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Risk Analysis Framework

What is Risk Management?

Risk management integrates the risk assessment with other considerations, such as regulatory requirements, technical feasibility, public acceptance, legal concerns and economic impacts, in decision-making to approve appropriate risk reduction measures for a Site.

What is Risk Assessment?

An organized process used to describe and estimate the likelihood of adverse health outcomes from environmental exposures to chemicals.

Hazard

\+

No exposure

= No risk

Hazard + exposure =

Risk

Risk Assessment Components

Data Collection and Evaluation

- What are the contaminants of concern?
- Where is the contamination?

Exposure Assessment

- How do people come into contact with contaminants?
- How much exposure

Toxicity Assessment

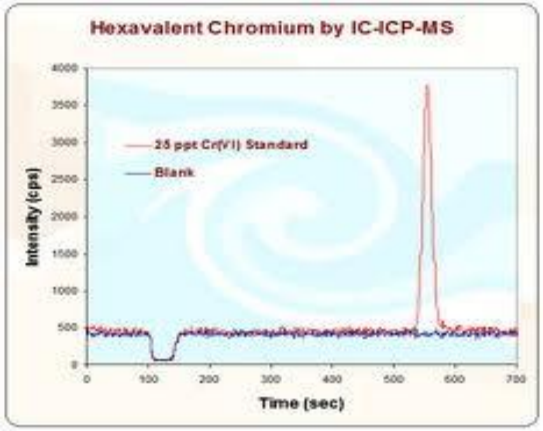
- What are the health effects?
- What levels are safe?

Risk Characterization

Risk Assessment versus Risk Management Standards

Hexavalent Chromium

- Public Health Goal is 0.02 parts per billion (ppb)
- Proposed drinking water standard is 10 ppb
- The background concentration at PG&E Topock is 32 ppb



Acceptable Risk Ranges

Superfund Sites	10^{-4} to 10^{-6}
Proposition 65	10^{-5}
SF RWQCB	10^{-5}
State of Alaska	10^{-5}

Impact of Land Use on Risk

Toxaphene

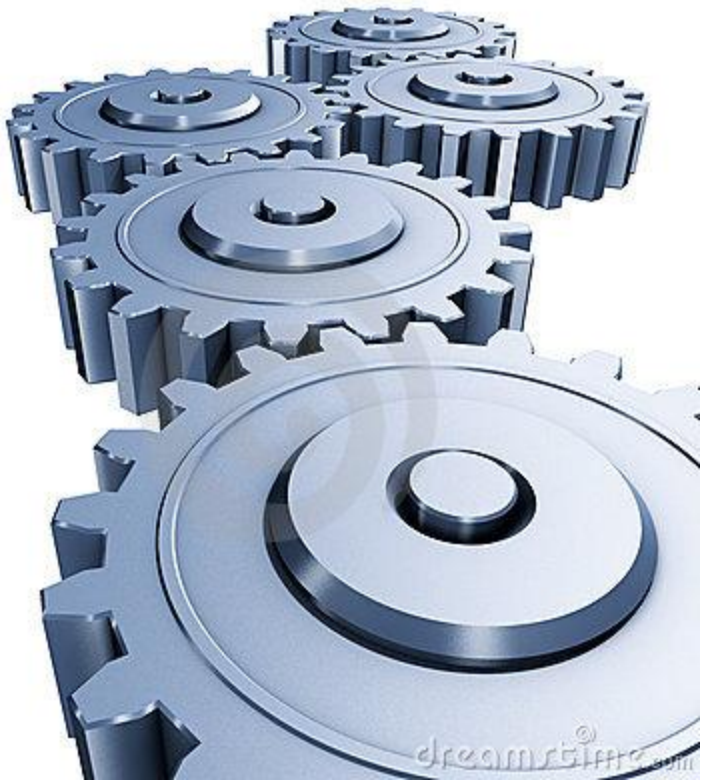
	10^{-4}	10^{-5}	10^{-6}
Residential (Soil)	44 ppm	4.4 ppm	0.44 ppm
Industrial (soil)	**160 ppm**	16 ppm	1.6 ppm

State hazardous waste limit (TTLC) is 50 ppm

Legal Concerns

Engineering Considerations

- Feasibility of being able to reduce risk
- Implementation impacts
- Cost of risk management decisions/options



