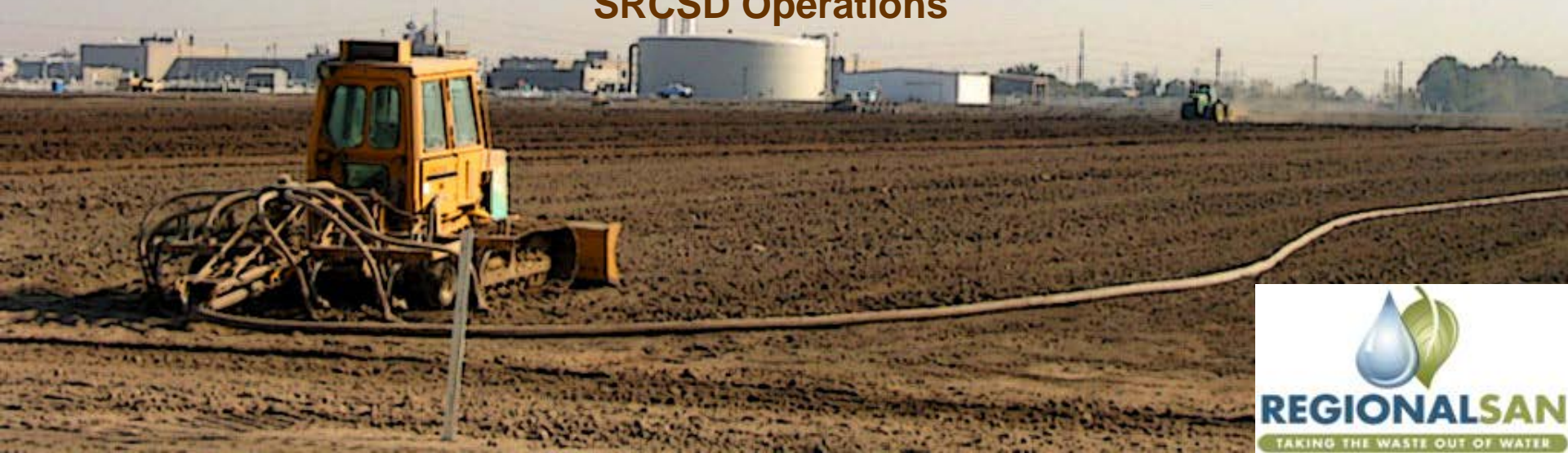


US EPA ARCHIVE DOCUMENT

California Bioresources Alliance Symposium 2013

September 19, 2013
CalEPA Lunch Presentation
*Overview of Today's Field Trip
to the Sacramento Regional
Wastewater Treatment Plant*

Presenter
Michael Donahue, Senior Civil Engineer
SRCSD Operations



Agenda

Overview of Field Trip – what's on the tour ?

Classroom Session ~ 60 minutes

- ✓ General overview of District, Interceptor System, and Plant
- ✓ Onsite solids handling program
- ✓ Biosolids Recycling Facility (BRF)
- ✓ The Bufferlands
- ✓ New FOG station
- ✓ Q&A

Walking tours ~ 2 x 45 minutes each

- ✓ BRF
- ✓ Fog station



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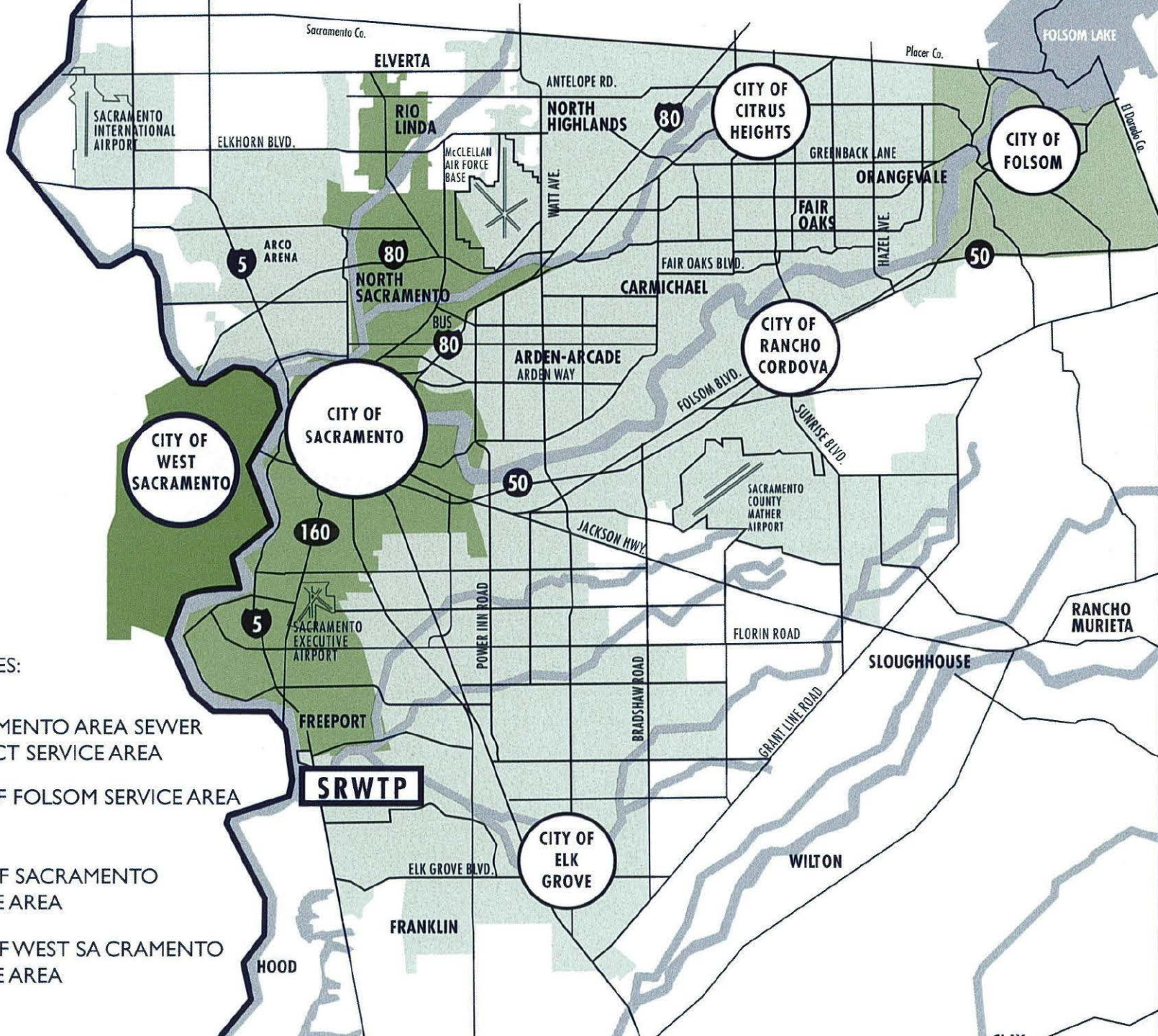
- ✓ BRF
- ✓ Fog facilities
- ✓ Lab (alternate for tour #1)



