



Holland Hydrogen 1 T-Pulse Safety management

HH1 Project execution team

HH1 HSSE Manager



Holland Hydrogen 1: Safety Performance

Holland Hydrogen: 80t H2/d capacity production facility with renewable power (wind energy) by 2026.

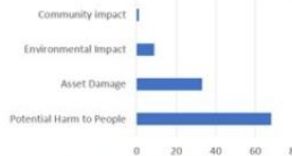
406.284 manhours incident free
 834 incident free days to date
 >2.000 workers HSSE inducted



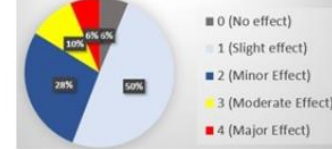
HSSE Performance Dashboard status October 1, 2024



HSSE Event Consequences (As of May 2022)



Risk Assessment Matrix Classification



Life Saving Rules Violations	BYPASSING SAFETY CONTROLS	CONFINED SPACE	DRIVING	ENERGY ISOLATION	HOT WORK	LINE OF FIRE	SAFE MECHANICAL LIFTING	WORK AUTHORISATION	WORKING AT HEIGHT	TOTAL
2022 early works								4	4	8
2023	1					2	3	4	3	13
2024			1			5		3	2	11

Exposure hours (since start of Project)	406.284
Injury Free Days (since last First Aid case)	7
Date occurred	September 24: Wound in right thumb during demobilisation of crane at the electrical area.
Safety Topic October	Back to Basics: Discipline in PPE compliance (no hoodies!); good housekeeping; safe barricading; lighting, etc.
Next Milestone Celebration	500 000 Goal Zero hours



Holland Hydrogen 1 Family Day 21 September

- Guided site tour (with mini train)
- Site walk through electrolyser building
- Site view via visitors centre
- Mini H2 production lab scale set-up
- Manovert crane driver experience
- Electrical & mechanical experiments
- LegalIL arena
- Swings
- Flight simulator
- 2 Car simulators
- Photoshoot
- PPE word puzzle

Foodtrucks: [Images of food trucks]



Holland Hydrogen 1 : Site set up for safe success

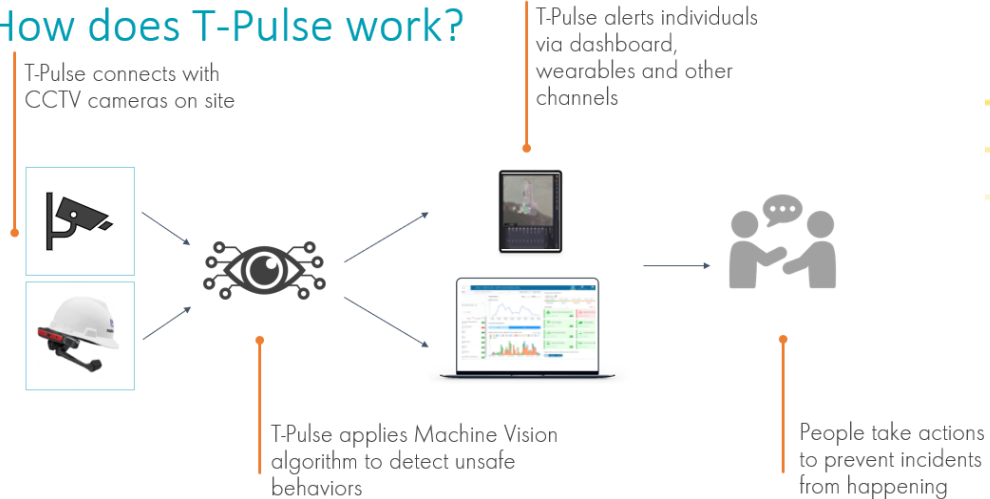
- “Zero Emission” construction site: The construction site is powered by Electrical Power Network
Electrical powered machinery: cranes, teleporters, forklift trucks, concrete trucks, construction light. Resulting in; no gasoil generators , no NOx emissions, reduced noise.
- Site facilities set up for peak [420 people simultaneous]:
 - Spacious office facility and car parking including electrical car charging facilities
- Spacious changing clothes facilities including sanitary facilities, personal cabinets for private belongings. Meditation and mother’s room available.
- Clean - and spacious canteen facilities including good communication systems for site safety stand stills.
- Segregation between man and machine
- Ecological concrete pathways (avoid application of “Granular Repak” to reduce risk of tripping hazards and avoid potential asbestos contamination)
- Set up of 6 halls for prefab work
 - (to prevent outside work under harsh – and corrosive weather conditions)
- Secured site with effective access control
- Application of solar power



