEK 2

186 documents ingested

Of which 41 carried no method or edition, 12 named no technician certification, and 6 were summary tables with no element-level data behind them.

WEEK 3

Visual survey, all 214

Element-wise distress log with crack widths. 9 assets escalated immediately on discovery, outside the reporting cycle, because visible distress warranted it.

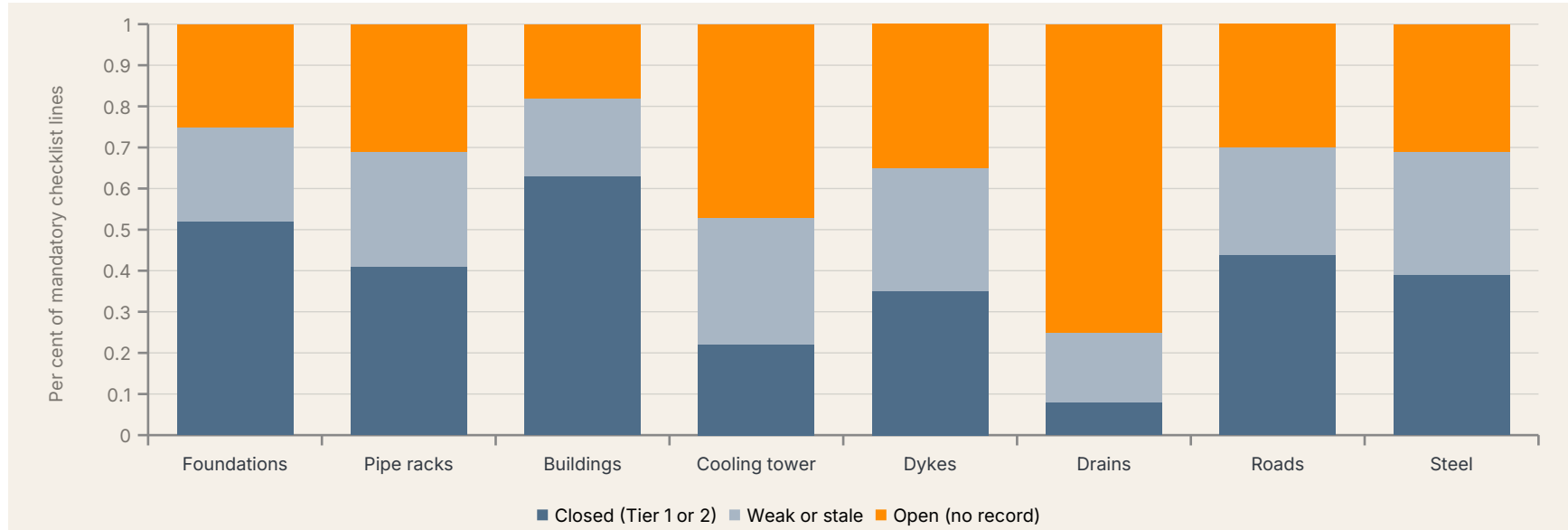
WEEK 4

Instrument screening

Cover, carbonation and UPV screening across a stratified sample. Two pipe rack sections showed cover at less than half the drawing value, which changed the whole Phase 3 scope.

The two findings that mattered most, undrawn assets and under-cover rack columns, both came out of Phase 1 and neither needed a laboratory.

The same fertiliser block after gap analysis: only 38 per cent of the mandatory checklist lines were held with a source good enough to carry a number



The buried drainage network was 75 per cent open. It is the asset class nobody surveys, and on this site it carried the process effluent.

Closed means held with a Tier 1 or Tier 2 source. Weak or stale means held but untraceable, summary-only, or predating a material change. Open means no record exists.

Because Phase 2 came first, the field campaign on that block was 41 per cent of a standing test menu, and it closed more of the register

