

TrustWell™ Rating Report

Independence. Intelligence. Integrity.



XYZ Energy Co.
Logo

Producer: XYZ Energy Co.

Locations: Pad 1 Wells

IES Score ID#: TW-XXXXXX

Issued Date: June 1st, 2018

Background:

What Is TrustWell™

The Process

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TrustWell™ Report:

Summary

Detailed Scoring

Inherent Profile

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Background Information

What Is A TrustWell™ Rating?

IES TrustWell™
Date: 06/1/18
ID: TW-XXXXX

A TrustWell™ Rating is the most robust mark of quality and achievement in oil & gas operations, risk mitigation and environmental responsibility.

Background:
What Is TrustWell™

IES Company Values Underpinning TrustWell™

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Inherent Profile

Independence:	Independent company. Leading experts in engineering, responsibility, and stakeholder engagement.
Intelligence:	Robust, engineering and performance driven approach. Developed through iteration with numerous industry clients.
Integrity:	Diverse engagement from numerous credible stakeholders.

Control Measures
Performance
Continuous Improvement

What Does A TrustWell™ Rating Mean?

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TrustWell™ Rated	TrustWell™ Silver	TrustWell™ Gold	TrustWell™ Platinum
Actively Improving Score: <75	Good Score: 75-100	Very Good Score: 100-125	Best-in-Class Score: 125+
Demonstrated dedication to continuous improvement	Second quartile performance going above and beyond basic requirements.	First quartile performance with highly effective risk management practices.	Top 10% of peers with a demonstrated mastery over risk control and implementation.

How Is A TrustWell™ Rating Used?

TrustWell™ Ratings are used to credibly differentiate operations, and the oil & gas produced from those operations.

Most notably, they are used for gas purchasers to be able to source TrustWell™ Responsible Gas.

TrustWell™ Ratings can also be used in sensitive communities, or in conjunction with other stakeholders.

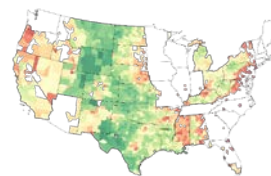


SAMPLE

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Step 1: Inherent Profile

Every location and type of operation has different risk factors and drivers, our assessment starts by understanding how this type of operation and locations compare to others via systematically evaluating against our facility datasets.



41.0

Applicable Range: 18-67

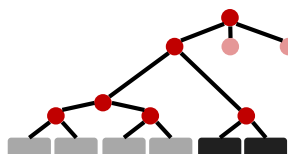
Relative measure of relevant local and asset risk factors.

Example: Based on the type of operations, the applicable inherent profile range is narrowed from 0-100 (higher is worse) to 18-67. Then based on local factors exposure, the inherent profile score is determined within that applicable range to be 41.0.

Step 2: Control Measures

&

Controls are evaluated at the levels of policy, plan, and execution. We assess control quality versus a range of industry practices which we have distilled into approximately 20 technical scoring libraries and rubrics. We then map how controls interact with one another to form a control system, and score that control system.



3.40

Max Score: 5.00

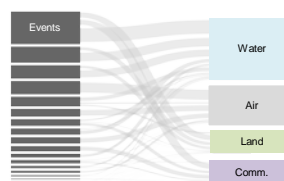
Measure of quality of policy, plan and execution framework to control risk.

Example: Based on the combination of controls in place, and evaluating with technical rubrics, the controls in place merit a 3.40 overall score out of 5.00 (higher is better).

Step 3: Performance Rating

=

Inherent profile factors and control measures are mapped to specific events. From their combination we calculate a performance score. This is done on the event level, as well as in aggregate for the facility. Events are mapped to the categories of Water, Air, Land and Community, to allow category scoring as well.



112

Max Score: 150

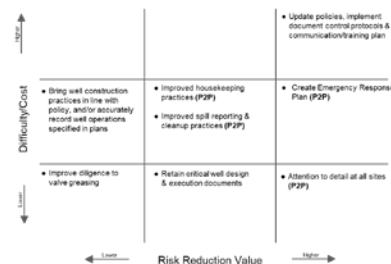
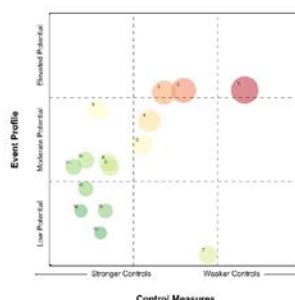
Performance rating for the specific set of assets and operations.

Example: The reasonably low inherent risk profile score of 41.0, combined with strong control measures combines for an overall performance score of 112, corresponding to TrustWell™ Gold.

Step 4: Continuous Improvement

A range of analytics are provided which are intended to assist the producer identify, prioritize and implement actions for continuous risk and impact reduction, and operational improvement.

Example include risk reduction vs. cost grids, and prioritization bubble charts.



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Step 1: Inherent Profile

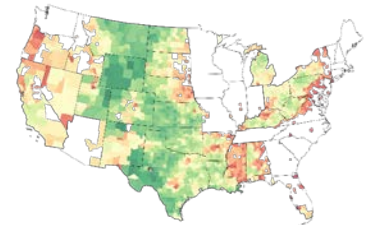
Unique assessment based on the type of operation and location. Includes over 4.5 million benchmark facilities and risk data points such as:

Operation type...

- Well complexity
- Well age and type (vertical, directional, horizontal)
- ..and more.

Location proximity to...

- Flow paths
- Communities
- Sensitive areas (environmental, biodiversity)
- ..and more.



Step 2: Control Measures



Controls are evaluated at the levels of policy, plan, and execution. We use technical scoring rubrics, and compile these rubrics to compose a view of aggregate control systems in place. IES' scoring libraries and rubrics include:

Rubrics 1-10: Downhole

- Surface, intermediate, and production casing
- Surface, intermediate, and production cement
- Subsurface integrity monitoring
- Well Integrity
- Wellhead / Tree
- ..and more.

Rubrics 11-18: Surface Ops

- Spill prevention and response
- Pits-tanks-impoundments
- Facilities piping & equipment
- Well control (drilling, completions)
- Frac Operations
- Emergency Response
- ... and more.

