Occupational/Environmental Health & Medical Surveillance Subcommittee:

Review of

US Army Center for Health Promotion and Preventive Medicine Assessment of

Sodium Dichromate Exposure at Qarmat Ali Water Treatment

William Halperin, John Herbold, Wayne Lednar, James Lockey, Tom Mason, Alan Russell Defense Health Board December 15, 2008 Washington, D,C,

<u>Service is provided in real time; evaluation is retrospective</u>.

Goals: 30 minutes

- Brief orientation for DHB
- Discussion- all
- Modifications- if any
- Approval- Core DHB

Charge:

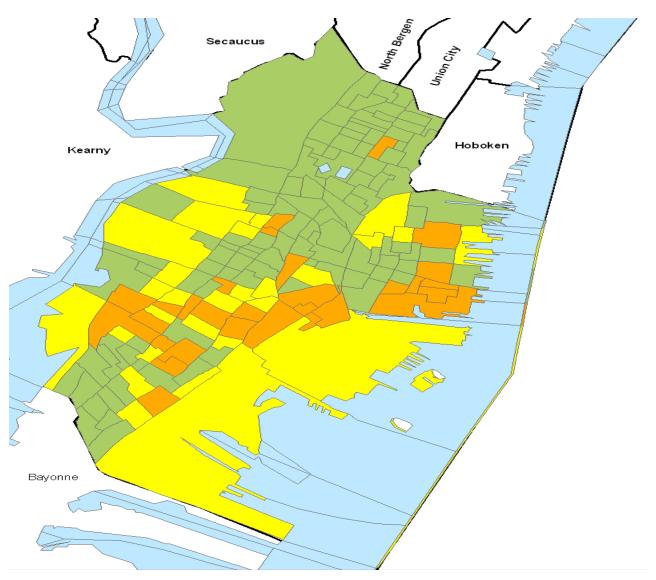
- 10/6/08 Surg General Schoomaker "review Occupational and Environmental Health Assessment of Qarmat Ali Water Treatment Plant, Iraq in 2003.
- Was the standard of practice adequate?
- Are the report's conclusions valid?

Background-1-Yorkshire

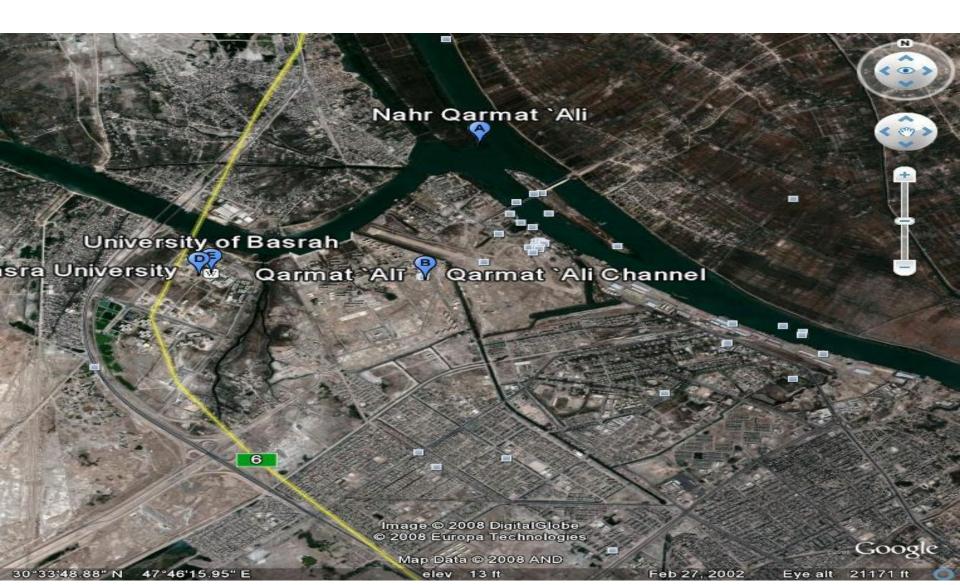
 Sorahan, T, Harrington, JM. Lung cancer in Yorkshire chrome platers, 1972-97.
 Occupat Environ Med 2000; 57:385-389
 2-fold mortality lung cancer