SRCSD Overview

- SRCSD
 - 1.4 million customers
 - 8 pump stations > 10 mgd
 - 177 miles of Interceptor pipes (8 to 12 ft. diameter)
 - 165 mgd Sacramento Regional Wastewater Treatment Plant
- Service Area
 - Sacramento Area Sewer District (SASD) – *the other Sanitation District*
 - Cities of Sacramento and West Sacramento (Yolo County)
 - Cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova



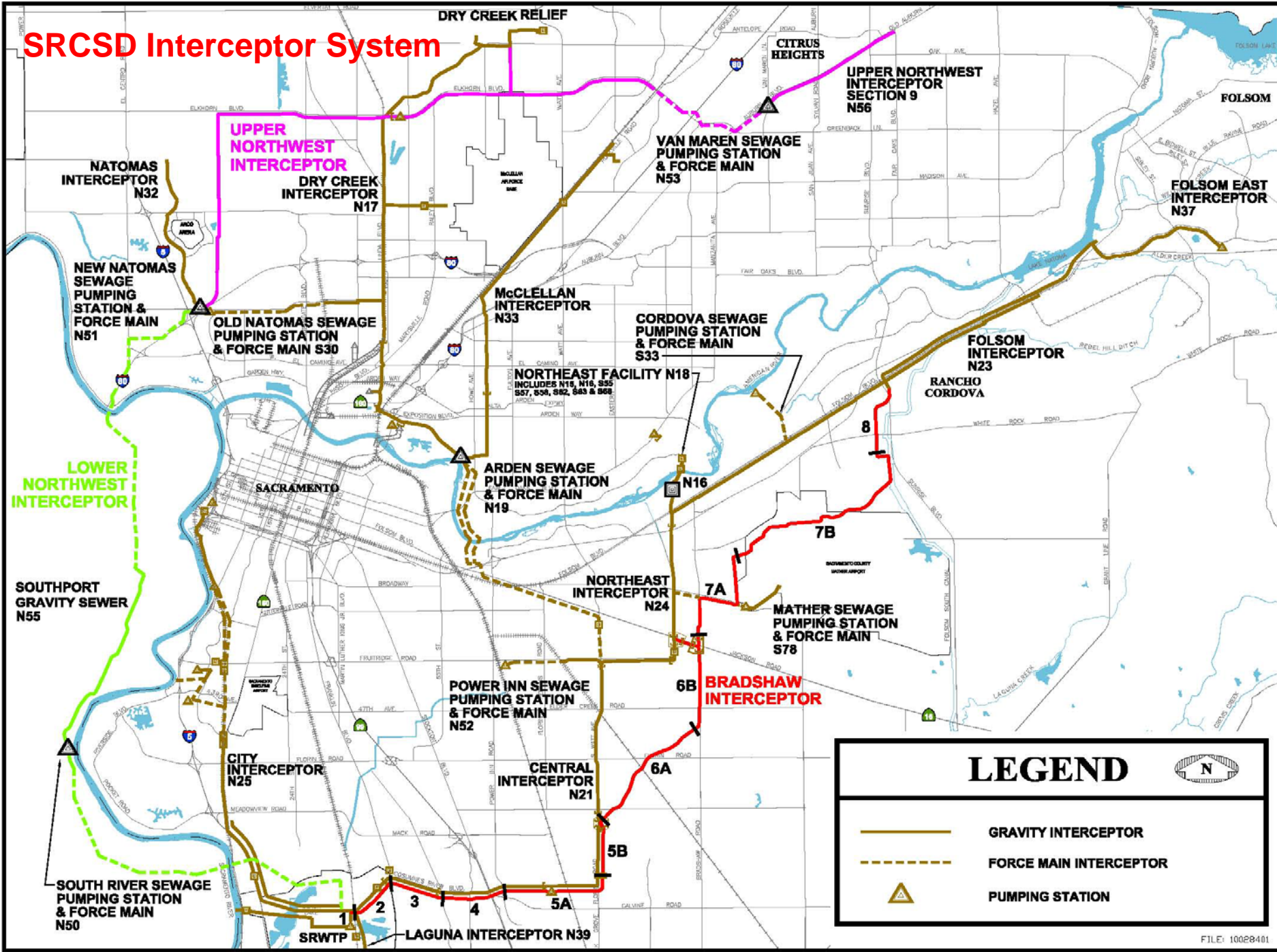


SRCSD SERVES:

- SACRAMENTO AREA SEWER DISTRICT SERVICE AREA
- CITY OF FOLSOM SERVICE AREA
- CITY OF SACRAMENTO SERVICE AREA
- CITY OF WEST SACRAMENTO SERVICE AREA

SRWTP

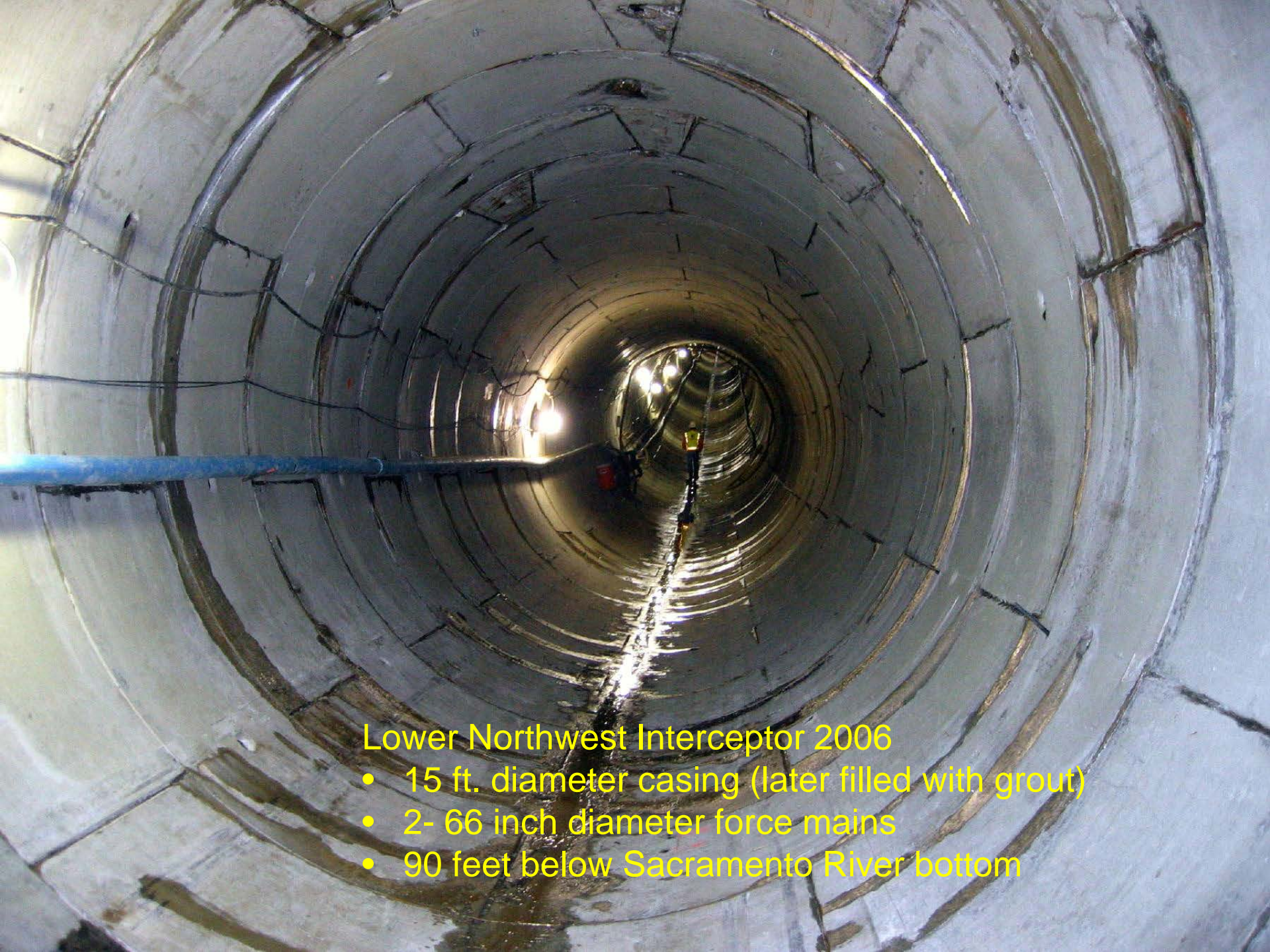
SRCSD Interceptor System



LEGEND

- GRAVITY INTERCEPTOR
- FORCE MAIN INTERCEPTOR
- PUMPING STATION





Lower Northwest Interceptor 2006

- 15 ft. diameter casing (later filled with grout)
- 2- 66 inch diameter force mains
- 90 feet below Sacramento River bottom