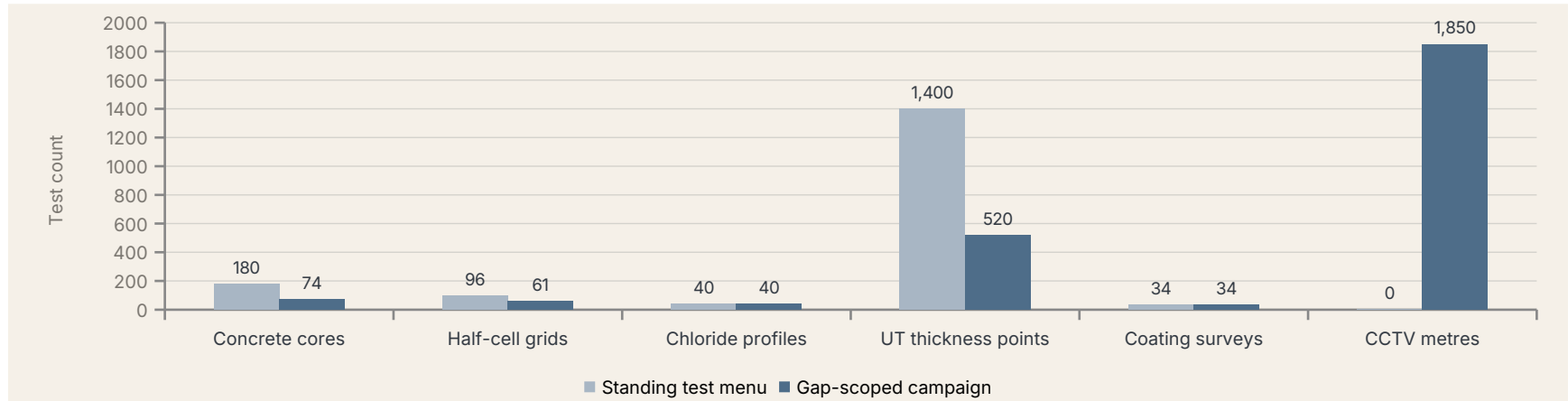
PHASE 03 · EXAMPLE

41%

of the standing menu, by test count

1,850 m

of CCTV the standing menu did not include at all



Scoping to the register cut concrete coring by 59 per cent and added 1,850 metres of drain survey the standard menu would have skipped entirely.

Ten asset classes, and each fails in its own way: foundations to tank dykes

CLASSES 01 TO 05

01	RCC foundations	RCC foundations fail from the reinforcement outward, and the measurement that predicts it is actual cover, not design cover
02	Pipe racks and cable tray supports	Pipe racks fail from load that arrived after the design, and from corrosion concealed under fireproofing and grout
03	Process buildings and substations	Process buildings and substations fail from change of use and water ingress, and they carry the highest life-safety consequence on the site
04	Cooling towers	Cooling towers carry the most aggressive continuous exposure on any plant, and are routinely the least frequently surveyed structure on it
05	Tank dykes and bund walls	Tank dykes and bund walls are a containment question before they are a structural one, and capacity is often no longer adequate

Each class carries its own checklist, its own deliverable and its own risk segment.

Ten asset classes, and each fails in its own way: retaining walls to structural steel

CLASSES 06 TO 10

06	Retaining walls	Retaining walls fail because the loading behind them changed, not because the concrete in front of them weakened
07	Buried drains and culverts	Buried drains fail at the crown, above the water line, which is why a survey that reports only the invert misses the mechanism
08	Jetty and marine structures	Jetty and marine structures corrode fastest exactly where nobody can stand, in the splash zone and below the waterline
09	Roads and storm channels	Plant roads and storm channels fail against axle loads and catchment run-off that have both grown since the design
10	Structural steel	Structural steel fails at the connections and under the fireproofing, and coating age predicts section loss before any gauge does

One programme, ten ways of failing, and one risk scale at the end.

Probability of failure is read from the pessimistic end of the remaining life, so thin evidence is never free

Probability of failure is read from the lower bound

Two element groups with the same central estimate of remaining life. Only the evidence differs.

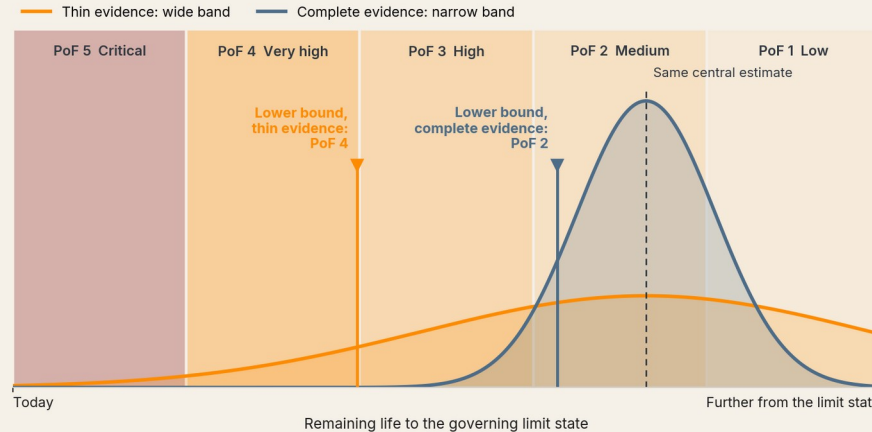


Illustration. Uncertainty is never free: a wider band moves the lower bound earlier and raises the probability of failure.

