



HEAT STRESS PREVENTION AT MEGA CONSTRUCTION WORK SITE IN DESERT AREA OF INDIA



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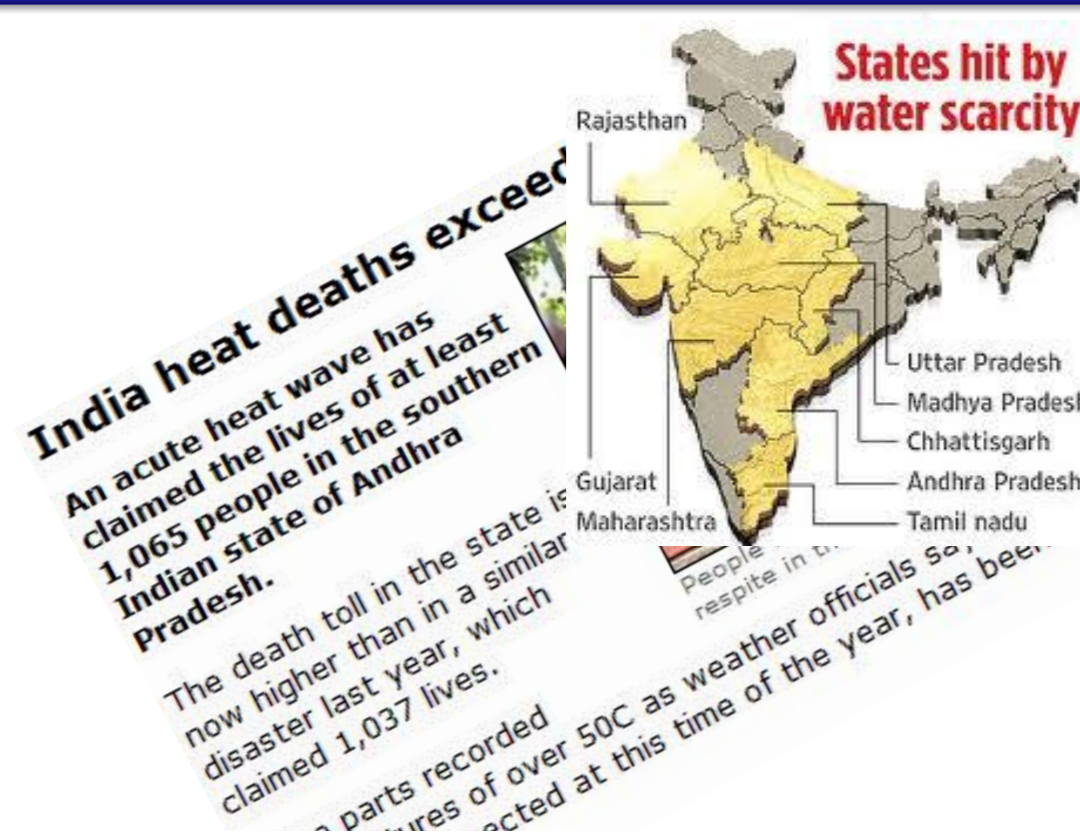
Introduction



Rajasthan, situated in the western part of India is known for the largest desert in Indian subcontinent. A largest discovery of oil in Indian soil was made in 2006.



