

SAFETY

Q1'24 Council Meeting

Jan 18, 2024

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Agenda

- Context
- ChatSafetyAI Updates
- Mode Overview
- Next Steps
- Discussion

This call will be recorded.

Large Language Models (LLMs) SAFETY

- Trained to predict the next word on gigantic amounts of raw text.
- Side-effect: knowledge & intelligence! Can: retrieve info, solve problems, translate, summarize, write code, draft emails, adopt a persona, converse, follow instructions, learn tasks on-the-fly...
- Examples: OpenAI's GPT-4, Google's Bard, Meta's Llama-2...
- Limitations:
 - Cost hundreds of millions to develop
 - General purpose
 - Hallucination

LLMs Customization

General-purpose “foundation” LLMs (GPT-4, Bard, Llama-2)

**VERY ACTIVE
AREA IN TECH!**



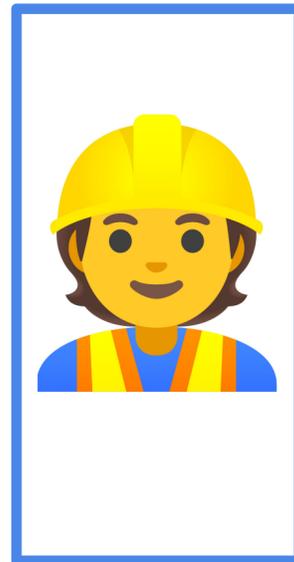
ChatSafetyAI

Custom persona and knowledge, pre-engineered routines (sets of actions, API calls, output formats), access to exterior models and data.

Industry verticals



...



ChatSafetyAI Updates

- Based on GPT-4 Turbo (11/06): 1.76 T parameters (10x GPT-3!)
- Knowledge update: HECA, energy method...
- Follow-up question suggestions
- New pre-engineered routines (“modes”):
 - Regulations: + 8 Canadian provinces
 - Safety Climate Analysis
 - Presentation
 - Prejob Brief Summarization / Paperwork

ChatSafetyAI Updates

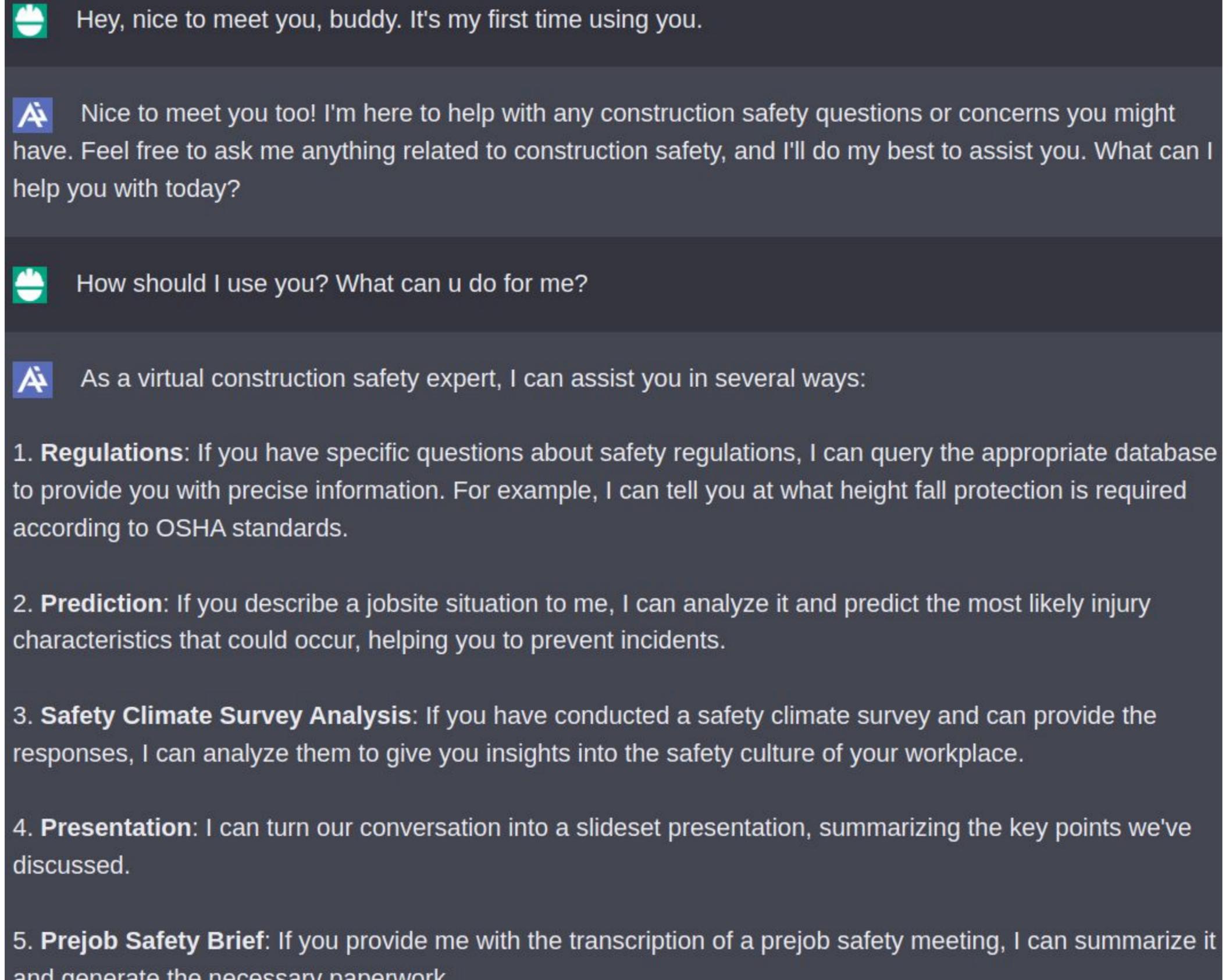
- Access to the latest predictive supermodels and risk assessment (2023 training data updates).
- Modes are now automatically detected for each query:
 - Start with one mode (e.g., prediction) and follow-up in another (e.g., regulation), in the same conversation.
 - No more mode off-topic rejections.
 - Streamlined interface similar to ChatGPT's.

Mode Overview

- Free chat
- Regulations
- Predictions
- Safety Climate
- Presentation
- Prejob Brief

ChatSafetyAI is a chatbot, not a search engine. Don't be afraid to interact in a human way !

01/18/2024



The screenshot shows a chat interface with a dark background. The user's messages are in white text on a dark grey background, and the AI's responses are in light grey text on a dark grey background. The AI's response includes a numbered list of five capabilities.

 Hey, nice to meet you, buddy. It's my first time using you.

 Nice to meet you too! I'm here to help with any construction safety questions or concerns you might have. Feel free to ask me anything related to construction safety, and I'll do my best to assist you. What can I help you with today?

 How should I use you? What can u do for me?

 As a virtual construction safety expert, I can assist you in several ways:

1. **Regulations:** If you have specific questions about safety regulations, I can query the appropriate database to provide you with precise information. For example, I can tell you at what height fall protection is required according to OSHA standards.
2. **Prediction:** If you describe a jobsite situation to me, I can analyze it and predict the most likely injury characteristics that could occur, helping you to prevent incidents.
3. **Safety Climate Survey Analysis:** If you have conducted a safety climate survey and can provide the responses, I can analyze them to give you insights into the safety culture of your workplace.
4. **Presentation:** I can turn our conversation into a slideset presentation, summarizing the key points we've discussed.
5. **Prejob Safety Brief:** If you provide me with the transcription of a prejob safety meeting, I can summarize it and generate the necessary paperwork.

