

Todd R Porter MBA, MSc, PE

CONTACT

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March 15, 2021

SUMMARY

Todd Porter has 30+ years of professional engineering experience in the areas of: infrastructure, pipeline integrity management, oil & gas exploration, GIS and data management, engineering surveys, integrated navigation systems, mapping and topographic projects. Mr. Porter has worked in executive and operations management, business development, product and systems development, and field operations positions. He has led successful teams of engineers and operations of 100+ personnel, built businesses, developed new business in emerging markets, and streamlined operations and extended reach in existing markets. Establishing an environment of teamwork, collaboration, and core values is his basis for shared success. Mr. Porter is a Professional Engineer in Alberta, Canada.

EDUCATION

Executive MBA	Texas A&M, Mays Business School	2009
M.Eng. (Geodesy)	The University of Calgary	1990
B.Sc. (Surveying Engineering)	The University of Calgary	1983
Survey Diploma (Honors)	BCIT	1980

CONTINUING EDUCATION

North American Pipelines	Editorial Board	2011-2014
DOT – PHMSA Regulations	Clarion Technical	2012
GITA Oil & Gas Conference	Technical Committee	2005,2006,2009, 2013, 2014
Pipeline NDT – GWUT	Technical Toolbox Seminar Series	2006
Pipeline Defect Assessment	MFL, Deformation (internal)	2005
Pipeline Risk Analysis	Clarion Seminar Series	2005
ArcView GIS	ESRI, San Antonio, TX	1998
C++ Fundamentals	The Learning Tree, Washington DC	1993
Kalman Filtering	UCLA Extension, Los Angeles, CA	1992
Dynamic DGPS	Navtech Seminars	1991

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EXPERIENCE

2016 (MAR) - Present:

President, PORTER 4D, LLC

Mr. Porter leads PORTER 4D LLC, that specializes in locating, imaging, and mapping underground pipeline and facilities infrastructure. We play a key role to integrity management, damage prevention, and regulatory compliance - by providing accurate 3D mapping of assets, and 4D change management. Mr. Porter provides compliance, Risk, and GIS support services within the energy pipeline industry.

2014 (JUL) – 2016 (FEB):

Vice President, G2 PARTNERS

Mr. Porter served as Vice President of Business Development, reporting to the COO, responsible for; running the Sales & Marketing team, organic growth through service integration and extension, and acquisition target identification. Mr. Porter provides subject matter expertise in Geospatial Services within the energy pipeline industry.

2011 (JAN) – 2014 (JUN):

Vice President, New Century Software

Mr. Porter served as Vice President of Business Development, reporting to the CEO, providing oil and gas subject matter expertise as well as executive management experience to the company's leadership team. Responsibilities included; running the Sales & Marketing team, defining product and services strategic direction, business and operational process improvement, and new market ventures. In addition, Mr. Porter established branch offices in Houston, Texas, and Calgary, Canada to better serve the concentration of oil and gas companies in the North America market, and to provide International gateway.

2008 (SEP) – 2010 (DEC):

Executive Vice President, GEOSPATIAL Corporation

Mr. Porter was responsible for developing and implementing business strategies and systems for Subsurface Utility Engineering (SUE), asset mapping, condition assessment, and data management in underground infrastructure markets of; Telecom, Electric, Municipal, Energy pipelines and Facilities. His deployment experience covers;

- Surface imaging and spatial registration (GPS, LiDAR, Aerial, Satellite)
- Subsurface locating and mapping (INS, GPR, RT, EM)
- Spatial Data Management (GIS, DBM, WEB)
- Development of DIMP, Distribution IM Rule 74 CFR 63906
- WEB GIS PORTAL Development and Deployment

Mr. Porter led market analysis, sales team and channel management, technology, and process development for data and field operations. His corporate development roles included; identification and assessment of potential Merger & Acquisition targets, and developing alliance and partnering relationships. He left the company due to lack of investment equity capital.

2001 – 2008 (SEP):

Director – Pipeline Integrity Management, Tuboscope Pipeline Services

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Mr. Porter was a member of the Strategic Management Team (STM) for technology and market development in the Oil & Gas pipeline industries. He managed a product development team, global sales force, and operations support group of 50+ technical and professional personnel in a network of virtual teams. His product / service line reached annual revenue levels of \$10MM with a strong ROI, as part of a \$75MM business unit within National OilWell VARCO.

