

# Case Study: Pipeline Leak Detection System At Chuandongbei

## Client



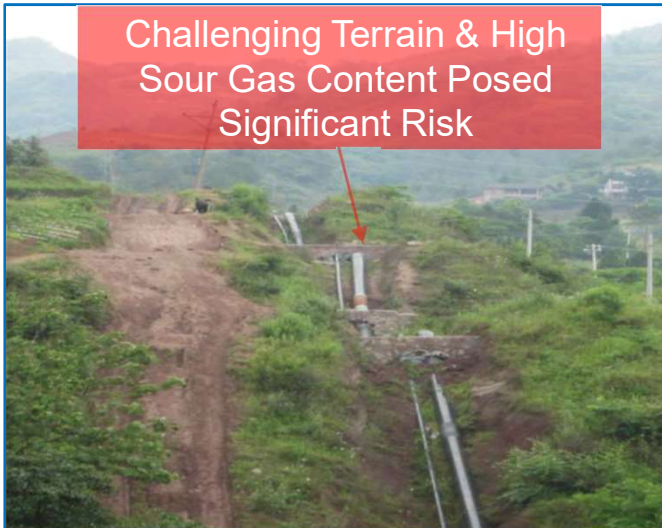
## GCI's Deployed

24 on pipeline  
4 on facilities

## Project Scope And Challenges

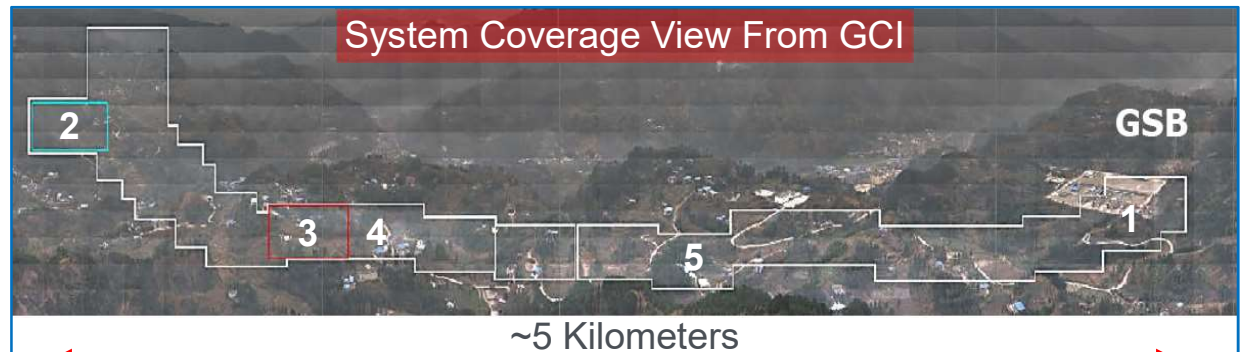
- New sour gas field development in the Sichuan Province of southwest China.
- Includes 2 well pads, a gathering station, and 38 km of pipeline.
- Sour gas content of 13% H<sub>2</sub>S and 7% CO<sub>2</sub> is well above IDLH<sup>1</sup> limits.
- Pipeline located along extremely rugged terrain in close proximity to multiple large population centers.