THE PRINCIPLE

Uncertainty raises risk

Two structures with the same expected life can carry different risk. The one with thinner evidence has the earlier lower bound and ranks higher. An element that cannot be assessed is never ranked low merely because it looks sound.

Better data can move an element down a level without a single repair.

Consequence of failure is the worst of five things the plant could lose, never their average

CONSEQUENCE

Consequence of failure: the worst dimension governs

One illustrative element, a pipe-rack bay carrying a live hydrocarbon line, scored on five dimensions.

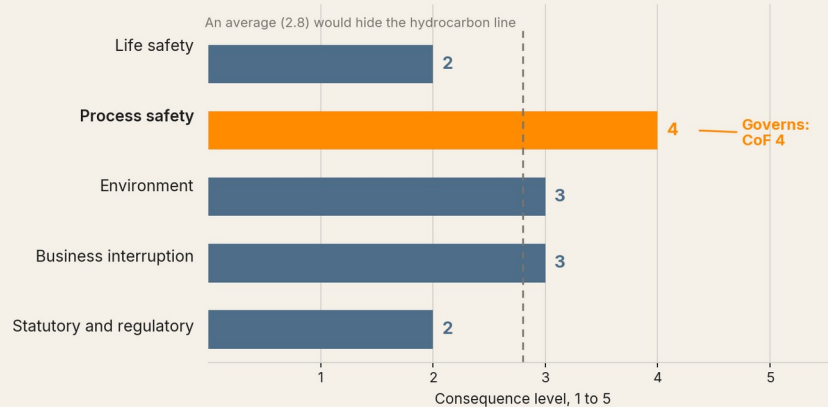


Illustration. The governing dimension is named on every register row, so two assets in the same risk cell stay distinguishable.

THE PRINCIPLE

The worst outcome governs

People, process containment, the environment, production and the licence to operate. An average would let a quiet bay over a live hydrocarbon line rank beside a storeroom wall.

The governing dimension is named on every register row.

Probability and consequence together rank a jetty, a pipe rack and a buried drain on one scale

ONE SCALE

A jetty and a pipe rack, ranked on one scale

Each asset keeps its own mechanism and limit state. Only the two outputs, probability and consequence, cross families.

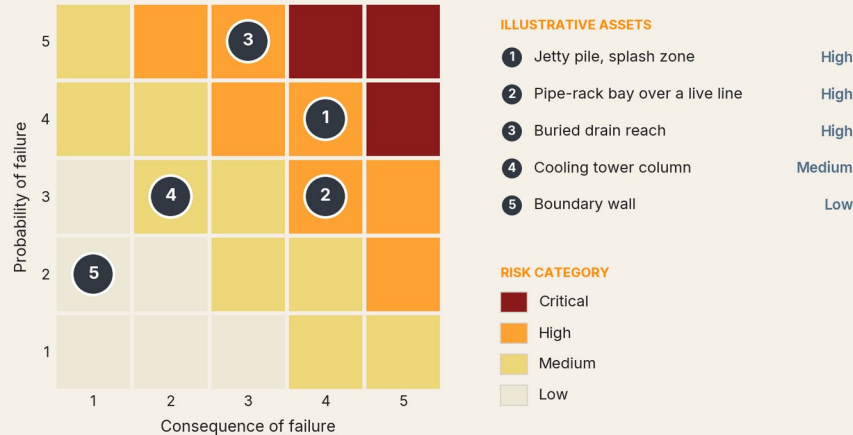


Illustration. Placements are examples, not findings; inspection effort then follows the ranking, not the asset list.

