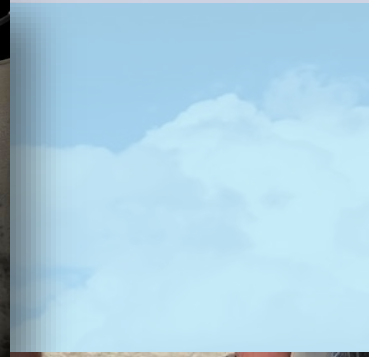
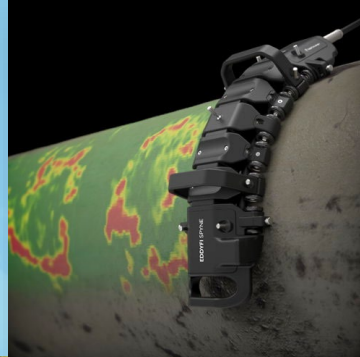




**TULSA  
INSPECTION  
RESOURCES**  
**INSPECTION & INTEGRITY**

**Company Presentation**  
July 2023



Customers:



# Corporate Information

**Jeff English**

President

**Fletcher Wheeler**

VP of Business Development

**Kim Thompson**

VP HR & Risk

**Jonathan Wilson**

Controller

**Clifton Collier**

Business Development & Marketing Mgr



**U.S. Headquarters**

Tulsa Inspection Resources, LLC

5727 S. Lewis Ave., Ste. 500

Tulsa, OK 74105

1-877-663-2977

[www.tirusa.com](http://www.tirusa.com)

# Capabilities & Locations

## Capabilities & Overview:

- Basic & Advanced NDE
- In-Line Inspection Services & Support
- Inspector Services

## Locations & Affiliate Network:

- Tulsa, OK (corporate headquarters)
- Houston, TX



## Where we can help:



- Pipeline Integrity Support



- Non-Destructive Examination (NDE)



- Inspection Services

## 3 Main Divisions

# Pipeline Integrity Support

# Pipeline Integrity Support

- Above Ground Marker (AGM) GPS surveys – sub-centimeter, sub-decimeter, sub-meter
- Pig Tracking – cleaning, batching, gauging, purging, in-line inspection
- In-line inspection lifting and loading / unloading
- Anomaly Dig Staking & As-Built documentation
- Excavation Profile Survey
- Pipeline Depth of Cover & GPS Centerline Surveys
- Pipeline Marker Placement and Installation
- NORM and Benzene Monitoring
- Remote Pig Tracking & Web Based Pig Tracking application
  - a. Can see & hear AGM passage from PC or laptop
  - b. Notifications via Text and/or Email

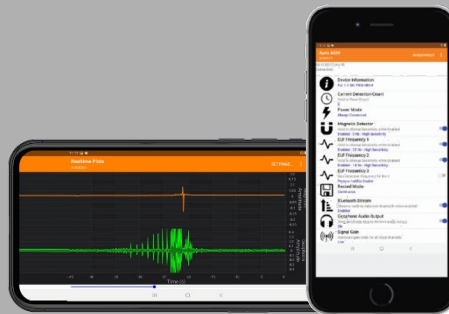
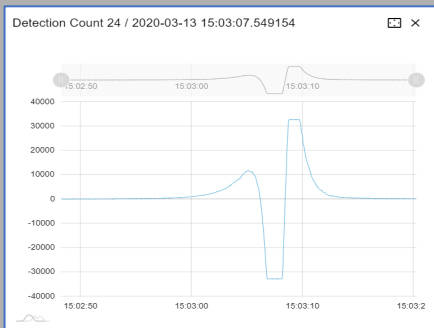


