

# RESOLVING COMPLEX OILFIELD SERVICES DISPUTES THROUGH ADVANCED DATA ANALYTICS

HYDRAULIC FRACTURING SERVICES CONTRACT DISPUTE:  
MULTI-MILLION DOLLAR SETTLEMENT REACHED THROUGH  
COMPREHENSIVE DATA ANALYSIS

## THE CHALLENGE

The client faced a complex contractual dispute involving multiple massive disorganized data sets across multiple years of field operations. Court-mandated discovery deadlines allowed only a few weeks to analyze all historical data and prepare expert witness reports, while the opposing party had already filed summary judgment motions.

### Scattered Data Sources:

Field operations data was spread across multiple databases, physical field tickets, handwritten logs, and Excel spreadsheets maintained by different supervisors.

Thousands of individual service tickets and information packets were missing or incomplete.

### Inconsistent Documentation:

Field tickets varied dramatically in format across different wells, crews, and time periods. Some contained comprehensive records while others had minimal information stored in multiple software systems with no standardized naming conventions.

### Complex Pricing Structures:

Service contracts included variable pricing based on location, pump time, chemical volumes, proppant tonnage, equipment mobilization, and standby charges. Pricing had changed multiple times over the dispute period due to market conditions and contract amendments.

### Time-Critical Legal Deadlines:

The aggressive timeline required immediate comprehensive analysis while maintaining forensic-quality documentation standards for potential expert witness testimony.

## THE APPROACH

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### **Comprehensive Data Archaeology:**

IPT deployed specialized data recovery techniques using Python and R to extract information from corrupted databases and legacy systems, while also implementing OCR technology with custom field ticket recognition algorithms to fully digitize thousands of handwritten field tickets and receipts.

### **Advanced Data Cleaning and Reconciliation:**

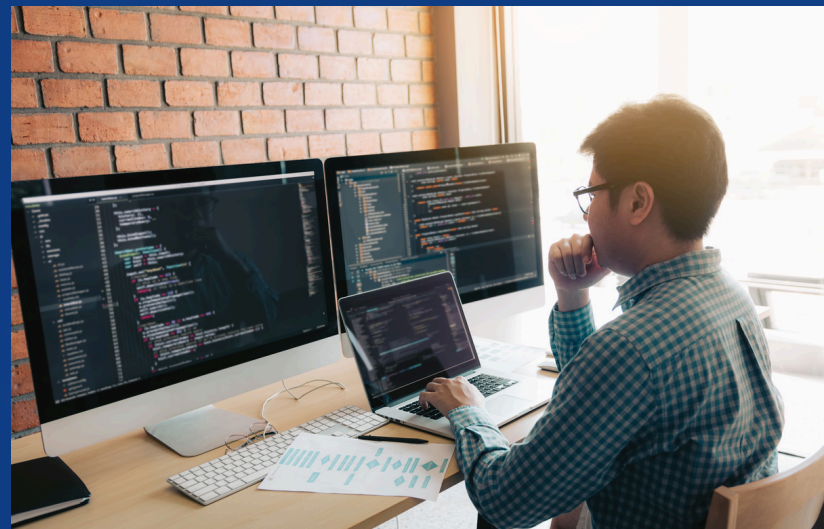
Our engineers applied machine learning algorithms and advanced data analysis using Python and R to identify and correct data inconsistencies, including duplicate entries, missing timestamps, and conflicting service descriptions. We also used natural language processing to standardize service descriptions across different field crews and time periods.

### **Multi-Source Data Integration:**

We developed custom ETL (Extract, Transform, Load) pipelines using Excel and Python to consolidate data from field ticket systems, accounting databases, chemical delivery records, field tickets, and third-party logistics systems into a unified data warehouse.

### **Forensic Timeline Reconstruction:**

IPT built automated workflows to correlate field tickets with well specific tracking data, completion reports, equipment rental, proppant, and chemical records to establish definitive service timelines and validate disputed charges.



## THE SOLUTION

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### **Phase 1: Data Recovery and Digitization**

IPT implemented distributed scanning and OCR processing to convert thousands of physical documents into searchable digital formats. IPT also developed custom algorithms to extract key data points from field tickets including well names, service dates, equipment hours, prices, proppant, and chemical volumes with high accuracy rates.

### **Phase 2: Data Integration and Standardization**

We created a master data warehouse combining all recovered information and standardized well naming conventions and service codes across the entire historical dataset.

### **Phase 3: Service Verification and Pricing Analysis**

Our team developed automated systems to cross-reference field tickets with pump data, field tickets, chemical delivery receipts, and equipment mobilization records. IPT also built a dynamic pricing engine to apply correct rates based on contract terms, effective dates, and well-specific parameters.

### **Phase 4: Discrepancy Identification and Validation**

We implemented statistical analysis to identify patterns in disputed charges, and created automated flagging system for potential errors, duplicate billings, and unbilled services, all while generating detailed reconciliation reports with supporting documentation for each disputed item.

### **Phase 5: Legal Documentation and Expert Support**

The team developed interactive dashboards to visualize service patterns and payment histories while creating comprehensive audit trail documentation for legal defensibility.

## THE RESULTS

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### **Comprehensive Financial Reconciliation:**

Our complete analysis revealed the actual amount owed was significantly higher than the original disputed amounts, with substantial portions of disputed charges determined to be legitimate services not properly documented or billed. The analysis also identified notable underpayments and missed charges that are credited back to the service company.

### **Accelerated Settlement:**

The detailed data analysis and documentation enabled settlement negotiations within weeks of project completion. After reviewing the comprehensive evidence package, both parties decided to settle privately rather than proceed with costly litigation.

### **Forensic-Quality Documentation:**

Our team created a complete chain of custody documentation for all data sources and analytical methods, supported by comprehensive reconciliation reports with full supporting documentation.

### **Cost-Effective Resolution:**

The comprehensive analytical approach resulted in substantial recovery of legitimate unpaid charges while avoiding significant litigation costs if the case had proceeded to trial. IPT's data-driven resolution provided clear financial benefits to all parties involved.

## ABOUT OUR FORENSIC DATA ANALYTICS PRACTICE

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Our specialized forensic economics and data analytics team combines advanced data science expertise with deep understanding of oilfield operations and contractual disputes. We serve oil and gas operators, service companies, and their legal counsel in high-stakes commercial disputes involving complex operational data, delivering rapid, cost-effective resolutions through comprehensive analytical approaches.



## ABOUT IPT WELL SOLUTIONS

IPT Well Solutions is an experienced engineering and consulting firm specializing in drilling, completions, reservoir engineering, and geology.

With over 30 years of expertise and hundreds of well evaluations annually, IPT supports oil & gas, carbon sequestration, solution mining, and geothermal projects through rigorous analysis, regulatory guidance, and a strong commitment to environmental compliance.