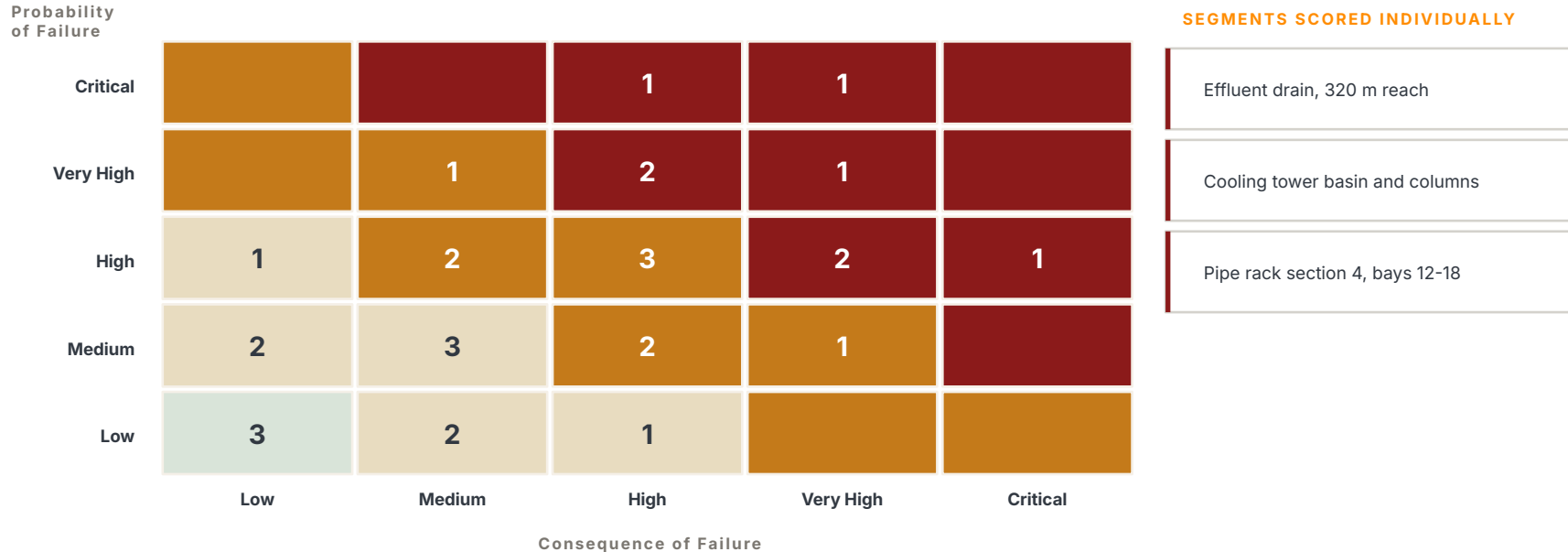
THE PRINCIPLE

Effort follows risk

Each asset keeps its own mechanism and limit state. Frequency, coverage and urgency follow its place on the scale, and a fire, a spill or a new load brings the next visit forward whatever the calendar says.

Inspection effort follows the ranking, not the asset list.

The consolidated risk register is the product. It ranks a cooling tower against a pipe rack against a drain on one scale, so budget goes where the risk is



The drain reach outranked every above-ground structure on the site, and it was the asset class the standing test menu did not include.

Cell values are segment counts. Named segments are shown where they were scored individually rather than as a representative group.

One programme, four deliverables, and a recurring inspection plan you can budget against for the next decade

DELIVERABLE 01

The gap register

Per facility and per asset class: what is held, what is stale, what is untraceable, what has no record at all. Standalone value even if nothing follows.

DELIVERABLE 02

Remaining Life Assessment

Condition rating, governing deterioration mechanism, and a remaining-life range with its method, assumptions and confidence band. Never a single number.

DELIVERABLE 03

Risk-Based Inspection ranking

Probability of Failure against Consequence of Failure per segment, risk matrix placement, and one consolidated register ranked highest to lowest across the site.

DELIVERABLE 04

The recurring programme

Per segment: inspection frequency, the test set required at each interval, and the basis for both. Converts directly into a scope of work.

One segment is one facility multiplied by one asset class. That is the unit of work, the unit of reporting and the unit of cost.

A one-off study goes stale the day it is issued. The platform is what turns this into a register your team operates

RECURRING
PROGRAMME

THE PROBLEM

A study is a snapshot

A risk ranking produced as a report is accurate on the day it is signed and decays from then on. Three years later nobody is sure which findings were closed and which intervals were met.

THE PLATFORM

AiOM asset integrity management

Digital custody of the asset register, the inspection record, the risk ranking and the inspection due-date calendar, across facilities. Developed by TCR Advanced Engineering.

WHAT CHANGES

The ranking updates as inspections land

Each new inspection result recalculates the segment's Probability of Failure rather than waiting for the next study. The register is live, and the due-date calendar drives the plan.

WHO OPERATES IT

Your team, with our methodology behind it

Licensed to the client's integrity function. We remain the methodology authority and the accredited testing arm; the register belongs to the client.