Holland Hydrogen 1 - Continued Safety Journey to Goal Zero: Artificial Intelligence "T-Pulse"

For Holland Hydrogen, the safety of workers is the highest priority; innovations that targets prevention of incidents and drives safety culture are embraced. AI tool T-Pulse, detects deviations of industry standard safety rules in construction works. Safety observations (10 sec film) are reported to a dedicated team, who subsequently uses the observations for coaching and learning with the relevant teams. Calibration and adjustments of T-Pulse detection system, to the specific work location is done during the first phase after installation.

How does T-Pulse work?



T-Pulse covers 50 industry standard safety use cases

1. PPE a) Hard Hat b) Coverall c) Hand gloves d) Earmuffs	p) Absence of Barricading/ Signage q) Material on excavation Slope r) Person / Material at edge of Barricading	d) Missing Signage
2. Hazard Communication: a) Unsafe Position of Person b) Proximity with moving/ rotating parts c) Absence of Edge protection d) Combustible Material in work area e) Absence of Drip tray f) Open Pit g) Slip-Trip-Fall h) Electrocution Hazard i) Obstructed Pathway j) Person in Line of Fire k) Unsafe Access l) Unsafe Material Handling m) Spillage n) Fire Hazard o) Absence of wedge	3. Work at Height: a) Absence of Safety Harness b) Missing scaffold component c) Unsafe Working Platform d) Opening in platform	6. Dropped Object a) Unsecured objects b) Objects on unsecured platform
	4. Housekeeping a) Leftover Materials b) Debris / Scrap in undesignated area c) Overflowing Bins d) Unsafe Material Storage e) Unsafe Cable/Hose Layout f) Unsecured Cylinders	7. Vehicle Safety: a) Absence of Flagman/Banksman b) Over-Extended Load c) Proximity with Person/Machine d) Unsafe Operation e) Unsafe Parking f) Unsafe Reverse Operation g) Unsecured Load h) Toppling Hazard i) Collision Hazard
	5. Confined Space Management: a) Unattended Confined Spaces b) Poor illumination c) Fatigued Workmen	8. Lifting and Hoisting Activities: a) People under Load b) Absence of tagline c) Unsafe Lifting/ Rigging