Free Chat

- Any query that does not trigger a mode.
- Response based on ChatSafetyAI's own knowledge, in a free format, without calling any database, model, or predefined routine.



How to best define direct controls?



Direct controls are specific safety measures that are designed to mitigate exposure to high-energy hazards on a construction site. They are characterized by three main criteria:

1. **Targeted to the High-Energy Source:** The control must be specifically designed to address the particular high-energy hazard. For example, a set of egress stairs is a direct control for the hazard of excavation cave-ins.
2. **Effectively Mitigates Exposure to High Energy:** The control must be capable of preventing or significantly reducing the risk of injury from the high-energy source. An exclusion zone around a suspended load is an example, as it prevents workers from being struck in the event of a load drop.
3. **Works Even if Someone Makes a Mistake:** The control must function reliably and not depend on perfect human performance. A fall arrest system is a direct control because it will stop a worker from falling even if they slip or trip.

Direct controls are a key component of High-Energy Control Assessments (HECA), which focus on the presence of effective safety measures rather than the absence of incidents. █

What are some examples of high-energy hazards on construction sites?

How is the HECA score calculated?

Can you explain the difference between direct and indirect controls?

Free Chat

 Demo (3 mins): <https://vimeo.com/903770404>

Regulation Mode

- Triggered whenever asking about rules, requirements, etc.
- OSHA or canadian province: AB, BC, MB, NB, NL, NS, ON, and QC.

 What are the minimum distance approach requirements when working with energized 13.8kV in British Columbia?

   Here are extracts from potentially relevant documents I found in the database:

 **BritishColumbia safety regulation: Table 19-1A.**

- Over 750 V to 75 kV 3 10
- Over 75 kV to 250 kV 4.5 15

 **BritishColumbia safety regulation: Minimum Separation Distance to be Maintained from Energized High Voltage Electrical Equipment and Conductors (19.24.1).**

- (1) Subject to section 19.24.2, or unless otherwise permitted by this Part, if exposed electrical equipment or conductors at a workplace have a voltage within a range set out in column 1 of Table 19-1A, the following must remain at least the distance from the exposed electrical equipment and conductors that is set out in column 2 opposite that range of voltage: (a) a person working at the workplace; (b) a tool, a machine, material or equipment at the workplace.

 **Summary and final answer:**

The minimum distance approach requirements when working with energized 13.8kV in British Columbia, according to Table 19-1A of the British Columbia safety regulation, is 3 meters (10 feet). This is the minimum distance that must be maintained by a person, as well as any tool, machine, material, or equipment at the workplace.

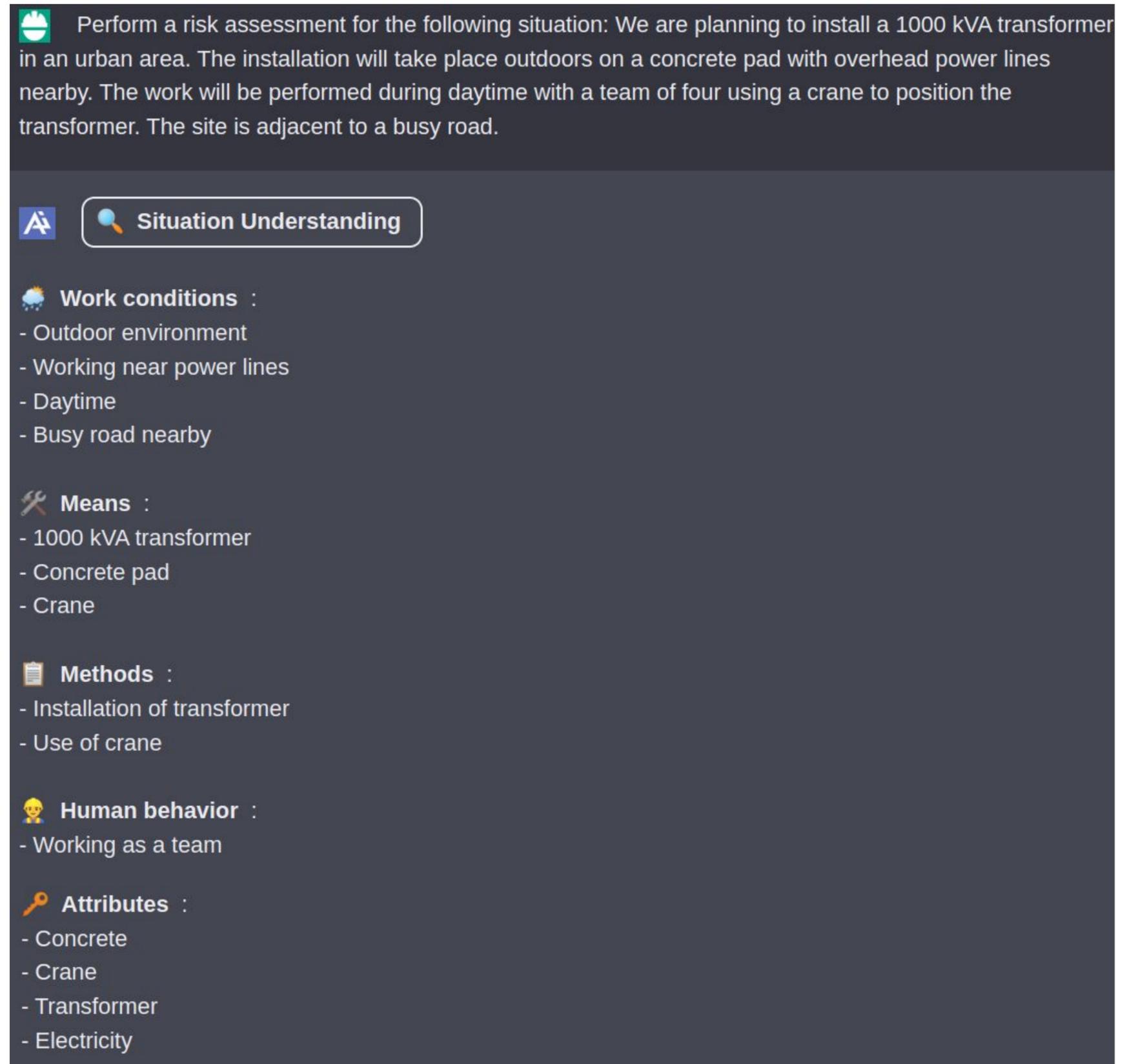
Type	Source
regulation	https://www.bclaws.gov.bc.ca/civix/document/id/crbc/crbc/296_97_multi

Regulation Mode

 Demo (1 min): <https://vimeo.com/903468058>

Prediction Mode

- Triggered whenever asking for an injury forecast or a risk assessment, given a description of a jobsite situation.
- 1. Comprehensively analyzes the situation together with our attribute detection model.



 Perform a risk assessment for the following situation: We are planning to install a 1000 kVA transformer in an urban area. The installation will take place outdoors on a concrete pad with overhead power lines nearby. The work will be performed during daytime with a team of four using a crane to position the transformer. The site is adjacent to a busy road.

