A STUDY OF MAN-MACHINE / MACHINE-MACHINE INTERFACE

PROACTIVE STRATEGY OF ACCIDENT ELIMINATION

AT QS036 – P02A

EARTH WORK

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Goals and Objectives

- The goal of the study is to evaluate and reassess the current practice of employee working together with equipment and equipment interacting with another equipment with the purpose of eliminating unsafe conditions and acts which has potential to cause incident on site.
- The objective of the study is to eliminate 100% conditions and acts which has potential to cause incident. Zero tolerance for unsafe practices and conditions in man-machine and machine-machine interface is the target.

Methodology

- Primary source of data:

  Observations (Actual practices - videoing, photographing,
  Interview with employees - flagman, operators etc.

- Secondary source of data:

  Review of MS/RA

  Review of LifeGuard Observations

  Review of relevant alerts from other projects

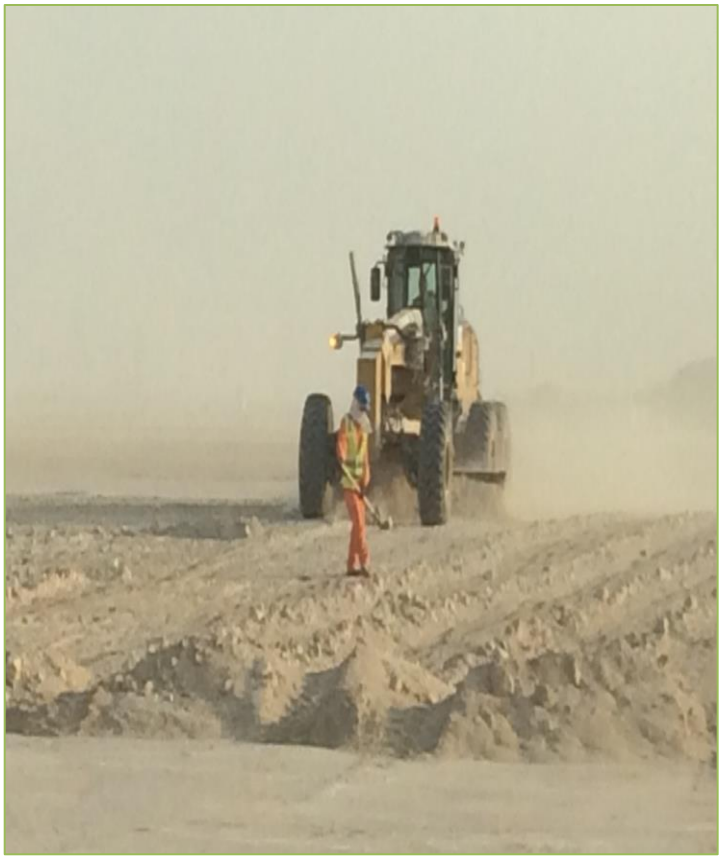
  Review of QCS 2010 & 2014

Guidance

- QCS 2010 & 2014
- MS/RA
- PMDS
- GEC HSE Plan
- Contractor HSE Plan

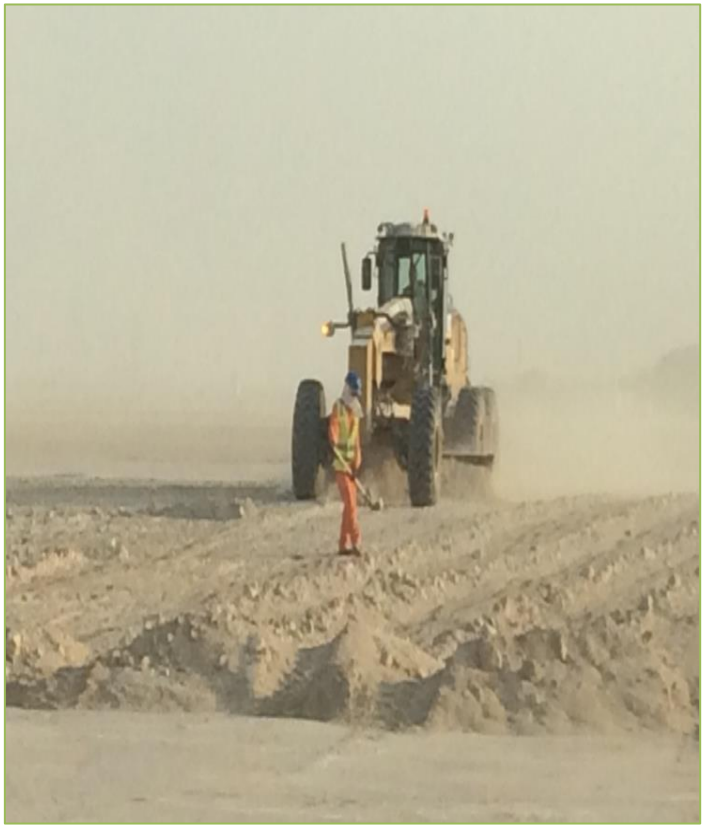
Findings and Recommendations

MAN – MACHINE INTERFACE



ACTUAL PRACTICE	RECOMMENDATIONS
Workers were doing manual filling of the surface while the grader is in operation towards his direction. No supervisor and banksman to caution the other worker of the approaching grader.	A full time competent supervisor has to be deployed to look after this kind of activity as it was observed that workers are inattentive of the incoming equipment and the operator as well continues to drive towards the worker's direction.

MAN – MACHINE INTERFACE



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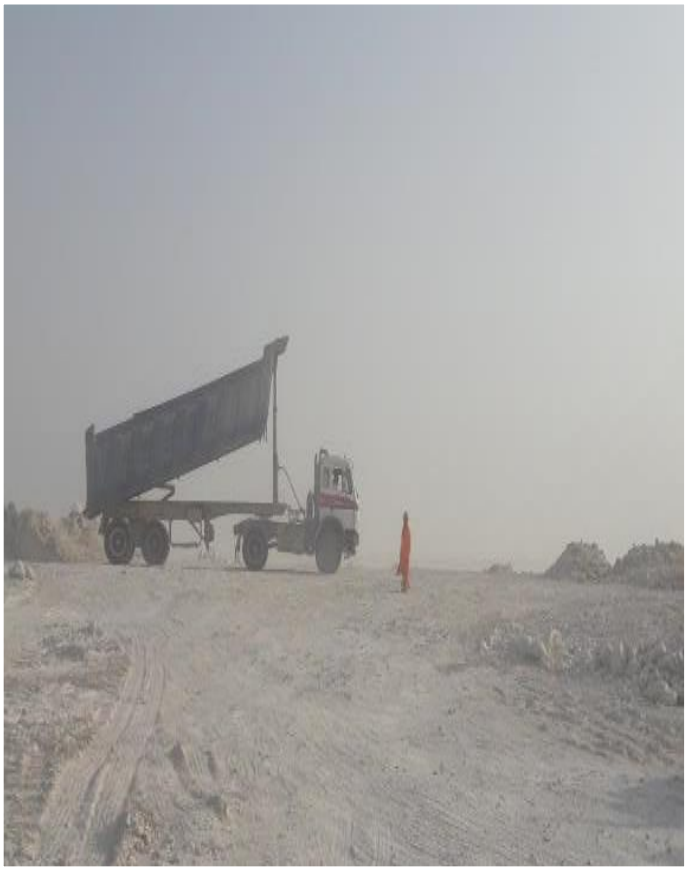
MAN – MACHINE INTERFACE

