WORKPLACE HEALTH RISK ASSESSMENT
OF THERMAPRIME DRILLING CORP.
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Occupational Health Officer
DOLE Accredited OSH Practitioner
• Share the process conducted by ThermaPrime in dealing with health hazards @ the workplace.
• 1976

– Energy Development Corporation was created under the umbrella organization of the Philippine National Oil Company with the mandate to explore, delineate and develop indigenous energy resources in the country (These include geothermal, hydro, biomass, solar and wind energy).
• In 2007,
  — the Lopez Group-led First Gen Corporation acquired a majority stake of PNOC-EDC.
• EDC’s drilling group was spun-off in 2011 to form ThermaPrime Well Services, Inc. (TPWSI).

• In 2015
  – TPWSI was renamed to its present-day corporate name of ThermaPrime Drilling Corporation (ThermaPrime).
INTRODUCTION

**ThermaPrime** was established in experience, excellence, and expertise.
• Thermaprime is proud of its combined average 20 years experience of highly skilled drillers and experienced engineers in Geothermal
Work Environment

• Operating and maintaining a rig is a highly hazardous activity and these includes mobilization, drilling and servicing a well, and demobilization of a rig 24/7,
• Crew members work on 8 or 12 hour shifts and are subject to various hazards at various times and in varying intensities.
• In order protect the health and minimize the effect of this hazards to Rig Crew Members, we developed **ThermaPrime** Occupational Health Management System.
7 Elements of Occupational Health Management System

- Health Risk Assessment
- Health Reporting
- Health and Wellness
- Fitness for Duty
- Food Safety
- Occupational Health for Contractors
- Medical Emergency Response
ThermaPrime Management System
1961.03: Occupational Health Services

- Functions: Without prejudice to the responsibility of each employer for the health, and safety of the workers in his employment, and with due regard to the necessity for the workers to participate in matters of occupational health and safety, occupational health services shall have the following functions as are adequate and appropriate to the occupational risks of the establishment/undertaking.

“1. Identification and assessment of the risks from health hazards in the workplace;”
Workplace Health Risk Assessment

– Aims to continuously improve Occupational Health (OH) performance through the effective management of health risk and activities in the workplace

– It contains a set of plans, actions, and procedure that assist an organization to systematically manage health risk associated with the business
Methodology

- Assessment teams were formed and composed of Occupational Safety and Health personnel and subject matter experts working in and familiar with the business processes and activities.
• The entire ThermaPrime drilling operations and support services were broken down into assessment units.

• Job types were identified for each assessment unit and classified according to similarity in exposure profiles.

4. RESULTS

4.1 ASSESSMENT UNITS

The following assessment units were identified:

1. Living and working in ThermaPrime
2. ThermaPrime Basecamp, housing, village
3. ThermaPrime Office Van
4. Rig Clinic
5. ThermaPrime Drivers
6. ThermaPrime Warehouse
7. ThermaPrime Pad Maintenance
8. Rig Up
9. Rig Down
10. Circulating System
11. Hoisting System
12. Cementing Unit
13. Power System
14. Air Drilling
15. Tubular Yard
Identify/Assess Health Hazards

- Harmful effects (Acute or Chronic) of each hazard (Physical, Chemical, Biological, and Ergonomics) were established and a Health Hazard inventory was developed.

- These hazards were evaluated per task, job type, and work area.

4.2 HAZARD RATING (HIGH, MEDIUM AND LOW)

<table>
<thead>
<tr>
<th>Physical Hazards</th>
<th>HIGH RISK</th>
<th>Estimated RAM Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>n/a</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Physical Hazards</th>
<th>MEDIUM RISK</th>
<th>Estimated RAM Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excess Illumination</td>
<td>3C</td>
<td></td>
</tr>
<tr>
<td>Heat</td>
<td>2D</td>
<td></td>
</tr>
<tr>
<td>Ultra-violet Radiation</td>
<td>2E</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Physical Hazards</th>
<th>LOW RISK</th>
<th>Estimated RAM Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise</td>
<td>3B</td>
<td></td>
</tr>
<tr>
<td>Poor Illumination</td>
<td>2C</td>
<td></td>
</tr>
<tr>
<td>Vibration</td>
<td>3B</td>
<td></td>
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Control measures were evaluated as to its effectiveness in addressing the exposure to the risk to “as low as reasonably practicable” (ALARP).
• A list of remedial action plans or measures to address the identified risks, as well as their prioritization, are included.