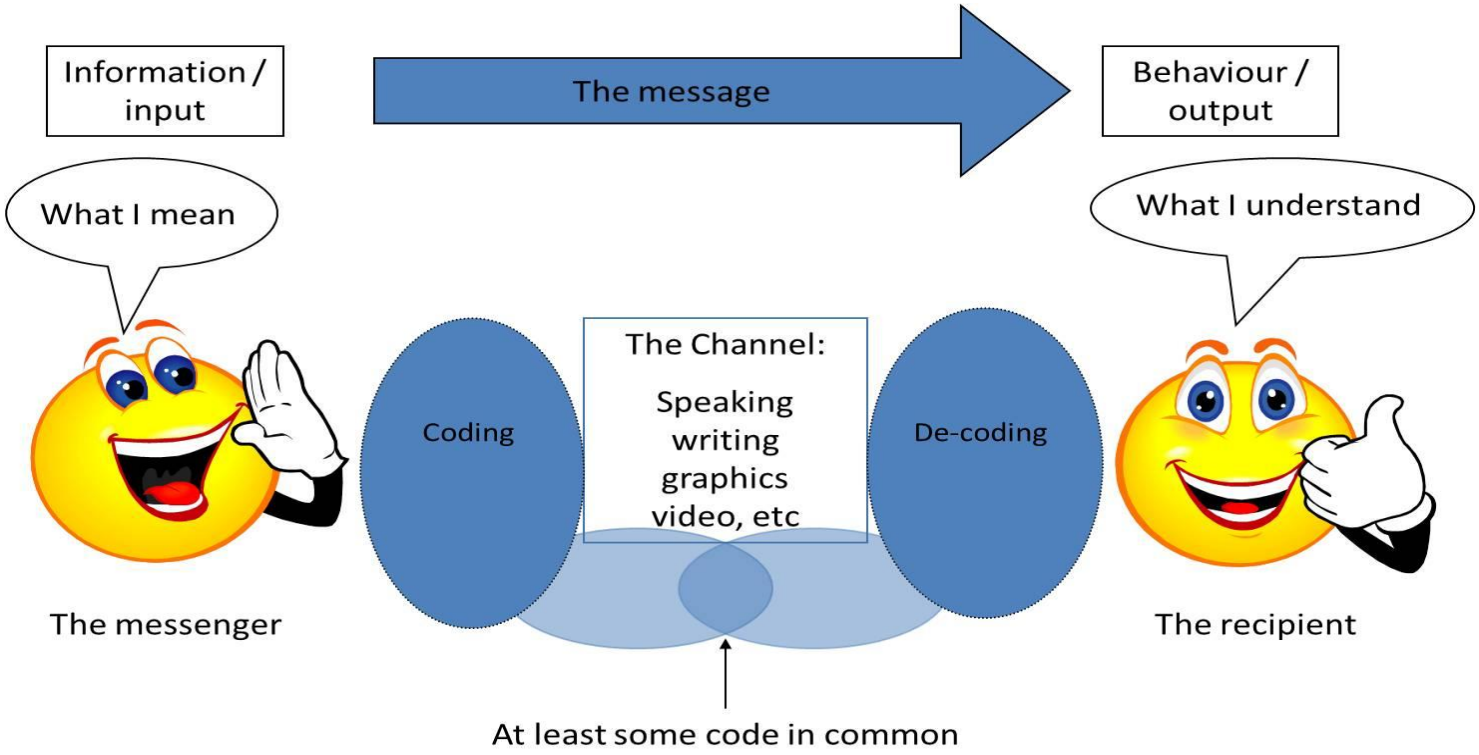
Public Acceptance

Social /Cultural Factors that may affect a group include: Income, Community Values, Land use and zoning, Lifestyle

Political Factors that may affect a decision include inquiries from politicians, interest groups or concerned citizens.

RISK

Risk Communication



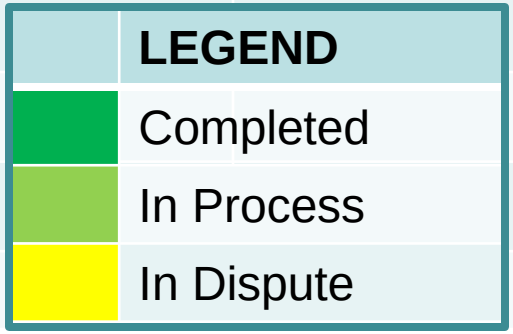
McClellan AFB

- **Operated from 1939 - 2001 (BRAC ‘95)**
- **Federal Superfund site – 1987**
- **2,952 acres**
- **1085 acres on base transferred to date**