  Situation Understanding

 **Work conditions :**

- Outdoor environment
- Working near power lines
- Daytime
- Busy road nearby

 **Means :**

- 1000 kVA transformer
- Concrete pad
- Crane

 **Methods :**

- Installation of transformer
- Use of crane

 **Human behavior :**

- Working as a team

 **Attributes :**

- Concrete
- Crane
- Transformer
- Electricity

Prediction Mode

- 2. Explains supermodel's forecast for each predicted outcome (accident type, body part, energy source, injury type, severity).
- 3. Suggests appropriate controls in each case.

 Model Predictions

---  **Accident Type** ---

- Electric: 81%, Exposure: 6%
- Justification: The presence of overhead power lines and the installation of a transformer (electricity attribute) increase the risk of electric accidents. The outdoor environment and busy road nearby (work conditions) could lead to exposure-related accidents.
-  Suggested controls: Insulating protective equipment, lockout/tagout procedures, and safety barriers to prevent public access.

---  **Body Part** ---

- Arm: 46%, Leg: 13%
- Justification: The use of a crane (means) and the installation activity (methods) involve the risk of arm and leg injuries due to handling heavy equipment and potential contact with electricity.
-  Suggested controls: Use of protective gear like gloves and boots, and ensuring proper lifting techniques are followed.

---  **Energy Source** ---

- Electricity: 82%, Motion: 6%
- Justification: The transformer installation (methods) directly involves electricity as a primary energy source. The crane operation (means) introduces motion as a secondary risk.
-  Suggested controls: Electrical hazard training, proper grounding of electrical equipment, and use of non-

Prediction Mode

- 4. Complements the predictions by using the energy-based hazard recognition method.

Complementary Recommendations

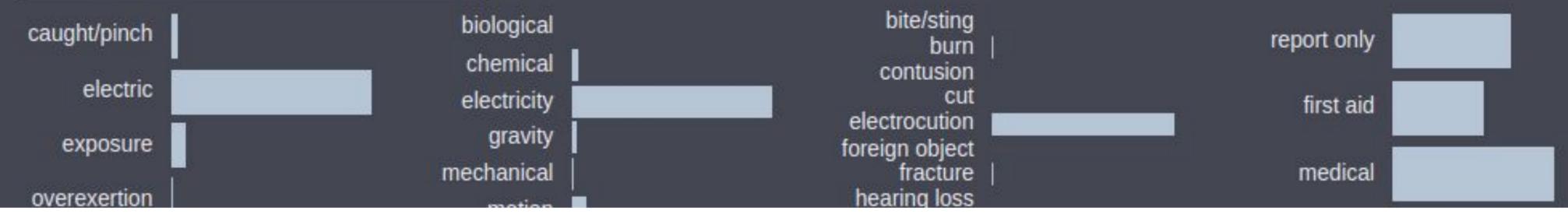
Gravity

- Justification of relevance: The use of a crane and working outdoors near a busy road introduce the risk of falls or dropped objects.
- Associated hazards and potential outcomes: Falls from height, objects falling onto workers or passersby, resulting in serious injuries or fatalities.
- Remediation strategy: Use of fall protection systems, securing tools and materials, and establishing drop zones.

Sound

- Justification of relevance: The operation of a crane and the proximity to a busy road contribute to high noise levels.
- Associated hazards and potential outcomes: Hearing loss, communication difficulties, leading to accidents due to miscommunication or distraction.
- Remediation strategy: Use of hearing protection, implementation of communication protocols, and noise barriers where feasible.

Detailed Model Forecasts

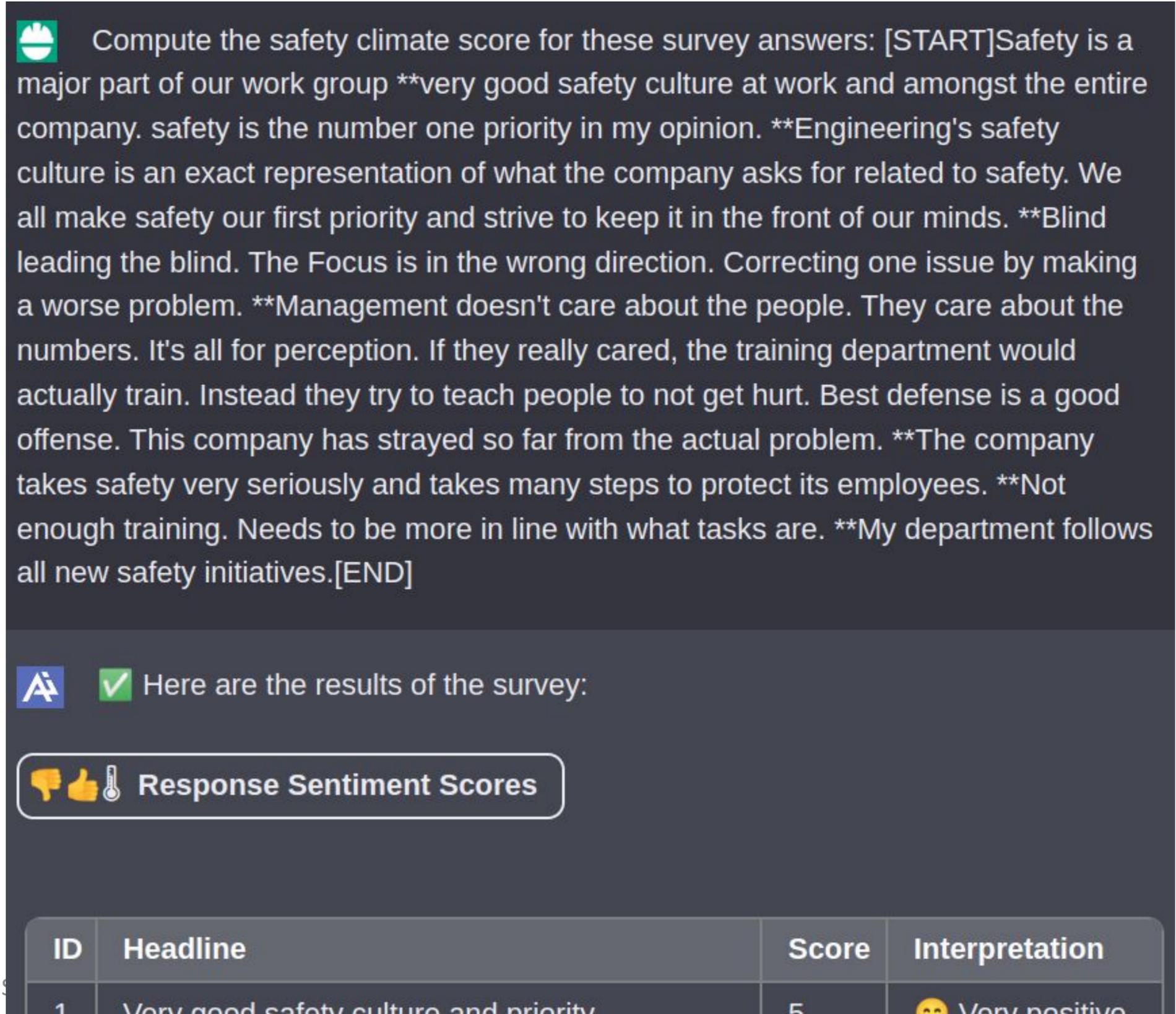


Prediction Mode

 Demo (2 mins): <https://vimeo.com/903508595>

Climate Analysis Mode

- Paste survey responses between [START] and [END].
- Separate responses with a consistent delimiter: [S], '*', '-', '##'.



