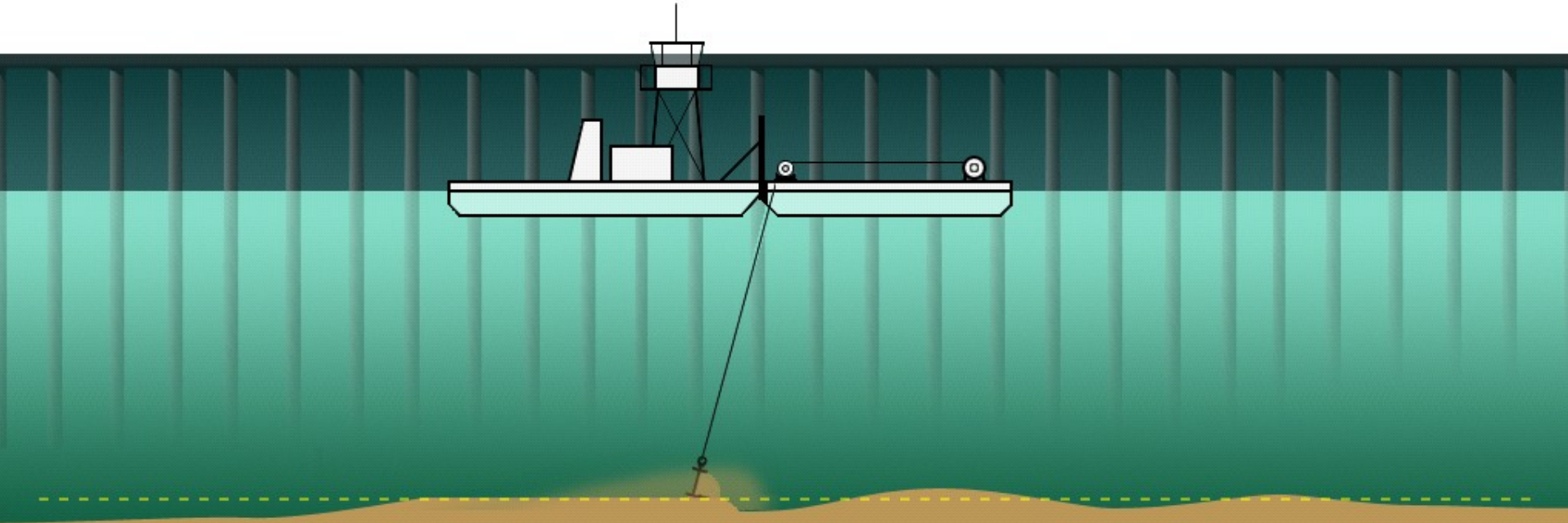


# Experiences from 2005 & 2006 Under Water Grading



Marcel Hermans, P.E.

