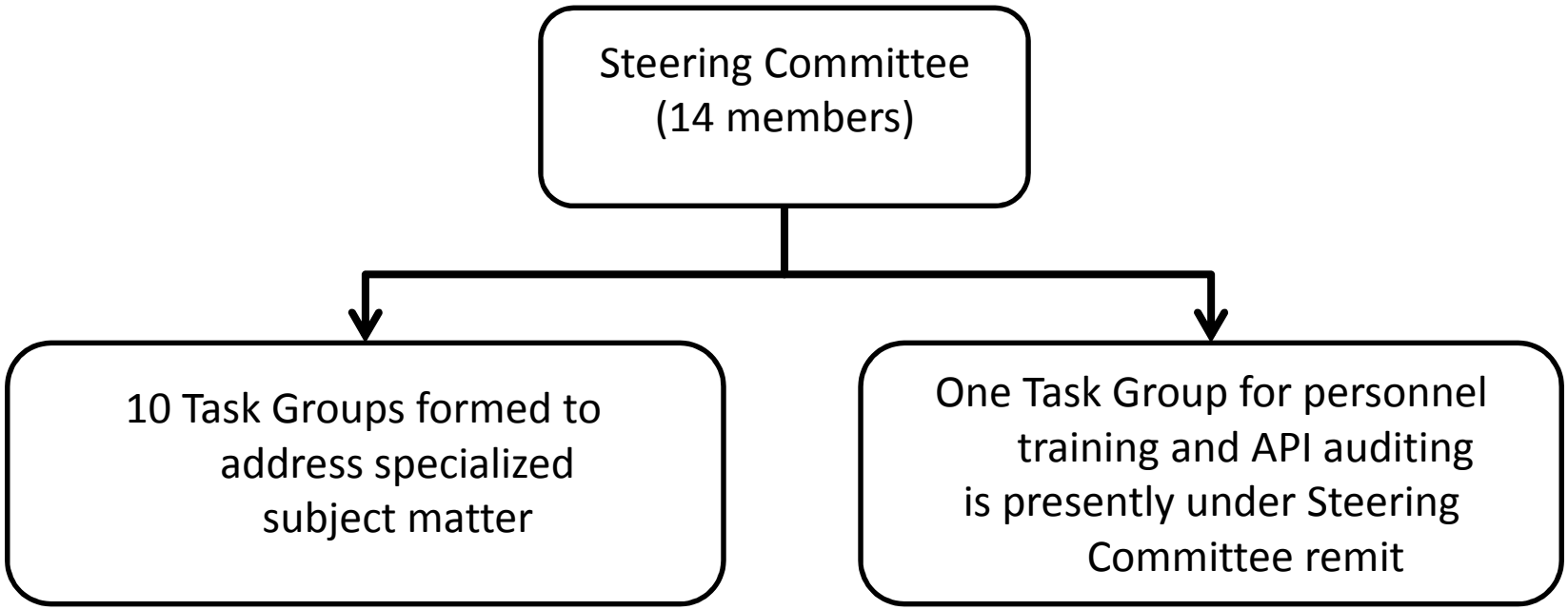
API RP 67 Review & Revision



RP 67 Steering Committee Members

• David Ayre	Co-chair	BP
• James Barker	Co-chair	Halliburton/JRC
• Phil Crabtree		Expro Group
• Steve DeLozier		Casedhole Solutions
• Jim Ellis		Ecosse
• Bob Ference		Schlumberger
• Kent Folse		Shell
• Jim Gilliat		Baker Hughes
• Hanaey Ibrahim		PDO
• Andy Pettitt		SPEX
• Dan Pratt	Co-chair	Owen Oil Tools
• Frank Preiss		Dynaenergetics
• John Segura		Weatherford
• Alphie Wright		Hunting-Titan

API RP 67 Task Groups

1. Detonators, Delays, Surface Firing Panels
2. Interrupts
3. Tractors
4. Temperature Mgmt
5. Firing Heads on Bottom of Guns
6. Coil Tubing Jobs
7. Security / Regulatory
8. Pipe Recovery
9. Pressure Control Equip
10. Special Categories of Explosive Devices

Task Group 1.0
Detonators & Delays

Group Members:

- Ted Andrews BHI
- Jim Brooks PRJ Consulting
- Matthew Clay Owen
- Steve DeLozier CasedHole Solutions
- Bob Ference [C] SLB
- John Jordan [C] Titan
- Philip Kneisl Petro-Explo
- Dave Leidel HAL
- John Mason BP
- Andy Pettitt [C] SPEX
- Ben Potter Owen
- Frank Preiss DynaEnergetics

Group Mission

- Goal
  - cover electric and electronic detonators, percussion initiators, igniters, delay devices, ballistic transfers, addressable (digital) firing systems and surface equipment associated with these systems.
- Scope of work
  - review and update sections of RP67 focusing on aspects relevant to the items listed in the goal set by the steering committee. The majority of this work will revolve around subsection **6.3 DETONATORS AND INITIATING DEVICES** and may touch upon related items in section **5 Surface Equipment (5.1 to 5.10)**, section **8 Electric Line Conveyed Operations** and subsection **10.4 PERFORATING GUNS WITH POWER SAFE DEVICES.**

Status

- Multiple meetings and conference calls held over past year
- RP 67 found to be significantly out of date
  - 6.3 references only 4 types of detos
  - Few detonator characteristics or requirements specified
  - Wellsite Environmental stimulus of concern not clearly or completely identified
  - Few standard methods identified/defined for determining detonator specifications
- Needs a “blank page” re-write approach rather than “edit & modify”

Activity to-date

- Identified 15 types of oilfield detonators
- Identified wellsite environmental stimulus of concern to oilfield detonators
- Looking for natural/common thresholds of stimulus … eg;
  - 0.25V stray voltage, high voltage limits
  - Human-body model for electrostatic discharge
  - Leg wire pull strength
  - Dropped weight impact distance
  - Radio Frequency energy
  - Etc.

Next Steps

- Identify common or standard test methods and procedures to quantify detonator characteristics/capabilities w.r.t environmental stimulus
- Draft new section 6.3
  - Present significant detonator types
  - Recommend that detos be tested to identified thresholds when relevant, or spec sheets identify capabilities
  - Recommend use of defined set of test methods and procedures for determining deto capabilities
  - Recommend their use in environments that correspond to their strengths

Concerns

- We may be over reaching in the time frame given and resources available
  - Many areas don’t have existing documented test methods that directly fit our industry
  - Insufficient test data or knowledge may exist to support threshold determination in all instances
- Industry providers may not be interested in adopting these recommendations