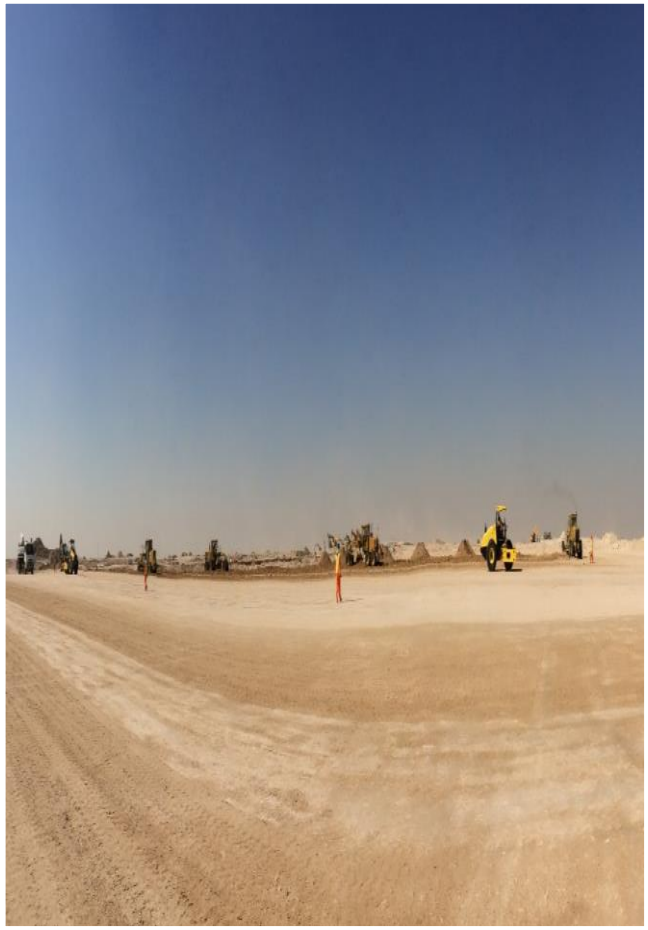
ACTUAL PRACTICE	RECOMMENDATIONS
Crusher workers doing maintenance to the machine (at heights) without sufficient platform and not even wearing any fall protection such as full body harness, workers are also not having dust mask and not into complete mandatory PPE requirements at site.	Installation of working platform may not be practicable for this activity, therefore recommend that full body harness must be worn during maintenance work of the crusher. Close supervision must be ensured during this activity as worker was seen neglecting safety rules (failure to use PPE and dust control system was not observed).

MAN – MACHINE INTERFACE



ACTUAL PRACTICE	RECOMMENDATIONS
Material unloading practice is acceptable. The flagman guides and directs the reversing truck to the drop point and ensure the evenness and stability of the unloading area. The flagman moves away from the truck, positioned himself at the side where he will see the driver and gives the signal to start unloading.	Though the procedure has been implemented acceptably with this activity, it was noted that the drivers were going out of the trucks without the mandatory PPEs. It was recommended that PPE compliance level shall be monitored closely. All employee on site must be supplied with mandatory PPE (Helmet, reflective vest, safety shoes and safety glasses).

MACHINE – MACHINE INTERFACE



ACTUAL PRACTICE	RECOMMENDATIONS
Grading and compaction activity with the use of heavy equipment is observed to be at the low-risk level as the area is wide enough to give sufficient distance among moving graders and compactors. Interview conducted on site with the operators at the location indicated that the hazards and control measures of the work activities are discussed on daily basis during pre start briefing.	This practice has to be maintained and supervisor for this activity has to be in close supervision. GEC will audit randomly to verify that the situation at the work area has not changed and that control measures are effective.

MACHINE – MACHINE INTERFACE

ACTUAL PRACTICE	RECOMMENDATIONS
Loading of backfilling materials to trailer trucks by backhoe are kept in a safe working distance both the backhoe and trucks. Slewing radius are also maintained at a proper gap to avoid collision.	This good practice has to be maintained, however the recommendation include ensuring that contractor improve on the truck route demarcation and proper visibility using dust damping system. Also one-way system as it was observed that incoming and outgoing trucks are not having identified route should be changed. Lastly, the use of banksman is discouraged as the number of equipment and the visibility are issues to be controlled.