Recommended where the client's intent is a recurring programme. Not recommended inside a single-segment study, where it would be an overhead with no payback.

Why the result can be trusted

How a mechanism is proven, the gates every number clears, the limits we hold ourselves to, and the people and record behind them.

A mechanism is only accepted when independent measurements agree, and a disagreement above 15 per cent sends the element back for retest rather than to a meeting

CHECK 01

Rebound and UPV against core strength

Screening results are calibrated against the ground truth. Any element deviating by more than 15 per cent is returned for retest, never reconciled by judgement.

CHECK 02

Coating condition against measured thickness loss

If the coating survey says sound and the gauging says section loss, one of them is wrong. Both are repeated before either is used.

CHECK 03

Half-cell against resistivity and chloride profile

Corrosion probability, corrosion rate and the driver must tell the same story. Where they do not, the mechanism is recorded as not established.

CHECK 04

Visual grading against instrument results

A structure that grades well visually and badly on instruments usually has a concealed mechanism: under fireproofing, under grout, or below grade.

A reviewer who resolves a correlation failure with an opinion has failed the gate, not passed it.

Standards go stale, and a programme that runs for a decade needs a written policy for what happens when one is withdrawn under it

POLICY 01

Edition and year, always

Every result carries the standard, the part, the section and the year actually applied. IS 13311 (Part 1):1992 and IS 516 (Part 5/Sec 1):2018 (First Revision) are not interchangeable, and a report that says only IS 13311 has not said enough.

POLICY 02

A withdrawn standard is flagged, not quietly substituted

Where a client specification calls up a withdrawn standard, we test to the standard in force, state both on the report, and tell the client. We do not silently substitute, and we do not silently comply.

POLICY 03

Historic results keep their historic edition

A 2014 result stays a 2014-edition result. Re-labelling it under the current edition would make a trend comparison meaningless and would misrepresent what was done.

POLICY 04

Out-of-scope results are marked on the face of the report

Any test performed outside our accredited scope is marked as such, with the reason. We do not present an out-of-scope result as an accredited one.

This is what the word Transparency means in our tagline. It is a metrological commitment, not a marketing line.

Five sequential gates, each with a named owner, and a gate that does not pass sends the report back rather than attaching a caveat and proceeding

FIVE GATES

01	Data integrity	Every number traced back to its source, method, standard edition and date. Any number without a traceable source is removed, not rounded or estimated. Epistemic labels checked: verified, inferred or assumed.	<i>Asset integrity data team</i>
02	Independent technical peer review	By a senior engineer who did not author the draft. The governing mechanism, the correlation checks, the standards applied by edition, and the remaining-life method with its assumptions written out.	<i>Reliability engineering, under the Technical Head</i>
03	Structural engineer of record	Structural adequacy commentary, as-built against design geometry, and every capacity question reviewed and signed. Chartered engineer counter-signature where the statutory position requires one. Engaged per project, independent of the delivery streams.	<i>Structural engineer of record</i>
04	Quality release under ISO/IEC 17025:2017	Method traceability, personnel qualification, equipment calibration, measurement uncertainty where a number drives a decision, and conformity to the accredited scope. Out-of-scope results marked on the face of the report.	<i>Head of Quality Assurance</i>
05	President's clearance	Scope conformity against the contract, the recommendation set, any statement committing TCR to a future position, and any named client reference against its confidentiality terms.	<i>Office of the President</i>

A reviewer at Gate 2 who resolves a correlation failure with an opinion has failed the gate, not passed it. There is no warning state.

What we will never do, stated plainly, because a supplier's limits tell you more about its judgement than its capabilities do

NEVER 01

We will not estimate a missing input

A blank beats a guess. Where an input is missing it is recorded as a data gap with what would close it. We do not interpolate silently, and an invented number is treated as a failed pipeline, not a rounding.

NEVER 02

We will not claim API 580 compliance

The framework is adapted from API RP 580 and 581 risk-ranking logic, which are written for pressure equipment and piping. We say so in every output and we will not let a proposal imply otherwise.

NEVER 03

We will not issue a structural certification under cover of a data synthesis

The report is a technical data synthesis for the structural engineer of record. It performs no capacity calculation and it does not present itself as a certificate.

NEVER 04

We will not present an out-of-scope or third-party result as our accredited one

Any test outside our accredited scope is marked as such with the reason, and an ingested third-party report keeps its own tier, its own agency and its own caveats.