McClellan AFB

Project Status

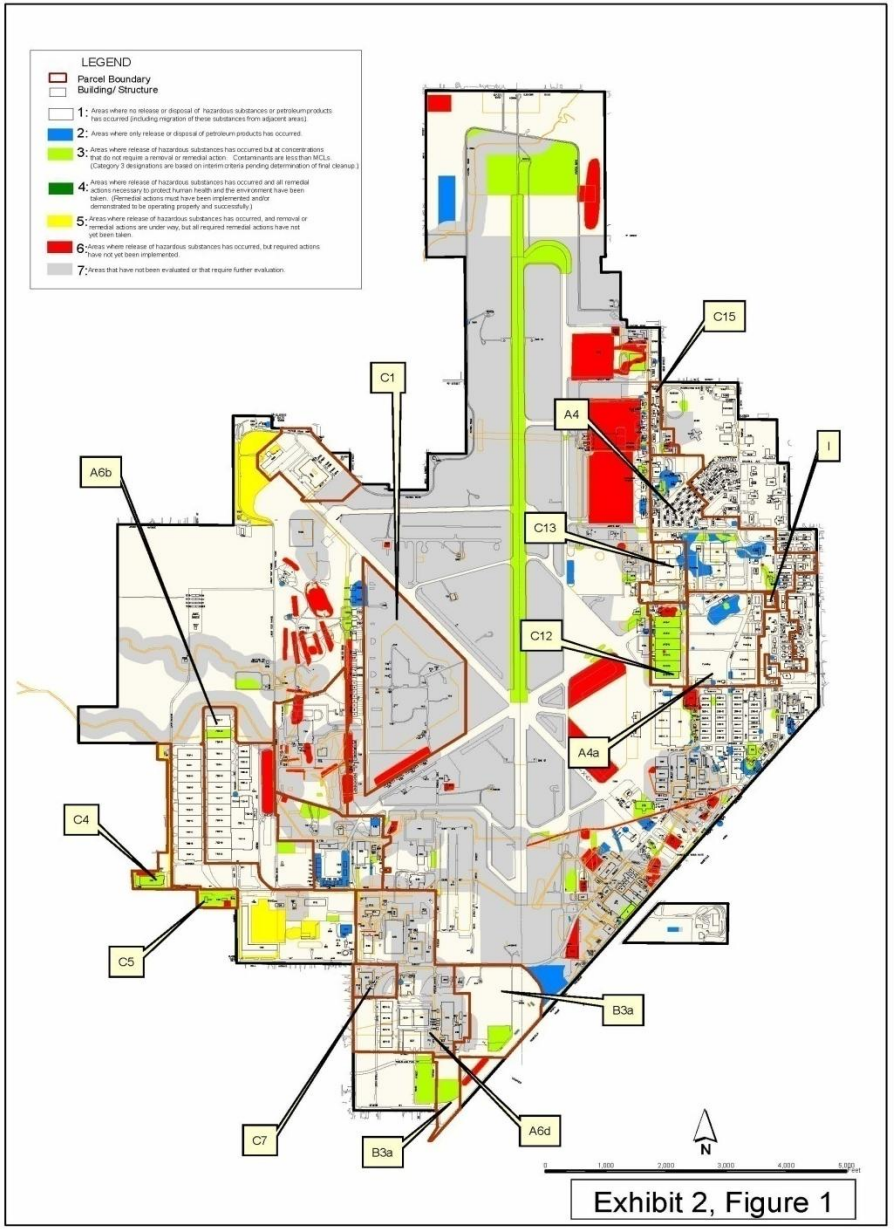
Operable Unit Name	Characterization	Remedy Selection	Remedy Implementation	Operations and Maintenance	Remedy Complete
Basewide Groundwater					
LRA Initial Parcel 1					
LRA Initial Parcel 2					
LRA Initial Parcel 3					
Parcel C-6					
AOC G-1/Parcel M					
Building 252					
Focused Strategic Sites					
Eco Sites					
Small Volume Sites					
Follow-on Strategic Sites					
Skeet Range					



McClellan AFB

Soil Cleanup

- **Soil contamination investigations and cleanup continues**
- **More than 350 contaminated sites on the base**
- **79 contaminated sites in latest FOSET 1 transfer**
- **PCBs, VOCs, SVOCs, TPH, metals, dioxin/furans, Ra-226**
- **Base cleanup complete in 2065**



Map Document: (R:\Projects\Phil Mook\FOSET1 2008\exhibit2_figure1.mxd)
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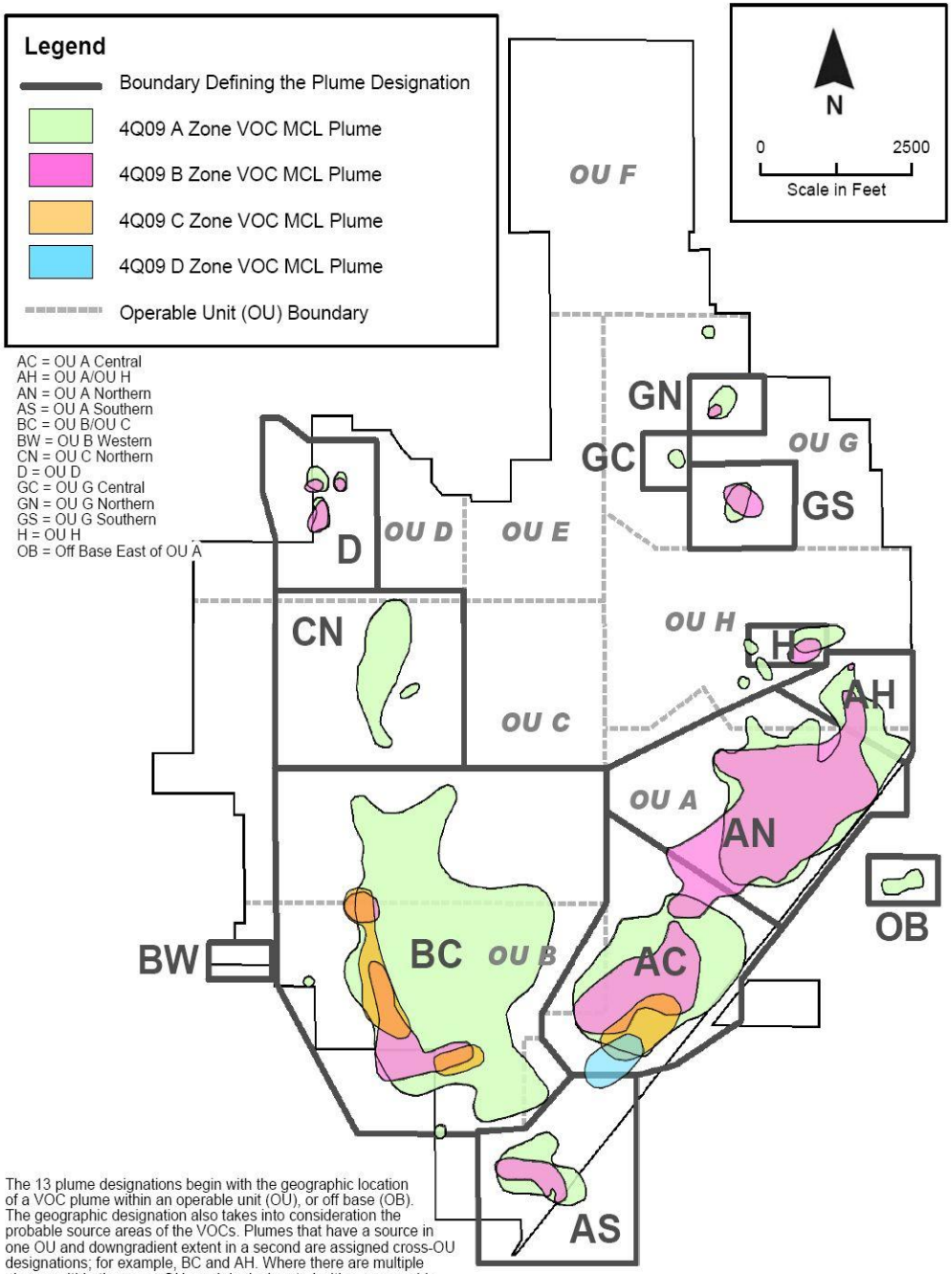
McClellan AFB

