

Supporting Stakeholders through Vapor Intrusion Response Actions to Reduce Risk in Large Active Military Manufacturing Building

5/8/2018

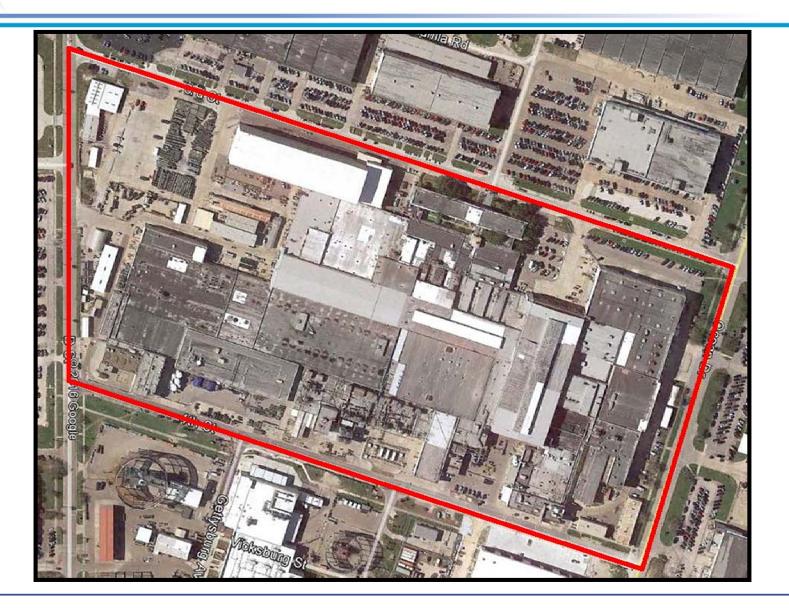




- CCAD is the largest tenant at NAS Corpus Christi
- CCAD Building 8 encompasses 23 acres on NAS Corpus Christi
- CCAD conducts mission critical repairs on all DoD Helicopters
- Approximately 3,000 mostly Union employees in the building
- Work occurs in three shifts, most employees work 1<sup>st</sup> Shift 0600-1400; 2<sup>nd</sup> Shift 1400-2200; 3<sup>rd</sup> Shift 2200-0600 (rarely used)

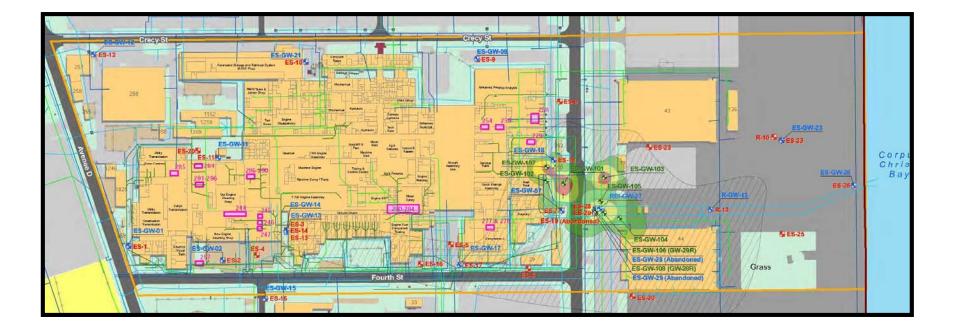
## Corpus Christi Army Depot (CCAD) 40 Acre Building





## **Initial TCE Plume**









- High Volume Sampling was conducted to determine locations with vapors under the building slab
- Membrane Interface Probe (MIP) Sampling conducted to determine depth of potential groundwater contamination
- Groundwater sampling at depth determined by MIP Sampling
- Vapor Intrusion Investigation that included indoor air sampling

**Coordinating Activities with CCAD** 



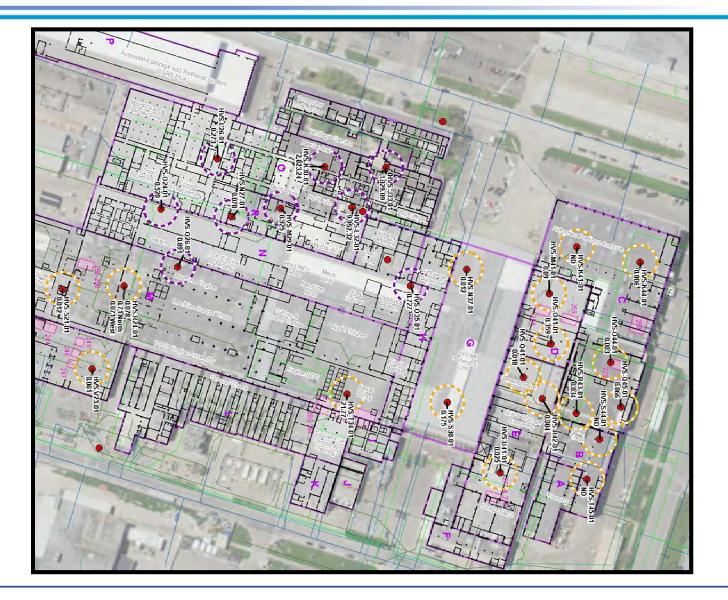
- Worked with CCAD Environmental
  Department to coordinate
- Shutting down of Automated Guided Vehicles (AGVs) and no interference into work activities so most work conducted second shift