Transparency. Competence. Reliability. The first word is a metrological commitment before it is a marketing one.

Four commitments set down before the work starts, so an owner can hold us to them rather than discover them in a report

OUR COMMITMENTS

COMMITMENT 01

We test only what the owner approves

Every proposed test states why it is needed. Nothing is mobilised that the owner has not approved.

COMMITMENT 02

Every number opens back to its readings

From a risk rating to the measurement behind it, each link in the chain is a record the owner can audit.

COMMITMENT 03

Success is defined before the work starts

Where a programme begins with a pilot, the measures of success are agreed with the owner first, so the result is judged against them.

COMMITMENT 04

The owner's data stays the owner's

Records supplied to us and the results we generate for an owner belong to that owner and are held in confidence.

Testing avoided because an existing record sufficed is reported as a result, not a lost sale.

Fifty-three years, and the record that sits behind every damage-mechanism judgement in this programme

TCR STRENGTH

53 years

of continuous operation

*founded 1973, family-owned,
woman-led since 2013*

9,000+

failure investigations

*the evidence base behind every
mechanism call*

1,200+

structural audits

India

500+

bridges inspected

*plus a separate 400+ bridge robotic
underwater programme*

750+

remaining life assessments

all asset classes

350+

fitness-for-service
engagements

API 579-1/ASME FFS-1

6,500+

clients served globally

across 7 operating countries

100,000+

microstructure replicas

*the comparison library, 12 field
teams*

None of these numbers is a capability claim. Each one is a body of evidence that a damage-mechanism judgement can be checked against.

The accreditation stack, with certificate numbers, because an accreditation cited without its number is not a credential

Accreditation	Held by	Detail
NABL, ISO/IEC 17025:2017	TCR Engineering	Certificate NABL0726MH18640 (in lieu of TC-6905). 1,483 scope items, being 1,383 laboratory tests and 100 site tests, covering mechanical, civil, NDT, PMI and chemical analysis. Valid 03 March 2026 to 02 March 2030
ILAC MRA reciprocity	TCR Engineering	Combined ILAC MRA Mark permission NABL/ILAC/11591, CAB ID T-0294. Reports accepted across 90+ economies. Coterminous with the NABL certificate
NADCAP	Both entities, separately	AC7101 Materials Testing, accredited 2026. The group holds AC7101 at two independent commercial laboratories in India, a position no other independent Indian materials-testing group occupies
NABL, ISO/IEC 17025:2017	TCR Advanced Engineering	Certificate TC-6739, 431 scope items, Vadodara. Never cross-cited with the parent certificate
NABL, ISO/IEC 17025:2017	TCR Eastern	Certificate TC-15993, 409 scope items, Bhubaneswar
BIS recognition	TCR Engineering	LRMD/LRS/OSL-7103506. First BIS-accredited commercial laboratory in India for IS 16172 rebar coupler testing across 8 mm to 40 mm
IBR	TCR Engineering	Well-Known Material Testing Laboratory since 2014. Central Boilers Board Form XVI-H certificate 38, valid to 02 April 2029. Central Boiler Board Well-Known RLA Organisation
Municipal and state	TCR Engineering	BMC Roads Department registration ChE/Rds/8292/NF. CIDCO Empanelled Material Testing Laboratory, Maharashtra
Occupational health and safety	Group	ISO 45001:2018, QRO certificate 3050260220154HS, valid to 19 February 2029

Two entities, two separate NABL certificates, two separate NADCAP accreditations. They are never conflated and never cross-cited.

ISO 14001 is not claimed. ISO 9001 is not held standalone; the quality management system runs on ISO/IEC 17025:2017, which carries the ISO 9001 management-system requirements.

Company profile and organisational capabilities: two accredited entities under one signature, and a named programme organisation for every job

TWO ENTITIES

THE LABORATORY

TCR Engineering Services Pvt. Ltd., Navi Mumbai.

Founded 1973. NABL accredited to ISO/IEC 17025:2017 under certificate NABL T0726MH18640, 1,483 scope items covering mechanical, civil, NDT, PMI and chemical analysis. NADCAP AC7101 Materials Testing, accredited 2026.

THE ASSESSMENT ARM

TCR Advanced Engineering Pvt. Ltd., Vadodara.

NABL certificate TC-6739, 431 scope items. Carries the remaining-life, fitness-for-service and risk-ranking methodology, and the AiOM asset integrity platform.

THE INTERFACE

One accountable interface.