Rubrics 19-26+: Impacts

- Emissions (exhaust, flaring, venting)
- Water programs
- Community Engagement
- Waste management
- Reclamation
- ... and more.

Step 3: Performance Rating



IES evaluates numerous impact and risk events, which vary depending on the type of facilities. The primary categories are as follows:

Water 	Air 	Land 	Community
------------------	----------------	-----------------	----------------------

Within each of these categories is a range of topics (events) which map to anywhere from 1 to 4 of the categories, depending on the type of scale of event. Some examples included in the analysis are:

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> • Aquifer contamination • Excessive venting • Wellhead release • Equipment corrosion • Operations disturbance | <ul style="list-style-type: none"> • Subsurface contamination • Blowout • Storage vessel release • Road disturbance • Excessive flaring | <ul style="list-style-type: none"> • Water resources • Spills and leaks • Noxious emissions • Waste disposal • Offset well release • ... and more. |
|---|--|--|

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112

Max Score: 150



Scoring and Analytics Summary

Inherent Profile

42.2

Applicable Score Range: 18-67

What Could Happen?

Relative measure of relevant local and asset risk factors.

Control Measures

3.43

Max Score: 5.00

How Well Is It Controlled?

Measure of quality of policy, plan and execution framework to control risk.

Performance Rating

112

Max Score: 150

What Is Overall Performance?

Performance rating for the specific set of assets and operations.

Water

112

Max Score: 150

What Is Performance for Water?

Performance rating for the events that specifically impact water.

Air

111

Max Score: 150

What Is Performance for Air?

Performance rating for the events that specifically impact air.

Land

110

Max Score: 150

What Is Performance for Land?

Performance rating for the events that specifically impact land.

Community

116

Max Score: 150

What Is Performance for Community?

Performance rating for the events that specifically impact comm.

Summary: XYZ continuously demonstrates sound engineering principals and environmental stewardship throughout its operations. Strong policies could be complemented by improved documentation of the installation and testing of well control barriers.

Detailed Performance Scoring

The below table provides a detailed breakdown of the underlying impact and risk drivers and controls which aggregate into the overall Performance Score.

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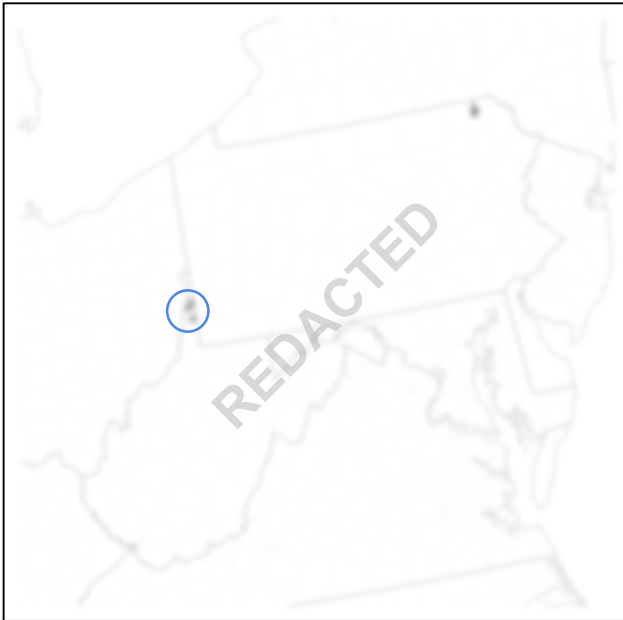
Event	1	2	3				
	Inherent Profile <i>"What Could Happen?"</i>	& Control Measures <i>"How Well Is It Controlled?"</i>	= Performance Rating <i>"What Is Overall Performance?"</i>	Water	Air	Land	Comm.
Overall	42.2	3.43	112	112	111	110	116
Annular Migration	60.0	3.84	111	111	111		111
Auto	25.0	3.30	122		122		122
Chemical Release	35.2	2.65	100	100	100	100	
Chemical Waste	37.5	3.26	112	112		112	
Drilling Fluid Contamination	31.6	3.05	113	113		113	
Equipment Release	51.5	3.40	108	108	108	108	
Exhaust	19.7	3.00	120		120		120
Flare	35.0	3.87	125		125		
Flowback Fluids	51.7	3.38	107	107		107	
Fluid Transfer Release	34.4	3.53	119	119		119	
Frac to Aquifer	63.4	3.08	92	92			92
Impoundment Release	39.0	4.00	125	125		125	
Loss of Subsurface Well Integrity	60.0	2.63	85	85			
Operations Disturbance	29.4	3.30	119				119
Produced Water	38.7	3.65	119	119			119
Storage Vessel Release	34.1	3.67	122	122		122	
Storm Water Run-off	17.4	4.00	136	136			
Subsurface Well Control	58.0	2.60	85	85	85	85	
Surface Well Control	67.2	3.53	101	101	101	101	101
Uncontrolled Fracture	64.6	3.08	91	91			
Vessel Corrosion	30.5	3.67	124	124	124	124	
VOC Emissions	40.4	4.15	128		128		
Water Resources	30.9	5.00	150	150			150
Well Intersection	31.5	2.87	109	109	109		
Wellhead LOPC	66.5	3.30	96	96	96	96	96

1 Inherent Profile

Every location and type of operation has different risk factors and drivers, our assessment starts by understanding how this type of operation and locations compare to others via systematically evaluating against our facility datasets, leveraging public and proprietary data.