Product / Service Line Development Responsibilities:

- Design and development of Data Management, Risk Analysis / Decision Support system, to support regulatory compliance and integrity management plans, specifically Liquid & Gas IM Rules 49 CFR 195.450,452 and 40 CFR 192.S-O.
- In-Line 3D mapping (inertial navigation) systems within the complete service line. This included market assessment, development, and commercialization.
- Enterprise GIS Development (Esri Based) and Deployment
- Data services; process and service development for both field operations, and analysis. This included system-wide GPS mapping of transmission, gathering systems, Direct Examination (DA) surveys, ILI tracking, and defect repair stakeout – complete integrity field operations.

Operations Responsibilities:

- Operations and Project management PROCESS development
- Systems implementation, training and support.
- 3D centerline generation, data integration service delivery
- Decision support, Data Management Services

Global Marketing / Technical Sales:

- Global marketing and technical sales support for international operations.
- Conference & Technical committee, Industry workgroup participation.
- Technical papers, seminar delivery, presentations, and marketing materials development.

Tuboscope Pipeline Services (A NOV Company) was divested by the parent company September, 2008, at which time Mr. Porter resigned with the change of control to NDT Systems & Services AG – Germany, and joined GEOSPATIAL Corp.

11/1996 - 2001: President, GeoDZ Inc.

Mr. Porter was Founder and President of GeoDZ, Inc. The company's focus is spatial information technology, providing navigation engineering solutions, GIS, GPS, and Remote Sensing services.

Key projects:

- **MATRIX™** (Grant Geophysical) - a complete exploration geophysics (land) operations meta-data management system. Designed to manage all stages of acquisition: planning, permitting, hazard & proximity surveys, drilling, surveying, shooting & recording operations. Mapping, reporting, QA/QC functionality including generation of SEG files for processing.

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- **LinalogXYZ™** (Tuboscope) - design, hardware procurement, systems integration, and post mission processing system development for Inertial Measurement Systems (IMU) into the Tuboscope product line.
- **TruViewGIS™** (Tuboscope) - first generation INS-GIS system for presentation of ILI results. Framework and conceptual design for next generation platform.

GeoDZ reached revenue levels of \$3MM annually, with staff of 10+ highly skilled engineers and systems developers. The company was subsequently purchased by Tuboscope Pipeline Services (A VARCO Company) in April, 2001.

10/1994 - 10/1996: Vice President, Eagle Surveys International Inc.

Founding partner, responsible for business development and operations management of USA land survey operations of 80+ personnel serving the oil and gas industry. Operations in; land and transition zone work, control surveys, RTK stakeout, Permitting, Hazard mapping for 2D/3D seismic and production field projects. The company reached annual sales revenues of \$5MM, and was subsequently sold to OMNI Geophysical Services based in Lafayette, LA. Mr. Porter then founded GeoDZ Inc., an engineered solutions company.

10/1993 - 10/1994: Vice President - Technology, NCS International Inc.

Responsible for management of product and service developments for land and marine activities within the oil and gas E&P industry. Mr. Porter served as consultant to the industry on geodesy and defining product and service requirements. He was responsible for sales, marketing, and product definition of GPS based products for: land / transition / shallow water seismic, vehicle and vessel tracking, static and kinematic GPS survey applications. He was the technical and marketing liaison to Pulsesearch Navigation Systems Inc., and established joint venture operation with Eagle Surveys Ltd. (Canada) for land seismic 3D surveys. Upon establishment of the JV, Mr. Porter elected to join the new venture as Vice President of Operations.

9/1990 - 10/1993: Geodesist, Shell Offshore Inc.

Survey Group Supervisor, responsible for delivery of accurate, error free navigation and positioning results for marine seismic operations for SOI's prime operating area in the Gulf of Mexico (GOM). Mr. Porter supervised 50+ survey operations personnel on a wide variety of survey vessels conducting geophysical surveys, pipe lays, rig moves, and hazard surveys. As well, he advised a systems R&D team of 10+ engineers on upgrade and next-gen navigation platforms.

