Water Treatment in the Oil & Gas Industry – Down-Stream Content

- Process Water Treatment Objectives
- Siemens Offering at a Glance
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- Reference Installations
Serving All Sectors of the Oil & Gas Industry

Exploration & Production
  „Upstream“
  Oil production
  Gas production

Transport & Storage
  „Midstream“
  Gas/Oil separation
  Gas treatment Liquefaction
  Pipeline

Refining & Processing
  „Downstream“
  Pipeline
  Tank farms
  Terminal
  Refinery
  Petro chemistry
  Gas processing Distribution
Treatment Objectives
**Overview Treatment Objectives – Down-Stream**

### Process Water Treatment

Removal of …
- Iron, Manganese, Silicate
- Dissolved Solids (e.g. hardness compounds)
- Organic Compounds (TOC)

### Waste Water Treatment

Removal of …
- Hydrocarbons, BTEX, Phenols etc.
- Dissolved Organic Compounds (e.g. BOD, COD)
- Suspended Solids
- Nutrients (ammonia, phosphorus)
Siemens Offering at a Glance

• Green field installations, modernization, retrofits, upgrades, extensions and service
• Development of customer specific process solutions in complex project environments
• Treatment of fresh water, process water, make-up water and condensates as well as treatment of waste streams
• Engineering, procurement, construction, and erection of complete water treatment plants
• Operation consultancy, process evaluation and optimization of water purification technologies
• Service and maintenance of supplied equipment and units
Technologies - Process Water Treatment

- Flocculation, coagulation, sedimentation, flotation, precipitation
- Media filtration (sand-, activated carbon- and mixed bed filters)
- Removal of iron and manganese
- Removal of hydrocarbons, BTXE, phenols
- Membrane processes (ultra-filtration, micro-filtration, nano-filtration, reverse osmosis)
- Ion exchangers with internal/external regeneration
- CEDI (Continuous Electro Deionization)
- Integrated solutions of all listed technologies
Technologies - Waste Water Treatment

• Media filtration (sand-, activated carbon- and mixed bed filters)
• Primary Oil removal (API, CPI)
• Secondary Oil removal (Flocculation, coagulation, sedimentation, flotation)
• Biological Wastewater Treatment
• PACT Wastewater Treatment
• Membrane processes (MBR, ultra-filtration, micro-filtration)
• PACT MBR
• Zimpro® Wet Air Oxidation
• Integrated solutions of all listed technologies
Conceptual Development & Basic Engineering

- Collection and evaluation of water analysis data
- Assessment of water demand and saving potentials
- Conceptual development of treatment process schemes
- Software based unit sizing and performance evaluation of treatment units
- Calculation of utility consumption and chemical demand
- Development of P&IDs
- Preparation of process/equipment specifications to be incorporated into tender documents
Reference Installations in the Oil & Gas and Power Industry

- **Infraserv Hoechst (DE)**
  - Industrial Process Water, DEMI

- **OMV Burghausen**
  - Industrial Process Water, BFW

- **OMV Schwechat (AT)**
  - Industrial Process Water, CPP

- **OMV Schwechat (AT)**
  - Industrial Process Water, BFW

- **OMV Schwechat (AT)**
  - Ground Water Treatment

- **Slovenske Elektrarne (SK)**
  - Power Plant BFW

- **Kronospan Ltd (UK)**
  - Boiler Feed Water

- **WESCO / Shell Nigeria**
  - Potable Water

- **Verbund GCPP Mellach**
  - Power Plant Cooling Water
Water Management in the O&G Industry
Down-stream Water Treatment

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