The programme organisation chart names every seat before work starts, and the one-pager accompanying this deck sets it out. Quality assurance reports to the board, not to the delivery lines.

The two-entity structure is the point. Civil condition assessment and remaining-life methodology are different disciplines, and most bidders subcontract one of them without saying so.

In-house expertise, key personnel and certifications: named people against named seats, and an expert consultant panel engaged by name

DELIVERY

The delivery bench.

750+ group employees, 400+ of them engineering staff. 6 ASNT NDT Level III in house, 25+ Level II field crew, 11+ BARC Level 1 radiography certifications, and 12 dedicated in-situ metallographic replica field teams.

ACCREDITATION

The accreditation stack.

NABL ISO/IEC 17025:2017 (NABLT0726MH18640), ILAC MRA reciprocity across 90+ economies, NADCAP AC7101, BIS recognition, IBR Well-Known Material Testing Laboratory, PDIL empanelment, BMC and CIDCO approval, and ISO 45001:2018.

EXPERT PANEL

The expert consultant panel.

Six named consultants drawn jointly from the TCR Engineering and TCR Advanced bench, chaired by our Materials and Metallurgical Expert, covering finite element analysis, design review, cathodic protection, corrosion, marine corrosion and asset integrity.

INDEPENDENCE

The independent seats.

A structural engineer of record, with chartered engineer counter-signature where the statutory position requires one, engaged per project and independent of the delivery streams.

The organisation chart names every seat before work starts. A consultant named on a programme is a commitment, so the panel is never padded to look larger.

Six named consultants sit above the delivery streams, engaged by name on the programme, drawn jointly from the TCR Engineering and TCR Advanced bench

CHAIR

Materials and Metallurgical Expert

Master's degree in Materials Technology, which covers non-metals and civil materials as well as metals. So the deterioration-mechanism judgement on concrete, coatings, timber and FRP carries the same authority as it does on steel. ASM International author; contributor to ASM Handbook Volume 11A.

STRUCTURAL

Finite element analysis, fitness-for-service, and design review

Two consultants. Consulted where a residual-capacity question needs finite element treatment rather than a code check, and where original drawings are missing and the design basis has to be reconstructed. 38 years of engineering design between them and international FFS practice.

CORROSION

Cathodic protection, general corrosion, and marine corrosion

Three consultants. 33 years at GAIL with ICorr Level 4 (UK) and three published books on cathodic protection; 30 years and over 200 industrial corrosion cases; and 32 years at ONGC with a patent for a non-carcinogenic inhibitor.

ASSET INTEGRITY

Programme shape and interval practicality

47 years in NDT and quality assurance across process plants. Consulted on whether a proposed inspection interval is actually deliverable inside a live plant, which is a different question from whether it is technically correct.

A consultant named on a programme is a commitment. The panel is not padded to look larger, and consultants outside the civil scope are not on it.

First crew on site within 24 hours of permit clearance, and full campaign strength inside three weeks, because the turnaround business already runs at this tempo