Sacramento Regional Wastewater Treatment Plant Tour

- 1:45 **Welcome**
Ruben Robles , Director of SRCSD Operations
- 1:55 **Overview of SRCSD and the Biosolids Recycling Facility**
Michael Donahue, Senior Civil Engineer , Operations
- 2:10 **Bufferlands**
Bryan Young, Natural Resource Supervisor
- 2:25 **FOG Station**
Grayson Kohls, Associate Civil Engineer II, Operations
- 2:40 **Quick Break, followed by tour one (BRF or FOG)**
Each Tour lasts 45 minutes
- 3:30 **Return to Commons Area to switch destinations for tour two**
- 4:15 **Bus Leaves for downtown**



- Sneak Preview - this afternoon's tour
 - Plant
 - BRF
 - FOG
 - Bufferlands





SRWTP

SRWTP Administration



Plant Control Center





Synagro Biosolids Recycling Facility (BRF)



SYNAGRO

**SYNAGRO ORGANIC FERTILIZER COMPANY
OF SACRAMENTO, INC.**

Biosolids Recycling Facility
In partnership with
Sacramento Regional County Sanitation District

8600 Laguna Station Rd.
Elk Grove, CA 95758
Community Information (916) 690-6281

SRCS D
Sacramento Regional County
Sanitation District

FOG Station



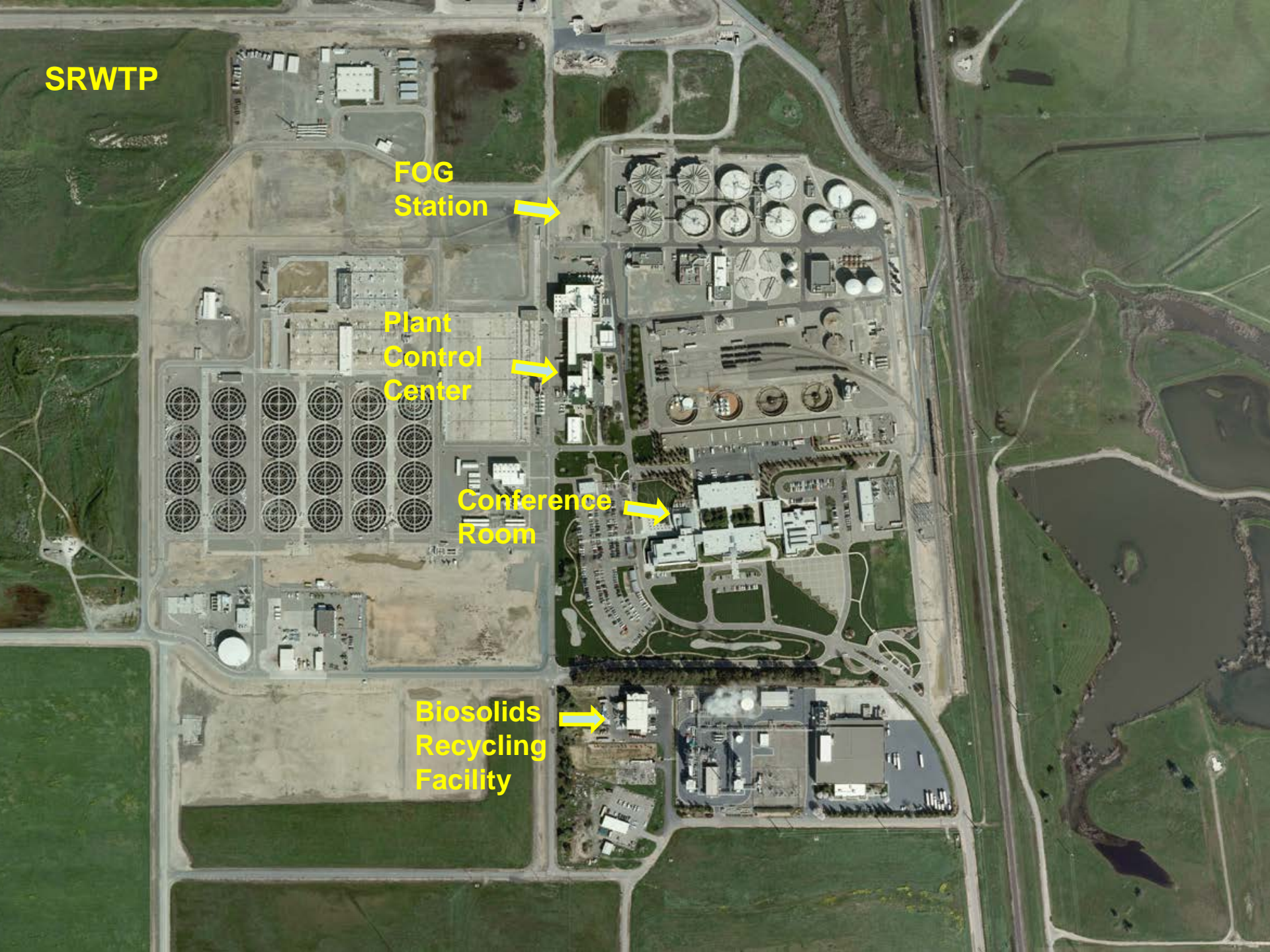
SRWTP

**FOG
Station** →

**Plant
Control
Center** →

**Conference
Room** →

**Biosolids
Recycling
Facility** →



- Solids Handling Process – special lunch topic
- Sneak Preview - this afternoon's tour
 - Plant
 - BRF
 - FOG
 - Bufferlands ?