Tasks included;

- pre-planning, establishing specifications and standard operating procedures,
- designing and delivering training to office and field crews,
- bid solicitation and contracting, quality control and assurance,
- systems development, and evaluation of appropriate technologies and methods pertaining to navigation and positioning,
- coordinate integrity of company exploration databases; import, export, and management process.

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As a result of corporate decision to outsource all Geophysical data acquisition, Mr. Porter was given option to return to New Orleans to run contracting operations, or to elect severance and remain in Houston, which he decided the later. He joined immediately with one of the premier navigation & positioning firms, NCSI operating in GOM and worldwide.

4/1987- 8/1990: Senior Survey Engineer, Pulsesearch Consolidated Technology Ltd.

Mr. Porter was part of a development team building the first generation "GEOPIG™", an in-line inspection (ILI) tool for operating oil & gas pipelines, using strapdown inertial navigation systems (INS) for detection of pipeline movement and position. He was lead architect on the software design and development using Kalman filtering, and empirical smoothing methods to compute pipeline trajectory and rudimentary 3D position. This was the subject of his Master's Thesis, published in 1990.

He conducted Finite Element Analysis (FEA) studies for assessing structural integrity of pipelines subjected to movement resulting from slope subsidence and frost heave / thaw settlement. These monitoring studies utilized precise static GPS methods in conjunction with the aided inertial navigation systems.

1983- 1987: Survey Crew Chief, McElhanney Surveying & Engineering

As crew chief at McElhanney (largest Survey Firm in Canada, 500+ employees), conducted a variety of navigation, positioning, surveying and mapping functions. He utilized Tripod Total Stations, data collectors, Doppler/Transit Sat Positioning, and various range-range, range-theta positioning technologies.

Project highlights include;

- 800 mile rail corridor survey using Litton-DASH II inertial navigation, to measure super-elevation, track alignment. Combined with SAT/NAV positioning.
- Complete near shore bathymetric / shallow water mapping for US Navy in Haiti, using Doppler/Transit, and shore based mini-RR vessel positioning.
- Northwest Territories OPE Boundary survey; largest boundary survey in modern history for Original Peoples Entitlement, new territory establishment.
- Large scale provincial mapping projects 1:50,000 series, ground control, aerial acquisition support.
- Head water mountainside slope monitoring project (recurring), for large Hydro-Electric facility, using precise total stations, network adjustment / analysis, and geotechnical modeling.
- Slope monitoring for high pressure gas transmission pipelines, using first generation precise GPS methods.

1978- 1983: Various Survey Technician & Engineering Positions

As technician or Engineer in training, various projects included;

- Volumetric surveys for open pit and road construction,
- Road stakeout, centerline, cut and fills,
- 2D seismic stakeout, access mapping,
- Ground control for 1:50,000 aerial photography projects,
- Precise leveling for establishing Second Order control.

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PROFESSIONAL AND TECHNICAL AFFILIATIONS

Institute of Navigation (ION)

APEGA (Alberta, Canada)

American Congress of Surveying and Mapping (ACSM)

American Society of Mechanical Engineers (ASME)

National Association of Corrosion Engineers (NACE)

Geographic Information Technology Association (GITA, Technical Committee Member)

INTERNATIONAL PROJECTS

- **KUWAIT** Kuwait Oil Company – Project Manager / Superintendent Total Pipeline Integrity Management System – five (5) year full scope baseline, integrity, and risk assessments. Project design, development and management. Included 5,000km pipeline locating and mapping, condition assessments.
- **MEXICO** PEMEX (Gas & Refining) – Integrity Management – as part of inspection, repair, and maintenance – three (3) year full scope baseline, integrity, risk and repair. Project design, development and operations.
- **ECUADOR** OCP
- **BRAZIL** PetroBras
- **PERU** TGP / COGA
- **ARGENTINA** OLDEVAL
- **BOLIVIA** Transredes
- **CANADA** Westcoast / Duke, Enbridge, Interpipe
- **INDONESIA** PGN, Pertamina
- **THAILAND** THAPP
- **RUSSIA** SIBUR, Tatneft
- **Republic of South Africa** Petronet (TRANSNET)
- **Various Europe, South America, SE Asia projects.**

MAJOR DOMESTIC CLIENTS (subset)

