AIGA 2007 MEETING

PACKAGED GASES SAFETY

AIGA
Asia Industrial Gases Association

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PATTAYA, THAILAND

THAILAND'S EXPERIENCE IN IMPLEMENTATION OF CYLINDER VALVE DIFFERENTIATION

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for

Siam Industrial Gases Association

SIGA

Content

- History of cylinder valve connection in Thailand
- Related accident
  - Plastics Industry
  - Fiber cement case
- Implementation of cylinder valve connection standard
- Challenges
- Current status

SIGA

History of cylinder valve connection in Thailand

- Imported cylinders started with CGA 540 valve for oxygen
- Most cylinders have oxygen valve outlets, i.e. CGA 540
- Gas industry growth with more usage of N2 and Ar
- Swap cylinders from O2 to N2 and Ar without change type of cylinder valve.- no differentiation

CGA 540

CGA 580

Related accident (Plastic Industry)

- Occurred 3 January 2002
- Staff used O2 instead of N2 fill in plastic injection machine
- 1 death
- Machine destroyed into 2 parts
- 6-inch reinforced concrete impacted with big hole
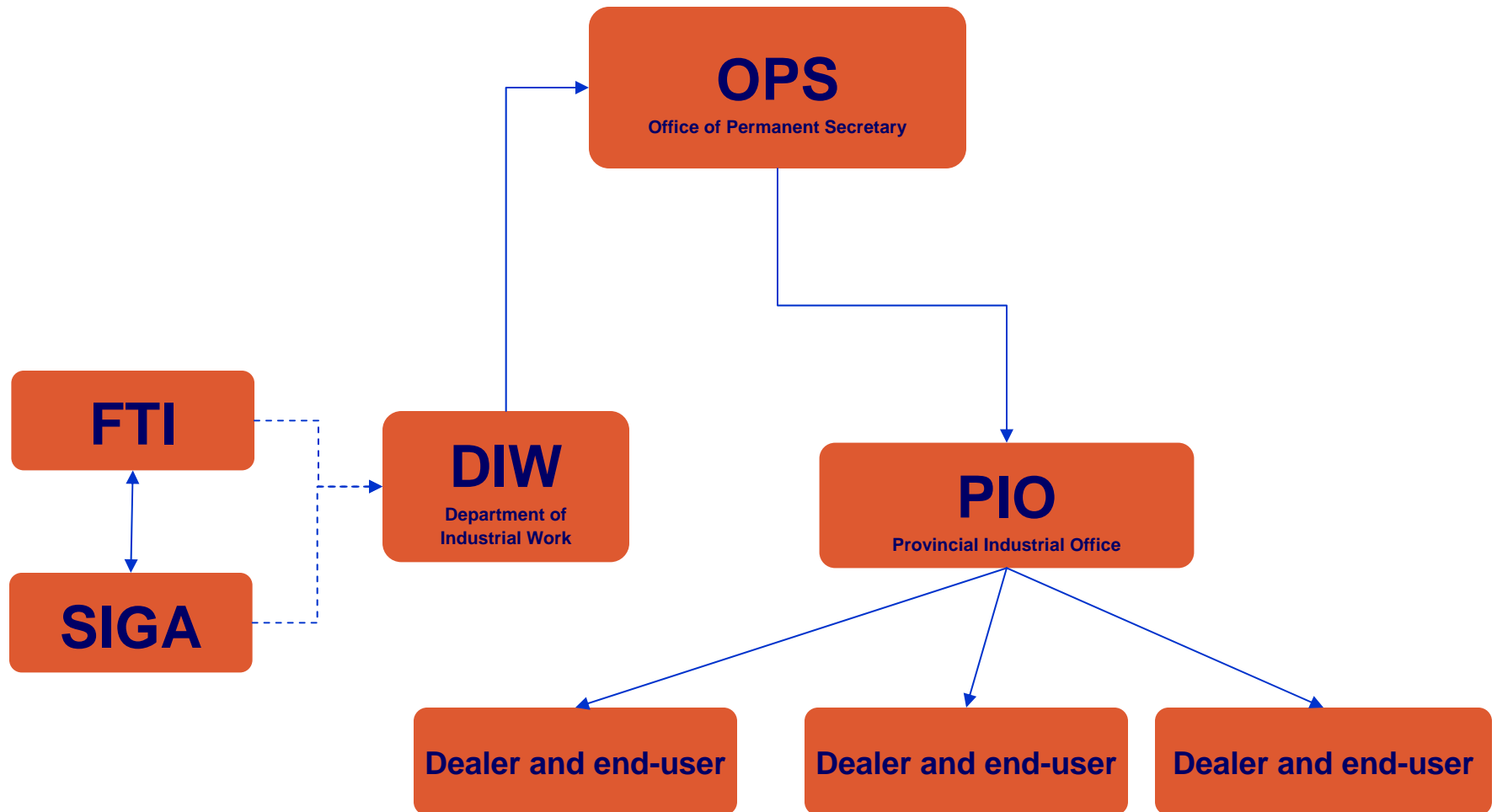
Related accident (Fiber Cement industry)

- Occurred 31 October 2003
- Use O2 instead of N2 in air accumulator
- 3 deaths(~100% body burnt)

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Implemention of proposal to differentiate cylinder valve for nitrogen /argon service

- Proposal initiated by
  - ✓ FTI (The Federation of Thai Industries)
  - ✓ SIGA (Siam Industrial Gas Association)
- New regulation approved by government (end of 2005)
- Awareness & education plan
- National gas safety seminars (by DIW, SIGA & FTI)
- Issue poster of cylinder valve connection, color code and label follow TIS (by DIW)

JPEG Image

- Set lead time for implementation ~ 18 months (from end of 2004)
- Audit by DIW authority (Q1 of 2006)

Reinforcement step

OPS
Office of Permanent Secretary

FTI

DIW
Department of Industrial Work

SIGA

PIO
Provincial Industrial Office

Dealer and end-user

Dealer and end-user

Dealer and end-user

Challenges

- Acceptable in the same safety standard by educate dealer and end-user

- Increase of normal investment (cylinder valve and related equipment)

- CGA 580 valve shortage at beginning of implementation

Current status

- *> 95% complied with CGA standard*
- *No accident result from wrong connection*