AGM & Dig Staking

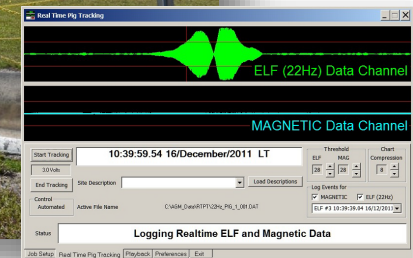


AGM and Cell Antenna

Real Time Pig Tracking



Remote Pig Tracking



# Non-Destructive Examination (NDE)

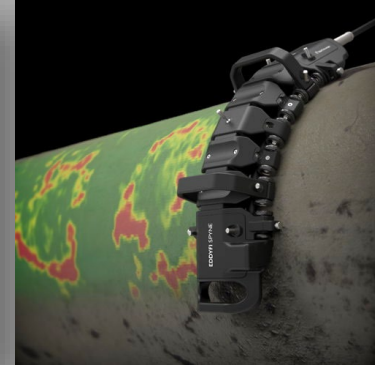
# Conventional & Advanced Non-Destructive Examination

## Conventional:

- Magnetic Particle
- Dye Penetrant Testing
- Ultrasonic Thickness, Shear Wave
- Pipe to Soil, Soil Resistivity & pH
- Pit Depth Gauging
- Microbiologically Influenced Corrosion
- Coating Inspection (AMPP/NACE)
- ASNT Lvl II & III



Sharck



Spyne

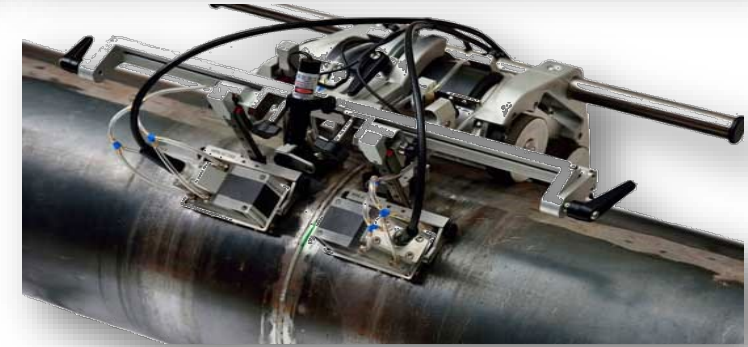


## Advanced:

- Manual & Encoded Phased Array
- Time of Flight Diffraction (TOFD)
- Eddy Current PA
- Laser Profilometry (Laser Scanning)
- Optical Emission Spectroscopy (OES)
- Positive Material Identification (PMI)



MFL Floor Scanner



HydroFORM





# Anomaly Dig SOW

# Anomaly Dig SOW

- Existing and new coating inspection
- External Corrosion Direct Assessment (ECDA)
  - Creaform Laser and/or digital pit gauge assessment
- Internal Corrosion Direct Assessment (ICDA)
  - AUT Ultrasonic Testing
- Phased Array Ultrasonic Testing (PAUT), encoded scans on linear and crack like features
- Ultrasonic Testing (UT), wall thickness/lamination checks and shear wave
- Eddy Current Assessment
  - EddyFi Sharck
  - EddyFi Spyne



- Magnetic Particle Inspection (MPI) was performed to locate surface breaking linear and crack like features
- Sub meter GPS
- Pipe to soil potentials AC/DC
- Soil Resistivity & PH
- Lead Inspector to prepare job book for capital repairs projects
- Supervision of various system replacement projects



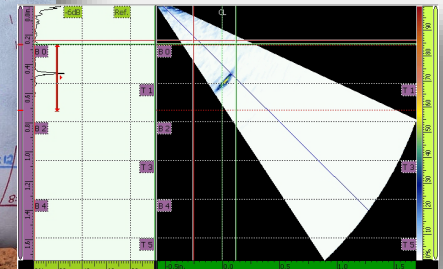
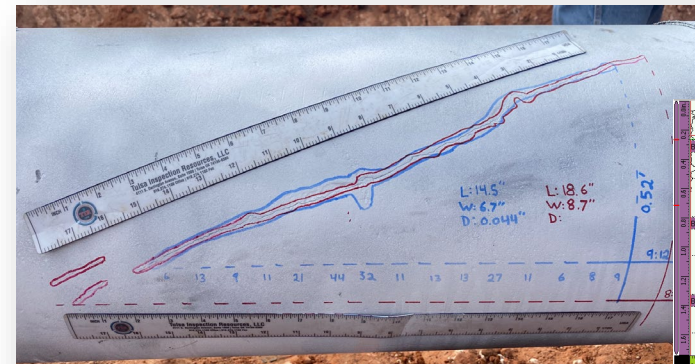
Spyne