 Compute the safety climate score for these survey answers: [START]Safety is a major part of our work group **very good safety culture at work and amongst the entire company. safety is the number one priority in my opinion. **Engineering's safety culture is an exact representation of what the company asks for related to safety. We all make safety our first priority and strive to keep it in the front of our minds. **Blind leading the blind. The Focus is in the wrong direction. Correcting one issue by making a worse problem. **Management doesn't care about the people. They care about the numbers. It's all for perception. If they really cared, the training department would actually train. Instead they try to teach people to not get hurt. Best defense is a good offense. This company has strayed so far from the actual problem. **The company takes safety very seriously and takes many steps to protect its employees. **Not enough training. Needs to be more in line with what tasks are. **My department follows all new safety initiatives.[END]

  Here are the results of the survey:

 **Response Sentiment Scores**

ID	Headline	Score	Interpretation
1	Very good safety culture and priority	5	 Very positive

Climate Analysis Mode

- 1. Analyzes each survey response.
- 2. Computes the overall score and interprets it.

 **Response Sentiment Scores**

ID	Headline	Score	Interpretation
1	Very good safety culture and priority	5	 Very positive
2	Safety culture aligns with company standards	5	 Very positive
3	Misguided focus, creating more problems	1	 Very negative
4	Management prioritizes numbers over people	1	 Very negative
5	Company serious about employee safety	4	 Positive
6	Insufficient training for tasks	2	 Negative
7	Department adheres to safety initiatives	4	 Positive

 **Average Sentiment Score**

The average sentiment score is calculated by summing all the scores and dividing by the number of responses. So, $(5 + 5 + 1 + 1 + 4 + 2 + 4) / 7 = 22 / 7 \approx 3.14$.

The overall perception of safety at the company is slightly above neutral. This indicates a mixed sentiment among employees, with some very positive and some very negative views.

Climate Analysis Mode

- 3. Identifies trends and issues, quoting from responses.
- 4. Makes suggestions for improvement.

Trends and Ideas for Improvement

Safety Culture Perception

- There is a clear divide in how safety culture is perceived, with some employees feeling it is a priority and others feeling neglected.

-  From response: 3. Misguided focus, creating more problems.

-  From response: 4. Management prioritizes numbers over people.

-  Improve communication about safety initiatives and ensure that all employees feel included and valued in the safety process.

Training and Preparedness

- Training appears to be an area of concern, with some employees feeling it is insufficient.

-  From response: 6. Insufficient training for tasks.

-  Develop a comprehensive training program that is task-specific and provides practical, hands-on experience.

Management's Role in Safety

- Some responses indicate a disconnect between management's actions and the company's stated safety priorities.

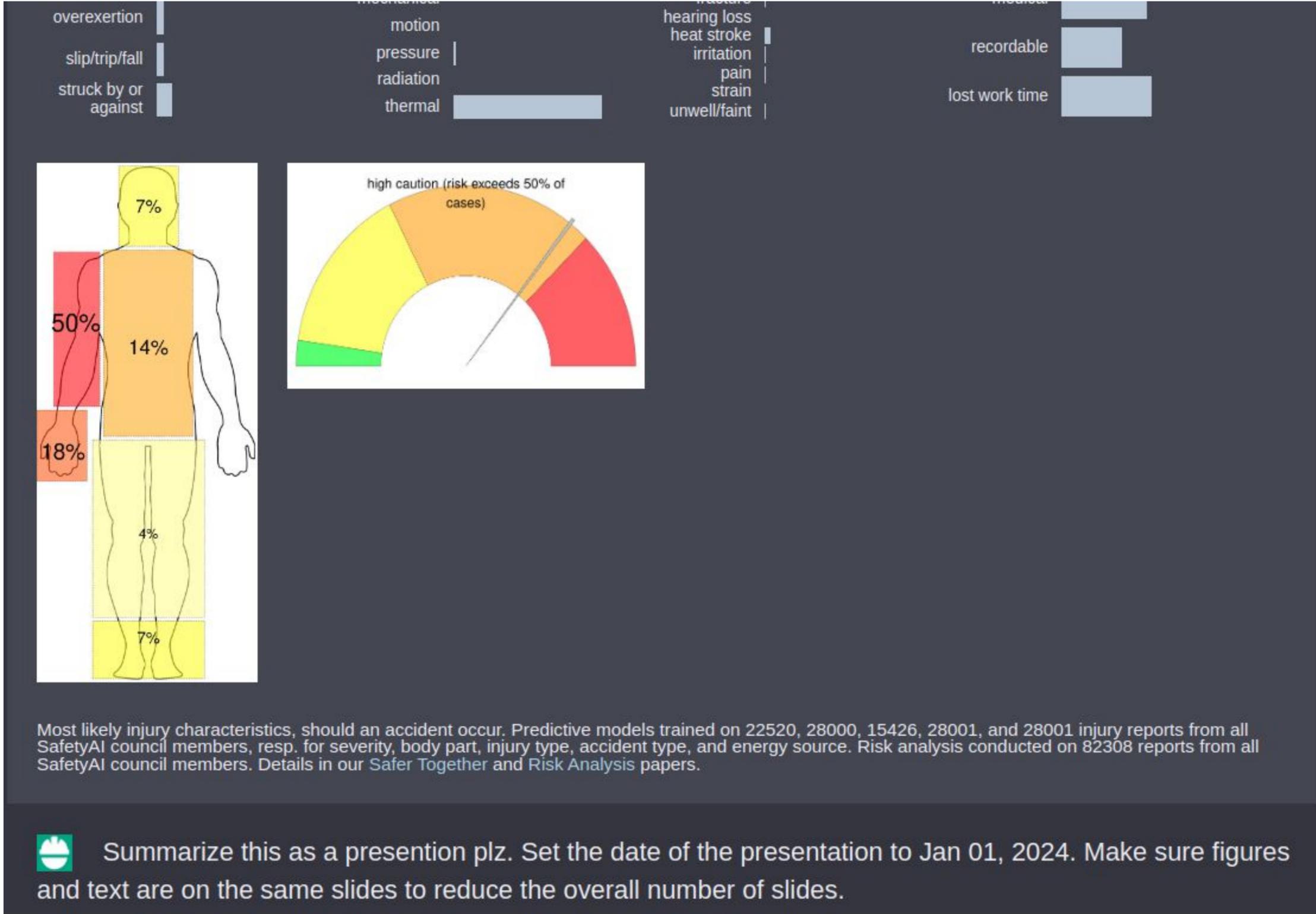
-  From response: 4. Management prioritizes numbers over people.

