

AES Formaldehyde Investigation

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Background

- **Initial employee complaints in May 2011 at KAF and TK**
 - **Unknown chemical burning eyes and respiratory track**
- **Safety and Occupational Health Office requested assistance with a possible chemical exposure involving employees, military, and contractors**
- **PHC initial real-time monitoring one CONEX on KAF and identified levels thought to be Formaldehyde well above the IDLH level of 20 ppm**
 - **FID readings and calculations were at 48 ppm**
 - **13% O2 was identified in CONEX 9**
 - **Temperatures exceeding 120 F**
- **August 7 Employees and multiple contractors received medical evaluations by CENTCOM**
- **September, USACE IH was brought into AES to do an investigation of the work places at KAF and TK**





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Overview of Project

- ***Scope of Assessment***
 - ***Investigate employee complaints***
 - ***Confirm the presence of Formaldehyde in the workplace***
 - ***Identify all workplaces with elevated levels***
 - ***Evaluate how wide spread the issue is in AES***
 - ***Identify common material used during construction that could be the source***
 - ***Work with HQ and PHC to ensure exposures and exposure monitoring is documented for all military, civilian and contract employees at AES***
 - ***Identify interim solutions to ensure continuity of operations***
 - ***Work with HQ and TAD to develop a SOP for procuring and using materials in our work places that may contain Formaldehyde***
- ***Selection of sampling media and method***



Overview of Project cont.

- ***10 FOBs in AES AOR***
- ***173 locations***
- ***200+ employee work areas and living spaces were assessed***
- ***10 training sessions - total number of personnel, including civilian, military and contractor would be 300+/-***
- ***175 samples analyzed from working and living spaces***
- ***Contaminated building product samples taken from 6 locations***
- ***Started working with J6 on engineering controls and sent request to facilities to remove shelving, install AC units and fans in the other CONEXs at KAF***
- ***Scope of the project was expanded do to identification of similar material at other FOBs and continued employee complaints***



Summary of Results

Locations

- 39 locations with TWAs between 0.1 ppm and 0.365 ppm
- 3 locations with TWAs between 0.365ppm to 0.499 ppm
- 11 locations with TWAs above 0.5 ppm
- 53 Locations will need to be re-sampled

Employees

- 42 employees who worked in locations where area samples were above the 0.5 ppm TWA
 - 19 USACE civilian employees
 - 11 USACE military employees and
 - 12 USACE contractors
- 166 civilian employees, military personnel and USACE contractors working and/or living in the facilities, where the area samples were taken.

OSHA Action Level 0.5 ppm

PHC PEL 0.365 ppm

Re-sampling level set by USACE 0.1 ppm



Locations Sampled

- ***KAF***
- ***Lindsey***
- ***Tarin Kowt TK***
- ***Helmond Area Office***
- ***Tombstone Residence Office***
- ***Dwyer Residence Office***
- ***Delaram Residence Office***
- ***Farah Residence Office***
- ***Shindand Residence Office***
- ***Herat Area Office***
- ***Returned to TK and Lindsey for additional sampling***



Reality



Reality



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Facilities Sample Photos



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Facilities Sample Photos



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Challenges

- *Travel planning*
- *During the initial phases of the assessments the project grew*
- *Documentation of where and when employees lived and worked was a challenge*
- *Deciding on what the PEL for our civilian employees still is an ongoing challenge*
 - *PHC, OSHA, NIOSH*
- *Documentation of sampling data for civilians*
- *Weather*
 - *Temperature is 30 to 50 degrees cooler than May*



Moving Forward

- ***Recommendations***
 - ***Continual monitoring by TAS Safety Office***
 - ***Installing mechanical ventilation and AC before onset of summer***
 - ***Educating employees about air-conditioning and ventilation***
 - ***Removing all (MDF) from CONEXs & RLBs***
 - ***HQ working with TAD to ensure employees medical evaluations are completed and documented***



Controls Photos



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Moving Forward Cont

- ***Finalization of Report***
- ***Notification of employees potentially exposed***
- ***Developing work plan for follow up sampling addressing***
 - ***Employee exposure monitoring***
 - ***Continued facility assessments during summer months***
- ***Development of long term USACE Management Program***



Follow on Assessment

- ***Follow on assessment June to July 2012***
- ***During summer months***
- ***53 areas over the 0.10 ppm will be re-sampled***
- ***Re-sampling during the summer months may result in increase locations with elevated levels and increased exposures***



Conclusion

- ***Elevated levels of Formaldehyde were identified at every FOB except Dwyer – building material at Dwyer was different than all other locations***
- ***Temperature has a significant impact on off gassing***
- ***The multiple types of material were identified in the elevated areas***
 - ***MDF, Insulation, Wallboard***
 - ***CONEX converted into Office and Housing***
 - ***Rooms with furniture similar to the drawers***
 - ***Only common material identified was MDF shelving***



QUESTIONS



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