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# **Outcomes from a strategic approach to plant ageing at Seveso establishments in Great Britain.**

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# Plant Ageing programme- foundations

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- 2000 – COMAH Regulations 1999 (Seveso II)
  - Focus on integrity management
- 2006 – First research report
  - Do ‘old’ plants require a different approach ?
  - Introduced the commonly used definition of ‘ageing’
  - Monitoring condition through life is key

# What is 'Ageing'



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- Not simply related to chronological age of equipment
  - Ageing is related to what we know about a piece of equipment's condition and how that is changing over time

# Plant Ageing programme- foundations

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- 2008-09 Second research report
  - Looked at the contribution of ‘ageing’ to major accidents
  - Broader approach – looked beyond examination of plant to include;
    - Leadership
    - Resources
    - Maintenance
  - Provided a means for self assessment and survey
- 2010 Onshore Ageing Programme introduced.

# Plant Ageing programme - structure

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- Intervention Programme
  - Ultimate objective to cover all Seveso sites at which ageing might be an issue
  - Survey results directed/ prioritised inspections
  - Structured approach by specialist mechanical engineers
  - Site performance scored against key topics
- Stakeholder Engagement
  - Raise awareness within industry
  - Address industry wide issues

# Plant Ageing programme – interventions

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- Performance Measured over 5 Topics;
  - Leadership
  - Asset Register
  - Primary Containment
  - Safety Critical Mechanical Equipment
  - Resources
- Use of Performance Scores
  - Tracking of sector performance
  - Identification of common issues
    - Use of 3<sup>rd</sup> parties in integrity management

# Plant Ageing programme – interventions

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- Prioritisation
  - Survey results and site hazard ranking
- Structured interventions against specific topics
- Delivery Guide defining expectations to both inspectors and industry
- Inspectors identify any areas requiring improvement
  - Legally binding actions placed
  - Formal enforcement where appropriate
  - Once started interventions continue until required improvements are made

# Plant Ageing programme – Progress to Date

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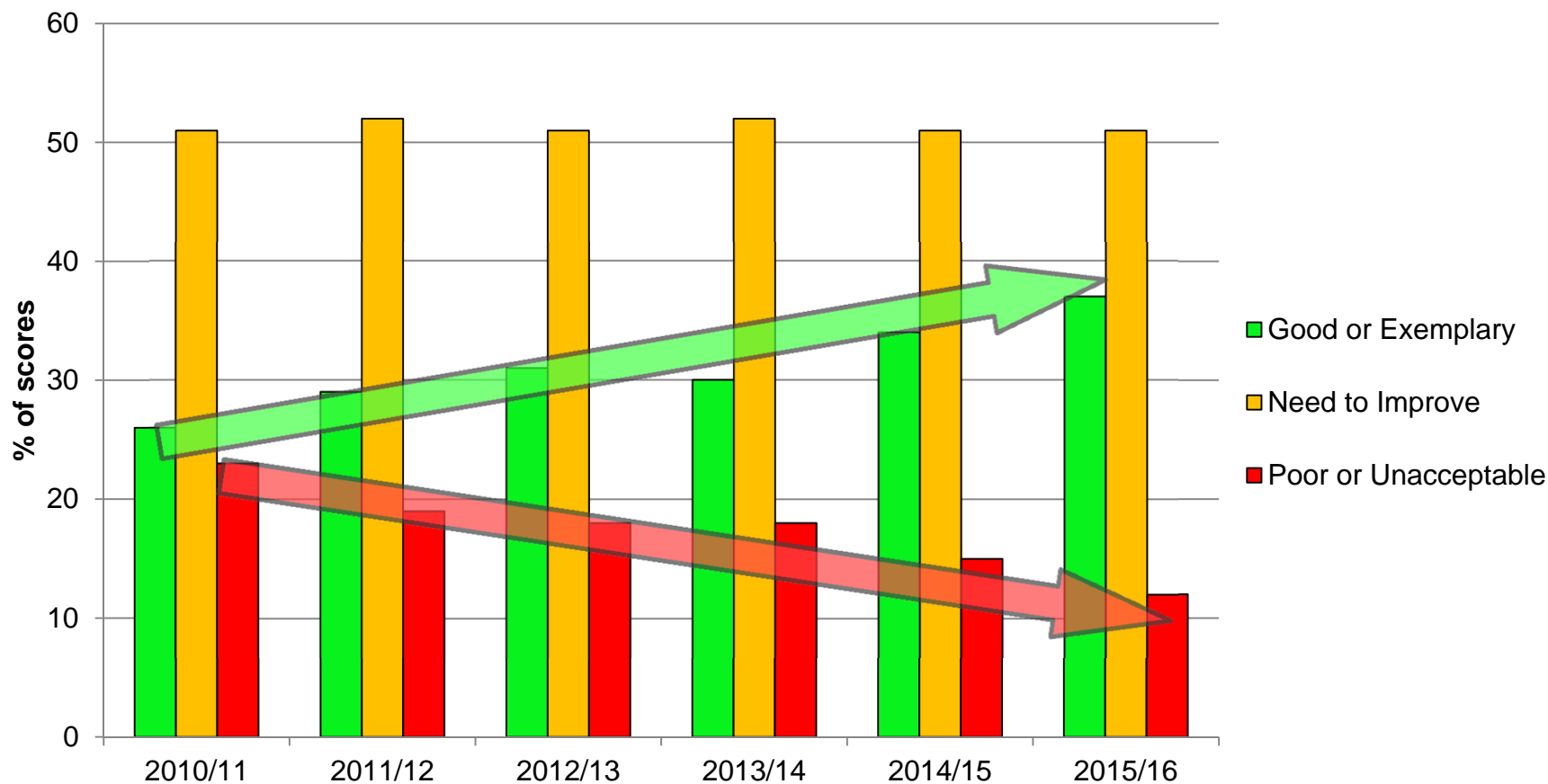