MACHINE – MACHINE INTERFACE

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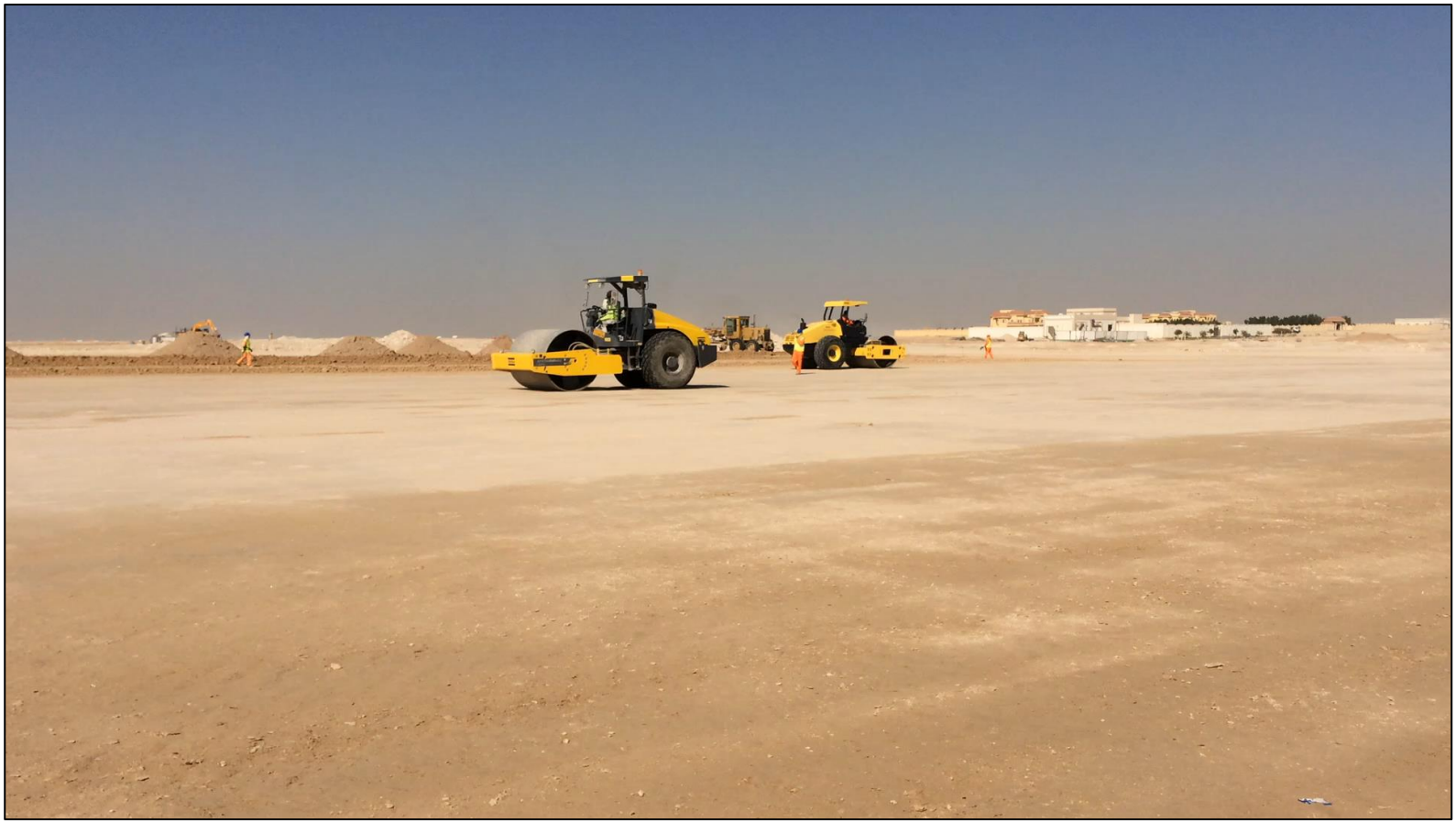