Climate Analysis Mode

 Demo (2 mins): <https://vimeo.com/903648818>

Presentation Mode

- Meta-mode: turns any conversation into a PPT presentation.
- Takes special requests into account: author name, date...



overexertion
slip/trip/fall
struck by or against

motion
pressure
radiation
thermal

hearing loss
heat stroke
irritation
pain
strain
unwell/faint

recordable
lost work time

7%
50%
18%
14%
4%
7%

high caution (risk exceeds 50% of cases)

Most likely injury characteristics, should an accident occur. Predictive models trained on 22520, 28000, 15426, 28001, and 28001 injury reports from all SafetyAI council members, resp. for severity, body part, injury type, accident type, and energy source. Risk analysis conducted on 82308 reports from all SafetyAI council members. Details in our Safer Together and Risk Analysis papers.

 Summarize this as a presentation plz. Set the date of the presentation to Jan 01, 2024. Make sure figures and text are on the same slides to reduce the overall number of slides.

Presentation Mode

- May take up to 45 secs, depending on the presentation's length.

- PPT file shared via Google slides: allows editing, downloading as PDF, sharing...



The presentation provides a concise overview of the safety analysis for a construction crew rerouting a natural gas pipeline, detailing work conditions, predicted safety outcomes, and complementary recommendations for energy source hazards. It emphasizes the high risk of exposure and thermal injuries, and the importance of specific controls for various energy sources.

[Link to the slides.](#)

Slide 2: Complementary Recommendations

- Complementary Recommendations
- Conclusion

Slide 3: SITUATION UNDERSTANDING

Slide 4: Rerouting a natural gas pipeline

- Rerouting a natural gas pipeline
- Holiday distractions possible

Slide 6: Accident Type & Body Part

- **Accident Type:** Exposure (77%)
- **Body Part:** Arm (50%), Hand (18%)
- High exposure risk due to outdoor pipeline work
- Arms and hands at risk during manual tasks

Accident Type	Percentage
exposure	77%
struck by or against	8%
slip, trip, or fall	1%
overexertion	1%
electrical	1%
caught in/between	1%

Slide 7: Energy Source & Injury Type

- **Energy Source:** Thermal (96%)
- **Injury Type:** Burn (88%), Heat Stroke (4%)
- High thermal risk from temperature and equipment
- Burns and heat stroke are primary injury concerns

Energy Source	Percentage
thermal	96%
radiation	1%
pressure	1%
mechanical	1%
gravity	1%
electricity	1%
chemical	1%
biological	1%

Slide 8: Severity

- **Severity:** First Aid (27%), Report Only (26%)
- Minor injuries or incidents likely
- Importance of on-site first aid and reporting

Severity	Percentage
first aid	27%
report only	26%
total work time	1%
responsible	1%
major injury	1%

Slide 10: Energy Sources & Controls

- **Gravity:** Fall protection systems
- **Motion:** Traffic control, safe equipment operation
- **Electricity:** Equipment inspection, GFCIs
- **Chemical:** Gas detection, proper ventilation
- **Sound:** Hearing protection, communication plans

Slide 11: CONCLUSION

Slide 12: Key Takeaways

- High exposure and thermal risks in pipeline work
- Arms and hands most at risk; burns and heat stroke primary concerns
- Minor injuries most common; first aid and reporting crucial
- Multiple energy sources present; specific controls needed
- Stay vigilant and prioritize safety controls

Stay safe and proactive!

Presentation Mode

assessments, I've got you covered! How can I assist you today?



I need a detailed presentation about how to conduct a HECA, including how to compute the HECA score.

- Can also prepare slides about any topic, without conversation history.

<p>High-Energy Control Assessment (HECA) Guide</p> <p>by ChatSafetyAI</p> <p>2024-01-18</p>	<p>Agenda</p> <ul style="list-style-type: none">– Introduction to HECA– Importance of HECA– HECA Process Overview– Computing the HECA Score– Conclusion	<p>INTRODUCTION TO HECA</p>	<p>What is HECA?</p> <ul style="list-style-type: none">– HECA stands for High-Energy Control Assessment.– It's a method to ensure safety by focusing on high-energy hazards.– Aims to prevent Serious Injuries and Fatalities (SIF).
<p>IMPORTANCE OF HECA</p>	<p>Why HECA Matters</p> <ul style="list-style-type: none">– Targets the most dangerous hazards: the Stuff That Kills You (STKY).– Shifts focus from injury absence to the presence of effective controls.– Enhances hazard recognition and safety performance.	<p>HECA PROCESS OVERVIEW</p>	<p>Step 1: Identify High-Energy Hazards</p> <ul style="list-style-type: none">– Recognize hazards using the Energy Wheel.– Focus on life-threatening energy sources.
<p>Step 2: Confirm Direct Controls</p> <ul style="list-style-type: none">– Check if controls are specific to the hazard.– Ensure controls effectively mitigate high energy.– Controls must work even if someone makes a mistake.	<p>Step 3: Document Findings</p> <ul style="list-style-type: none">– Record the presence or absence of direct controls.– Note any uncontrolled high-energy hazards.	<p>COMPUTING THE HECA SCORE</p>	<p>HECA Score Calculation</p> <ul style="list-style-type: none">– HECA score = (Number of controlled hazards / Total high-energy hazards) * 100– A higher score indicates better safety performance.

Presentation Mode

 Demo: already covered in prediction and climate videos!

Prejob Brief Mode

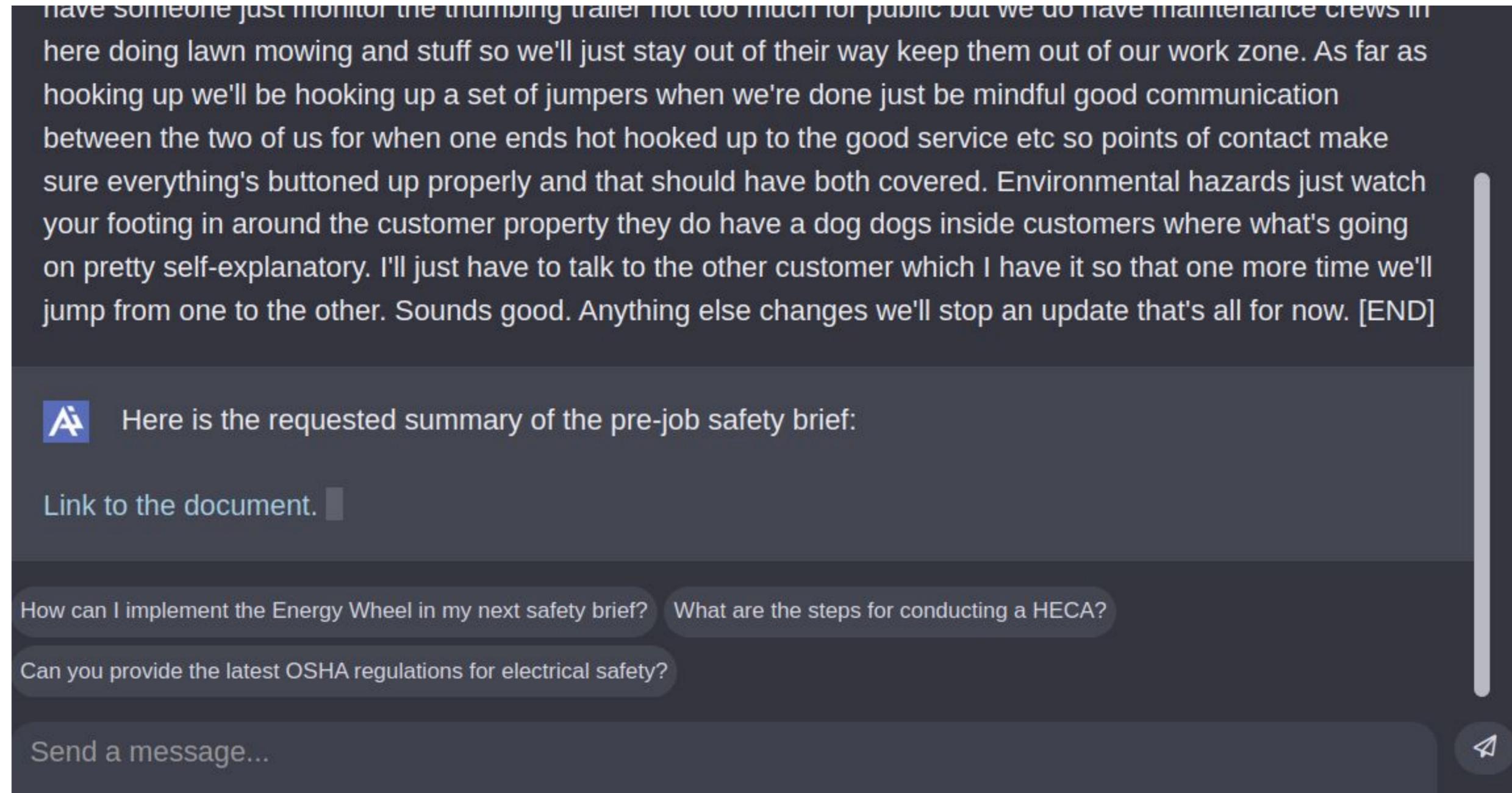
- Paste the speech-to-text transcription of the meeting between [START] and [END] delimiters.