Sharck



CREAFORM



# Anomaly Dig SOW – Value Prop

## 6. Final Remediation

- Certified inspectors for line repair functions (NACE, CWI, Utility, Lead, Chief, etc)
- Sub-Meter GPS and As-Built documentation for welds and final repair work



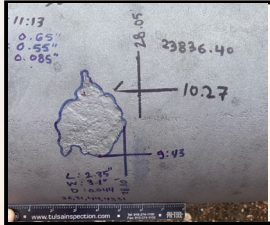
## 1. Dig Staking

- Accurate site staking based on ILI defect mapping coordinates and/or manual chaining from AGM's



## 5. Anomaly Mapping

- Conduct ECDA/ICDA functions
- Verify pipeline anomaly defects via NDE (PAUT, AUT, MPI, DP, Craform, etc)
- Soil Resistivity/PH & Pipe-to-soil AC/DC



## VALUE PROPOSITION

Complete turn-key solution designed to save costs, optimize use of field personnel, standardize reporting, and streamline operations to tailor fit customer's pipeline anomaly dig program.

## 2. Excavation Support

- Inspector oversight and documentation
- Digital as-built documentation for pipeline welds and resulting repairs



## 4. Positive Material ID (PMI)

- In-Situ Material Verification Process (MVP) that provides Traceable, Verifiable, and Complete records
- Avoids cutouts, line shutdowns & hydrotests



## 3. Existing & New Coating Inspection

- NACE level coating inspection for excavated and/or re-coated pipeline



# Inspection & Professional Services

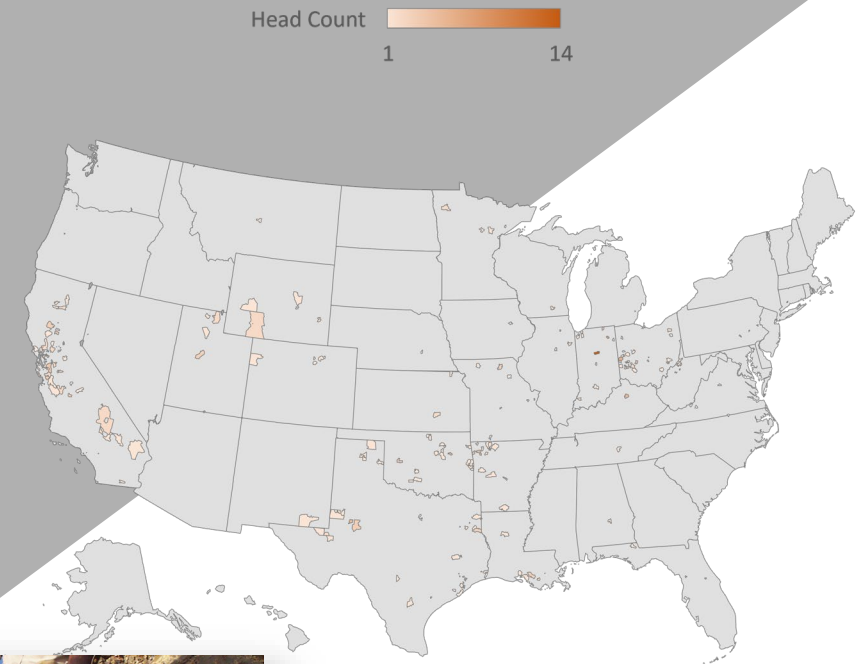


# Inspection & Professional Services

## INSPECTOR CLASSIFICATIONS:

- Project Manager/Construction Manager
- Chief Inspector
- Assistant Chief Inspector
- API 653 Certified Tank Inspector
- API 510 Certified Pressure Vessel Inspector
- API 570 Certified Process Piping Inspector
- API 1169 Certified Pipeline Construction Inspector
- Senior AWS CWI Certified Welding Inspector
- AWS CWI Certified Welding Inspector
- CPWI Certified Welding Inspector
- Safety Inspector
- Materials Inspector
- Office Administrator
- NACE Coating Inspector
- E&I Inspector
- Environmental Inspector
- Tank Inspector (non-certified)
- Mechanical/Civil Inspector
- Utility Inspector
- Polyethylene (PE)
- NDE Inspector