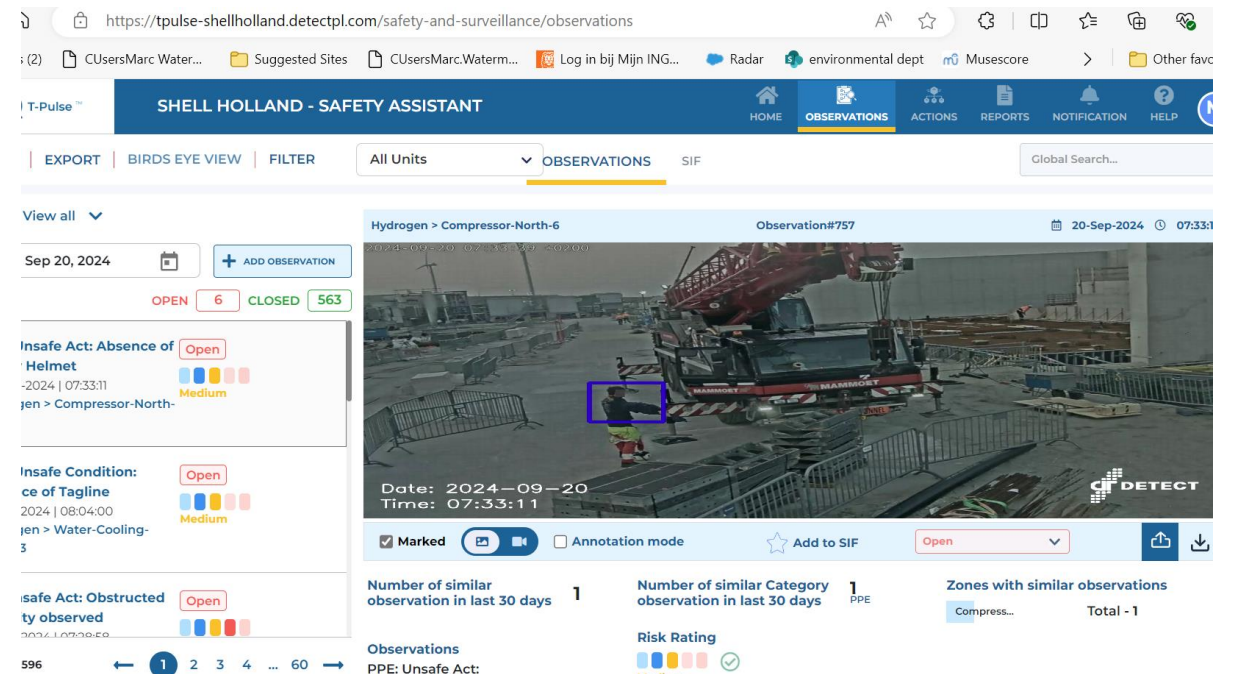
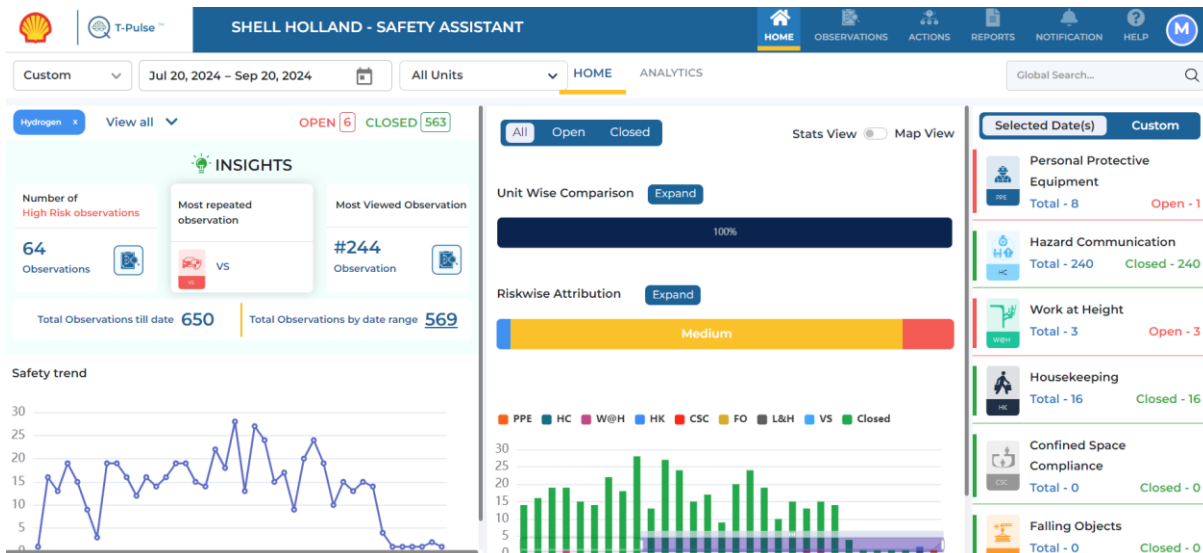
Confidential

T-Pulse detects risk events through a mix of intelligent AI based models and scenario-based rules. The basis of detection starts with identification of a scenario, which is then subjected to an array of models applicable to that scenario. The models are pre-trained on a range of scenarios with their variations providing them the cognitive ability to identify the non-compliance with associated risk in a wide range of conditions. T-PULSE can detect more than 160+ risk events of which the following have been detected across Shell sites.

Holland Hydrogen 1 - Continued Safety Journey to Goal Zero: Artificial Intelligence "T-Pulse"

Operational since 12th July 2024 – 6 camera's (50% workfront coverage).