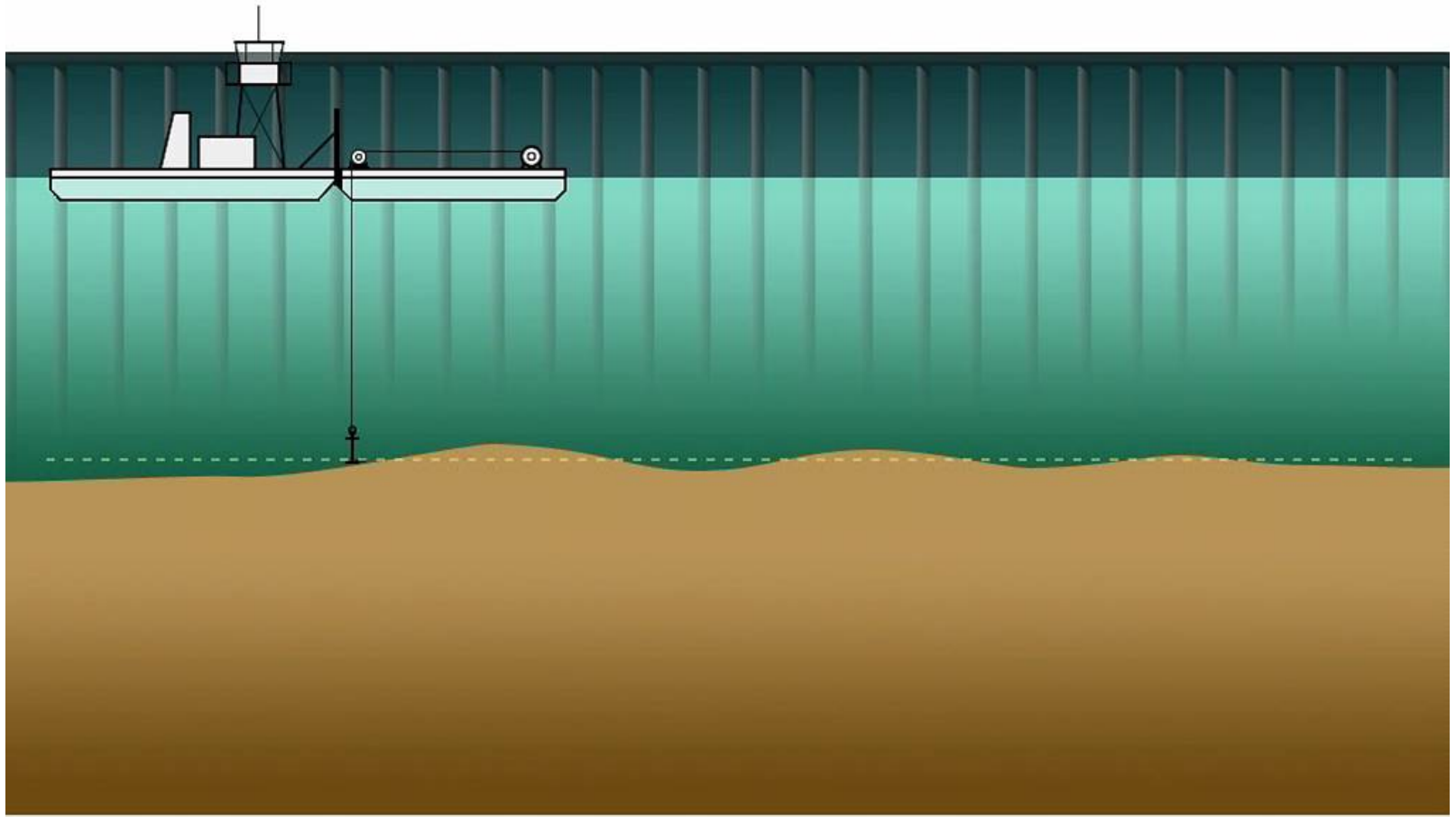
# Presentation

- The Under Water Grading Method
- Description of the 2005 & 2006 events
- Conclusions

# Under Water Grading

- Self-propelled barge with suspended beam
- Beam hang at targeted depth
- Beam pushes sediments from high spots into adjacent low spots within berthing area
- Built-in depth control
- Targeting just the high spots that would result in draft restriction
- Simple, localized activity

# The Concept of Underwater Grading



# The Merits of Under Water Grading

- Regular Maintenance Dredging
  - Has **lengthy** preparation times
  - Is needed when **highest** points obstruct vessel traffic
  - Typically targets **most** of berthing area
- Under Water Grading
  - Has the potential as **quick response** method
  - Targets **only high spots** that form the actual obstruction
  - Leaves sediments **in river system**

# Environmental Aspects

- Applied within active berthing area
- No return-water or upland disposal
- Sediments remain in river system
- Low turbidity
- Reduces dredging frequency
- Significant reductions in air emissions and fuel consumption



