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| Key Relevance |
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| Integrity Management |
| Compliance and Best Practice <br> Audits |
| Risk Assessment and <br> Prioritization |
| MAOP / MOP Verification |
| Integrity Assessments |

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Job Title:
Vice President
Integrity
Years with EN Engineering: 13
Total Years of Experience: 15+
Primary Office Location:
Warrenville, IL

## Education:

- B.S., Geological Engineering, University of Missouri, Rolla, Missouri, 1997


## Professional Registration:

- IL

Overview: Ms. Hudson has over fifteen (15) years of pipeline integrity, codes compliance, and corrosion control experience with natural gas and hazardous liquid pipeline systems. Experience includes developing pipeline integrity procedures, participating in and providing assistance with jurisdictional audits, providing expert testimony, implementing External Corrosion Direct Assessment (ECDA) and Internal Corrosion Direct Assessment (ICDA) methodologies, developing Control Room Management plans and procedures and records verification.

## Relevant Projects:

## Southern Star Central Gas Pipeline - Integrity Management

Develop written integrity management plan procedures and supporting documentation to meet the requirements of Subpart O. Facilitate operator committee meetings to review, finalize and implement procedures within the organization. Develop and provide training to operator personnel on new plans and procedures.
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Southern Star Central Gas Pipeline - Integrity Management
Facilitate operator preparation for PHMSA jurisdictional integrity management audit. Actively participate in jurisdictional audit as client representative.

## Vectren Energy Delivery - Integrity Management

Develop and modify written integrity management plan procedures and supporting documentation. Facilitate operator committee meetings to review, finalize and implement procedures within the organization. Develop and provide training to operator personnel on modified and new processes and procedures.

Vectren Energy Delivery - Integrity Management
Provide support on pipeline integrity issues as well as External Corrosion Direct Assessment and Internal Corrosion Direct Assessment.

## Southwest Gas - Integrity Management

Manage team and perform audit of integrity management program to identify code compliance and best practice issues. Review included manual and procedure review, personnel interviews and documentation review.

South Dakota Public Utilities Commission - Integrity Management
Provide expert testimony on integrity management issues related to hazardous liquid pipelines on two occasions.

## United States Gypsum - Integrity Management

Manage and oversee integrity management program including HCA identification, threat analysis and integrity assessment. Actively participate in jurisdictional integrity management audit as client representative.

## DTE/MichCon - Integrity Management

Perform jurisdictional review of integrity management program including code compliance and best practice recommendations. Make modifications to ECDA plan.

# Jenny Hudson, PE <br> Vice President - Integrity <br> <br> Professional Organizations \& <br> <br> Professional Organizations \& Affiliations: 

 Affiliations:}

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- ASME B31.8 Corrosion / O\&M Subgroup
- AGA Transmission Pipeline Operations
- AGA Corrosion Control


## Publications \& Patents:

- Co-Author of "Cathodic Protection of a Large-Diameter Distribution System: Corrosion Monitoring and Testing", American Water Works 2004 DSS Conference
- Co-Author of "New Distribution Regulations Promote Risk Analysis", American Public Gas Association, 2008
- Presentation for NACE Central Area Conference, 2008
- Presentation for Kentucky Gas Association, 2008
- Presentation for Illinois American Water Works Association, 2010
- Presentation for AGA Operations Conference, 2012


## Professional Certifications:

- NACE - International Cathodic Protection Technologist (CP Level 3)


## Relevant Projects (Cont'd):

## Northern Natural Gas - Integrity Management

Facilitate mock integrity management audit. Evaluated oral responses as well as written documentation and provided feedback in order to help operator prepare for jurisdictional audit.

## Aux Sable Liquids Products - Integrity Management <br> Oversee development of liquid integrity management plan.

## Oklahoma Natural Gas - Integrity Management

Perform gap analysis of written integrity management plan. Furnish documented feedback on plan including recommended modifications.

## NIPSCO - Integrity Management

Oversee modifications to Transmission Integrity Management Program. Facilitate mock audit and participate in state jurisdictional audit.

## Tesoro - Pipeline Safety

Perform pipeline risk management, procedure and management practice audit. Audit included review of written plans, personnel interviews and review of documentation. Formal close-out presentation given to upper management.

## NIPSCO - Pipeline Safety

Perform audit of pipeline safety programs, including evaluation of written procedures, personnel interviews and documentation review.