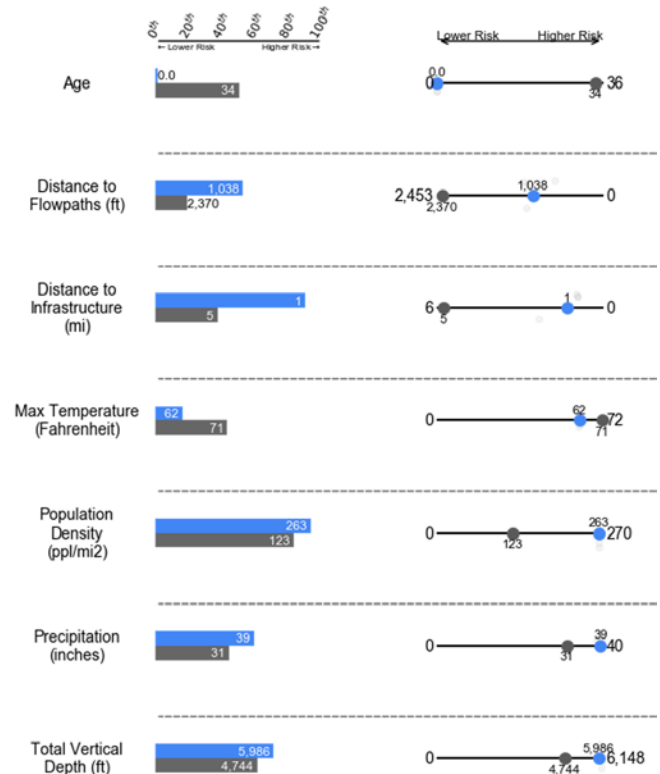
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Asset Characterization:



Well Attributes:

Primary Production Type	100% GAS
O/G Basin	100% Appalachian
Current Well Status	100% Active
Wellbore Orientation	100% Horizontal
U.S. State	100% WV



2 Control Measures

Controls are evaluated at the levels of policy, plan, and execution. We assess control quality versus a range of industry practices which we have distilled into approximately 20 technical scoring libraries and rubrics. We then map how controls interact with one another to form a control system, score that control system, and map which control systems control different events.

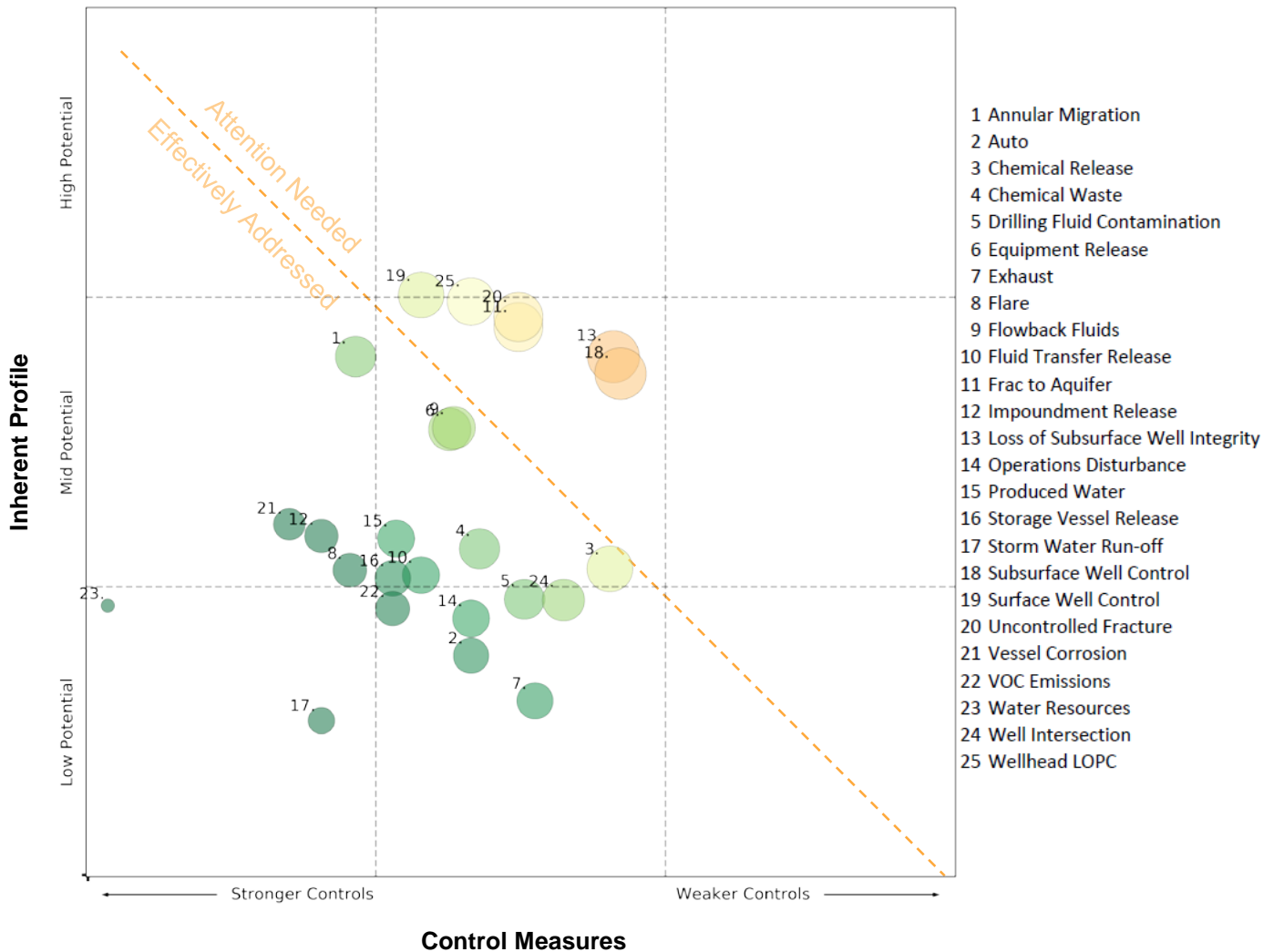
Legend: Component Scores
1 ← → 5
Below Exemplary
Expectations