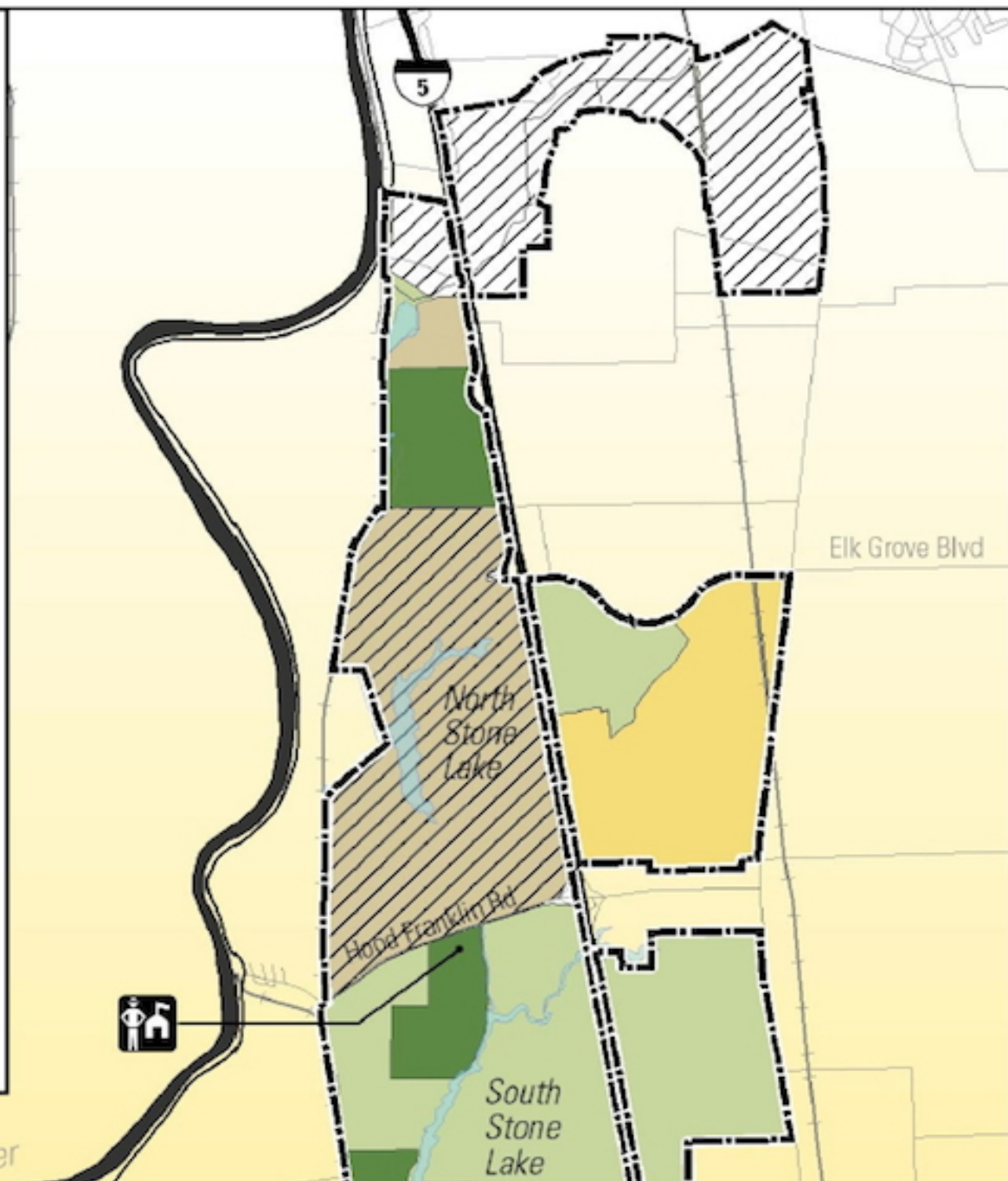
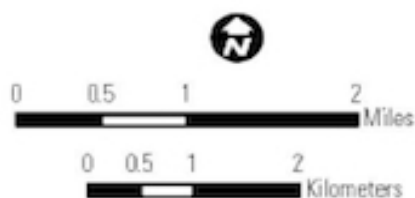
Bufferlands – 2,650 acres

