**Walter David Willis, PMP**

2516 Gray Hendrix Rd, Knoxville, TN 37931

(865) 660-8872 • daveandmo@tds.net

Design Engineer and Project Manager

Over 30 years of experience in mechanical design, project management, robotics and remote systems, machine design, and plant engineering. Strengths include good technical skills, communication skills, team-building skills, and extensive experience taking projects from concept design through fabrication and into operation.

Areas of knowledge and Expertise

* Mechanical Engineering
* Engineering Management
* Project Management
* SolidWorks and EPDM
* Machine Design
* Technical Team Management
* Creo 4 and Windchill
* Process Engineering
* ISO 9001
* Product Development
* Precision Electromechanical Systems
* Drawing Preparation and Check to ASME Y14.5
* Design for Manufacturing
* Technical Writing

Experience ─────────────────────────────────────────────────

# July 2019 – Present Oak Ridge National Lab Oak Ridge, TN

## Senior Mechanical Design Engineer

# Senior mechanical engineer in the Research Accelerator Division at the Spallation Neutron Source. Responsible for supporting the linear accelerator and designing equipment to be used from the ion source up to the RTBT. Work with a variety of customers, including physicists, other engineers, and technicians to develop solutions to problems, and to make improvements to beamline components. Also support the Beam Test Facility, designing equipment for use there. Create engineering drawings in Creo and also work with designers to create engineering drawings. Work with manufacturing engineers to get components fabricated and then work with various crafts to get components installed.

# January 2018 – July 2019 Navus Automation Knoxville, TN

## Senior Mechanical Design Engineer

# Senior engineer responsible for designing large automated mechanical systems as well as smaller mechanical engineering projects of varying complexity. Lead the complete integration of a die cast line for a local automotive manufacturer. This project involved integrating large specialty components purchased by the customer, including two Kawasaki robots. It also required designing and overseeing fabrication of all related material handling systems to move parts from the die cast machine to a trim press, then to a cooling conveyor, a shot blast machine, an inspection station, a parts tote stacker, and an accumulating roller conveyor system. Promoted to mechanical engineering lead after six months and became responsible for overseeing and mentoring three younger engineers in addition to mechanical design responsibilities.

# March 2015 – January 2018 AECOM Oak Ridge, TN

## Lead Engineer

# Lead engineer responsible for the mechanical design of four complex nuclear glovebox systems for the U.S government’s Uranium Processing Facility. Responsible for overall glovebox design, as well as design of many pieces of specialized equipment associated with gloveboxes, including a hot nitric acid dishwasher. Also responsible for project milestones, design documents, design reviews, and for meeting many specific and challenging design requirements. Provided oversight to several designers, directing their efforts while engineering the more challenging components. Interfaced with many stakeholders to ensure all parties’ interests and concerns are addressed. Also served as an engineering checker, reviewing project drawings to ASME Y14.5 for accuracy, fabricability, and conformity to project requirements.

# Aug 2000 – March 2015 Agile Technologies, Inc. Knoxville, TN

## Engineering Group Manager, Aug 2006 – March 2015

### Manager of an interdisciplinary team of design engineers and technicians. Responsible for overall management of all company engineering projects as well as development of formal management systems for all engineering activities including design, engineering drawings, and project management. Heavily involved in bringing engineering department into compliance with ISO 9001. Continued to do engineering design as well, designing several detectors for down hole oil well monitoring.

## Design Engineer/Project Manager, Aug 2000 – Aug 2006

Responsible for designing and building a broad variety of engineered products including several small imaging gantries, a clinical SPECT gantry, and a remote operator console which has been sold to several DOE laboratories for remote operations. Other projects include two robotic assembly cells, several robotic end effectors, and automation of a high precision ID saw. Extensive solid modeling design experience using SolidWorks. Primary responsibilities included design, project estimating, managing and scheduling, procurement, and oversight of assembly and testing.

# June 1989 – July 2000 Idaho National Laboratory Idaho Falls, ID

## Staff Engineer, Oct 1999 – Jul 2000 (Bechtel BWXT Idaho, LLC)

Design engineer on accelerated $150M project to remotely excavate buried nuclear waste at the Idaho National Laboratory (INL). Brought onto task because of experience with remote handling and remote operations. Primary responsibilities included design of lift platforms, enclosure penetrations, glove boxes and glove ports, and mounting of radiation monitoring equipment.