	1.0 - 5.0	Components			Comments
	Control Quality	Policy	Plan	Execution	
Well Integrity					
Surface Casing	2.7	4	2	2	Little to no design documentation
Intermediate Casing	2.3	3	2	2	Little to no design documentation
Production Casing	2.3	3	2	2	Little to no design documentation
Production Tubing	2.0	2	2	2	Little to no design documentation
Surface Cement	3.3	4	3	3	Good centralization, always FIT
Intermediate Cement	3.3	4	3	3	Good centralization, always FIT
Production Cement	3.7	5	3	3	Centralization, gas blocker, rotate & recip
Subsurface Integrity Monitor	3.0	2	3	4	Annuli connected to production system
Wellhead/Tree	3.7	3	4	4	Hydraulic valves & ESD logic
Site Impact					
Road Impact	3.7	3	4	4	Considerations made for local uses
Site Design	3.7	3	4	4	Extensive pre-build screening
Operations Risk					
Emergency Response	3.0	3	3	3	Regular drills, strong local engagement
Anti-Collision	3.0	3	3	3	Measures taken to avoid collision risk
Well Control (Drilling)	2.7	4	2	2	Poor documentation of barrier control
Well Control (Completions)	2.7	4	2	2	Poor documentation of barrier control
Frac Ops	2.3	3	2	2	No casing stress model
Spill Prevention	3.7	3	4	4	Many spill hazards engineered out
Spill Response	3.3	3	3	4	Strong spill reporting practices
Operations Impact					
Community Engagement	3.0	3	3	3	Clear efforts to engage with stakeholders
Exhaust	3.0	3	3	3	Dual fuel drilling rigs used when possible
Venting-Flaring	5.0	5	5	5	Industry leading fugitive emissions effort
Operational Disturbance	3.0	3	3	3	Accommodated local needs
Water Resources	5.0	5	5	5	Fresh water neutral (an industry first?)
Waste Management	4.0	4	4	4	Strong facility vetting protocol

Summary: XYZ has a demonstrated commitment to environmental stewardship and being a good corporate citizen of the communities it operates in. The company would benefit from more rigorous risk assessment, design, and documentation of its drilling and completions operations.

3 Performance Scoring

Inherent Profile factors and Control Measures are mapped to specific events. From their combination we calculate a Performance Score. This is done on the event level, as well as in aggregate for the facility. The bubble chart below displays this for each event. In general, events in the bottom left are lower risk / impact, and the top right are higher risk / impact. The diagonal dotted line represents a notional balance between risks /impacts and controls. A producer's organizational goals may dictate alterations to the slope or location of the line.



Summary: The plot shows that XYZ has established a set of controls that is generally effective in managing its risks in West Virginia. Some areas may benefit from additional risk reduction efforts (e.g. 19 – Surface Well Control, 18 – Subsurface Well Control, and 25 – Wellhead LOPC).

Strengths and Opportunities

Our assessment of Control Measure quality is driven by a number of tangible strengths and opportunities which are highlighted below.

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Strengths

An Ideal Neighbor

Safety: Clear dedication to personal & process safety.

Great neighbor to local communities, working to educate, accommodate, and create economic and environmental value.

Regular emergency drills (including no notice drills) that include local emergency responders and have public education components.

Spill & Emissions Prevention

Annuli piped to production system (eliminates venting).

Full site in secondary containment during drilling & completions activities.

Fully enclosed chemical skids (eliminates spill potential from onsite chemical transfers).

One or more remote-controlled hydraulic valves installed on all wells; extensive logic governing emergency shutdown scenarios.

Environmental Leadership

Cementing: Policy calling for conservative casing centralization, plus casing rotation & reciprocation.

Water Sourcing: World-class water conservation efforts.

Emissions: Industry-leading performance in methane emission reduction. Very strong LDAR program.

Leadership: Not content to do good work, XYZ is leveraging its experience to up the game of the rest of the industry.

Continuous Improvement: HSE-MS Internal Assessments provide a way for XYZ to cast a critical eye at its own practices. Strong follow through on action items will yield impressive results.

Opportunities

Assess Risk & Document Decisions

Missing critical documents: Wells basis of design, casing stress analysis, drilling and completions risk assessments. **P2P**

Detailed well programs: Drilling and Completions programs are typically generic, vague, and provide limited instructions to address contingencies. Vastly different level of detail observed across wells.

Well Control Excellence

Observed a consistent lack of detail in reporting of installation and testing of well control barriers and well control monitoring (if reported at all). **P2P**

While acceptable barriers are specified, guidance should indicate typical barriers in place during each phase of operations.

Completions Best Practices provide limited guidance on well control procedures for post-frac operations.

Clarify Expectations & Authority

XYZ guidance documents include policies, manuals, guidelines, best practices, and procedures. If there is a hierarchy, it is unclear.

Document Control: XYZ guidance documents often lack listed authors, formal process for editing or dispensation, documented approval, plans for review/renewal, or copy protection.

Policy/Plan Compliance: Some aspects of well construction not in harmony with stated policies / well plans (centralization, WOC time, cement lab testing).

Summary: The Path to Platinum (P2P)

XYZ is an industry leader in terms of environmental stewardship. Thorough risk assessment will uncover both risk reduction and cost saving opportunities.

Path to Platinum (P2P) action items highlight opportunities that, if performed diligently, would lead XYZ to IES TrustWell™ Platinum.

Activity Prioritization

IES recognizes that risk and impact management is an exercise in recognizing and prioritizing tradeoffs. The following matrix prioritizes opportunities by difficulty/cost and risk/impact value. We also provide guidance with respect to the actions which will have the greatest impact on improvement in the Performance Score.