## Challenging Terrain & High Sour Gas Content Posed Significant Risk

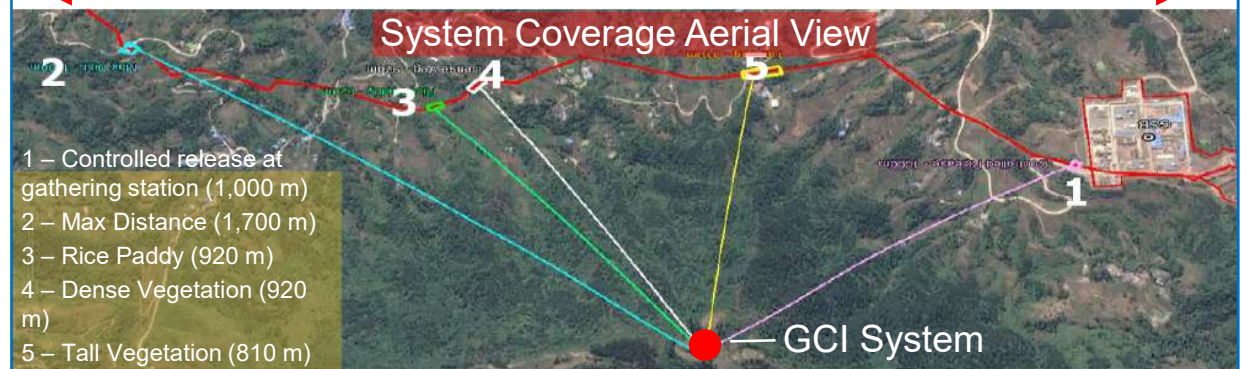


<sup>1</sup> Immediately Dangerous to Life or Health

## System Coverage View From GCI



## System Coverage Aerial View



## Rebellion Highlights And Value Proposition

- Single installed GCI camera passed pilot test by accurately detecting all controlled methane releases along the site-specific terrain with very low false positive readings.
- GCI systems reduced labor costs by moderating need for manual sweeps of pipeline area with hand-held gas “sniffers”.
- No equivalent leak detection technology available on the market for comprehensive coverage of 38 km of pipeline.
- Pipeline success spurred the purchase of 4 additional GCI units to monitor the well pads, gathering station, and existing processing facility to create a fully integrated detection network.

# Case Study: Fertilizer Plant Monitoring At Carseland Nitrogen

## Client

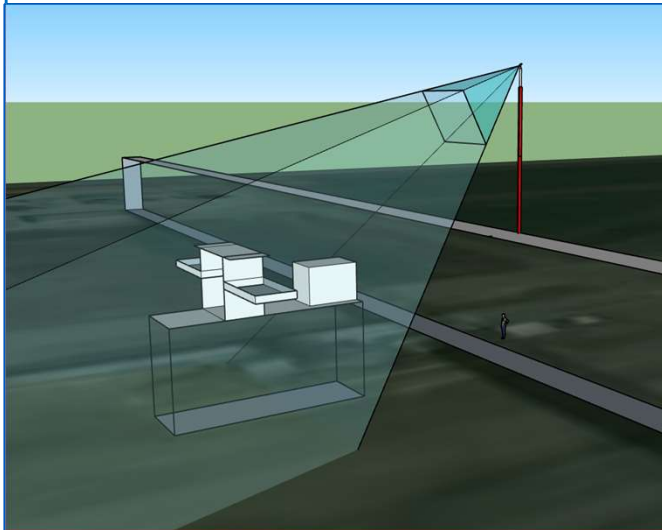


## GCI's Deployed

[Update #]

## Project Scope And Challenges

- Monitor Ammonia Rail Load out Platform
- Ammonia can leak from platform and injure personnel who need to access area
- Point sensors in the area have failed in the past
- Platform is located in Canada which requires CSA approval of monitoring system



## Rebellion Highlights And Value Proposition

- Installation tentatively set for September 2019
- One (1) Mini GCI system can cover the entire platform 100% of the time with a single field of view.
- No equivalent leak detection technology available on the market for comprehensive coverage of real time 12x7 coverage with only yearly maintenance.
- Plan for deployment across all sites once this is proven technology at this site with the extreme temperatures
- Long term goal for the client is to eventually send the data direct to Shut down system for safety.