- **Energy Transfer, Sunoco, ENABLE, SEM Group**
- **ConocoPhillips, P66, BP**
- **QUESTAR Gas, CALPINE Energy**
- **KinderMorgan, CHEVRON, SPECTRA Energy**
- **VALERO, TESORO, NuStar**
- **Air Liquide, Magellan Midstream, Williams Midstream**
- **MarkWest EP, Anadarko**

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- TEPPCO, Centurion / OXY
- BOARDWALK / Gulfsouth
- ENOGEX
- EXXON Mobil
- SHELL PIPELINE Company
- ENTERPRISE Pipeline Company
- EQUILON Pipeline
- Numerous small, mid-size company projects.

TECHNICAL PAPERS

Porter, Todd R (2014), ***PIPELINE INTEGRITY DATA; MANAGING PAST, PRESENT, FUTURE***, Proceedings of : International Pipeline Conference, September - October 2014, Calgary Canada.

Porter, Todd R (2009), ***Infrastructure Mapping: Critical Baseline for Engineering Decisions and Risk***, Proceedings of: ASCE Pipeline Conference 2009 16-19 August, 2009 San Diego, CA USA.

Porter, Todd R., and Mark A. Smith (2009), ***Gas Distribution Compliance: Baseline Surveys & Management Framework***, Pipeline Integrity Assessment & Repair Conference, February 2009, Houston, TX USA.

Porter, Todd R., Linda Ward, and Mark A. Smith (2008), ***Innovative Technology to Identify, Map and Plan for the Management and Integrity of Pipeline Assets***, International Pipeline Conference, September - October 2008, Calgary Canada.

Porter, Todd R., and Andrés Mendizabal (2007), ***Heavy Crude Oil Pipeline System - Baseline Integrity Project***, International Pipeline Conference, October 2007, Rio de Janeiro, Brazil.

Al-Nasser, E. and T.R. Porter (2006), ***Pipeline Integrity Management at Kuwait Oil Company***, International Pipeline Conference, October 2006, Calgary Canada.

Porter, T.R., and M.R. Isaac (2005), ***Pipe Centerline – The Critical Integrity Element***, GITA Oil & Gas Conference, September 2005, Houston, TX USA.

Porter, T.R., and O. Gonzalez, D. Neidhardt (2005), ***A System & Approach for Total Pipeline Integrity Management***, presented at:

- Rio Pipeline Conference & Exposition 2005, October 2005, in Rio de Janeiro.
- Pipeline Integrity Management Summit, January 2006 Abu Dhabi, UAE

Porter, T.R., and M.R. Isaac (2005), ***Pipe Centerline – The Critical Integrity Element***, GITA Oil & Gas Conference, September 2005, Houston, TX USA.

Porter, T.R., and M. Nessim (2005), ***A Tactical System for Managed Rehabilitation & Repair Programs***, 7th International Conference - Pipeline Rehabilitation & Maintenance, January 2005, Manama, Bahrain.

Porter, T.R., and J. Marr (2004), ***A Streamlined Approach for Pipeline Integrity Management***, International Pipeline Conference, October 2004, Calgary, AB Canada.

Porter, T.R., and J. Marr (2004), ***A Streamlined Approach for Pipeline Integrity Management***, Pipeline Integrity Assessment & Repair Conference, February 2004, Houston, TX USA.

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Porter, T.R., and O. Gonzalez (2003), *Pipeline Integrity: A Tactical Approach to Repair & Maintenance*, 7th International Congress & Exposition, November 2003, Puebla, Mexico.

Porter, T.R., and J. E. Marr, S. Papenfuss (2003), *Pipeline Integrity: A Tactical Approach to Repair & Maintenance*, 6th International Conference - Pipeline Rehabilitation & Maintenance, October 2003, Berlin, Germany.

Porter, T.R., and J. E. Marr, G. Da Silva (2003), *Pipeline Integrity: ILI Baseline Data for QRA*, International Pipeline Conference, October 2003, Rio de Janeiro, Brasil.

Porter, T.R., and M. R. Martin (2003), *Pipeline Integrity – Implementation of OPS Rules*, GITA Oil & Gas Conference, September 2003, Houston, Texas, USA.