Background:

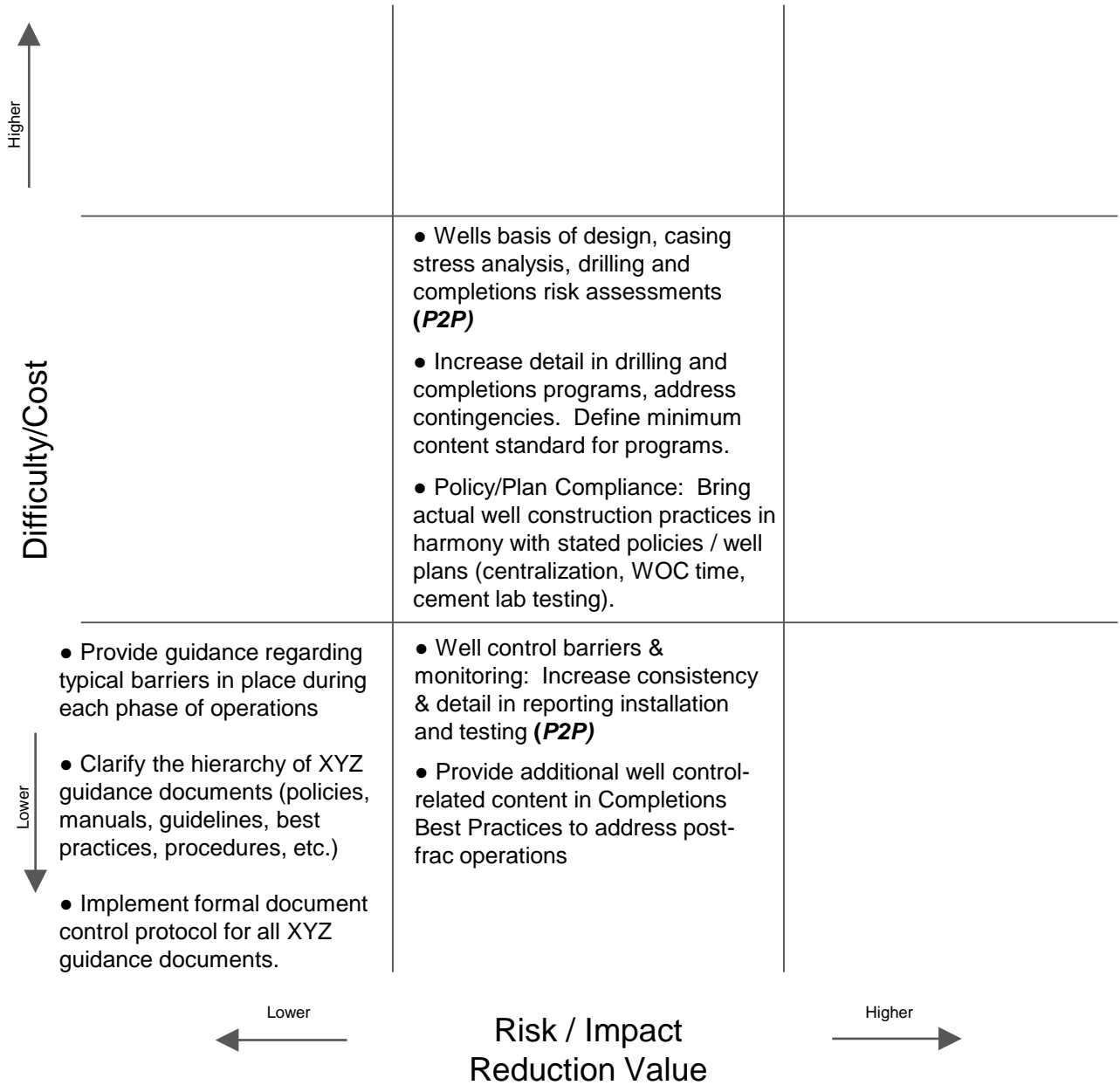
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Summary: The Path to Platinum (P2P)

XYZ is an industry leader in terms of environmental stewardship. The company also employs a broad set of policies, procedures, and practices to identify and manage risks.

Path to Platinum (P2P) action items highlight opportunities that, if performed diligently, would lead XYZ to IES TrustWell Platinum ratings.

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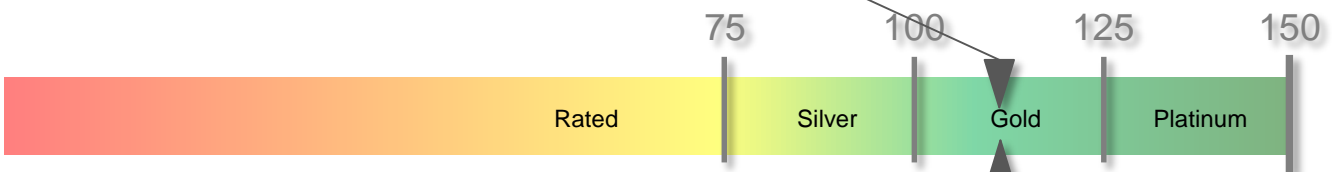
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TrustWell™ Rating Certificate

TrustWell™ Rating	
Well Name:	Pad 1 Well 1
API:	47-05-XXXXXXXXXXXX
Rating:	Gold
Overall Score:	114 / 150
Duration:	06/2018 – 06/2019



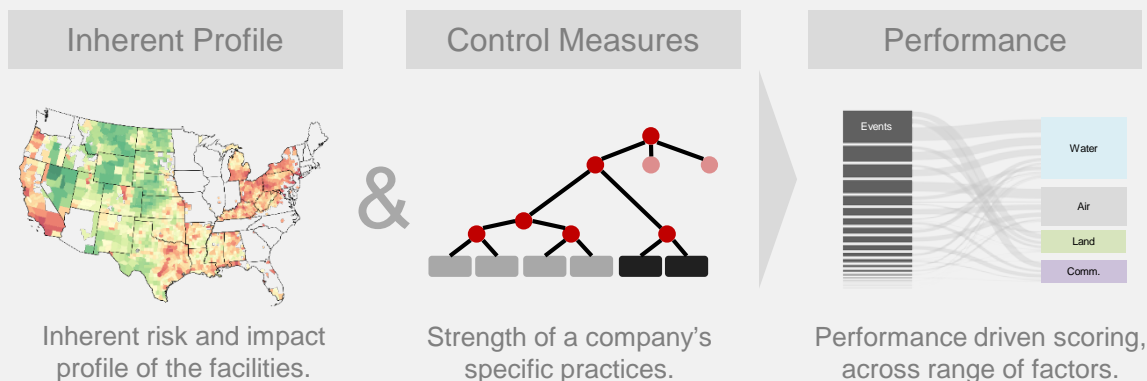
A TrustWell™ Gold Rating represents *very good* risk management and impact mitigation practices, and targets the top ~25% of companies. Companies and facilities which receive this rating have demonstrated clear and thoughtful risk control efforts, and have reliable, thoughtful and well managed barriers for the vast majority of potential events.