- Approximately 500 of a total of 800+ Seveso sites covered
- Slow but steady improvement
  - Albeit from a poor starting point
  - 1<sup>st</sup> year results showed > 70% of sites required to improve their performance

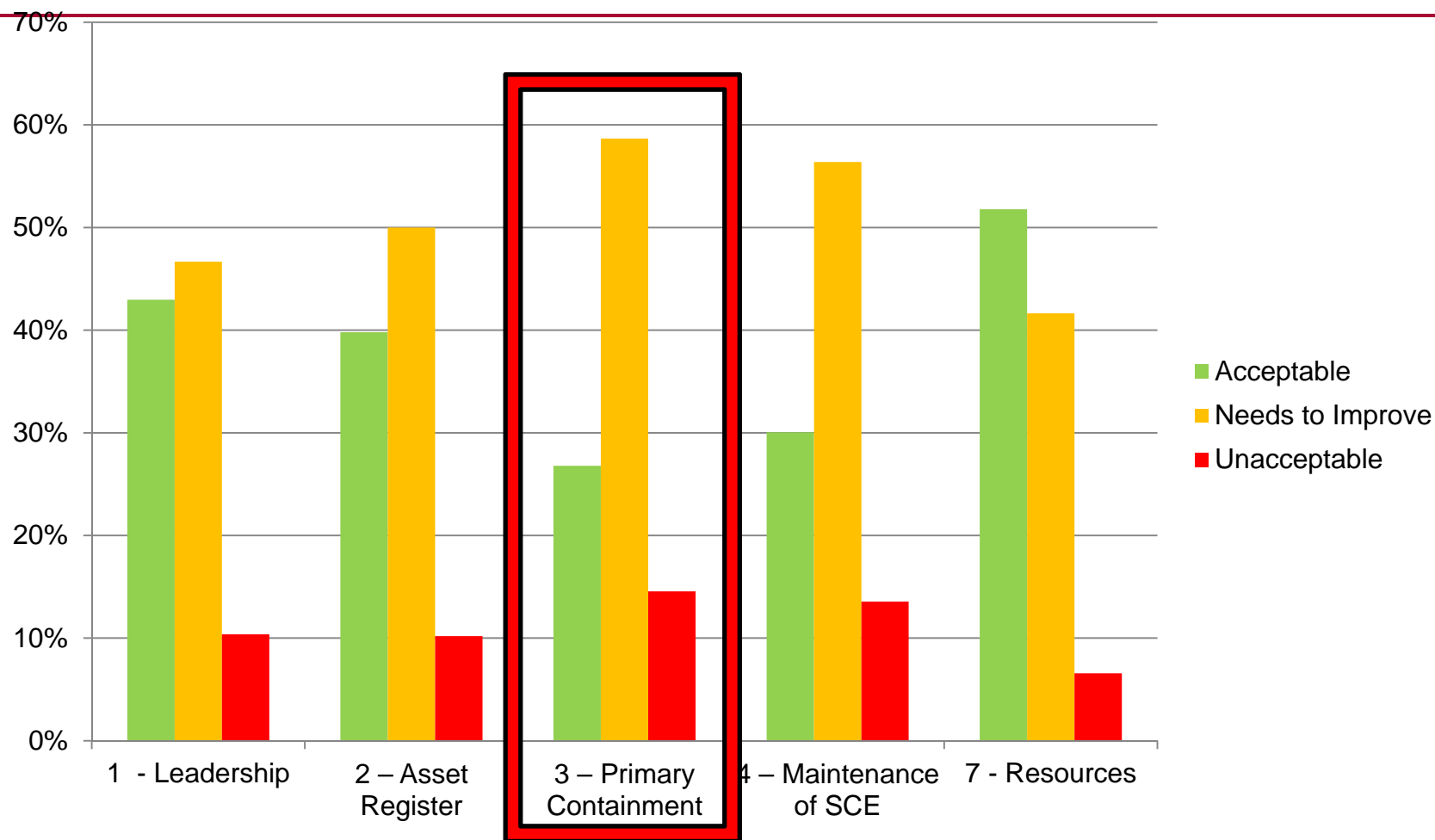


# Plant Ageing – progress ...

Distribution of scores, by category, overall for each work year



# Plant Ageing – 2015/16 data



# Plant Ageing programme – Stakeholder Engagement

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- Collaboration with UK Trade Associations and Professional Engineering Institutions
  - To raise awareness of the ageing issue and our programme across the industry.
  - Performance data provided strong evidence of areas that need attention
  - Developed guidance with strong industry input
    - secured rapid acceptance and take-up by industry in general

# Plant Ageing programme – Progress to Date

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- Stakeholder Engagement
  - Performance data indicated an issue with the use of external bodies for examination
    - Significant difference in performance in industries that predominantly use in-house resource vs those using external contractors
    - Importance of being an ‘intelligent customer’
  - This led to development of two significant guidance documents

# Plant Ageing programme – Progress to Date

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- Good Practice in Plant Examination
  - With Trade Association for external examination bodies and representatives of in-house bodies
  - Covers all aspects of examination, including management and execution
  - Published in 2012
  - Evidence of strong ‘take-up’ by industry

# Plant Ageing programme – Progress to Date

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- Use of External Contractors in Managing Ageing Plant
  - With the Chemical and Downstream Oil Industries Forum (CDOIF)
  - Addresses the interface between client and contractor
  - How to be an ‘intelligent customer’
  - Published 2015