Initial 10-15 observations/day -> ~80% reduced in 3 months via coaching engagements with workers and calibration of T-Pulse system (false positives taken out)



HH1 Safety theme's:

Visibility during transport
L&H: Taglines/ Line of fire
Housekeeping

→ Coaching & Learning



Observation#747

2024-09-17
13:04:00

2024-09-05
13:21

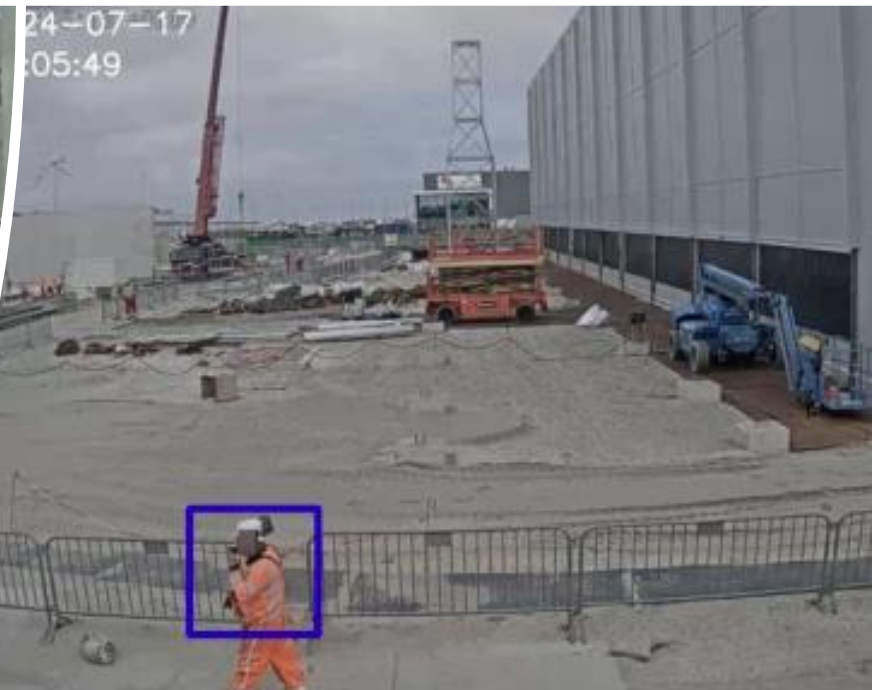
HH1 Safety theme's

Mobile phone – while walking

PPE

Material handling

→ Coaching & Learning



Data privacy – Stakeholder mgt & protective measures

- LRA – legal risk assessment
- Strong opposition construction site
- Staff council
- *Algemene Verordening Gegevensbescherming (AVG)*
 - Data retention : 60 days (max 1 year) tbc
 - Anonymize persons observed
 - Information used only @ HH1 site for worker safety purpose
 - Notification sign(s) of camera supervision @ HH1 site

Holland Hydrogen 1 - Continued Safety Journey to Goal Zero: Mental Health

The condition of the mental health of the members of a project community is of influence on the performance in project delivery and the safety performance while delivering. Construction sites on which the mental health of worker(s) is weak suffer higher incident (and suicide-) rates compared to sites where Mental Health is in a better shape.

Holland Hydrogen recognizes that,

and implemented a Mental Health program which strengthens the mental health of the entire project community:

- Starting point: Periodic (~half year) HH1 Health Surveys
- Effective follow up feedback from Mental Health Survey
 - > 50% reduction concerns due to:
 - adjustment construction organization
 - town hall sessions and project team engagements
 - bi -weekly informative HH! Status meeting
 - other.
- Training of Mental Health Ambassadors
- Awareness training on Mental Health



Holland Hydrogen 1 - Mental Health

Let's Talk - It is ok to be not ok



Holland Hydrogen 1 Project targets a safe and open environment in which each and every one feels safe to discuss concerns with peers and or with one of the mental health trained ambassadors.

A project culture that enables this is created via Mental Health Awareness training, start of day PEP talk and in depth toolbox conversations by each contractor company and the shell team.

The Mental Health Ambassadors are approached by peers. The feedback given from the ambassadors and participants is positive and the conversations support positive team spirit and team building.