# Case Study: Tank Farm Monitoring At Whiting Refinery Complex

## Client



## GCI's Deployed

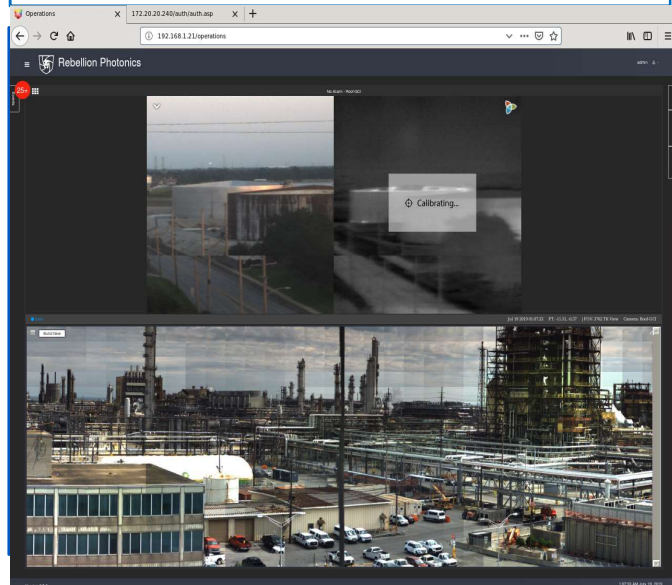
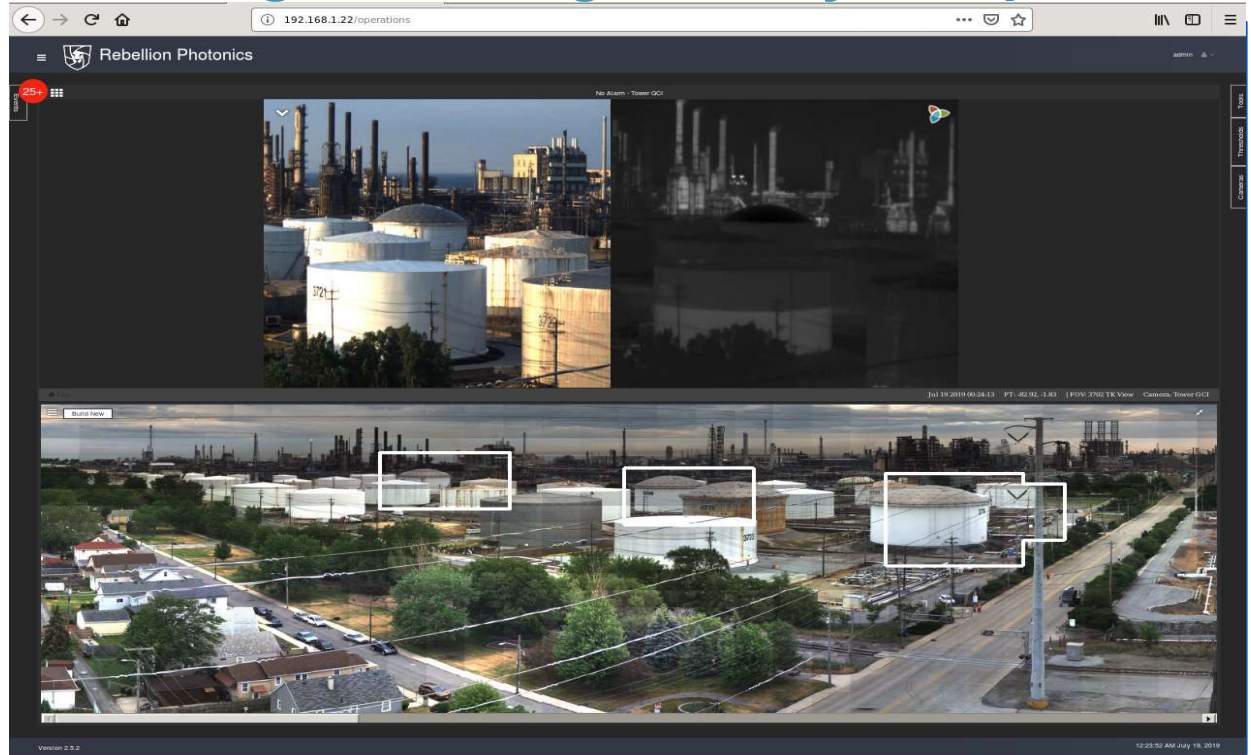
2 at Whiting

1 Oman

4 more in 2019

## Project Scope And Challenges

- Monitor Tank farm for leaks
- Tank Farm is near residential area
- Tank Farm is monitored by EPA



## Rebellion Highlights And Value Proposition

- Rebellion system has been monitoring tank farm for 4 years.
- System has been running at site for 4 years.
- Only 2 GCI cameras monitor the entire area for hazardous leaks.

