

**SUMMARY OF EXPERIENCE**

**Bob has a strong track record as a persuasive and eloquent change agent who improves performance and gets results for firms**

- Extensive experience in leading scoping studies, performing design of refineries, petrochem. plants, oil & gas, storage facilities
- His greatest depth is process safety, process and utility environmental design, waste treatment, and HSE Management Systems
- Experienced in refinery revamps using "design-to-capacity", "value improving practices", "stage-gated design" methodologies
- Initiated corporate standards for third-party contract HSE services in Process Hazard Analysis, Quantitative Risk & Reliability
- Skilled in doing Process Scoping studies, FEED packages, detailed engineering FEL-3 phase of Process and HSE engineering
- Supervisory experience includes plant unit engineers, CAD and database developers, advanced process optimization specialists
- Construction phase roles include logistics, equipment checkout, commissioning of units and systems, and startup shift support
- Taught chemical and materials engineering process analysis and design, plus has been a faculty advisor at several universities
- Implemented operator simulator training for unit startup, mentored control room staff during startup, advised University faculty

**KELLOGG, BROWN & ROOT, INC.**

**Process Technical Advisor (2008 – 2009)**

**Gasoline Benzene Reduction Project – ConocoPhillips, Borger TX**

- Project revamp scope encompassed distillation heat integration plus hydrogenation of aromatics to reduce benzene percentage
- Assigned mid-way into detailed design, took over getting P&IDs "Issued for Design" through to closure of PHA Action Items
- Appointed Systems lead of the "Issue for Construction" phase for distillation area, naphtha hydrodesulphurization, tank-farm
- Responsible for Management of Change, quality assurance of calculations, inter-discipline consistencies and project closeout

**Ras Tanura Integrated Project – \$25 billion Dow/Aramco, Saudi Arabia JV**

- Assigned as "Interface Coordinator" between licensed process technology units and project supporting infrastructure areas
- Defined all physical interfaces: steel, pipe, cable, roads between unit areas and utilities, infrastructure, power and off-sites
- Developed smart software tools to validate, filter and auto-summarize data entry for interfaces between RTIP and licensors

**FLUOR ENTERPRISES**

**HSE Design Principal (2007 -2008)**

- Established global corporate sub-contract standards on daily services for expert staff from 3rd-party HSE services companies
- Developed template scopes to access HAZID, QRA, HSE Impact Assessment, RAM, SIL and HAZOP services upon request

**Odoptu First Stage Processing Project – ExxonMobil, Sakhalin, Russia**

- Led the HSE team for emergency shutdown, fire and gas detection, fire protection, reliability, process area access and egress
- Used knowledge of international codes to review Russian standards & codes, ensured project alternative designs got approval
- Managed third-party subcontracts for HAZOP, Reliability/Availability/Maintainability, blast and noise prediction/mitigation

**Habshan Alpha Platform Project - ADMA-Opco, Umm Schaif Field**

- Took over as HSE lead on FEED package for a processing platform needing a major design change from three levels to four
- Evaluated safety aspects of the revised 3D model, developed HSE design path for equipment, structure & personnel protection
- Set up and managed third-party contracts for consequence modeling & HSE impact assessments with firms in the UK & USA
- Managed sizing and specs for deluge & monitors, fireproofing, gas & flame detection, emergency shelters and escape systems

**SHAW, STONE & WEBSTER as**

**Sr. Process Systems Engineer (2006 – 2007 contract)**

**Refinery Major Expansion - Marathon, Garyville LA**

- Responsible for validating Fluor's FEED package, then managed Q.A of detailed P&IDs in Hydrocracker and Hydrotreater units
- Developed 3D geometry of gravity process water / rain sewers and firewater mains, ensured no conflict with lines or foundations
- Specified systems conditions for "Specialty Engineered Items" data sheets within Hydrocracker and Kerosene Hydrotreater units
- Ensured equipment data was consistent with P&IDs and Data Sheets, for all compressors, exchangers, heaters, pumps & vessels
- Provided HSE expertise in 3D model reviews of equipment plan, personnel access, location of safety sensors and fire protection

**Gasoline Desulphurization Project - Giant Industries, Yorktown VA**

- Performed design & procurement technical review for systems outside process unit: SO<sub>2</sub> scrubber/oxidation and cooling water
- Prepared data sheets and requirements in materials selection, performance, commissioning and warranties for package systems
- Developed process control strategies, storage sizing & transfer requirements for gasoline desulphurization unit feed & products
- Facilitated HAZOP workshops of detailed P&IDs for "S-Zorb" technology for process unit plus supporting offsites and utilities

**ANVIL CORPORATION****Senior Process Engineer** (2005-2006 contract)**Canadian eXtra Heavy Oil Study - BP, Cherry Point WA**

- Developed technology selection and equipment sizes for FEL2 "Select" phase on crude oils alternative to Alaskan North Slope
- Analyzed options for sustaining Coker and Calciner throughput, while still meeting constraints on metals in anode-grade coke
- Developed complete specifications and licensing requirements for a new Merchant Hydrogen unit to be collocated on-site at BP
- Fully implemented remote access to BP's online process and laboratory data, used to establish current baseline for case studies

**COMPUTER SCIENCES CORP****Technical Consultant** (1988-2005)**EPA Emergency Operations Center Upgrade (2004)**

- Managed technology upgrade of EOC videoconferencing, data communication mapping visualization & decision support tools
- Met mandated schedule for upgrade/remodel installation during a two-week shut-down window between Presidential primaries
- Expanded capability to view real-time video, satellite surveillance, automated aerial imagery updates, interagency info. sharing
- Tested and proved EOC capability to do ten-way video-conferencing, supported by electronic white-boarding in breakout rooms