Groundwater

- Groundwater contamination investigations and cleanup continues
- More than 60 million gallons of contaminated water treated on the base each month
- TCE, PCE, DCE, chromium primary contaminants
- 33 gallons of contamination removed in August 2010.
- 59,358 gallons of contamination removed since remedy implemented
- Groundwater cleanup expected to be complete in 2065



The 13 plume designations begin with the geographic location of a VOC plume within an operable unit (OU), or off base (OB). The geographic designation also takes into consideration the probable source areas of the VOCs. Plumes that have a source in one OU and downgradient extent in a second are assigned cross-OU designations; for example, BC and AH. Where there are multiple plumes within the same OU, each is designated with a geographic subdivision (N for north, C for central, S for south) if its remediation is expected to occur separately from the others in the same OU. For example, the AS plume has a separate hydraulic control and is expected to proceed to cleanup at a different pace than the AC or AN plumes.

URS

McClellan AFB

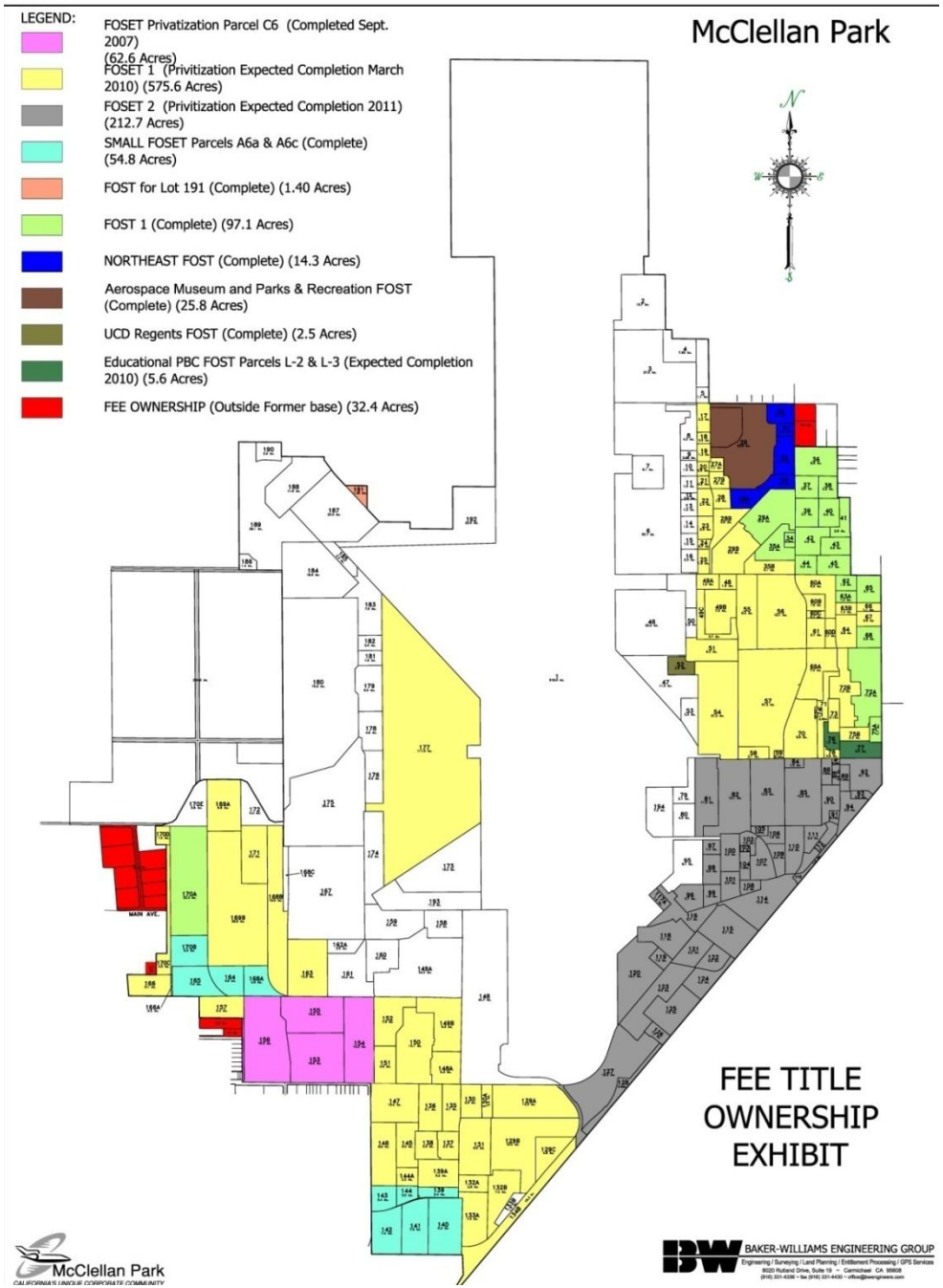
Privatized Cleanup

Privatized Early Transfers

- **Parcel C-6**
- **Initial Parcels (FOSET 1)**

Future Early Transfers Planned

- **Small Volume Sites (FOSET 2) 2011**
- **Follow-on Strategic Sites (FOSET3) 2012**