• These control measures were prioritized to assist management which measure to undertake first, identify the person responsible to address the gap, and the completion target date of the measure and correspondingly documented.

• Recommendations on how to improve on these measures were also included.
WORKPLACE HEALTH RISK ASSESSMENT REPORT

TDC Health Risk Assessment Team

12/8/2015

This document offers line managers and health and safety personnel of ThermaPrime a structured approach in identifying and evaluating health hazards in the various locations we operate. This process is called Health Risk Assessment. This document divides the worksite into workable assessment units. For each assessment unit, health hazards are identified, evaluated based on existing controls, and remedial action plans are identified to reduce risk to health to as low as reasonably practicable (ALARP)

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The Risk Assessment Matrix (RAM) is a tool that combines the severity of ill-health the probability of the exposure or the outcome happening. This will also be influenced by the number of people exposed; the greater the population exposed the greater the likelihood that the ill-health effect will occur and hence the risk. The RAM table is illustrated below:

4. RESULTS

4.1 ASSESSMENT UNITS

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1. Living and working in ThermoPrime
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<td>None</td>
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</tr>
<tr>
<td><strong>MEDIUM RISK</strong></td>
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<td>2E</td>
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<td><strong>LOW RISK</strong></td>
<td><strong>Estimated RAM Rating</strong></td>
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<td>Noise</td>
<td>3B</td>
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<td>2C</td>
</tr>
<tr>
<td>Vibration</td>
<td>3B</td>
</tr>
<tr>
<td><strong>Chemical Hazard</strong></td>
<td><strong>Estimated RAM Rating</strong></td>
</tr>
<tr>
<td>Caustic Soda</td>
<td>4C</td>
</tr>
<tr>
<td>Hydrogen Sulfide (H2S)</td>
<td>5C</td>
</tr>
<tr>
<td>Lacquer Thinner (Toluene, methanol, petroleum, acetone, ethanol et al.)</td>
<td>6C</td>
</tr>
</tbody>
</table>

Step 5: Decide on Remedial Action

Decide on the remedial action resulting from step 4 of the WHRA including priorities, responsible persons and target dates. Take into account the “hierarchy of controls” and the concept of “as low as reasonably practicable”. In addition, the following were also determined:

- Periodic exposure measurements /routine exposure monitoring
- Health surveillance if needed
- Routine maintenance of control
- Provision of information, instruction, and training to ensure staffs are familiar with the health hazards, potential risks and measures of controls relevant to their tasks.

Step 6: Review of Health Risk Assessment to ensure ongoing controls

- Follow-up on action items
- Periodic assessment review to ensure that the WHRA remain valid, or if no sufficient trigger for review, every 5 years
THERMAPRIME PERFORMANCE

IADC Recordable Incidence Rate
(as of Q1 2017)

Web Resource - http://www.iadc.org/isp/
HSE Achievement

Contractor Health, Environment and Safety Management (CHESM) Certificate
Philippine Geothermal Production Company, Inc.

Notes:
1. Certificate is valid for 2 years unless a new certificate is released.
2. Should there be any discrepancy between contractor's copy and PGPC database then, PGPC database shall prevail.
3. Contractors with no existing contract with PGPC will only be re-assessed six months after the last assessment.
4. This certificate is a prerequisite for the Procurement of Services within PGPC.

Distribution:
- Contractor
- SCM and Contract Owner
- CHESM Process Advisor/Asset Champion
We, at ThermaPrime, commit to provide excellent service to our customers by performing drilling services in accordance with internationally-recognized HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT STANDARDS.

Consistent with our aspiration to become an enabling partner to global geothermal and conventional energy developers, we will pursue the goal of no harm to people, protect the environment, comply with the laws and regulations of the communities we work in, regard health, safety and environmental matters as business priorities and promote a sustainable culture in which our people learn, participate and improve.