# Case Study: Site Wide Methane Monitoring at BP Iman

## Client



## GCI's Deployed

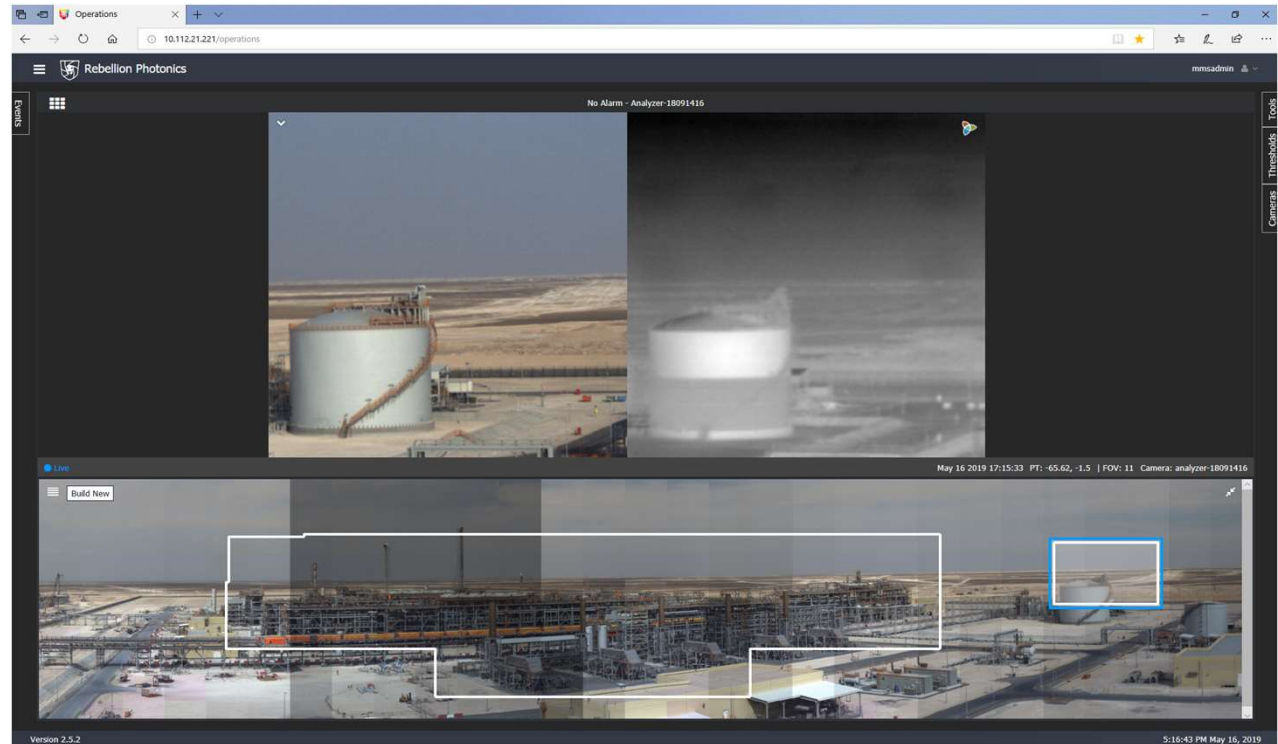
2 at Whiting

1 Oman

4 more in 2019

## Project Scope And Challenges

- Monitor Entire Site for Methane Emissions to gain investors by being Environmentally Accredited
- Reduce Methane Emissions over time
- Tank Farm is monitored by EPA



## Rebellion Highlights And Value Proposition

- Rebellion system is set up to monitor entire site for Methane Emissions with 1 (one) camera
- Safety for this site is critical and ensuring their team on site is safe is importance #1.
- By end of 2019 software update will be added to give the site the total Methane emission count daily.
- By monitoring and fixing any Methane emission leaks BP can show they are environmentally accredited and gain investors.
- Product loss is another issue they can monitor here. Areas where there are high product loss they will be able to tune and improve operations increasing profit.