## TIR Inspector Geography Heat Map by Zip Code



Powered by Bing  
© GeoNames, Microsoft, TomTom



*Over 80  
classifications of  
inspectors*

# Local Hire Inspectors - Targeted Recruiting

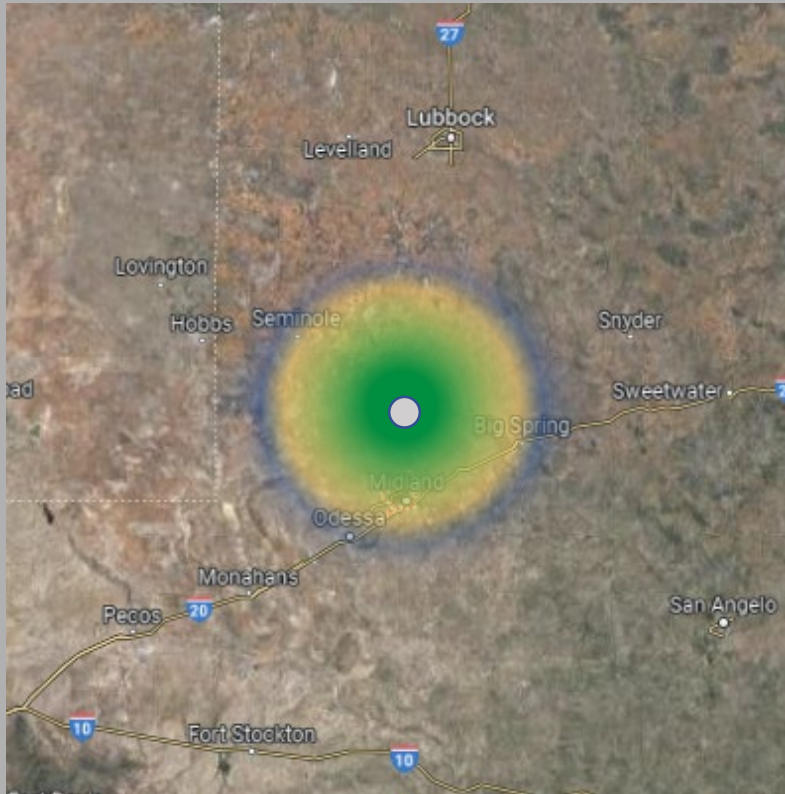
Target local candidates for increased cost savings to our clients:

## HOW?

- *Prescreened inspectors available for work in various US regions*
- *Focused recruiting efforts to identify local candidates*

## WHY?

- *Supporting local workforce*
- *Offer Full time employment w/ benefits (401K, Medical, Dental, Life)*
- *Cost Savings -Eliminate Per Diem (~\$50K/yr savings per inspector)*



# Multi-Certified Inspectors & NDE Technicians

## CONSTRUCTION/INTEGRITY INSPECTORS:



**Multi-Cert Inspector Example 1**

## NDE TECHNICIANS WITH CWI OR NACE:



**Multi-Cert Inspector Example 2**

# PROUD of our QUALIFICATIONS



Participating in our Clients' programs to Manage OQ's, Drug & Alcohol, Safety and Insurance requirements.



**Gold Shovel**  
STANDARD



**veriforce**



**Avetta**



**Energy  
Worldnet**



# Bridging the Gap – Military Support



US Department of Defense (DOD) SkillBridge program allows TIR the privilege to recruit and train military veterans. The program bridges the gap between military service and civilian life. TIR's ultimate goal is to assist our nations military veterans transition back into the common sector with a unique set of skills which can be used throughout their professional career.



Launched in 2008, PowerPathway is a nationally recognized workforce development model that aligns with line of business to create a qualified and sustainable pipeline of candidates for PG&E and the utility industry through public-private collaborations. The program promotes the use of military veterans and allows them a smooth transition into the skilled trade industry.