 Hello there! I'm ChatSafetyAI, your virtual construction safety expert. I'm here to assist you with any construction safety-related concerns you may have, providing clear and concise information to help keep you and your team safe on the worksite. Let's work together to create a safer and more secure construction environment! 🚧

 Prepare paperwork for the following prejob safety brief for me please: [START] IPP for June 29th, 9am, myself and Hartman, task at hand, we're just gonna pin up to the Thunper trailer and head over to 204 Grandin Village where we have a secondary fault to locate and we're also gonna install a set of jumpers over there to correct Hartman. Okay, so we're just gonna really leave the shop, we'll pin Hartman up to the trailer, he's gonna haul the trailer over there and I'll be in the mini bucket so just pre-trip inspection on the trucks and the trailer before leaving, make sure we're pinned up properly, check the lights, etc. and then we're driving in the Fordous yard just to be mindful of other Fordous units, Fordous vehicles and contractors driving a site, drive defensively be aware your surroundings, eliminate destructive driving, being the cell form the computer, Grandin Village is always tight for parking, so we'll get you to back, be kind to them, we'll figure out a route and then probably gonna have to back down kind of like a lane type of thing, okay. So yeah, we'll stop and have a good visual and just obviously maintain constant communication with Hartman, well he's backing up so we don't put ourselves in any situation and if it's obviously too tight with park cars, etc. then we'll either revisit on a different day or come back later today, we'll know more once we get over there and we'll update for the fault locating portion at that time, it's all for no.. Update to the IPP, Marine Ironer on site at 204 Grand In Village and secondary fault to locate. We've got Hartman backed in on the driveway of Unit 204, the only

Prejob Brief Mode

- May take up to 45 secs, depending on the number of hazards.
- A link to a PDF document is shared.



Prejob Brief Mode



- PDF output:
- General info
- Keywords
- Summary
- Hazards & controls
- Transcription
- ...

• Enables rich indexed database, HECA calculation and tracking, and more...

Grandin Village Fault and Jumpers

Prejob Meeting Minutes generated by ChatSafetyAI on 01-16-2024

General Info

Brief Date: June 29th	Companies Involved: NA
Brief Time: 9am	Participants: Hartman
Brief Location: 204 Grandin Village	Tasks: Fault locating, Install jumpers, Pre-trip inspection
Job Project: IPP	
Job Site: Thumper trailer, Fordous yard	

Keywords

Secondary Fault Location, Jumpers Installation, Pre-Trip Vehicle Inspection, Defensive Driving, Electrical Safety Gear

Summary

The team is tasked with locating a secondary fault and installing a set of jumpers at 204 Grandin Village. They will conduct a pre-trip inspection on the trucks and trailer, ensuring proper connection and functioning lights. The team is advised to drive defensively, be mindful of tight parking at the site, and maintain constant communication, especially when backing into the driveway. Safety precautions include using 1000-volt rubber gloves and face shields when isolating the meter and working near live equipment. They also need to be aware of environmental hazards like maintenance crews and customer property, including a dog.

Recognized Hazards

Hazard	Controls Mentioned	Controls Missed
Trailer hitching	Pre-trip inspection, Check lights	-
Defensive driving	Be mindful of surroundings, Eliminate distractions	-
Tight parking/navigation	Good visual, Maintain communication	Spotter assistance, Parking plan
Electrical safety	Rubber gloves, Face shield, Voltage controls	Lockout/Tagout procedures, Insulated tools
Communication during operations	Maintain constant communication	Use of two-way radios
Public and crew safety	Monitor surroundings, Keep work zone clear	Signage, Barricades
Environmental hazards	Watch footing	Proper footwear, Clearing obstructions
Dog on property	Be aware of dog	Inform customer, Secure dog

Missed Hazards

Hazard	Suggested Controls
Insufficient cable length	Cable inspection, Contingency planning
Live front pet access	Barrier installation, Equipment inspection
Thumper operation	Operation monitoring, Safety zone establishment
Jumpers installation	Verification of de-energization, Insulated tools
Customer interaction	Customer briefing, Access coordination

Transcription

[START] IPP for June 29th, 9am, myself and Hartman, task at hand, we're just gonna pin up to the Thumper trailer and head over to 204 Grandin Village where we have a secondary fault to locate and we're also gonna install a set of jumpers over there to correct Hartman. Okay, so we're just gonna really leave the shop, we'll pin Hartman up to the trailer, he's gonna haul the trailer over there and I'll be in the mini bucket so just pre-trip inspection on the trucks and the trailer before leaving, make sure we're pinned up properly, check the lights, etc. and then we're driving in the Fordous yard just to be mindful of other Fordous units, Fordous vehicles and contractors driving a site, drive defensively be aware your surroundings, eliminate destructive driving, being the cell form the computer, Grandin Village is always tight for parking, so we'll get you to back, be kind to them, we'll figure out a route and then probably gonna have to back down kind of like a lane type of thing, okay. So yeah, we'll stop and have a good visual and just obviously maintain constant communication with Hartman, well he's backing up so we don't put ourselves in any situation and if it's obviously too tight with park cars, etc. then we'll either revisit on a different day or come back later today, we'll know more once we get over there and we'll update for the fault locating portion at that time, it's all for no.. Update to the IPP, Marine Ironer on site at 204 Grand In Village and secondary fault to locate. We've got Hartman backed in on the driveway of Unit 204, the only way we have to access is through the side of the house into the back yard where the bed's not too far behind the meter so hopefully we got enough cable. That'll be our first matter to address I guess but for lunch cool hazards we've got a 12240 secondary service so just thousand-volt rubber gloves and face shield when isolating the meter and when also working inside the is it a live front pet in the back so just be mindful of that when taking the cover off some of them have the fiberglass shroud some of them don't so just be mindful. This one has that has a fiberglass shroud but we're still gonna have to go out with our voltage controls and isolate the the lake that's good. And then once we've got the cables out and if they're long enough then we'll proceed the thumb so we'll just get communication between Hartman and myself once the thumb is on we'll have someone just monitor the thumbing trailer not too much for public but we do have maintenance crews in here doing lawn mowing and stuff so we'll just stay out of their way keep them out of our work zone. As far as hooking up we'll be hooking up a set of jumpers when we're done just be mindful good communication between the two of us for when one ends hot hooked up to the good service etc so points of contact make sure everything's buttoned up properly and that should have both covered. Environmental hazards just watch your footing in around the customer property they do have a dog dogs inside customers where what's going on pretty self-explanatory. I'll just have to talk to the other customer which I have it so that one more time we'll jump from one to the other. Sounds good. Anything else changes we'll stop an update that's all for now. [END]