T6

T5

# T5 project at a Glance

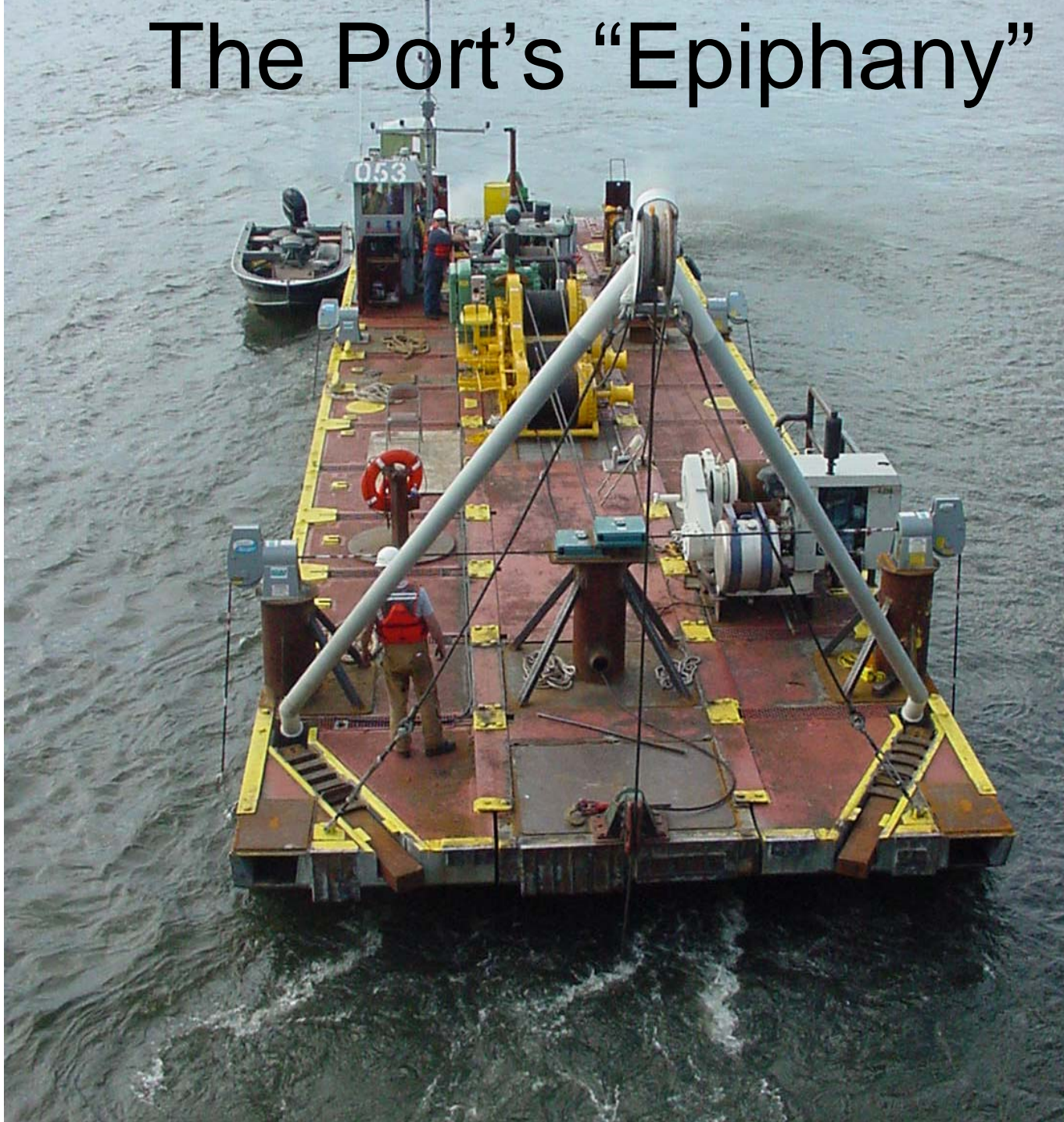
- 4 days of grading activity (July & Aug '05)
- 500 -1,000 cubic yards moved from high spots
- Operational cost : +/- \$ 25,000
- Preparation cost: > \$ 250,000
- Minimized tenant interruptions



# The Project in Pictures



# The Port's "Epiphany"



# Mobilizing the “Epiphany”





Beam in Lifted Position

# Grading at Berth 503



# Grading at Berth 501



# Grading at Berth 501



# Grading at T6





# Grading at T6



# Conclusions

- Method worked mostly as planned and anticipated
- Simplicity of method provides for quick and effective response with minimal tenant impacts
- Excellent depth and location control
- Sediment displacement is minimal compared to natural sediment movement
- Very low turbidity (even lower than expected)
- Ideal method for situations with minor high spots

**The End**