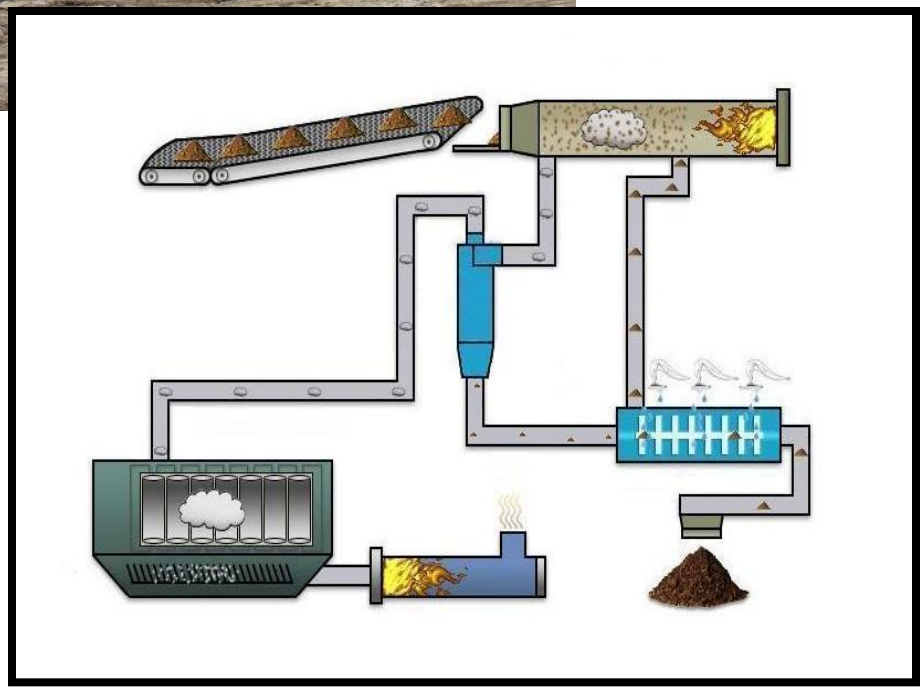


Recent Success/Development

McClellan Business Park
Privatized Cleanup of Parcel C-6

McClellan Business Park Parcel C-6 Cleanup

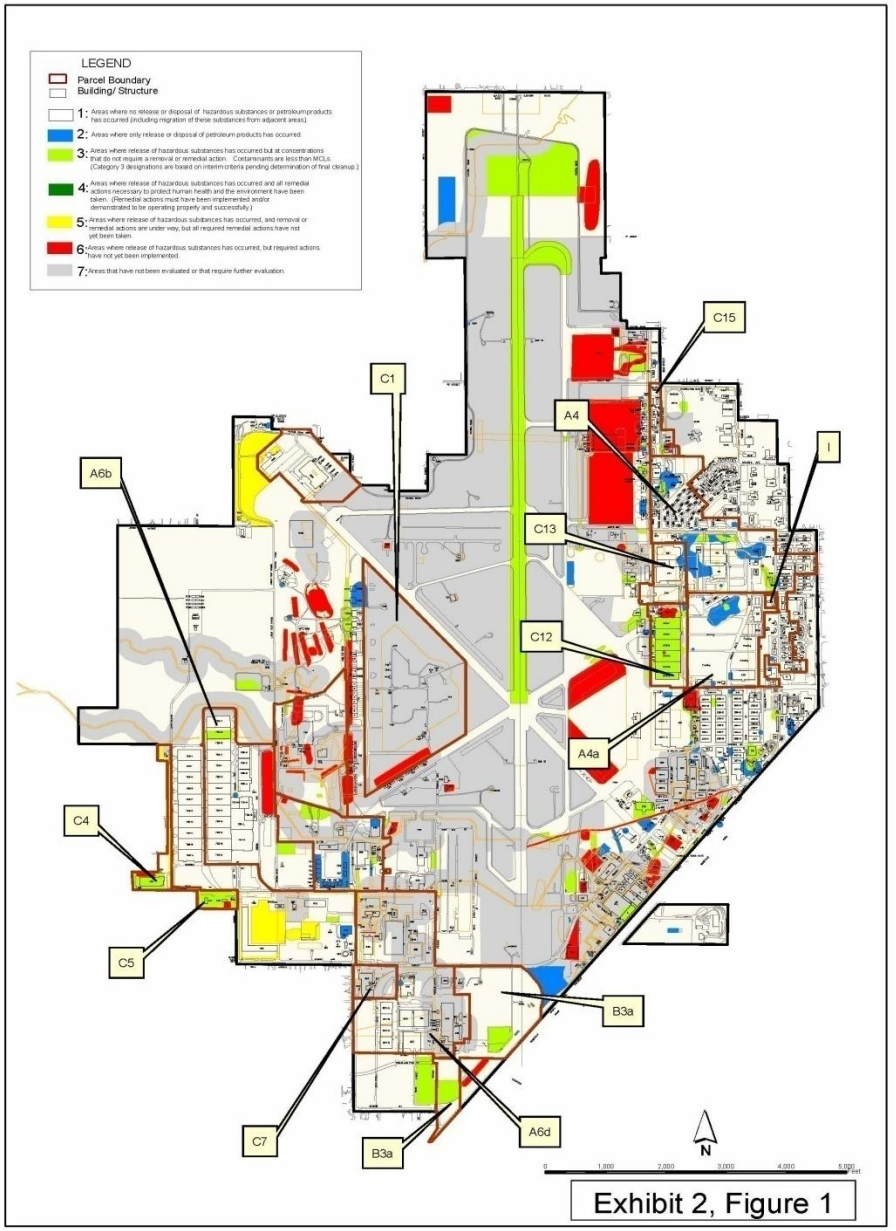
- Soil Excavation is complete
- Stockpiles segregated
- Treatment starting this month
- Site Restoration and Redevelopment