What Is A TrustWell™ Rating?

A TrustWell™ Rating is the most robust mark of quality and achievement in oil & gas operations, risk mitigation and environmental responsibility, utilizing our company's core values of:

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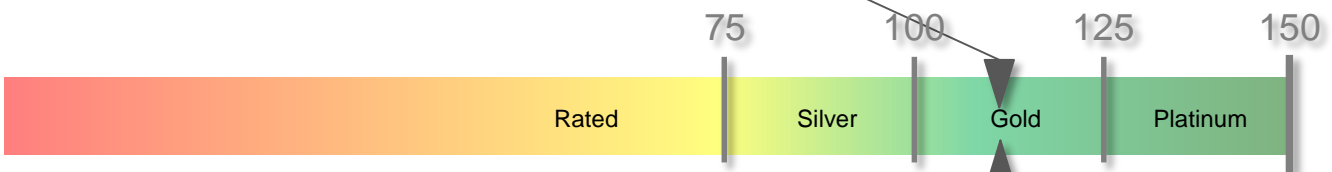
The schematic below provides a high level overview of the rating process and IES' analytics platform and capabilities.



SAMPLE

TrustWell™ Rating Certificate

TrustWell™ Rating	
Well Name:	Pad 1 Well 2
API:	47-05-XXXXXXXXXXXX
Rating:	Gold
Overall Score:	107 / 150
Duration:	06/2018 – 06/2019



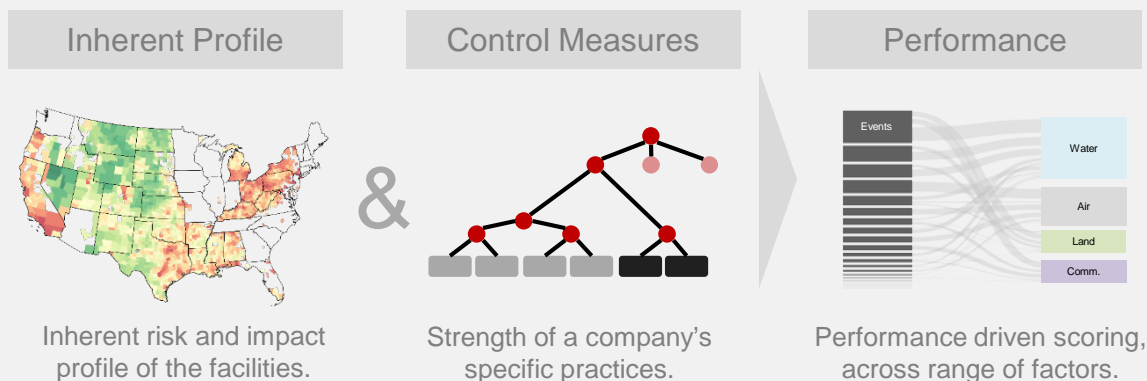
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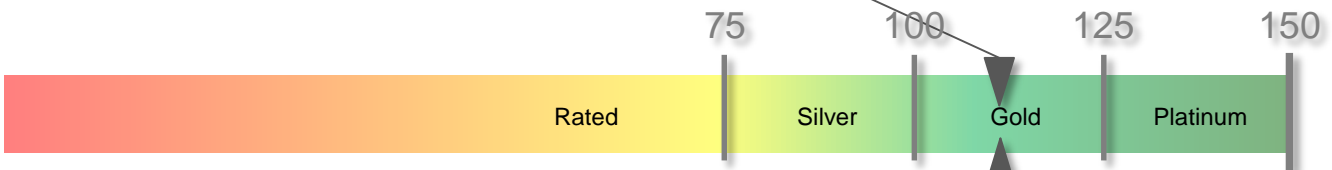
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TrustWell™ Rating Certificate

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API:	47-05-XXXXXXXXXXXX
Rating:	Gold
Overall Score:	110 / 150
Duration:	06/2018 – 06/2019



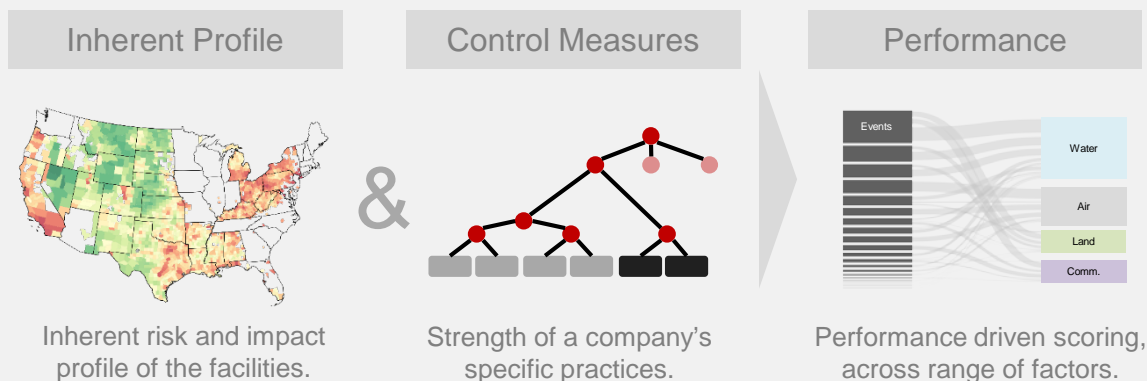
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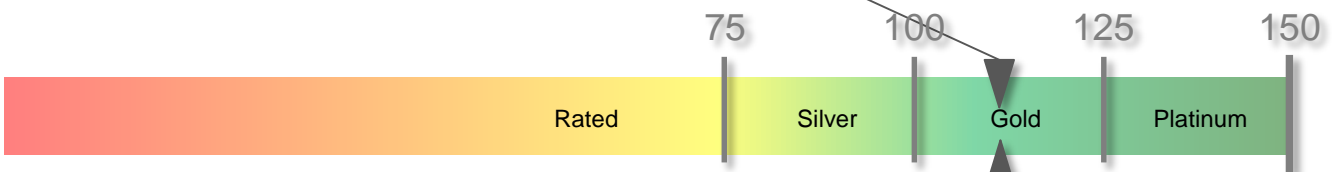
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TrustWell™ Rating	
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API:	47-05-XXXXXXXXXXXX
Rating:	Gold
Overall Score:	112 / 150
Duration:	06/2018 – 06/2019