**SRWTP
Process Area
900 acres**

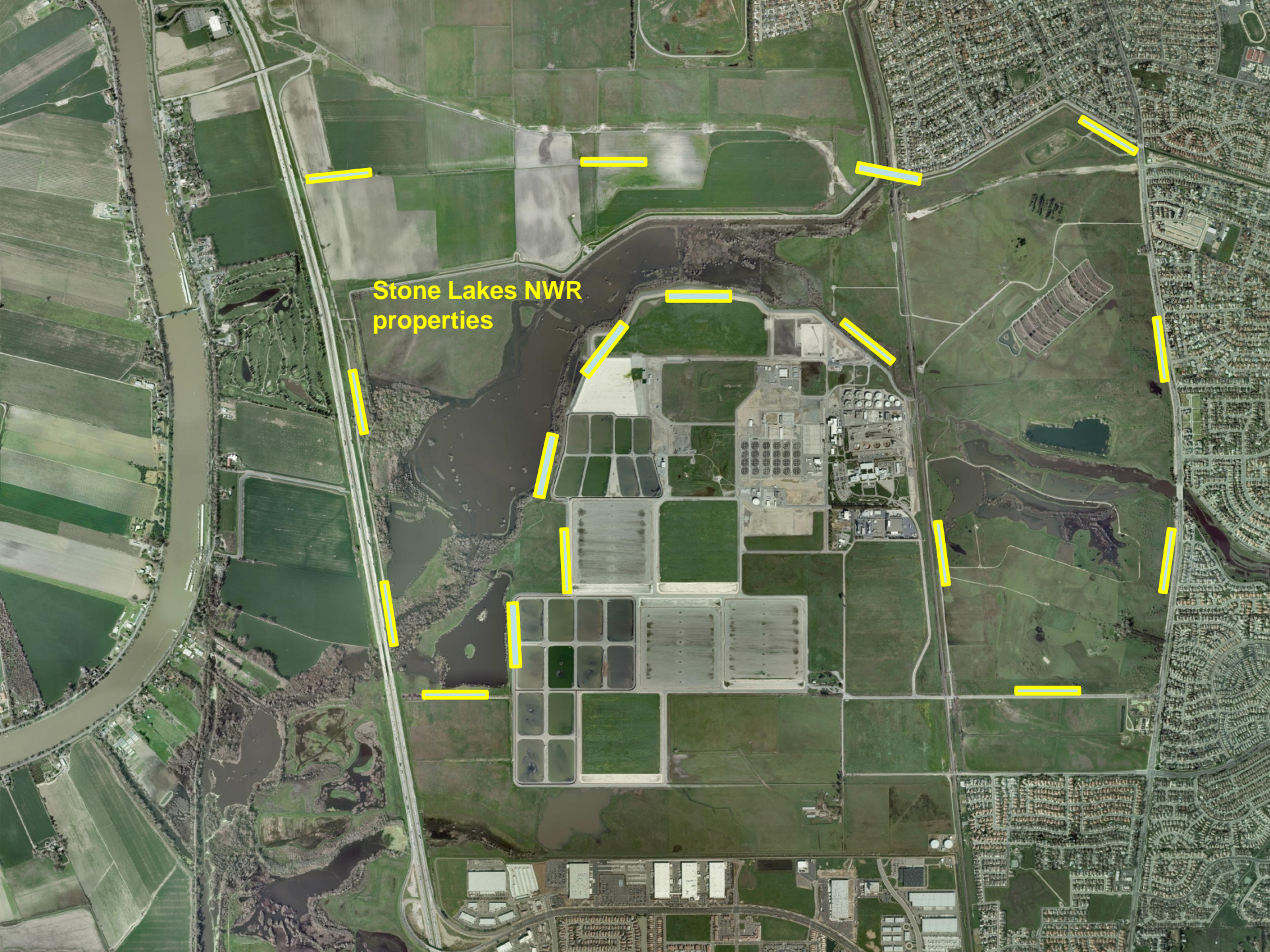
2010
Land Status

**Stone Lakes
National Wildlife Refuge**

- Cooperative Agreement
- Conservation Easement
- County or State Land
- Private Ownership
- Owned in Fee Title
- Approved Refuge Boundary
- Refuge Headquarters



Stone Lakes NWR
properties





Riparian Oaks







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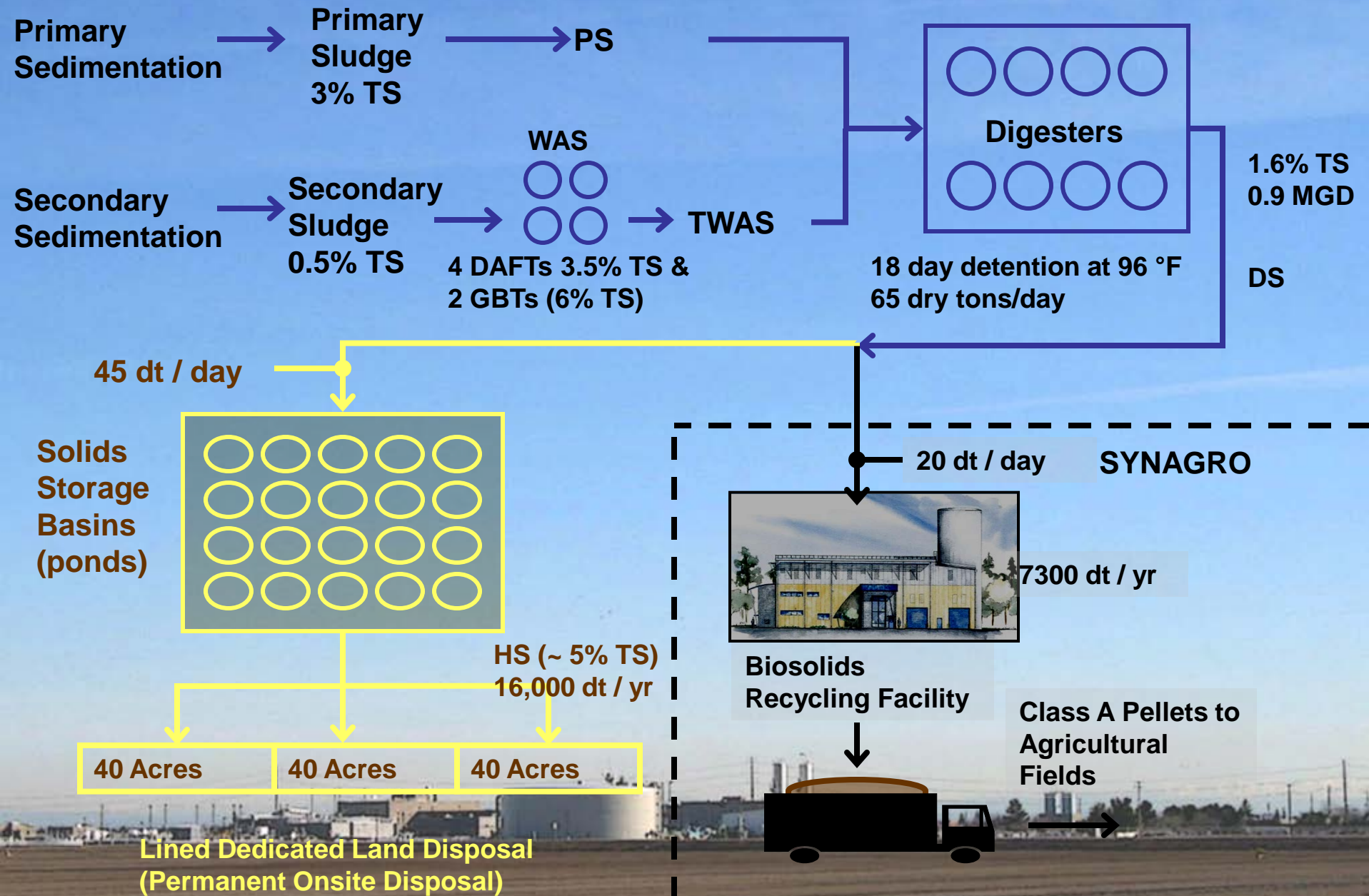
- Onsite Solids Handling Process
 - Inexpensive to handle & dispose
 - West Coast Plants - \$400 - \$550 per dry ton
 - SRWTP onsite handling process - \$150 per dry ton
 - No thickening required
 - No hauling distance for disposal
 - Permanent onsite disposal