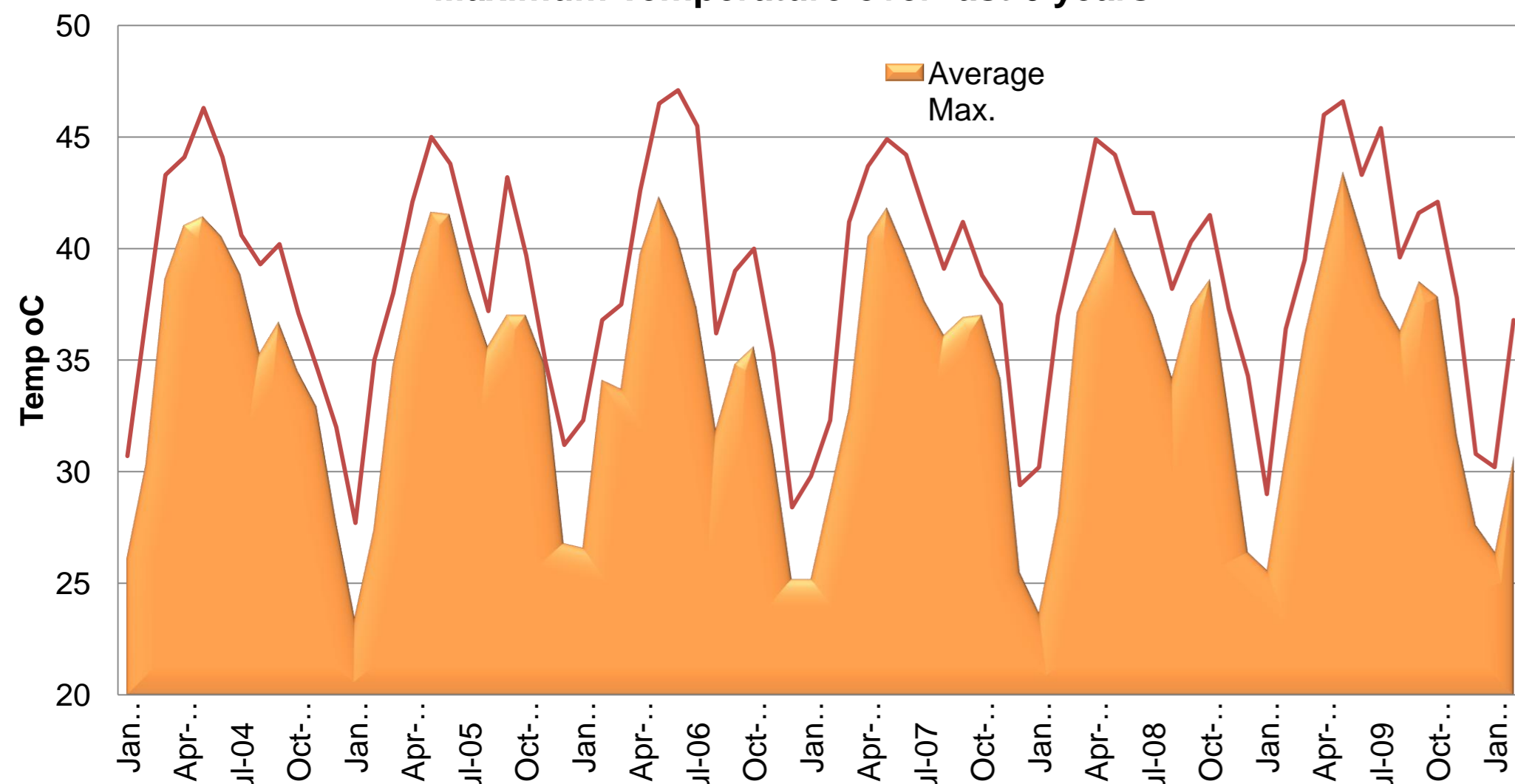
Problem Statement



The death toll is expected to rise with experts forecasting temperatures approaching 50°C (122°F) in coming weeks. More than 100 people are reported to have died in the state of Gujarat where the mercury topped at 48.5°C last week. At least 90 died in Maharashtra, 35 in Rajasthan and 24 in Bihar.

- 2009-10 The peak of construction activities
- More than 18000 workforce were involved in construction and commissioning activities
- The temperature in this area usually reaches up to 48°C (120°F) in summer,
- Being a mega construction project, all personnel were pressed against tight project execution schedule.