- All non-CCAD personnel are required to have CCAD escorts while in the building
- Union workers in the building filed grievances against sampling crews

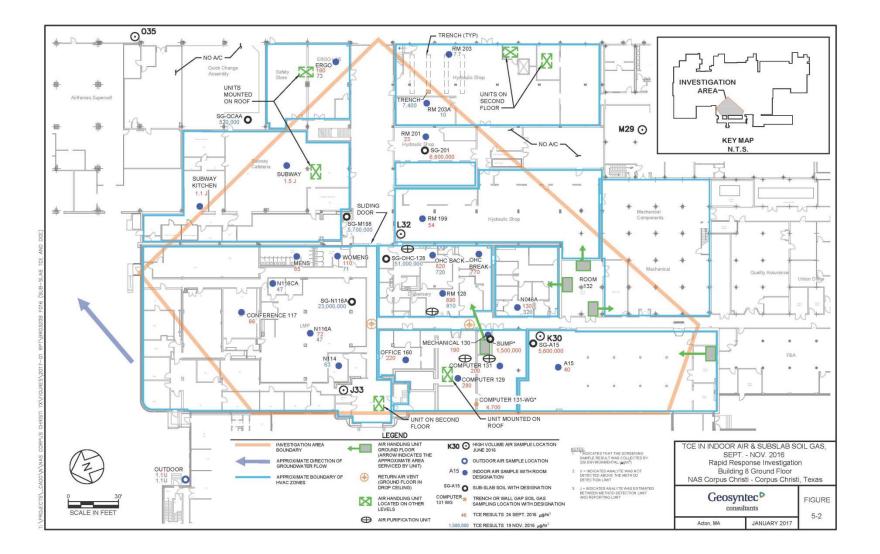






## Indoor Air Sampling





## Chemical Carts in CCAD Building









## LORD

#### MATERIAL SAFETY DATA SHEET

#### **1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Product name:LORD ACCELERATOR 4Product Use/Class:ACRYLIC ADHESIVE, PART 2 OF 2

LORD Corporation 111 LORD Drive Cary, NC 27511-7923

Telephone: 814 868-0924 Non-Transportation Emergency: 814 763-2345 Chemtrec 24 Hr Transportation Emergency No. 800 424-9300 (Outside Continental U.S. 703 527-3887)

EFFECTIVE DATE: 04/22/2013

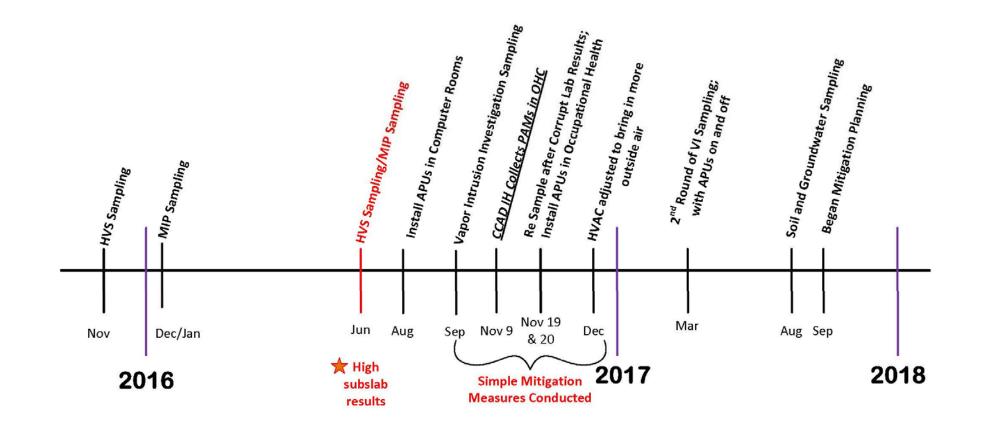
<u>Chemical Name</u>	CAS Number	Weight % Less Than	ACGIH TLV- TWA	ACGIH TLV- STEL	OSHA PEL- TWA	OSHA PEL- CEILING	<u>Skin</u>
Methylene chloride	75-09-2	70.0%	50 ppm	N.E.	25 ppm	N.E.	N.A.
Trichloroethylene			100 ppm	N.A 100 ppm			
Methyl isobutyl ketone	108-10-1	10.0%	50 ppm	75 ppm	410 mg/m3 100 ppm	N.E.	N.A.
Benzoyl peroxide	94-36-0	10.0 %	5 mg/m3	N.E.	5 mg/m3	N.E.	N.A.
Methyl methacrylate	80-62-6	5.0 %	50 ppm	100 ppm	410 mg/m3 100 ppm	N.E.	N.A.

