

# NRC Site Visit to Bay City License No. STB-527

Site Orientation  
Site Tour  
Discussion/Q&A

The Dow Chemical Company  
July 20, 2001

# Meeting Agenda

- Overview of Bay City Site Today
- Site Tour
- Q&A Discussion

# Site Orientation

- Background/History
- Original Decommissioning Plan
- Supplement to Ship to Envirocare
- Update on Current Activities

# Overview of Bay City Site Today

- Material has been continually removed from Bay City since 1996.
- Surface contamination area 77% cleared.
- Of 364 uncleared subgrids, 78 (an additional 4.8% of the total) are currently being remediated during 2001.
- The license has been extended through June 2003.

# Subsurface Contamination in the Saturated Zone

- Random subsurface contamination in the saturated zone initially discovered in 1997.
- This contamination was not contemplated in the original decommissioning plan.
- Full scale excavation of uncleared areas could cost as much as \$30 million or more.
- Full scale excavation is not expected to result in further risk reduction (i.e., not ALARA).

# Decommissioning Supplement Overview

- Supplement to the DP
- Saturated Zone Criteria
- Subsurface Analyses/Data
- Th-232/Ra-228 Ratios
- Dose Assessment
- Final Survey Plan
- Path Forward

# Supplement to the DP

- Dow is addressing the saturated zone contamination through a supplement to the DP.
- Supplement provides protocols for assuring SDMP action plan compliance at both the saturated and the unsaturated zones.

# Proposed New Unrestricted Use Criteria for the Saturated Zone

- Combine SDMP exposure rate and EPA drinking water standard to achieve ALARA:
  - Surface exposure levels less than 10 uR/hr at 1 meter (establish action levels per Microshield) .
  - Groundwater Ra-226/228 concentrations below the 5 pCi/L EPA Drinking Water Standard at license termination (directly measured w/ monitoring wells) and after 1000 years in-growth (extrapolated from Th-230).

# Plan for Subsurface Analyses

- Characterized subsurface contamination in uncleared grids.
- Determined existing groundwater Radium concentrations
- Estimate future Ra-226 groundwater concentrations by applying site specific ratio of Th-232 in soil (pCi/g) to Ra-228 in water (pCi/L) to estimated Th-230 levels.

# Subsurface Contamination Data

- The average Th-232 concentration of 344 core samples is 7.43 pCi/g.
- Removing the 7 samples higher than 25 pCi/g reduces the average to 1.24 pCi/g.
- Ra-228 concentrations range from 0.11 to 2.62 pCi/L (average = 0.83 pCi/L).
- Ratios of Ra-228 to Th-232 range from 8.3E-02 to 4.5E-04

# Th-232/Ra-228 Ratio Data

		<i>STL</i>	Th-232	<b>Ratio</b>
SUBGRID	QUAD	<i>pCi/L(Ra-228)</i>	pCi/g	<b>228:232</b>
C5-2	D	<i>1.1</i>	42	2.62E-02
F5-4	A	<i>2.62</i>	32	8.19E-02
F5-5	D	<i>0.52</i>	1167	4.46E-04
F5-6	D	<i>1</i>	154	6.49E-03
F7-3	A	<i>0.56</i>	30	1.87E-02
F7-4	A	<i>0.75</i>	9.6	7.81E-02
I5-5	C	<i>0.75</i>	279	2.69E-03
I6-8	C	<i>1.7</i>	56	3.04E-02

# Dose Assessment Scenario

- Recreational Intruder is the maximally exposed individual (MEI).
  - Determined from site-specific observations (e.g, hunting and recreational boating).
- Resident Farmer scenario is infeasible for the site conditions, and likely would yield a lower dose because of the need to add fill to raise surface elevation to support new structures.

# Final Survey Plan Protocols

- Surface exposure rate (uR/hr).
- Surface soil criteria (pCi/g).
- Unsaturated subsurface soil concentrations (pCi/g).
- Saturated subsurface soil concentration (pCi/g).
- SEE FLOWCHART

# Path Forward

- Continue surface remediation in 2001.
- Submit Supplement to DP by August 2001
- NRC approval of supplement prior to 2002 decommissioning schedule (3/1/02).
- Complete surface and subsurface remediation and verification by 2003.
- Apply for license termination by October 2003.