Maximum Temperature over last 6 years



Major Activities

- Work at Height
- Excavation
- Manual Material Handling
- Civil / Earthen work
- Travel



Interventions

- Management commitment



- Heat stress prevention Guidelines

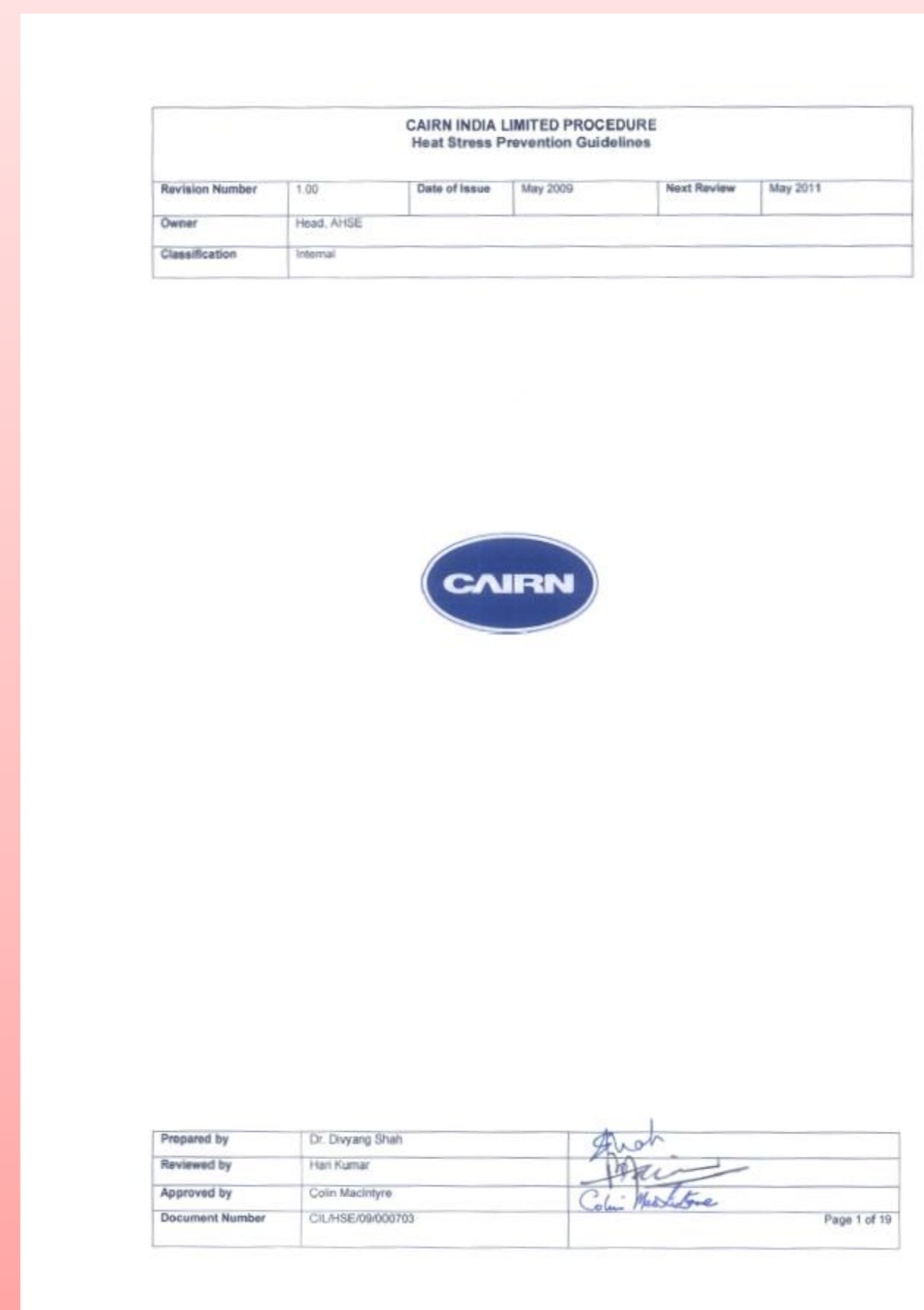


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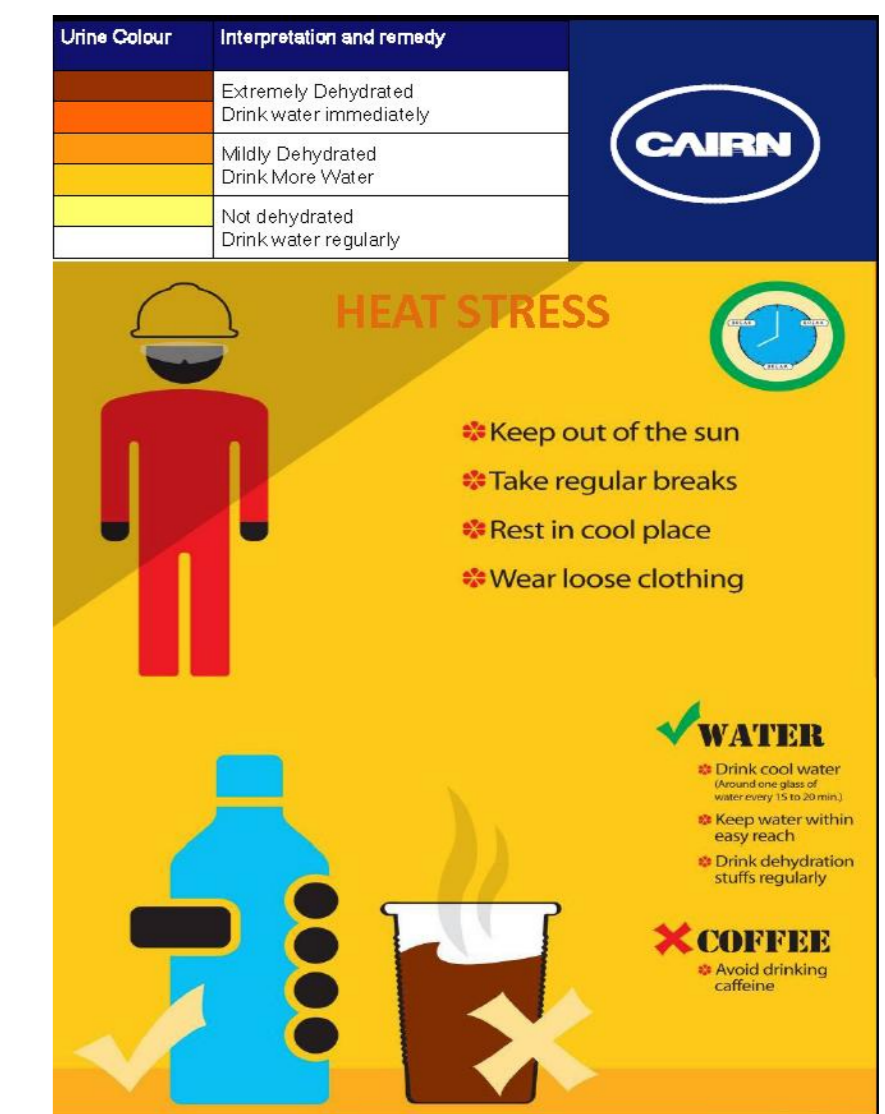