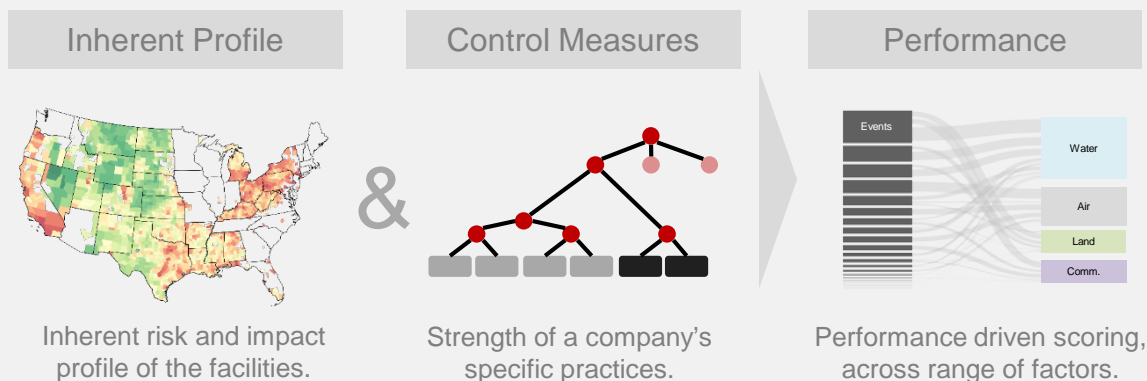
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The schematic below provides a high level overview of the rating process and IES' analytics platform and capabilities.



SAMPLE

Facility Breakdown

Legend

- + Bullets that begin with a '+' indicate strengths
- Bullets that begin with a '-' indicate opportunities

Well Integrity

Casing, Tubing, & Cement

- + Casing is designed to a higher standard for exploration wells vs. development wells
- + Careful check of offset water wells to determine proper surface casing setting depth
- + Triple combo log required for first well on the pad in all hole sections (confirms geo prognosis)
- On occasion, cement lines were not tested to specified value listed in the drilling program. A formal risk assessment or rationale was not observed to explain differences in pressure.
- No documented basis of design for casing weights, grades, or pressure test values
- Best practice documents and well drilling procedures do not address how casing pressure tests are to be performed. As a result, some tests were performed for 30 minutes, and others for 15 minutes.

Subsurface Integrity Monitoring

- + Casing annuli are permanently tied in to allow controlled flow of annuli to the production stream (no emissions!)
- + SCADA allows remote pressure monitoring of production tubing and all casing annuli
- Create Well Integrity Management Plan to address well maintenance, pressure monitoring, record keeping (e.g. wellhead inspections, valve function and maintenance, pressure data), and prescribe diagnostic and remediation actions when anomalies are observed.



Electronic pressure gauge tied into a SCADA system. Annuli clearly labeled on each gauge.



Wells clearly labeled with emergency contact information.

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Controls Discussion

Operations Risk

Spill Prevention

- + Full-site secondary containment in place during drilling and completions operations
 - + Extensive secondary and tertiary containment requirements during all phases of operations
 - + Production chemicals stored inside fully contained skids; chemicals replenished by swapping skids (eliminates spill potential from onsite chemical transfers)
 - + Excellent protocol for testing and removal of stormwater
-
- Noted that secondary containment was not in place around all production equipment.
 - Above-ground portions of permanent flowlines are joined using hammer unions (instead of flanged connections).



Example of a fully contained chemical skid



Hammer unions used instead of flanges but within secondary containment



Secondary containment not in place around separator



Secondary containment in place and maintained appropriately

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Facility Breakdown

Other Aspects Reviewed

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Technical Assurance

- + Drill/Complete Well on Paper (DWOP/CWOP) exercises are an excellent practice for sharing all aspects of the job, especially when moving into new areas of operations
- Need formal Basis of Design documents for all aspects of the well construction process. These are required per the XYZ Drilling Operations Manual, Section 16.4).

Miscellaneous

- + Strong efforts to lead industry and represent well in the community through efforts such as XXXXX, XXXXXXX, XXXXX, XXXXXXX
- + Overall good housekeeping practices on location. Clearly labeled gate controlled road access.
- + Smokeless flare with continuous ignition in use. Field personnel stated that FLIR testing is done on a monthly or bi-monthly schedule with designated personnel.
- While conducting site visit, personnel described recent changes on the pad moving the location of regulators on flowlines to prevent freezing. It was unclear as to whether this lesson learned/best practice had been communicated throughout the field to prevent the same issue on other pads.
- Wind sock was difficult to see (hidden between uprights) and could be larger.
- No lighting in place around uprights. In discussions, we were told fluid haulers have lighting on trucks, but it would be prudent to install lighting to help with low-light fluid transfers.
- Opportunity to evaluate multiple truck loading locations from uprights. Field personnel described opportunity to improve efficiency with multiple loading spots. Evaluation and risk assessment needed.
- XYZ guidance documents are referred to as manuals, guidelines, best practices, etc. The variety of names makes it difficult to ascertain the relative level of authority invested in each, as well as the appropriate means to secure dispensations as needed for each document type.