Confidential Client - Due Diligence
Perform data research and integrity evaluation for potential buyer of pipeline assets.

## NIPSCO - System Risk and Prioritization

Provide technical support for rate recovery filing including review of methodoiogy used to seiect projects to reduce system risk and independent review of project cost estimating methodologies. Interact with legal counsel and state jurisdictional agencies.

## Vectren - System Risk and Prioritization

Provide technical support for rate recovery filing including review of methodology used to select projects to reduce system risk and independent review of project cost estimating methodologies.

## American Gas Association (AGA) - Integrity Management

Organized a study of the potential impact of increased testing requirements on AGA member companies as well as industry as a whole. Analyzed cost, timelines, configuration, inspectability, resource availability, and other barriers. Utilized PHMSA Transmission Annual Report data further substantiated through detailed interviews with subset of AGA member companies.

Ameren - MAOP Verification
Oversee team performing records research, gap analysis and data evaluation related to MAOP verification.

## Relevant Projects (Cont'd):

Pacific Gas and Electric - ASV/RCVs
Performed a review of the use of Automatic Shut-off Valves (ASV) and Remote Control Valves (RCV) including industry best practice, survey of natural gas transmission and distribution companies regarding their experiences with ASVs and RCVs, alternatives and merits of available technologies, pertinent industry literature and regulations. Identified individual valve segments within the transmission system and prioritized based on risk factors.

Southern Star Central Gas Pipeline - Training
Administer training related to corrosion control field testing.
Duke - Distribution Integrity Management
Oversee development of Distribution Integrity Management Plan.
Peoples Natural Gas - Distribution Integrity Management
Oversee development of Distribution Integrity Management Plan Procedures.

## PECO - Distribution Integrity Management

Perform review of Distribution Integrity Management Program.
Southern Star Central Gas Pipeline - External Corrosion Direct Assessment Manage implementation of External Corrosion Direct Assessment methodology as well as review and analyze data. Provide support for Long Range Ultrasonic Testing including procedure development and notification to PHMSA.

Nicor Gas - ECDA / ICDA
Management and implementation of External Corrosion Direct Assessment and Internal Corrosion Direct Assessment projects. Provide support for Long Range Ultrasonic Testing including procedure development and notification to PHMSA.

Nicor Gas - ECDA
Perform direct examinations as part of ECDA process.

## DTE/Michcon - ECDA / ICDA

Management and implementation of External Corrosion Direct Assessment and Internal Direct Assessment projects. Provide support for Long Range Ultrasonic Testing.

## United States Gypsum - ECDA / ICDA

Manage External Corrosion Direct Assessment and Internal Corrosion Direct Assessment projects to meet federal mandates.

United States Gypsum - Pipeline Operations
Develop jurisdictional manuals including Integrity Management Plan, Operation and Maintenance, Emergency Response.

## Dominion - Audit / Review

Participate on team reviewing various client station assets. Focus was on corrosion control codes compliance and best practice issues.

## Relevant Projects (Cont'd):

United States Gypsum - Audit / Review
Participate on team reviewing various client pipeline assets. Focus was on corrosion control codes compliance and best practice issues.

Duke - Control Room Management
Oversee modifications to existing control room management plan.
Integrys - Control Room Management
Oversee development of control room management plans.
DTE/Michcon - Control Room Management
Oversee development of control room management plan.
Northern Natural Gas - AC Mitigation
Develop plan and procedures related to $A C$ corrosion and $A C$ mitigation.

## Nicor Gas - Corrosion Control

Perform annual cathodic protection surveys. Obtain rectifier readings and bond readings.

## Nicor Gas - Corrosion Control

Perform close-interval survey and direct current voltage gradient survey.

## Du Page Water Commission - Corrosion Control

Develop and assist with corrosion control program. Activities include establish monitoring program, cathodic protection design, data review, data analysis and corrosion control consulting. Field testing for steel and PCCP water transmission mains including structure-to-electrolyte readings, AC readings, isolation flange testing, Panhandle Eastern Testing, stray current interference testing and close-interval survey.

Northwest Suburban Municipal Joint Action Water Agency - Corrosion Control Evaluation of cathodically-protected PCCP water transmission main. Testing included close-interval survey (on, instant off and depolarized), isolation flange testing and cathodic protection test point readings. Project also included analysis of data and recommendations.