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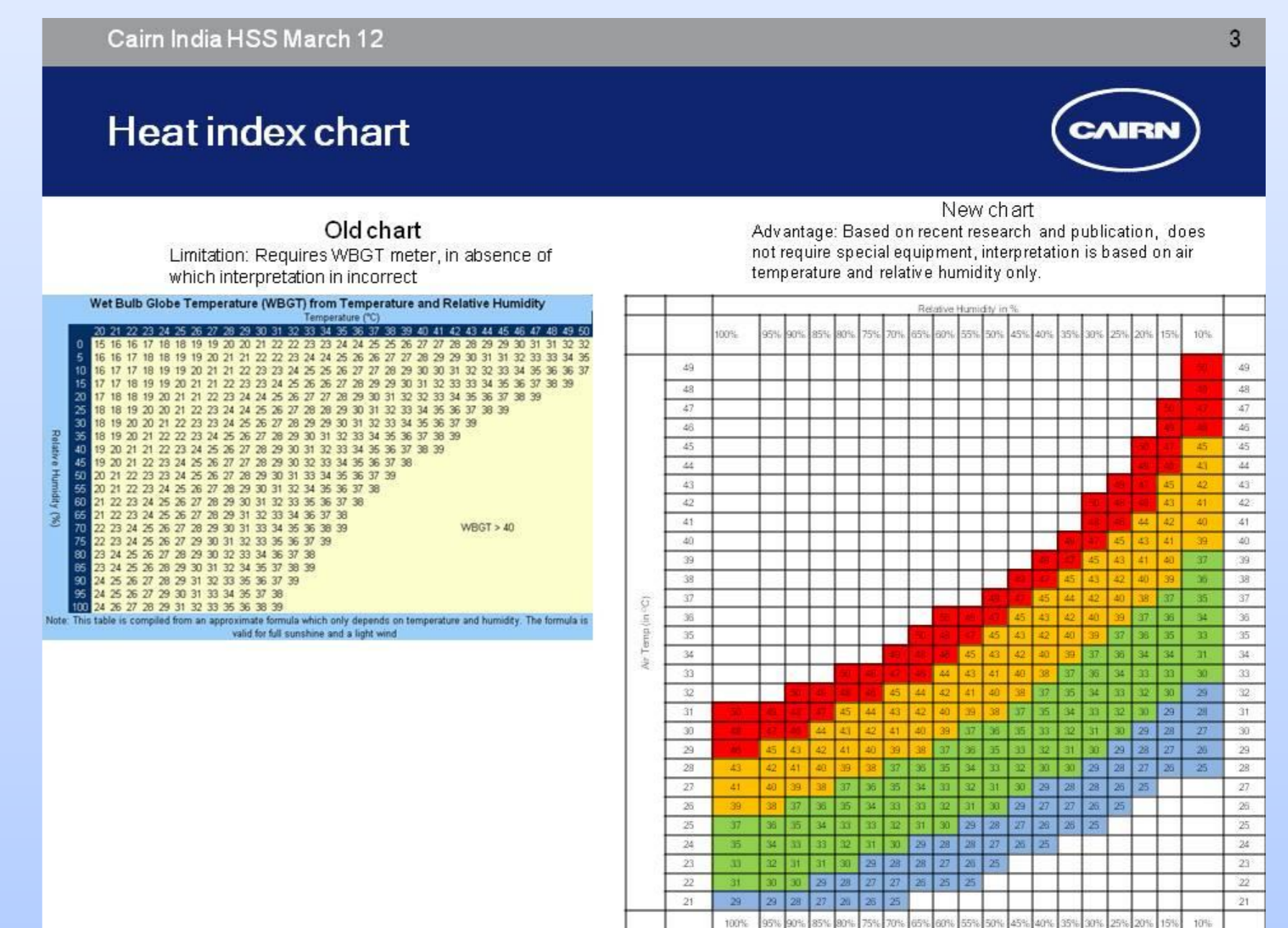
Urine Colour	Interpretation and remedy
Dark brown	Extremely Dehydrated Drink water immediately
Orange	Mildly Dehydrated Drink More Water
Light yellow	Not dehydrated Drink water regularly