Porter, T.R., and M. Stamper (2003), *Pipeline Integrity – Compliance Data Collection*, 80th Annual MEA Gas Operators Conference, August 2003, Ames, Iowa, USA.

Porter, T.R., and J. Mitchell (2003), *Pipeline Integrity: Tactical vs. Strategic Approach*, Pipeline Integrity Assessment & Repair Conference, February 2003, Houston, TX USA.

Porter, T.R., R. Maurier, M. Martin (2002), *Pipeline Integrity: Enhanced Decision Support with Spatial Data*, International Pipeline Conference 2002, September 2002, Calgary, AB Canada.

Porter, T.R., M. Slaughter (2002), *Pipeline Mapping: Using INS/GPS Data as the Fundamental Tool for Integrating Historical and Current Pipeline Data*, NACE2002 Corrosion Conference & Exposition, April 2002, Denver CO.

Porter, T.R., J. Parsons, M. Martin (2001), *Pipeline Integrity: Enhanced Decision Support with GIS*, GIS for Oil & Gas, GITA 2001, September 2001, Houston, TX.

Porter, T.R., D. Neidhardt, O. Gonzalez (2001), *Pipeline Integrity: Improved Economics & Decision Making*, PEMEX Sexto Congreso Y Exposicion Internacional de ducos, Merida, Yucatan Mexico November 2001.

Porter, T.R., J. Parsons (2000), *Pipeline Safety: Inspection, Mapping & Visualization Methods*, GIS for Oil & Gas, GITA 2000, September 2000, Houston, TX.

Porter, T.R. (2000), *Seismic Metadata Management: Optimization with GIS*, February 2000 Leading Edge Journal, Special GIS feature section .

Porter, T.R., J. Archer (1999), *Command and Control of Seismic Operations*, SEG 1999, November 1999, Houston, TX.

Porter, T.R., J. Archer, and M.R. Martin (1999), *Optimizing Geophysical Operations*, CSEG 1999, May 1999, Calgary, AB Canada.

Porter, T.R., and M.R. Martin (1998), *Exploration GIS: Optimizing 3D Land Seismic Operations*, SEG 1998, September, 1998, New Orleans, LA.

Porter, T.R., J.B Schleppe and J. Battie (1994), *DGPS Barometry Integration for Land Seismic*, SEG 1994, October, 1994, Los Angeles, CA

McLellan, J.F., M.A. Abousalem and T.R. Porter (1994), *Quality Control in DGPS Separation Vector Systems*, Proceedings of the IEEE Position, Location and Navigation Symposium, PLANS '94, April, 1994, Las Vegas, NV.

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Porter, T.R.(1993), *Implementation of NAD83 at SOI*, Presented at the Shell Geophysical Conference, Houston, TX, 1992.

Porter, T.R., Z.F. Biacs, D.G. Taylor (1992) *Use of DGPS in Marine Seismic Acquisition*, Presented at the Shell Topographical conference, Den Haag, Netherlands, 1992.

Porter T.R.(1990), *Strapdown Inertial Navigation for Pipeline Monitoring*, Masters Thesis, The University of Calgary, Department of Surveying Engineering Technical Publication, September 1990.

Porter, T.R., H.E. Martell, K.P. Schwarz, J.R. Adams (1990), *The Inertial Pipeline Pig: An Autonomous System for Pipeline Monitoring*, Proceedings of FIG XIX International Congress, Helsinki, Finland, June 1990.

McLellan, J.F. and T.R. Porter (1989), *Semi-Kinematic GPS Method and Accuracies*, Proceedings of the Canadian Institute of Surveying and Mapping GPS Applications, Edmonton, Canada, February 1989.

Price, J., T.R. Porter, J.F. McLellan (1989), *Pipeline Deformation Monitoring Using GPS Survey Techniques*, Presented at the 1988 OMAE Pipeline Symposium, Houston, Texas, February 1988.

Porter, T.R. and J.F. McLellan (1987). *GPS Survey Techniques for Deformation Analysis*. Paper prepared for presentation to ASCM 47th Conference, Baltimore, Maryland, U.S.A., March 29 to April 3.

Graduate Studies Papers:

Thesis: Strapdown INS for Pipeline Monitoring

Strapdown Inertial Mechanization: Comparison of Methods
GPS/INS Integration
Development and Application of Integrated Analysis