Jersey City, NJ CrVI levels (GR: NONE; YEL

LOW-MED; ORANGE: HIGH) 1979- 2003



Qarmat Ali



Site:

- Industrial water for oil production
- Ransacked
- Visible yellow contamination (sodium dichromate) used as corrosion inhibitor
- Continuous contractor presence
- Successive military cohorts: British,
 Oregon, S Carolina, Indiana Nat Guards

Chronology

- Spring 2003: Military provides security for KBR at QA
- Summer 2003: Contractor identifies hazard, remediates site: asphalt and gravel
- Sept, 2003: Soldiers observe contractors in PPE
- Sept 19: Access to site restricted by DOD
- Sept 21: DOD "town meeting;".
- Sept 29 Start CHPPM Field Investigation
- Oct 17: PPE required
- Oct 30: CHPPM Field Investigation completed
- Charge to DHB 10/6/2008
- Conference call 10/17/2008
- Review report 11/12-13 (security clearance required)
- Brief Sec Army 12/11/2008 on draft
- Final report 12/15
- Expect Senate Briefs

Exposure Assessment and Remediation

- KBR identifies hazard and elevated concentrations.
- KBR encapsulates with asphalt and gravel
- KBR samples: minimal exposure to Chrome VI
- Britfor: minimal exposure to Chrome VI
- CHPPM finds elevated Chrome VI in soil particularly offsite. Area and breathing zone samples: no CrVI

Medical Assessment

- History and physical for disease
- No chrome ulcers or nasal perforations
- Respiratory irritation high and consistent with non exposed in theatre
- Biological monitoring for Cr VI: non excessive

Epidemiologic assessment

- Mean of blood CrVI consistent with background, not with occupationally exposed.
- No association with length of exposure, etc

Health Risk Communication

- 7 in toto
- Current and former units
- Results of laboratory and medical evaluations "incorporated" in medical charts: confirmed

Major limitations:

- Assessment of only one state's guard contingent: Reasonable assumption that other contingents similarly exposed would similarly have unremarkable results.
- Assessment post remediation: Timely remediation was prudent; may underestimate exposure
- Silos: Impedes timely notification and intervention for all sub-cohorts (military, civilian)

Conclusions:

- Standards of Practice for Field Investigations: met; very timely; silos
- Conclusions by CHPPM: reasonable

Recommendations (specific):

- 1. Insure communication of results to soldiers, their health care providers, and medical record.. Assess reception.
- 2. Final report: Declassify and disseminate.
- 3. Develop case study for training.
- 4. Debrief all "silos" including National Guard units, the contractor, and local public health.
- 5. Establish a registry including info on exposure, medical, etc.

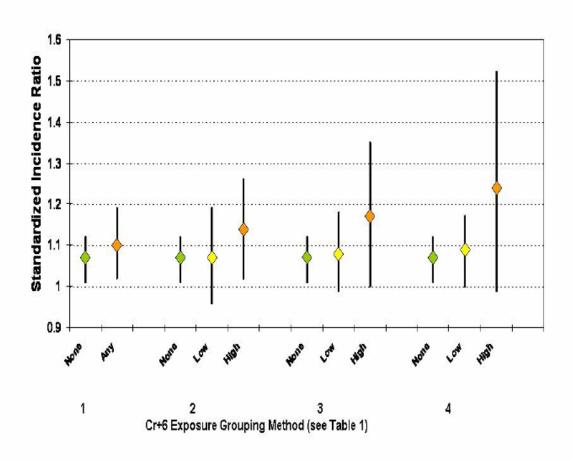
Recommendations Gen'l.

- 1. Train solders to recognize and avoid industrial hazards.
- 2. Train to weigh industrial vs traditional combat hazards.
- 3. Insure in-theater capacity for initial investigations.
- 3. Insure backup industrial hygiene, toxicology and epidemiology. Identify Impediments ..
- 4. Provide timely access to civilian expertise.
- 5. Establish an external advisory board for real time and post facto evaluation.
- 6. Learn to bridge silos
- 7. Review system for classification of documents.

- Comments by other Subcommittee members.
- Questions for subcommittee?
- Modifications?
- Approval by Core DHB?



Figure 5. Standardized incidence Ratios for Lung Cancer in Jersey City Males by Cr⁺⁶ Exposure Category



SE Iraq