2. COMPOSITION/INFORMATION ON INGREDIENTS

N.A. - Not Applicable, N.E. - Not Established, S - Skin Designation







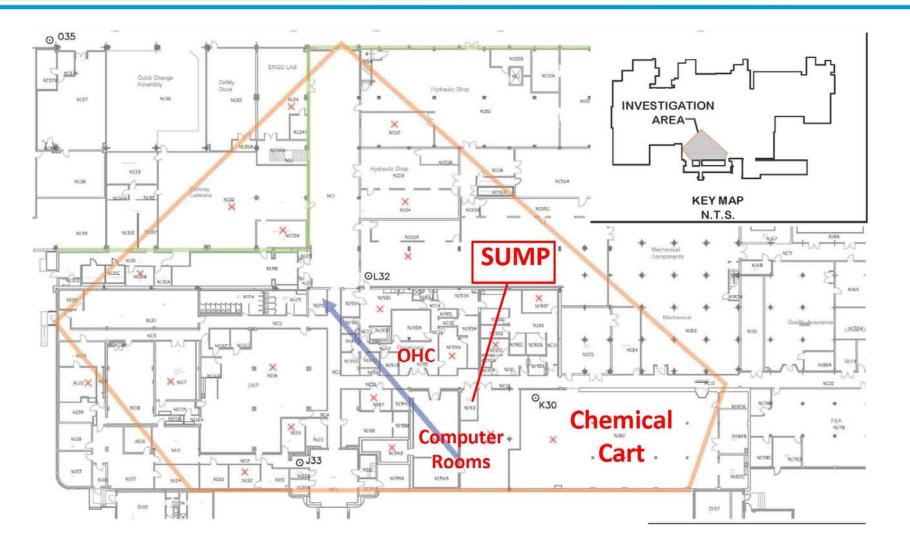




- Notified CCAD Industrial Hygienist and Environmental Management
- CCAD notified Union
- CCAD IH discussed results with females working in the Occupational Health Clinic
- CCAD IH conducted personal air samples for workers

## **CCAD Vapor Intrusion Area of Concern**









-	Sur nal Screening evel	nmary of TCE Scr	CCAD Indoor Air Result			
OSHA PEL	ACGIH TLV TWA	Non-Cancer* HQ=1	Non-Cancer HQ=3	Non-Cancer HQ=10	Cancer 10 <sup>-4</sup> Risk	Maximum Concentration
537,000	269,000	8.8	26	88	300	<i>890</i>
*Note: TCE to potential for f						





- CCAD Facilities and Maintenance

   Sealed holes and cracks in walls
  - Sealed SUMP cover in Mechanical Room
  - Increase amount of outdoor coming in through HVAC systems, before was 0-5% increased to 30%
- Installed Air Purifying Units (APUs) in Occupational Health Clinic and Computer Rooms
  - Carbon filters replaced every three months, CCAD handles disposal

# Mitigation Measures –November 2016 for Sump with 1,500,000 $\mu g/m3$



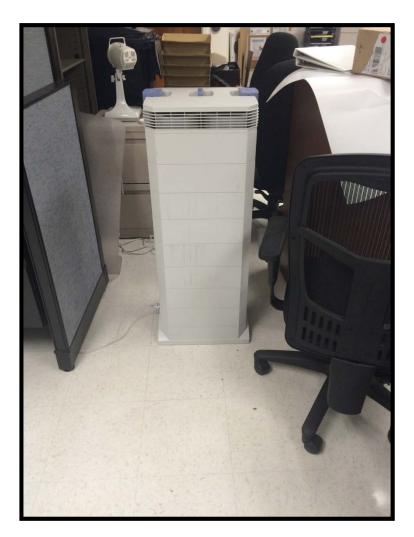
## Sump with 1,500,000 $\mu$ g/m3 before and after mitigation





## Air Purifying Unit Install – August and November 2015









Date	10-Nov-15	11-Nov-15	26-29 June 2016	9-Aug- 16	24-Sep- 16		9-Nov- 16	19-Nov- 16	20-Nov- 16	Sealing of	21- Mar- 17	23-Mar- 17
Units	ug/m3	ug/m3			ug/m3	Mitigation		ug/m3		large sump	ug/m3	ug/m3
Notes	HAPSITE SCREENING	HAPSITE SCREENING	i HIGH Sub		Indoor Air TO-15 Results	openings where	IH collected PAMs- <30	Highest : TO-15 A Res 51,000,00	nalytical sult	near HVAC system for OHC and Computer Rooms,	APUs off	APUs on
Room 128 OHC			Slab HAPSITE		890	vapor was determined by PID to	µg/m3	810	Installed APU	increased amount of	280	210
OHC Back			Results > <b>9,000,000</b> μg/m3		820	be entering rooms		720	Installed APU	fresh air coming	270	130
Computer Room 129			μεγιιιο	Installed APU	280					into HVAC system	87	63
Computer Room 131	704	208		Installed APU	200						77	58

APU = Air Purifying Units PAMs = Personal Air Monitors/Dosimeters ug/m3 = micrograms per cubic meter OHC = Occupational Health Clinic





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