McClellan AFB

Challenges

- Radioactive Waste on Federal Property
- Air Force Working Relationship
- Policy Disputes



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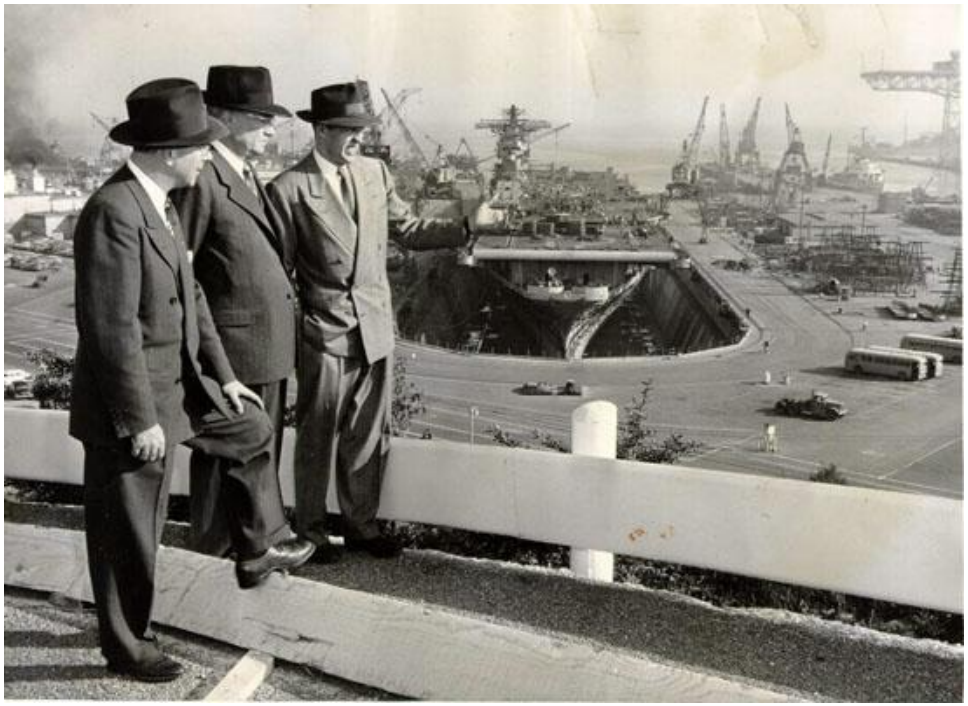
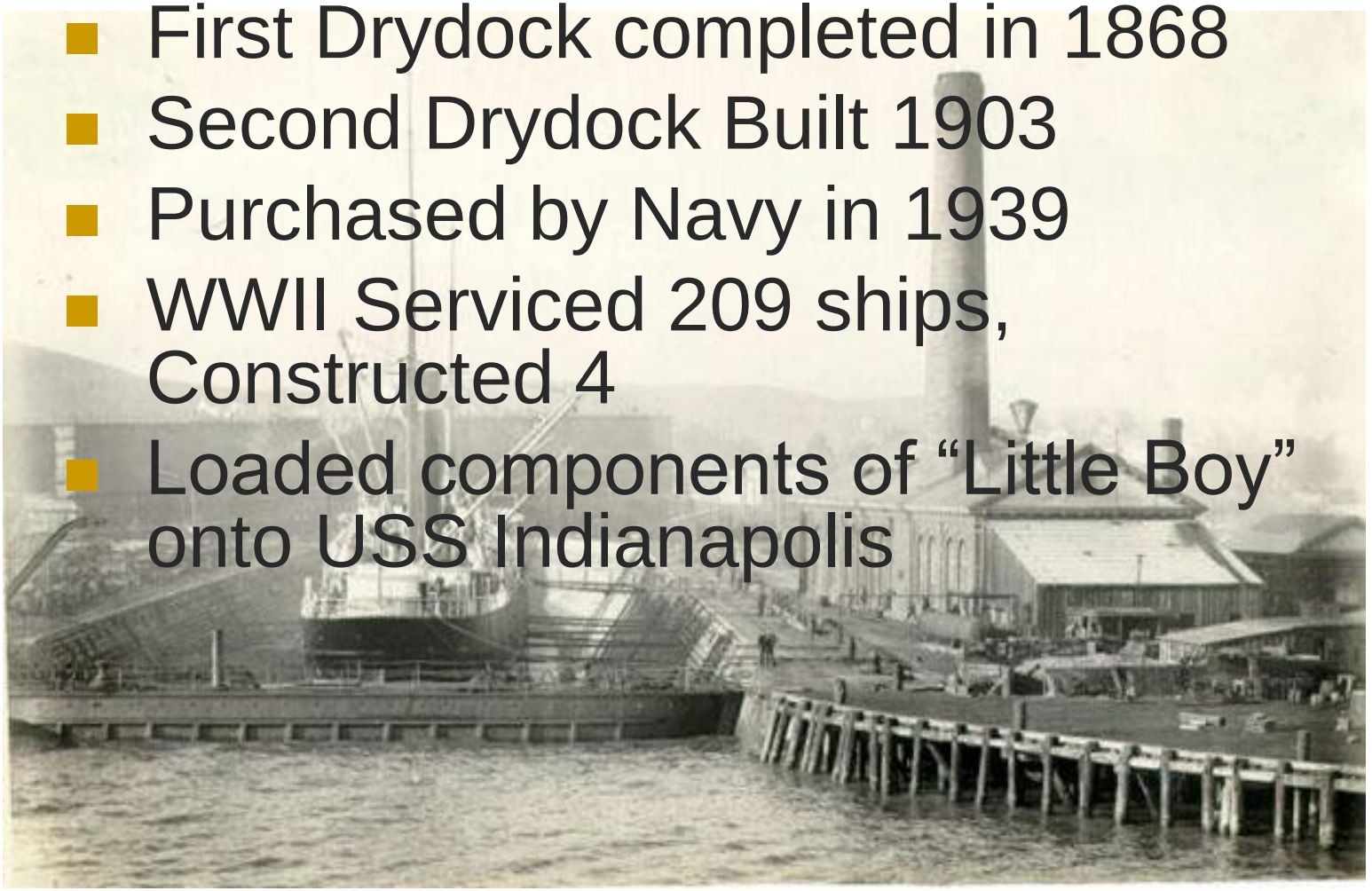
Hunters Point Shipyard