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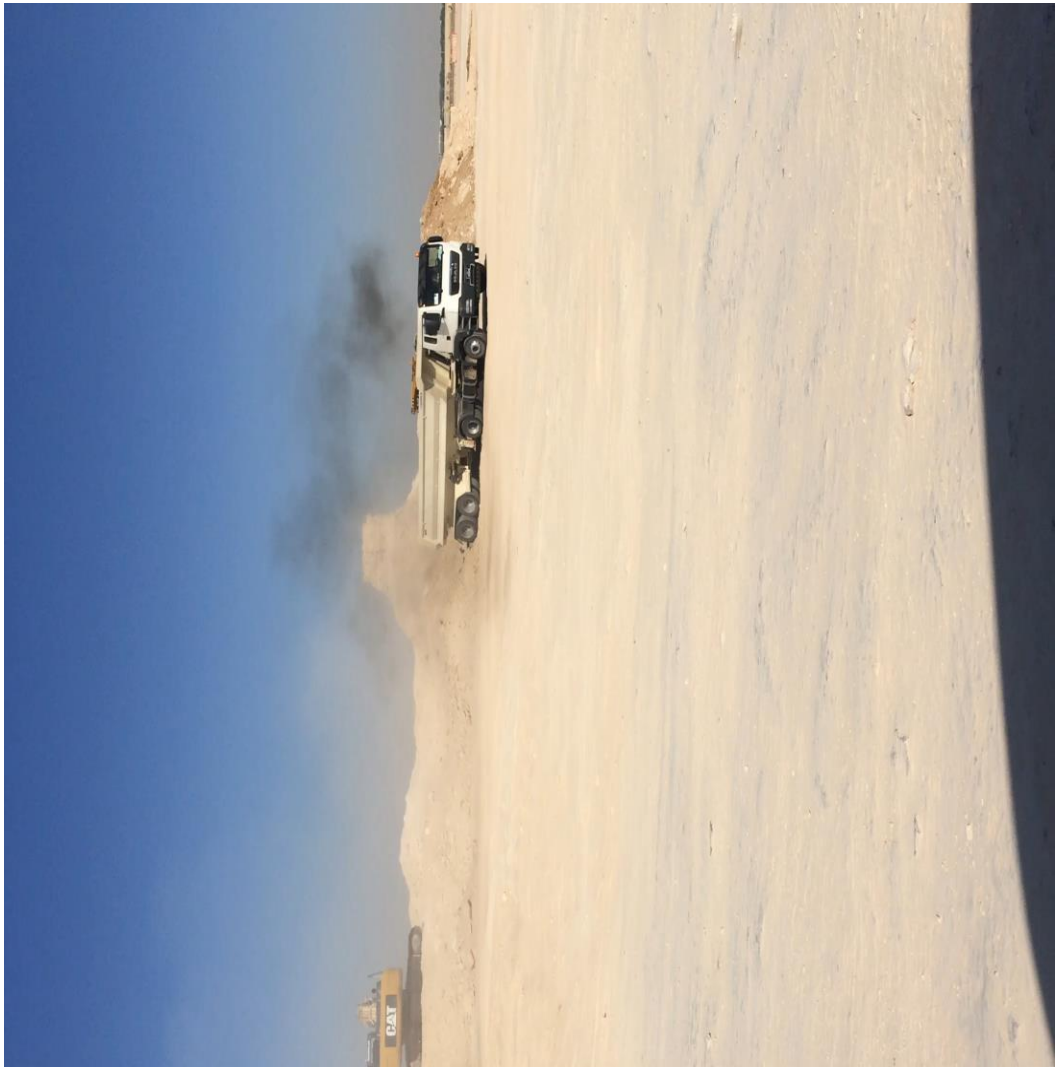

CONCLUSION

The work activities under review will be monitored for 3 months in which the necessary part of the relevant procedures will be reviewed if required.

The reassessment shall be carried out in a full audit program.

Thank you

and

Good day!