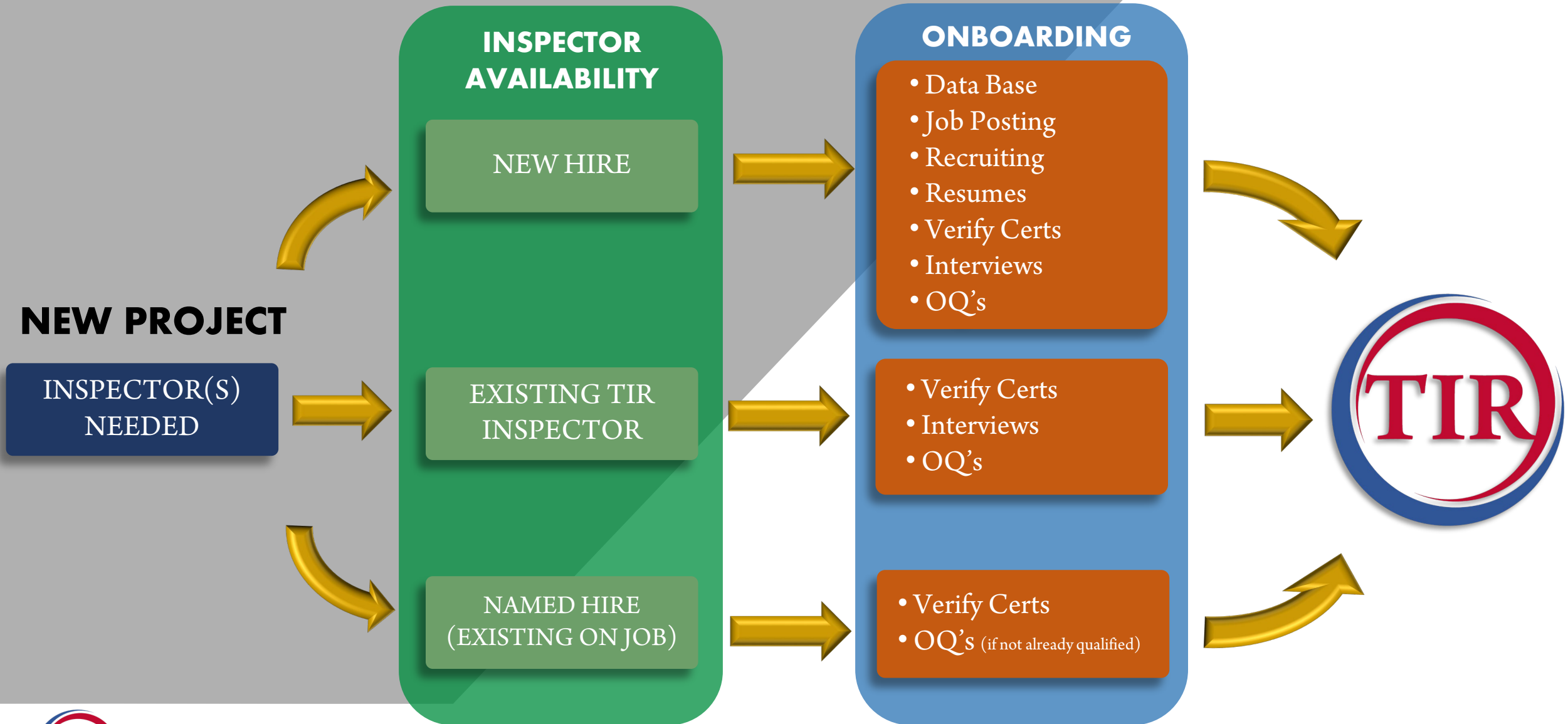


## Inspector Management

Customer Operations Manager's (COM): direct liaison between the asset owner and inspectors to ensure effective operations while facilitating day-to-day inspector functions.

- COM is a dedicated resource working for the client to ensure all day-to-day inspector operations are executed efficiently, safely and within proper protocols.
- Initiates needs for recruiting, onboarding, certification management, timesheets, etc.
- Work with clients on staffing, cost estimating and placement of inspection staff.
- Operator Qualifications (OQ's) & certification management.
- Manage Work Order process and ensure all are properly executed.