General Information and Brief History

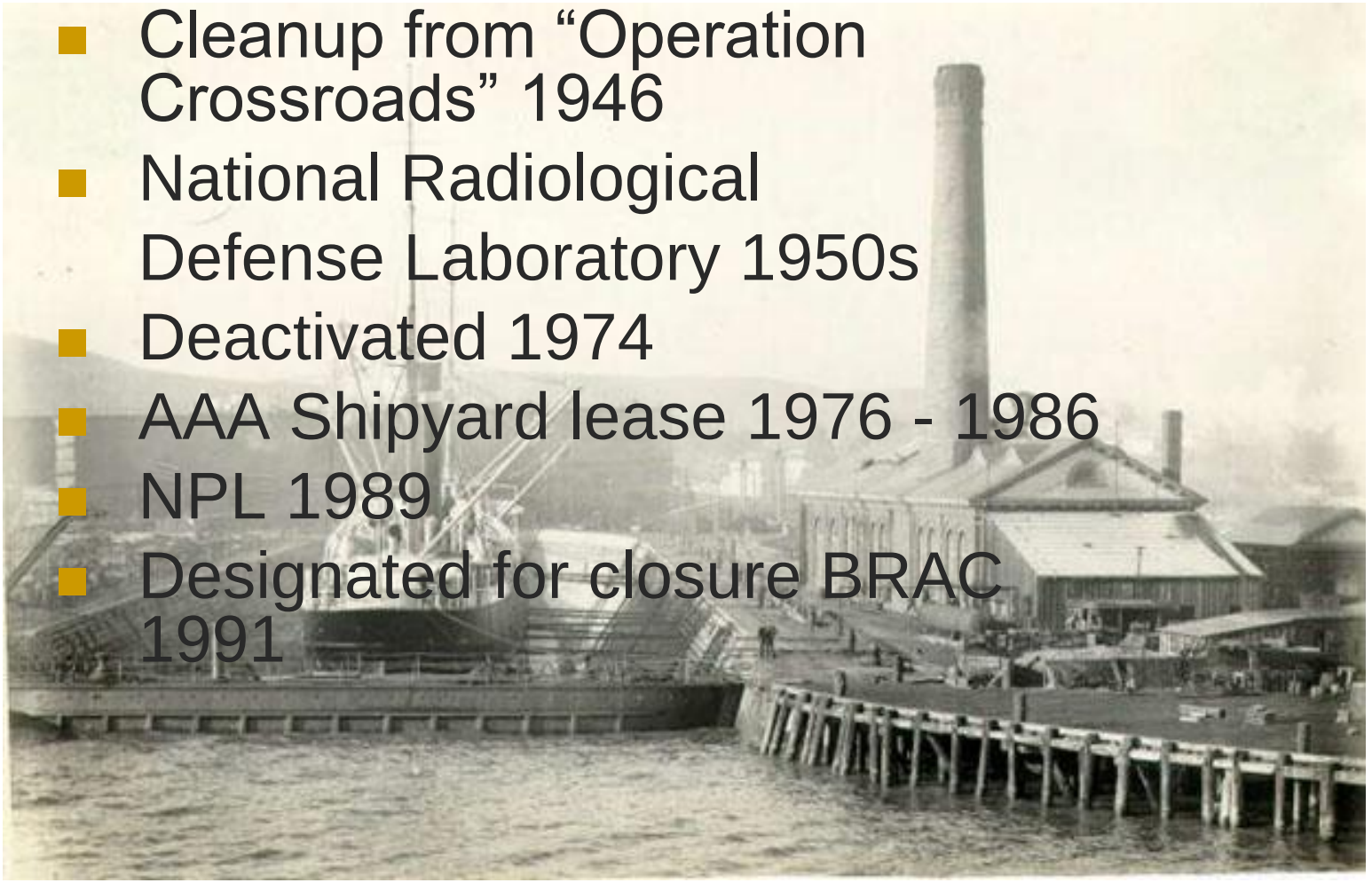


Quick History

- First Drydock completed in 1868
- Second Drydock Built 1903
- Purchased by Navy in 1939
- WWII Serviced 209 ships, Constructed 4
- Loaded components of “Little Boy” onto USS Indianapolis

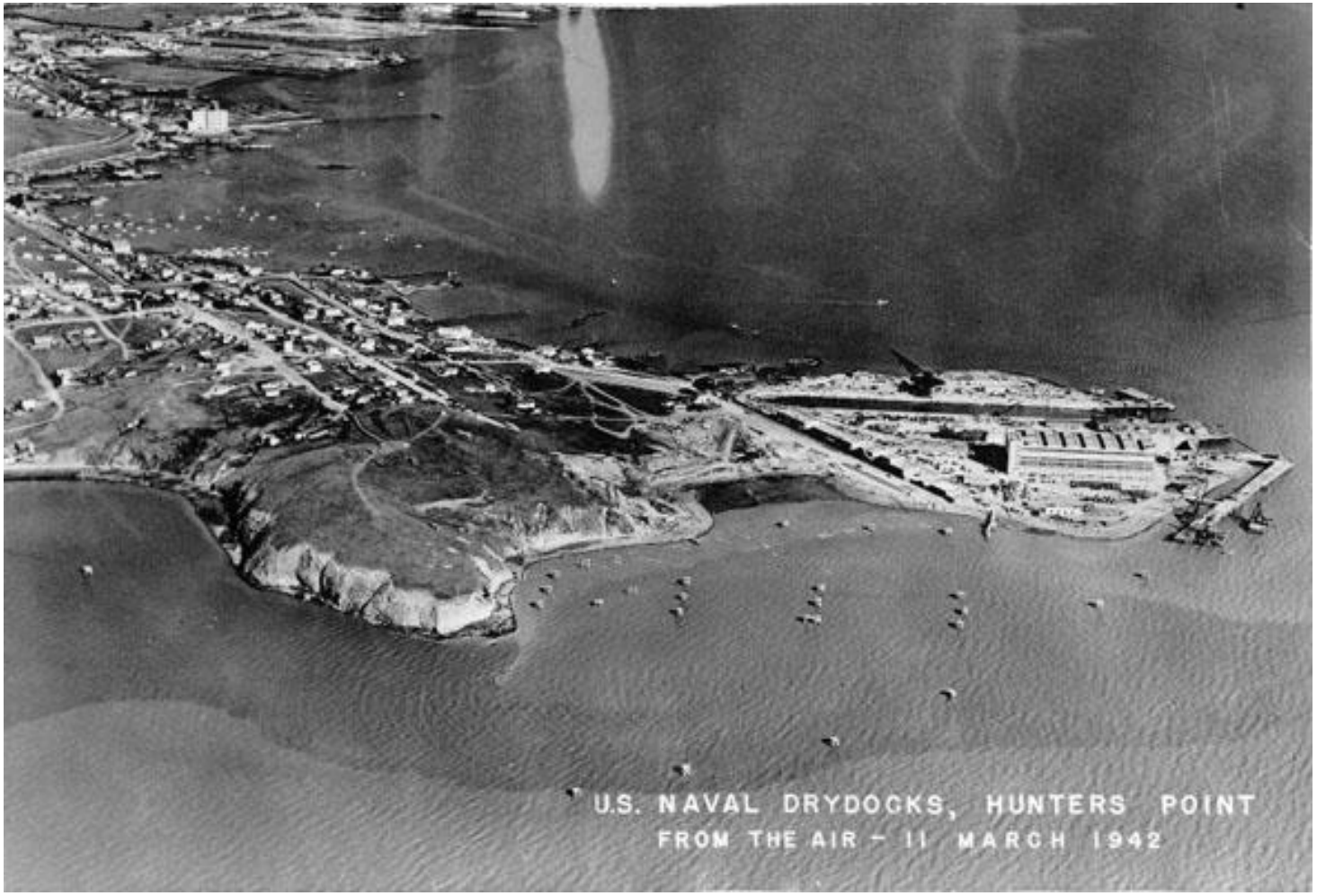


Quick History



- Cleanup from “Operation Crossroads” 1946
- National Radiological Defense Laboratory 1950s
- Deactivated 1974
- AAA Shipyard lease 1976 - 1986
- NPL 1989
- Designated for closure BRAC 1991

1942 Filling Begins



1946 Initial filling complete

General Onsite Contamination

- Soil
  - Radiological - Primarily Radium and Cesium but also some Strontium and Plutonium
    - Dials, markers, gauges, paint
  - PCB
  - Pesticides
  - Metals
    - High levels of lead (above 200,000 ppm) in east adjacent area (E2)

General Onsite Contamination

- Groundwater
  - Metals
  - Volatile Organic Compounds
  - PCBs

Hunters Point Location and Parcel Map