# Pant Ageing programme – Lessons Learned

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- Benefits/ plus points
  - Combination of site interventions with stakeholder engagement works well
  - Stakeholder engagement is resource intensive but has been worthwhile
  - Performance data provides a strong base of evidence to convince decision makers of the need for action
  - Structured approach provides confidence in consistency of Performance Scores
    - Allows Senior Management to use data to demonstrate concerns

# Plant Ageing programme – Lessons Learned

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- And learning points/ challenges...
  - Imbalance in scoring structure
    - An ability to distinguish between sites close to compliance and those needing more significant improvement would be useful.
    - Very little use for scores in worst two categories
  - Multiple operating units/ satellite sites
  - Plant ownership changes
  - Changes in third party inspection



# Where to Next?

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- Currently reviewing the approach and findings
- Continuation of the programme within the current framework
- Address the challenges

# Information Sources

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- RR509 – Plant Ageing <http://www.hse.gov.uk/research/rrhtm/rr509.htm>
- RR823 – Plant Ageing Study <http://www.hse.gov.uk/research/rrhtm/rr823.htm>
- Ageing Plant Delivery Guide <http://www.hse.gov.uk/comah/guidance/ageing-plant-core.pdf>
- Ageing Plant Delivery Guide – Inspection Topics <http://www.hse.gov.uk/comah/guidance/ageing-plant-app5.pdf>
- SAFed IMG1 / EEMUA 231 The mechanical integrity of plant containing hazardous substances - A guide to periodic examination and testing <http://safed.co.uk/technical-guides/pressure-equipment>. Sept 2012
- Chemical and Downstream Oil Industries Forum (CDOIF). The use of Contractors in Managing Ageing Plant <http://www.hse.gov.uk/aboutus/meetings/committees/cif/cdoif-external-contractors-managing-ageing-plant-230315.pdf>



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