



2003 AFCEE Technology Transfer Workshop

San Antonio, Texas

Promoting Readiness through Environmental Stewardship

Site Closure and Land Transfer Issues

Case Studies

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CNC- Closure and Transfer

- **Charleston Naval Complex (CNC)**
 - **Goal to transfer property to the community**
 - **BRAC 1993**
 - **170 RCRA sites, 70 UST sites requiring closure**
 - **Began Leasing Property in 1996**
- **Limited Success of site closure and transfer early on**
- **Established FFPEIC contract**
 - **BCT - Key players**
 - **Between FY 2001 and FY 2003 transferred 50 % of property**



CNC - Closure and Transfer

- **SWMU 44 Closure Example**
 - **Site heavily contaminated with coal**
 - **Arsenic and Manganese identified as primary COCs**
 - **evaluated background levels outside of SWMU area to support higher background As level**
 - **related elevated levels in groundwater to naturally reducing conditions**
 - **used exposure area boxes and kriging to define level of cleanup required**
 - **Removal volume decreased from 40,000 tons to 400 tons**
 - **Site closed and acceptable for unrestricted use**



CNC - Closure and Transfer

- **Project Success Factors**
 - **Use of local background data to revise background concentrations to be inline with local area**
 - **Use of 2D kriging and UCL95 exposure concentrations to define cleanup levels and excavation areas**
 - **Documented behavior of arsenic and manganese under reducing groundwater conditions**
 - **Demonstrated that, while arsenic in soil and arsenic and manganese in groundwater were above “typical” background, these concentrations were still in a range of regulatory acceptable levels.**



Waltham, MA Site Closure

- **Project Overview**
 - **Site located in mixed industrial/residential area**
 - **Existing manufacturing facility and former MGP facility**
 - **Adjacent Wetlands**
 - **Ink waste mixed with tar**
 - **Gas holders, tar wells**
 - **5-acre active facility**



Waltham, MA Site Closure

- **Client Drivers**
 - **Do not shut down facility**
 - **Industrial site land-use**
 - **Timely closure**
 - **Stage work based on financial ability**
 - **Innovative approaches must be cost effective**
 - **No surprises**



Waltham, MA Site Closure

- **Project Variables**
 - **Met all client requirements**
 - **Remediated four ink-pits and one UST**
 - **Eliminated areas from further consideration**
 - **Reduced area requiring remediation**
 - **Defined remaining uncertainties**
 - **Focused FS on more complex remediation elements**



Waltham, MA Site Closure

- **Deviations were encountered!**
 - **Additional tar wells, USTs, and building demo**
 - **Process existed to resolve changes**
 - **Client and subcontractor buy-in to change management process**



Waltham, MA Site Closure

- **DNAPL wastes detected**
- **DNAPL migration assessment was completed**
- **Concluded that viscosity and vertical permeability factors would prevent mobilization of DNAPL**
- **State concurred that NFA was required for this matrix**
- **Site was cleaned up to industrial reuse levels**
- **Work satisfied requirements of the MA contingency plan**
- **Client now considering sale of property**



Waltham, MA Site Closure

- **Project Success Factors**
 - **Flexibility with Change Management Approach**
 - **Clear communications on regulatory expectations for closure**
 - **Recognize that DNAPL would not migrate and was therefore not a risk**
 - **Recognize future use of property as industrial**



Solvent Release Site, OR

- **Project Background**
 - **1989-1994 - Order negotiated, RI/FS completed**
 - **1994-1995 - ROD, Remedial Design, Construction, NPDES Permit**
 - **1996-2001 - Operation of GWTS and monitor groundwater remediation**
 - **2001-2002 - 5-Year review including modeling, risk assessment, and negotiation to obtain a certificate of completion for consent order**



Solvent Release Site, OR

- **FS Predicted groundwater extraction and treatment would be ineffective**
- **State agency selected this remedy anyway**
- **Over five years of treatment, only modest levels of reduction**
- **During O&M phase, state revised groundwater policy on beneficial reuse**
- **Allowed low permeability as reason for water to not be potable source**



Solvent Release Site, OR

- **Fate and Transport modeling completed**
- **Indoor air modeling completed**
- **Risk assessment showed risks in acceptable range**
- **No Further Action notice advertised**
- **No public comment**
- **Agency drafting certificate of completion to close out consent order**
- **Agency directed owner to decommission extraction system and wells**
- **No long term monitoring required**



Solvent Release Site, OR

- **Project Success Factors**
 - **State of OR changed beneficial reuse of groundwater to address low yield geologic units**
 - **“Paying the Toll” - a desktop analysis did not prevent expenditure of groundwater treatment system - even though it operated as predicted**
 - **Re-evaluation of risks and exposure pathways to show human health and the environment were protected.**



Brooks Air Force Base

- **Brooks City-Base Project**
 - **Purpose to achieve transfer of Brooks AFB to City of San Antonio with Air Force lease back**
 - **Brooks perceived as “Clean” Facility**
 - **Sites already Identified**
 - **Remediation in place**
 - **Re-look at Historical property use**
 - **Regulatory perspective of “AOC”**



Brooks Air Force Base

- **Identification of Historical Property Uses**
 - **Identification of Potential COCs**
 - **Confirmation Sampling**
 - **Evaluation of Results**
- **Regulatory Involvement**
 - **Comfortable with property categorization**
 - **Closure match proposed future property use**
 - **Guarantees in place**



Brooks Air Force Base

- **Project Success Factors**
 - **Transfer Supported by all Parties**
 - **Good Project Communication**
 - **Regulatory Involvement**
 - **Early in Process**
 - **Ongoing Throughout Process**
 - **Ability to Confirm “Closure”**
 - **Ability of Project to Adapt to Changed Conditions**
 - **Thorough Review of Current & Historical Records**
 - **Aligned Future Property Use with Historical Uses**



Site Closure Check List

- **Develop Understanding of Site and Receptors**
- **Develop Exit Strategy**
- **Identify Applicable Regulations and Land Use**
- **Develop Remedial Action Objectives**
- **Develop and Implement Remedial Action**
- **Request Closure**
- **Implement Institutional Controls as Appropriate**
- **Maintain Project Institutional Accountability**
- **Early Identification of “Sticking Points”**
- **Keep All Stake Holders Involved**
- **Site Closure Site-Specific Factors**



Property Transfer Check List

- **Define Transfer Mechanism**
- **Ensure Decision Makers Involved Early**
- **Identify Political Considerations**
- **Coordinate Land Use Controls and Other Restrictions**
- **Understand All Relevant Schedule Impacts**
- **Confirm Compatible Future Land Use**
- **Prepare EBST**
- **Prepare FOST or FOSET**
- **Property Transfer Site-Specific Factors**