# Inspector Placement & Recruiting



# Tank Inspection

# Tank Inspection

New Construction or Maintenance/Integrity Services

In Service Inspection

Out of Service Inspection

Construction Inspection

API 653/570/510 Tank  
Inspections

Over 80 Different  
Classifications of Inspectors

Silver Wing MFL Floor Scanner



# Positive Material Identification (PMI)

# MVP, MVP, MVP!

TIR has developed a Positive Material Identification (PMI) method notably classified as our Material Verification Process (MVP). It is a proprietary process facilitating the most accurate Non-Destructive material identification method for asset owners.

Magnetic Particle  
Inspection (MPI)

Ultrasonic Testing  
(UT) - Thickness

Hardness

Chemical Analysis

Microstructural  
Observations



# Positive Material Identification Methods

## Method I: **Non-Destructive** – Development - Tulsa Inspection Resources (TIR)

- Material Verification Process (MVP) – proprietary TIR procedure
- Provides Traceable, Verifiable, and Complete (TVC) material records
- Yield Strength, Ultimate Tensile Strength (UTS)
- Wall Thickness, Hardness Values
- Steel microstructure Analysis
- Grade Identification



Wall Thickness



Chemical Analysis



Microstructure



Hardness Test

## Method II: **Non-Destructive** – Massachusetts Materials Technology (MMT)

- Utilize Hardness, Strength & Ductility (HSD) testing unit – aka HSD 8000
- Provides Traceable, Verifiable, and Complete (TVC) material records
- Yield Strength, Ultimate Tensile Strength (UTS) & Grade identification
- Steel microstructure Grain Size



HSD 8000 Testing Unit



MMTConnect & HSD 8000

## Method III: **Non-Destructive** – Frontics

- Utilize Frontics Advanced Indentation System (AIS)
- Tests tensile strength, yield stress, residual stress, and fracture toughness
- Ensures Compliance with government and technical standards
- Yield Strength, Ultimate Tensile Strength (UTS), Grade identification & Wall Thickness



Hardness Test



Frontics AIS Unit

## Method IV: **Destructive** – Hot Tapping and Collect Test Coupon

- Mechanical & chemical properties through lab analysis



Cutting Test Coupon



Test Coupon



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# Appendices

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- Founded in 2015, CF Inspection Management (“CFI”) is certified as a National Women’s Business Enterprise by the Women’s Business Enterprise National Council (WBENC).
- Since 2016, CFI has been providing continuous inspection and integrity services to one of the largest Public Utility Company’s in the United States. Given the success of this program, CFI has continued to receive an increasing level of work and activity from this large public utility customer.
- CFI has received and continues to maintain its Certificate of Eligibility from the Supplier Clearinghouse for the Utility Supplier Diversity Program of the California Public Utilities Commission.
- CFI is a partially owned affiliate of Tulsa Inspection Resources (TIR) publicly traded partnership. Based on this affiliation, CFI has access to unique and proprietary inspection and asset integrity equipment and processes.



Cindy A. Stephenson  
President & Owner |  
CF Inspection Mgmt,  
LLC



# In Summary

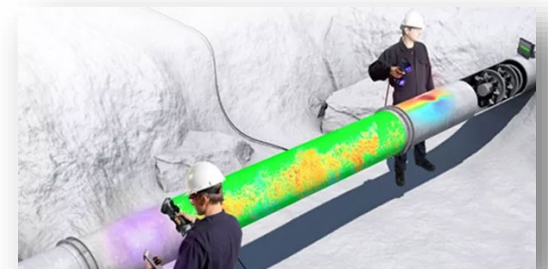
- Inspection Services for all aspects of new construction, repair, line replacement and pipeline integrity operations.
- TIR can seamlessly work through asset owners or construction companies.
- TIR can onboard inspectors quickly, whether new hire, existing resources or named hire workers.
- TIR can hire locally if desired.
- Multi-Cert Inspectors are available to help streamline operations.



Inspection Services



Pipeline Integrity Support



NDE