Blowing Agent Change

- TPS is applied to most of the ET exterior surface, covering 16,750 square feet
  - Consists of four low density polyurethane and polyurethane-modified isocyanurate foams engineered to meet numerous stringent technical requirements
  - The blowing agent provides critical insulation and cell structure properties to the foams

- CFC 11 was original foam blowing agent
  - Replacement efforts initiated in 1988 vs pursuit of Montreal Protocol approved Essential Use Exemption

- HCFC 141b selected as best candidate after extensive screening and testing at Michoud Assy Facility and Marshall Space Flight Center
  - Production implementation initiated in 1993
  - Initially expected to have a replacement for HCFC 141b by the 1/1/2003 HCFC-141b phaseout date
    - Next generation (non HCFC 141b) foam development initiated in 1992
    - 3 out of 4 CFC 11 foams replaced with HCFC 141b foams by 1996; Use of 1 CFC 11 foam continued (BX-250) until mid 2002
    - HCFC-141b waiver exemption enables HCFC-141b supply until 2010, when next generation foams will be ready to implement