Data Sources and Documents Reviewed

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WELL PLANS	
Geologic Prognosis	■
Area of Review subsurface	■
Reservoir Analysis	■
Well Basis of Design (D&C)	■
Well Design Risk Assessment	■
Well Design (D&C)	■
Drilling Procedure	■
Mud Program	■
Directional Plan	■
Casing Design	■
Cementing Design	■
Cementing Procedure	■
Completion Procedure	■
Frac Procedure	■
Tubing/Packer/Lift Design	■
Wellhead & Tree Design	■

WELL REPORTS	
Daily Drilling Reports	■
Pad/Pit Construction	■
Casing Tallies/Reports Surface	■
Casing Tallies/Reports Intermediate	■
Casing Tallies/Reports Production	■
Cementing Rpt/Job Log Surface	■
Cementing Rpt/Job Log Intermediate	■
Cementing Rpt/Job Log Production	■
Cement Bond Logs	■
Direct - DD/LWD Logs	■
Mud Reports	■
Mud Log	■
Logs	■
Daily Compl Reports	■
Frac Reports	■
Pressure Tests	■
Tubing/Pkr/Lift Tallies/Reports	■
Well Summary Report	■

FACILITY	
Plans/Specs	■
Test & Startup Procedures	■
Operating Procedures	■
Surveillance/Monitoring	■

ENVIRONMENTAL	
Risk Assessment Overview	■
Chemical/Fuel Transfer	■
Emissions Guidelines	■
Emissions Tracking	■
Stormwater Policy	■
Spill Containment Plan/SPCC	■
Secondary Containment Guidelines	■
Surface Surveillance Plan/LDAR	■
Subsurface Surveillance Plan	■
Waste Management Policy	■
Waste Tracking	■
Emergency Action Plan	■
Emergency Response Plan	■
Ground Water Monitoring Plan	■
Water Plan	■
Water Tracking	■

MANAGEMENT	
Management Systems Overview	■
Contractor Management	■
Change Management	■
Goals & Metrics	■
Performance Review	■

Information Review Legend	
■	Document Provided
■	Partial Documentation Provided
■	Limited or Verbal Documentation
■	Not Provided
■	Not Applicable or Not Requested

Critical Document Gaps - If provided, these documents would likely have a material impact on the score of the respective assets.

- Wells Basis of Design
- Well Design Risk Assessment

Inherent Profile Data Glossary

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Term	Definition	Unit	Application	Derivation	Calculation
Aboveground Biomass	Average aboveground live dry biomass estimate	kg/mi ²	Higher levels of aboveground biomass indicate higher sensitivity to oil and gas incidents		
Accident Fatality Rate	Average number of fatal accidents per county from 2010 - 2015, normalized by county population	count	Determine the accident fatality rate of the counties of this set of wells	Data from the National Highway Traffic Safety Administration	(# of fatalities in county of well) / (# total fatalities) ***Normalized by population
Account Factors	Activity and performance factors	index		An index derived by aggregate metrics specific to an account	
Aggregate Risk Drivers	The main metrics driving summarized scores	NA	The most important factors driving the overall score. Meant to be provide a high level summary of primary metrics		
Asset Factors	Asset risk factors	index		An index derived by aggregate metrics specific to this set of assets	
Average Local Speed Limit	Average speed limit of roads within 25 mile radius	mph	High average local speed limits can show what type of travel is done near assets. This is useful in determining the behavior and risk of both employee commute and trucking operations.		N/A
Congestion	Population density per square mile (by zip code)	ppl/mi sq	High levels of congestion can increase the likelihood of automotive incidents	Data from the US Census Bureau	population density per square mile in zip code of well
Critical Factors	Flagged outliers pertaining to a specific metric	NA	Location specific factors which exceed various criticality criteria. Meant to flag areas of concern for a given account	NA	
Distance to Community	Distance in miles from this well to local infrastructure	miles	Shorter distance to community means a higher risk of community impact in the case of an incident	Computation of distance from asset location to common community markers	
Distance to Flowpaths	Distance to the nearest route to flowing water	miles	Shorter distance to flowpaths means a higher risk of contaminating sensitive water	Computation of distance from asset to nearest flowpath	
Distance to Hospital	Distance to nearest hospital	miles	Greater distance to hospitals can increase the severity of an automotive incident	Computation of distance from asset to nearest hospital	distance from wellbore to nearest hospital
Fault Risk	Risk level of fault lines near these assets	index	Wells located near high risk faults increases the chance of a seismic related incident		

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Term	Definition	Unit	Application	Derivation	Calculation
H2S Concentration	Levels of H2S local to the assets	index	High levels of H2S put facility workers at high risk	NA	
Law Enforcement Presence	An estimation of law enforcement present based on the distance to the nearest law enforcement office	index	High levels of local law enforcement may reduce the risk of Site Security related incidents		
Local Factors	Local conditions that are relevant to the risk and exposure to oil and gas assets	index		An index derived by aggregate metrics specific to the location of this set of assets	
Oil Production Volume	Monthly oil production	bbl	High levels of oil production can indicate high levels of trucking activity		Production Oil
Oxides of Nitrogen	Amount of nitrogen oxides in parts per billion.	ppb			
Ozone	Amount of ozone at ground level in parts per million	ppm			
Precipitation	Average precipitation in 2016	inches	Higher frequency of precipitation creates inclement driving conditions	Data from the National Weather Service	Precipitation
Protected Land	Percentage of HUC (hydrologic unit code) classified as Protected by Intl Union for Conserv. Nature.	percentage			
Risk Profile	Overall risk profile based on Account, Asset and Local Factors	index	A risk profile provides the highest level overview of an account. It provides a way to quickly understand related risk of an account		
Saltwater Production Volume	Monthly saltwater production	bbl			N/A
Scenario	Specific events that may occur under a policy	NA	Identify different types of events that may hit a policy, and the metrics that impact the likelihood of an event	NA	
Well Accessibility	Road and terrain conditions near the well		Wells located in areas with high elevation change can present dangerous road conditions	Average slope of roads within a 2 mile radius of the well	average slope of all roads within 2 miles. slope is number of intersections of roads with contours x elevation change per line
Well Complexity	An estimation based on well depth, orientation, and a mix of other metrics	index			