- Administrative control

- >700 earthen pots at worksite
- Rest shelters
- All workforce provided with insulated water bottle before entering the site
- Hourly monitoring and broadcasting of heat index
- Flag signs at work locations

Danger Category/Flag colour	WBGT Index (based on temp. and humidity)	Humidex (Based on temp. and humidity)	Heat related Health Risk	Water Requirement (1 cup = 1/2 litre)	Work Rest Period (Minutes)	Controls
IV. Extreme Danger	>40	>46	Heat stroke or sunstroke imminent	1 cup every 10 minutes	-	All work stopped
III. Danger	34-39	38-45	Sunstroke, Heat Exhaustion or Heat cramps likely. Heat Stroke possible with prolonged exposure and physical activity.	1 cup every 15 minutes	30:10	Work under shade, Elevated work stopped
II. Extreme Caution	28-33	30-37	Heat stroke, Heat Exhaustion or Heat cramps possible with prolonged exposure and physical activity.	1 cup every 20 minutes	45:15	No working alone, Self-pace
I. Caution	22-27	Up to 29	Fatigue possible with prolonged exposure and physical activity.	1 cup every 30 minutes	Continuous work	Continuous visual monitoring of workers in direct sun and heavy work



Success: Zero Incident of Heat Related Illness throughout the Project Period