Prejob Brief Mode

 Demo (2 mins): <https://vimeo.com/903740087>

HE Hazard Recognition Mode SAFETY

- Next mode on our plate!
- Combine SafetyAI's vision models with GPT-4's new vision capabilities (released 11/06).
- GPT-4 performs very well off-the-shelf!



Raw output displays a remarkable understanding:

“The image shows a construction worker engaged in the process of shotcreting, which is a method of applying concrete or mortar through a hose and pneumatically projecting it at high velocity onto a surface. The worker is wearing a hard hat, safety goggles, a high-visibility vest, and work gloves for protection. He is holding the nozzle of the hose, directing the flow of the concrete onto a vertical surface that is reinforced with rebar (reinforcing steel bars). The background includes a chain-link fence and excavated earth, indicating that this is likely a construction or repair site.”

HE Hazard Recognition Mode SAFETY

With custom prompts and knowledge:

(raw untouched output from yesterday's tests)

Short Hazard Name	Associated Energy Source	High-Energy? (yes/no)	Direct Control? (yes/no)	Brief Justification
Concrete Spraying	Mechanical, Pressure	Yes	No	The worker is using a high-pressure hose without visible shielding or barriers.
Trip Hazard	Gravity	Yes	No	The hose on the ground could cause tripping, leading to a fall with no mitigation visible.
Dust Inhalation	Chemical	No	No	The worker is exposed to concrete dust without a visible respirator.

HECA Score Calculation:

- Total High-Energy Hazards: 2
- Controlled High-Energy Hazards: 0
- HECA Score = $(0 / 2) * 100 = 0\%$

The HECA score indicates that there are no direct controls in place for the high-energy hazards identified.



Automatic HECA from photos !

HE Hazard Recognition Mode SAFETY

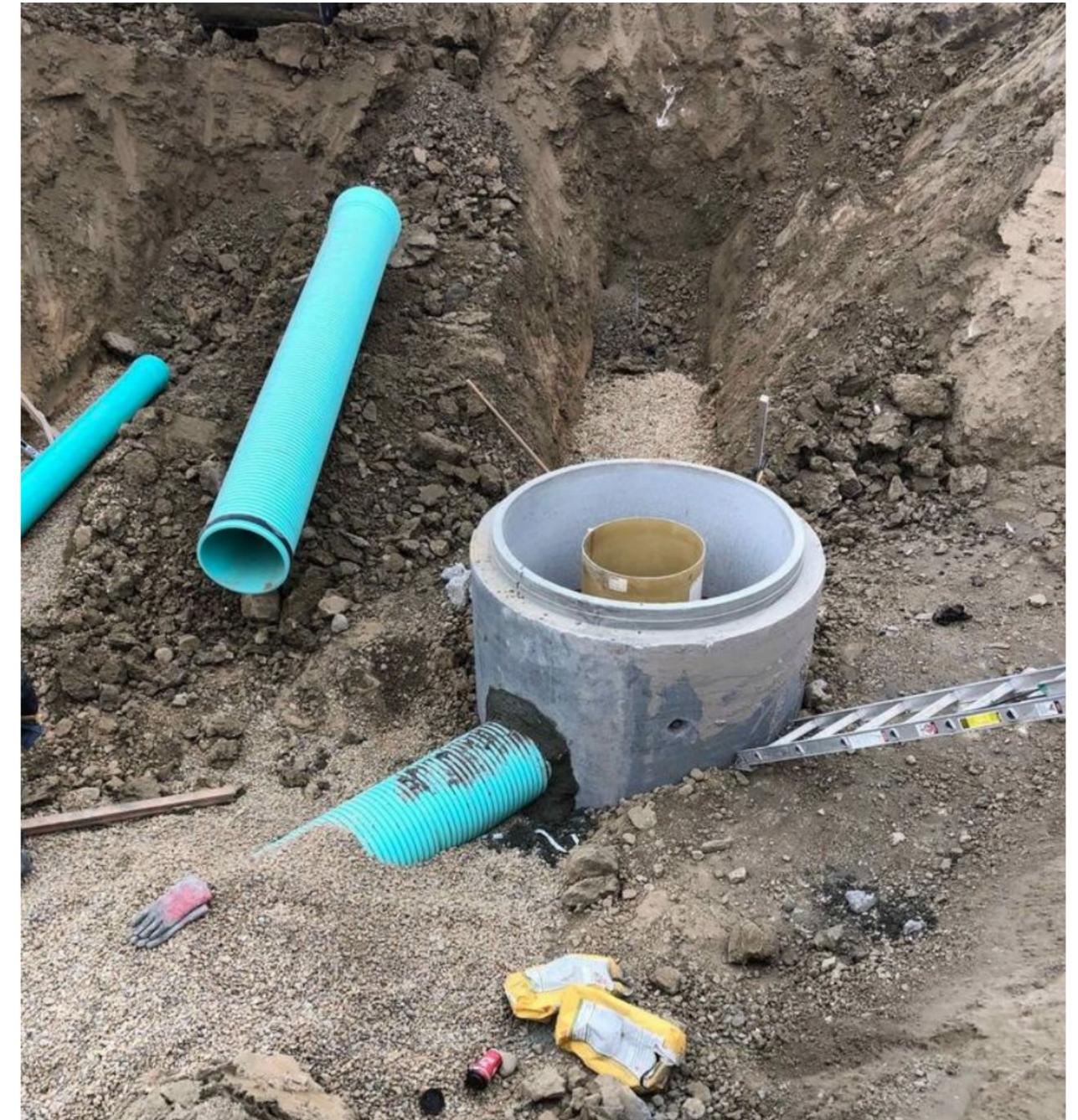
With custom prompts and knowledge:

(raw untouched output from yesterday's tests)

Short Hazard Name	Associated Energy Source	High-Energy? (yes/no)	Direct Control? (yes/no)	Brief Justification
Excavation Fall	Gravity	Yes	No	Risk of falling into the excavation due to lack of barriers or covers.
Trench Collapse	Gravity	Yes	No	Walls of the excavation could collapse due to lack of shoring or trench boxes.
Trip Hazard	Gravity	Yes	No	Loose materials and uneven ground around the excavation present trip hazards.
Struck by Object	Gravity	Yes	No	Materials or tools on the edge of the excavation could fall and strike someone.