## Staff Engineer, Oct 1994 – Oct 1999 (Lockheed Martin Idaho Technologies Company)

Technical lead in the Remote, Robotic, and Automated Systems Group. Responsible for management of multiple robotics tasks and small product teams while performing as lead engineer on one or more tasks. Management responsibilities included determining technical direction of tasks and maintaining task schedule and budget. Engineering tasks included mechanical design, hardware integration, and oversight of fabrication contracts and procurements. Some specific tasks supported include:

* Project manager and lead mechanical engineer responsible for development of a remotely operated $1.3M dual-arm robotic platform used to dismantle a retired nuclear reactor. The system was designed and built in eight months. Over an 18-month period it removed 62,000 lb. of graphite blocks, 1400 lb. of lead sheeting, 620 lb. of Boral, 2000 lb. of aluminum plate, and 2000 lb. of carbon steel.
* Technical lead responsible for integrating sensors and controls onto a small underwater vehicle for characterization of nuclear pools and canals. System was used successfully in several facilities.
* Technical lead responsible for development of a small, autonomous robotic vehicle for inspection and characterization of floors in reduced access areas. The vehicle was capable of functioning independently or performing cooperatively while being deployed from a larger characterization robot.
* Technical lead responsible for development of a small robotic vehicle to inspect the interior of 2”-3” piping systems. A prototype system was built and successfully demonstrated. A patent was granted for this technology.

## Engineering Specialist, Jun 1989 – Oct 1994 (EG&G Idaho)

Provided engineering support and management for a broad range of projects. Some specific tasks supported include:

* Lead engineer responsible for specification and procurement of a $450K remotely operated robotic vehicle to be used for the characterization of ventilation ductwork systems.
* Lead engineer responsible for design of a lifting fixture to tie two nuclear waste boxes together inside a TRUPAC-II waste container for transport to WIPP. Scope included mechanical design, stress analysis, fabrication, and testing.
* Lead engineer responsible for the redesign of a HEPA filter leaching system at the Idaho Chemical Processing Plant (ICPP). Scope included preparation of conceptual design report, system design, construction drawings, seismic analysis, and construction specifications.
* Lead engineer responsible for the design of an 8,000-gallon liquid calcium nitrate storage and transfer system at the ICPP. Scope included system design, construction drawings, seismic analysis, and construction specifications. Project was successfully constructed and put in service.
* Lead engineer responsible for redesign of a Section VIII process vessel and associated drain in a hot process cell at the ICPP. Scope included system design, construction drawings, seismic analysis, and construction specifications. Project was successfully constructed and put in service.
* Individual contributor responsible for all piping design on Large Blast Thermal Simulator. Scope included high temperature, high-pressure piping design to ASME B31.1.

Education & Certifications ─────────────────────────────────────

# 1989 University of New Mexico Albuquerque, NM

Bachelor of Science in Mechanical Engineering, 3.5 GPA

# 1990-91 University of Idaho Idaho Falls, ID

Two post-graduate courses in transport phenomena and applied numerical methods, 4.0 GPA

# Oct 2010

PMI-CertifiedProject Management Professional, PMP number 1364119 (active)

**November 2012**

40 Hour Engineering Management Class

Department of Energy 'Q' clearance (inactive)

State of New Mexico Engineering Intern (EIT) 1990

Patents ───────────────────────────────────────────────────

Anderson, M.O., Ferrante, T.A., McKay, M.D., and Willis, W.D., “Miniature Pipe Crawler Tractor”, United States Patent Number 6,035,786 granted 3/14/00.

Willis, W.D., “Drive Reconfiguration Mechanism for Tracked Robotic Vehicle”, United States Patent Number 6,089,339 granted 7/18/2000

Anderson, M.O., Kinoshita, R.A., and Willis, W.D., “Systems and Methods for Improved Telepresence”, United States Patent Number 6,958,746 granted 10/25/2005

Clark, M.L. and Willis, W.D., “Rotating Vane Valve” (application filed)

Papers ────────────────────────────────────────────────────

Noakes, M.W. and Willis, W.D., “Compact Remote Operator Console Development, Deployments, and Technology Transfer”, presented at the American Nuclear Society Spectrum 2002 9th Biennial International Conference on Nuclear and Hazardous Waste Management, Reno, Nevada, August 2002.

Haley, D.C., Noakes, M.W., and Willis, W.D., “The Selective Equipment Removal System Dual Arm Work Module”, presented at the American Nuclear Society 7th Topical Meeting on Robotics and Remote Systems, Augusta, Georgia, April 1997.

Anderson, M.O., Kinoshita, R.A., McKay, M.D., and Willis, W.D., “The VirtualwindoW: A Reconfigurable, Modular Stereo Vision System”, presented at SPIE Unmanned Ground Vehicle Technology Conference, Orlando, Florida, April 1999

Anderson, M.O., McKay, M.D., and Willis, W.D., “The Remote Underwater Characterization System”, presented at the American Nuclear Society 8th International Topical Meeting on Robotics and Remote Systems, Pittsburgh, Pennsylvania, April 1999.

Anderson, M.O., Kinoshita, R.A., McKay, M.D., and Willis, W.D., “Mobile Robotic Teams Applied to Agriculture”, presented at the American Nuclear Society 8th International Topical Meeting on Robotics and Remote Systems, Pittsburgh, Pennsylvania, April 1999.

Anderson, M.O., Kinoshita, R.A., McKay, M.D., and Willis, W.D., “Developing the VirtualwindoW into a General Purpose Telepresence Interface”, presented at the American Nuclear Society 8th International Topical Meeting on Robotics and Remote Systems, Pittsburgh, Pennsylvania, April 1999.

**References available upon request**