MOBILISATION

24 hours

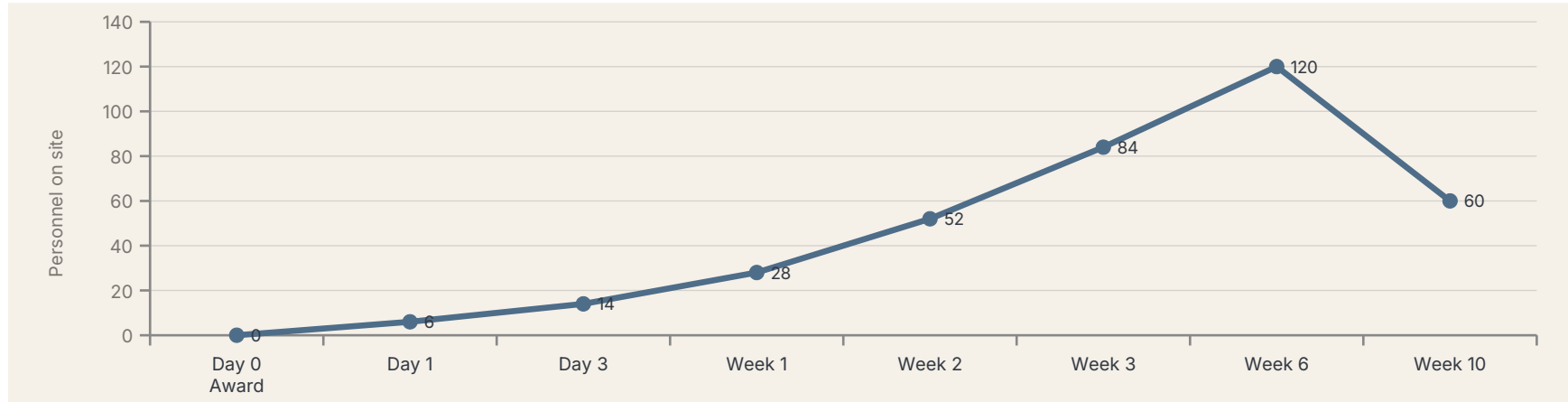
to first crew, from permit clearance

100 to 200

personnel at peak, the turnaround manpower capability

3 weeks

to full campaign strength



This is not a claim built for this deck. It is the same deployment machinery that puts 100 to 200 inspection personnel into a refinery turnaround at 24 hours' notice.

Curve shown for a single large facility across all ten asset classes. Ramp is permit-limited, not resource-limited; CL-12 site access data determines the achievable rate.

The programme organisation names every seat before work starts, and quality assurance reports to the board rather than to the delivery lines

GOVERNANCE

Board of Directors

The supervising authority for the programme. Chaired by our Chairperson and Managing Director. Woman-led since 2013, family-owned, no private equity and no external leverage, through three generations since 1973.

SINGLE INTERFACE

Programme Director

One accountable person for the client. Commercial authority, scope conformity, and the final clearance gate on every deliverable before it is issued.

TECHNICAL AUTHORITY

Programme Technical Authority

Technical direction across all ten asset classes. Signs off method selection and test scope, and owns the independent technical peer review.

INDEPENDENT

Quality Assurance, and the structural engineer of record

Quality assurance holds the ISO/IEC 17025:2017 release gate and reports to the board, not to the delivery streams, so a report cannot be released by the people who wrote it. The structural engineer of record is independent and engaged per project.

A one-page programme organisation chart accompanies this deck, showing the board, the three delivery streams, the expert consultant panel and the five verification gates.

Three delivery streams under one accountable interface, so the client never has to manage the boundary between civil testing, integrity methodology and marine survey

A	Civil condition assessment and field NDT	TCR Engineering, Navi Mumbai. Concrete and steel condition survey, core and laboratory testing under accredited scope, thickness gauging, coating survey, settlement and tilt survey. Asset classes 01 to 07, 09 and 10.	<i>NABL NABLT0726MH18640 · 1,483 scope items</i>
B	Remaining life and risk assessment	TCR Advanced Engineering, Vadodara. Remaining life assessment, risk ranking, fitness-for-service referral, damage-mechanism adjudication, and the AiOM platform for a recurring programme.	<i>NABL TC-6739 · 431 scope items · NADCAP AC7101</i>
C	Marine and underwater inspection	Robotic inspection alliance. Underwater ROV and diving survey, underwater NDT and thickness gauging, cathodic protection potential readings, and scour and bathymetric survey. Asset class 08.	<i>Scored on the same PoF and CoF framework as every other segment</i>

Most bidders offer one of these three well and subcontract the other two without saying so. Naming the streams is how a client can check.

Three ways to start, and the first one costs you nothing but the time to send us what you already hold

NEXT STEP

OPTION 01

Return the data checklists

Thirteen checklists, one per asset class plus the cross-cutting, existing-report and site-access sets, 149 individual data lines. Your site team marks each line Held, Partial, Not Held or Not Applicable. We return a gap register.

OPTION 02

Proof of concept on one facility

One facility across all ten asset classes, end to end. The value sits in the consolidated register that ranks a cooling tower against a pipe rack against a jetty on one scale, and a single-class pilot cannot demonstrate that.

OPTION 03

A technical discussion first

Two hours with our Technical Head, our Civil Testing head, and the remaining-life and risk leads from TCR Advanced. No commercial content. Bring your existing inspection specification and we will tell you what it is missing.

The gap register has standalone value whatever you decide afterwards. It tells you what your own inspection record does and does not cover.



We certify the integrity of the world around us.

Transparency. Competence. Reliability.

CONTACT

TCR Engineering Services Pvt. Ltd.

Plot EL-182, MIDC-TTC Industrial Area, Electronic Zone,
Behind NELCO, Mahape, Navi Mumbai 400 710, India

+91-22-67380900 · sales@tc reng.com · www.tc reng.com/services/asset-integrity/structural-integrity/

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