HECA Score Calculation: Number of controlled high-energy hazards = 0 Total number of high-energy hazards = 4 HECA Score = $(0 / 4) * 100 = 0\%$

The HECA score indicates that there are no direct controls in place for the high-energy hazards identified in the photo.



HE Hazard Recognition Mode

With custom prompts and knowledge:

(raw untouched output from yesterday's tests)

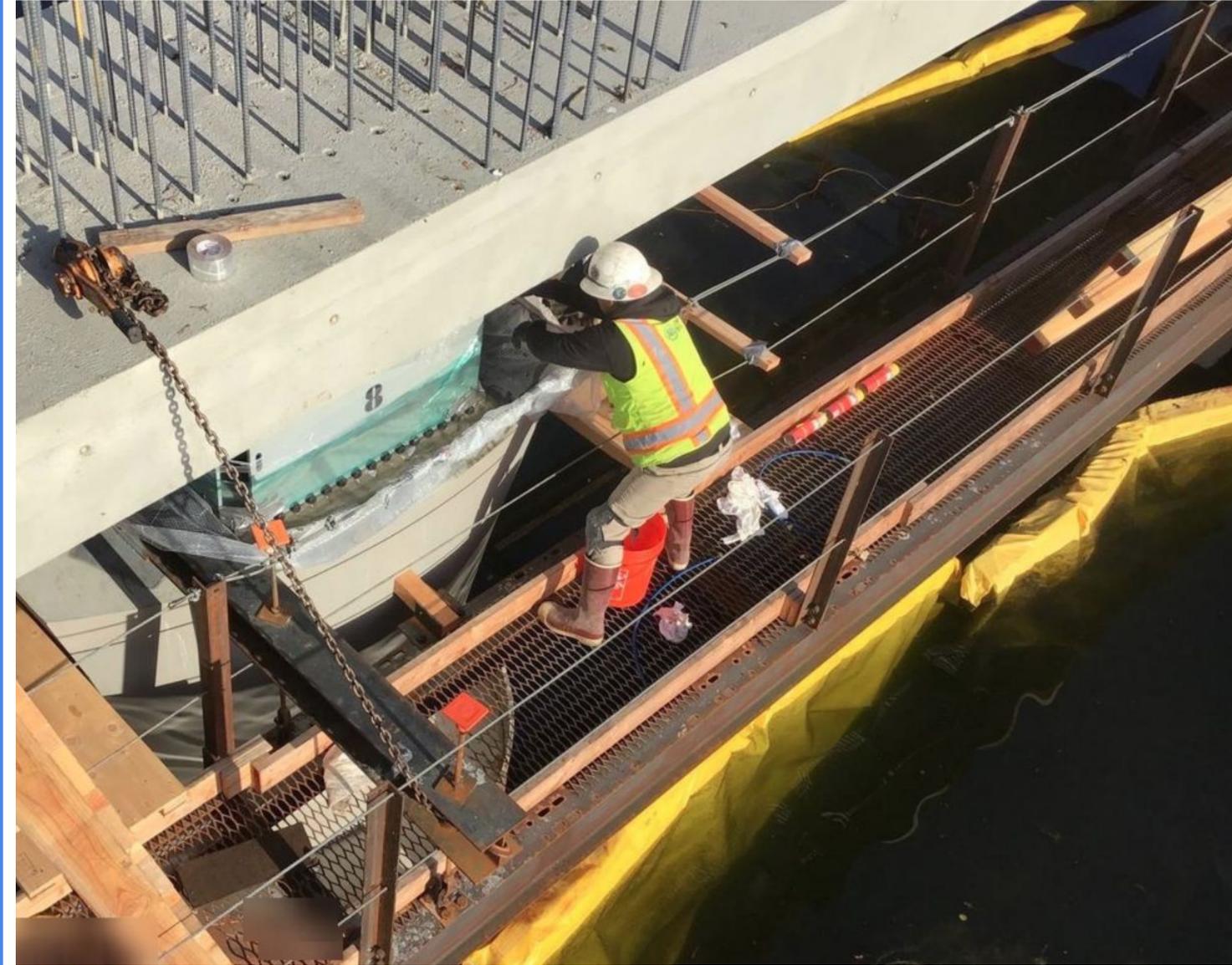
To perform the HECA score assessment, I will first identify the hazards present in the photo based on the energy-based hazard recognition method. Then, I will determine which of these hazards are associated with high energy and whether direct controls are in place.

Short Hazard Name	Associated Energy Source	High-Energy (Yes/No)	Direct Control (Yes/No)	Brief Justification
Fall from height	Gravity	Yes	Yes	Worker is wearing a harness which is a fall arrest system.
Drowning	Gravity	Yes	No	There is water below, but no visible life vests or flotation devices.
Struck by object	Gravity	Yes	Yes	There are guardrails and toe boards in place to prevent objects from falling.
Tripping	Motion	No	-	Tripping is a low-energy hazard.

HECA Score Calculation:

- Total high-energy hazards: 3
- Controlled high-energy hazards: 2
- HECA Score = (Controlled high-energy hazards / Total high-energy hazards) * 100
= (2 / 3) * 100 = 66.67%

The HECA score for the observed scene is 66.67%.



Some interpretation errors, but very promising !

HE Hazard Recognition Mode

With custom prompts and knowledge:

(raw untouched output from yesterday's tests)

Step 1: Identify all hazards present in the photo using the energy-based hazard recognition method.

Step 2: Retain only the hazards associated with high energy.

Step 3: Determine whether each high-energy hazard is associated with a direct control.

Based on the image provided, here is the analysis:

Short Hazard Name	Associated Energy Source	High-Energy (yes/no)	Direct Control (yes/no)	Brief Justification
Fall from height	Gravity	Yes	Yes	Worker is in a lift with guardrails, which is a direct control against falls.
Mechanical injury	Mechanical	Yes	No	The lift has mechanical parts that could cause injury, but no specific direct control is visible.
Crushing	Mechanical	Yes	No	Potential for crushing between lift and structure, no direct control visible.

HECA Score Calculation: Number of controlled high-energy hazards: 1 (Fall from height)
Total number of high-energy hazards: 3

HECA Score = (Number of controlled high-energy hazards / Total number of high-energy hazards) * 100
HECA Score = (1 / 3) * 100 = 33.33%



Very promising !

Next Steps

- Continue development of vision mode.
- Private ChatSafetyAI reserved for council members:
 - Unlimited budget and faster speed
 - Conversation history
 - Access to custom company models and data
- Programmatic communication for AI injection into your own ecosystems and integration with your meeting and photo databases (smart indexing & search, analysis, metric tracking)...

Thank you!

<https://safetyapp.shinyapps.io/chatsafetyai/>

 I like you, ChatSafetyAI

 Thank you! I'm here to assist you with any construction safety questions or concerns you may have. Feel free to ask me anything related to construction safety.

 Thanks for being there for me, my friend. Take care.

 You're welcome! If you ever have any construction safety questions in the future, don't hesitate to reach out. Take care and stay safe!

 You bet. See u buddy

 Goodbye! Remember, I'm here whenever you need safety guidance. See you next time!