**EPA Oil Program Support (2002-2005)**

- Developed mapping database intranet system for all fuel storage tankfarms in U.S. for use in spill containment, DHS response
- Principal reviewer of the responsibilities of a P.E. in EPA's update of Spill, Prevention, Control and Countermeasure program

**DOJ Redistricting Software (2000-2001)**

- System Architect for geospatial analysis tools for Voting Rights redistricting analysis using Census 2000 race data percentages
- Presented key features of capability to minimize gerrymandering with docked windows presenting map, race data and graphs

**Superfund Program Support (1998-2000)**

- Managed Lotus Notes, Web and Oracle application development staff for Superfund, Brownfields and Oil Spill assignments
- Provided Subject Matter guidance to CSC Work Assignment Managers for EPA contracts; developed OSHA Expert Systems

**MOBIL CORPORATION (1990-1998)****Mobil Global Professional Services, Fairfax VA (1995-1998)****Environment, Health & Safety**

- Defined EHS Management System framework across E&P, Transportation, Refining, Petrochemical, Chemical, Oil and Gas
- Project Manager of GENIE "Global EHS Network Information Enabler" best practices network with global specialist teams
- Supervised nine-person team of developers, two paralegals for daily content update and deployed GENIE on four continents
- Chosen as a global best for ROI savings by Benchmarking Partners, and presented at international LotusSphere conference
- Prototyped expansion to "BestNet" for Mobil's Best Practices for over 100 subject matter areas e.g. corrosion, turnarounds
- Trained Korea Gas engineers on fully understanding API, ASME, ASTM standards for safer design of LNG facilities

**Mobil R&D Corp, Princeton NJ (1992-1995)****Environmental Research & Engineering.**

- Co-managed \$20 million/year R&D budget for process measures to reduce pollution; co-wrote Refinery Water Reuse manual
- Led Mobil's role at quarterly P.E.R.F. meetings in collaborating with oil and power companies on shared cost R&D for HSE
- Active in field trials to reduce desalter emulsions, quantify refinery unit emissions, and improve fugitives monitoring systems
- Served on API committees for Refinery MACT regulations and wrote MACT compliance training manual together with EPA

**Refining "Process Advisory" Systems (1990-1992)**

- Led team of process engineers developing optimization correlations for Mobil-licensed technologies, using global refinery data
- Process architect implementing PROMIS "Process Management Information Systems" for three of Mobil's European refineries

*Prior to 1990, Bob did process design plus commissioning and startup of refinery upgrades and petrochemical storage facilities, including quantification for permits and developing software tools for environmental compliance. He then returned to NZ at the request of the University of Auckland to teach process analysis & process design. Mobil then recruited Bob to N.Z. Synthetic Fuels to lead a team in commissioning. After six years at SynFuel as technical supervisor, Mobil transferred him to MRDC Princeton.*

**EDUCATION AND TRAINING**

- B.E. (Honors) in Chemical and Materials Engineering, University of Auckland, N.Z.
- Two years towards Ph.D. on "*Expert Systems in Steelmaking*" University of Auckland

**PROFESSIONAL LICENSES/CERTIFICATES**

- Registered Professional Engineer, Texas (1983)
- Member, Institute of Professional Engineers, NZ

**FACULTY ADJUNCT**

- Advisor to Rice University's Chemical Engineering department for re-accreditation of Process Design course
- Co-developed a complete two-year curriculum for new *Professional MS* at American University, 2002 - 2004
- Trained in ArcGIS, taught "*Introduction to Planning*" & "*Advanced GIS*" at Western Washington U. in 2006

**ASSOCIATIONS**

- Member of NFPA, the National Fire Protection Association, 2007
- Invited member of "*Society of Industrial Leaders*" refining sector
- Member of AIChE from 1977-1983, then 1990 upon return to US
- IChemE member from 1983-1990 while working in New Zealand

**PUBLICATIONS**

- "*Implementing ArcGIS 8.1 for Redistricting*" ESRI International User Conference, July 2001
- "*Mobil Refines its EHS Regulatory Practices with Notes*"  
"Streamline" News for Manufacturing, Summer 1998, Wellesley Information Services
- "*Knowledge Management Across the Global Manufacturing Network using Lotus Notes and Domino*"  
Benchmarking Partners for Lotus "Collaborative Solutions for Manufacturing"
- API Publication 335, "*Refinery MACT Workshop*" for the American Petroleum Institute with USEPA Office of Air Quality Planning and Standards. 23-24 October 1995, Orlando, Florida
- "*Emission Inventory Applications of Refinery Stream Speciation Data*", October 1995 for AWMA Specialty Conference, Raleigh, NC and in Hydrocarbon Processing August 1997
- "*Toxic Combustion Byproducts*", PERF Project 92-19 (Bob Andrew & Jim Seebold)
- API Publication 4630, "*Electronic Exchange of Environmental Compliance Information: A Proposed Approach*", August 1995. (Bob Andrew - Mobil & John Grisinger - Radian)
- "*Reducing the Desalter Environmental Impact*" PERF Project # 91-14, (Members Only) January 1993, Petroleum Environmental Research Forum
- "*Prevention of Reformer Overfiring During Startup*" C. J. T. Bush, H. J. Weake and R. D. Andrew, AIChE Loss Prevention Symposium, San Diego, 1990
- "*The Role of Humanities in Engineering - A Personal View*" R. D. Andrew Proceedings of the Auckland University Engineering Society, 1971
- "*Kinetic Model of Steel Refining for a Batch Process*" R. D. Andrew and G. A. Wright, Proceedings of the Auckland University Engineering Society, 1970