Notes

- Solids injection production depends on length of dry season
- 15,000 to 20,000 dry tons
- Future outlook - Onsite disposal will increase



SRWTP Solids Handling Program



SRWTP Solids Handling Program

On Site Disposal at SRWTP

- SSBs - Solids Storage Basins (lagoons)
 - 20 ponds; 125 acres
 - Sludge harvested from ponds May to November

- LDLDs - Lined Dedicated Land Disposal fields
 - *Permanent* disposal in 3 fields, 120 acres total
 - Inject beneath surface
 - Application rate
 - 150 dry tons per acre per year



SRWTP Solids Handling & Disposal Process

SSB - I

LDLD 2

1

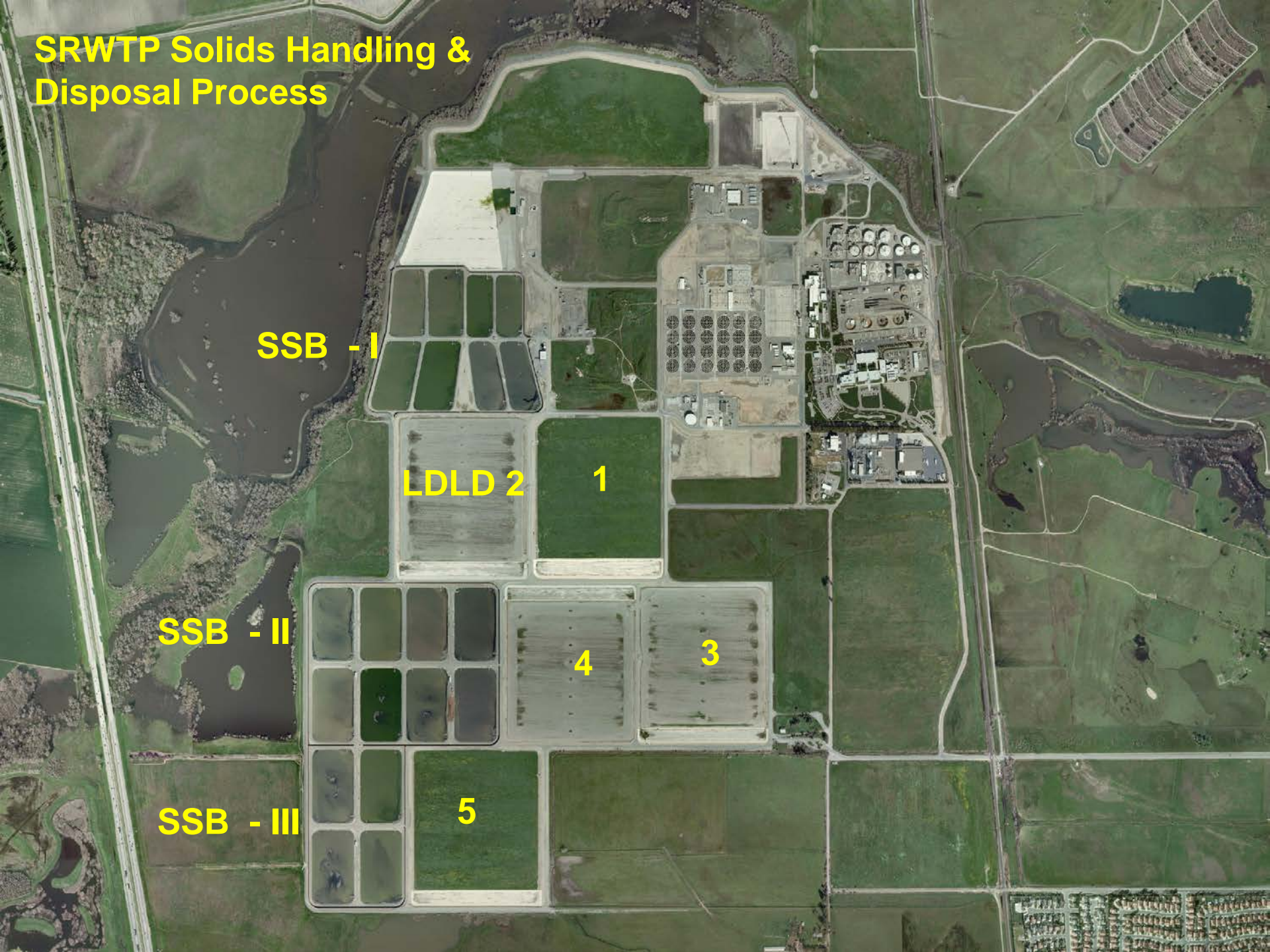
SSB - II

4

3

SSB - III

5



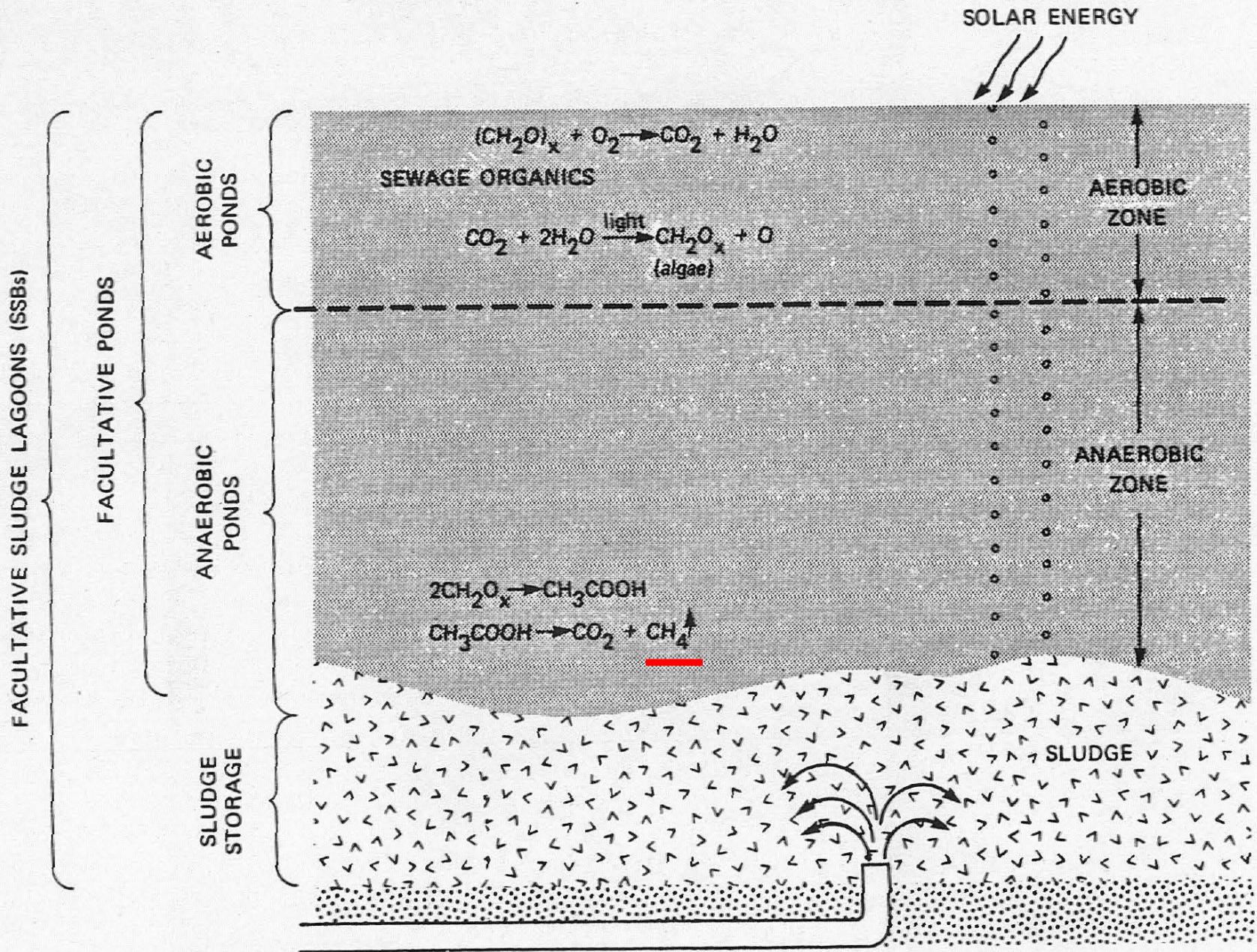


**Anaerobic Digester with external Draft Tube mixers
Constructed in 1996**



Solids Storage Basin (SSB)
2 ft. of clean water cap as odor barrier

Aerator/mixer keeps algae alive



Facultative Sludge Lagoon (SSB) Process Schematic

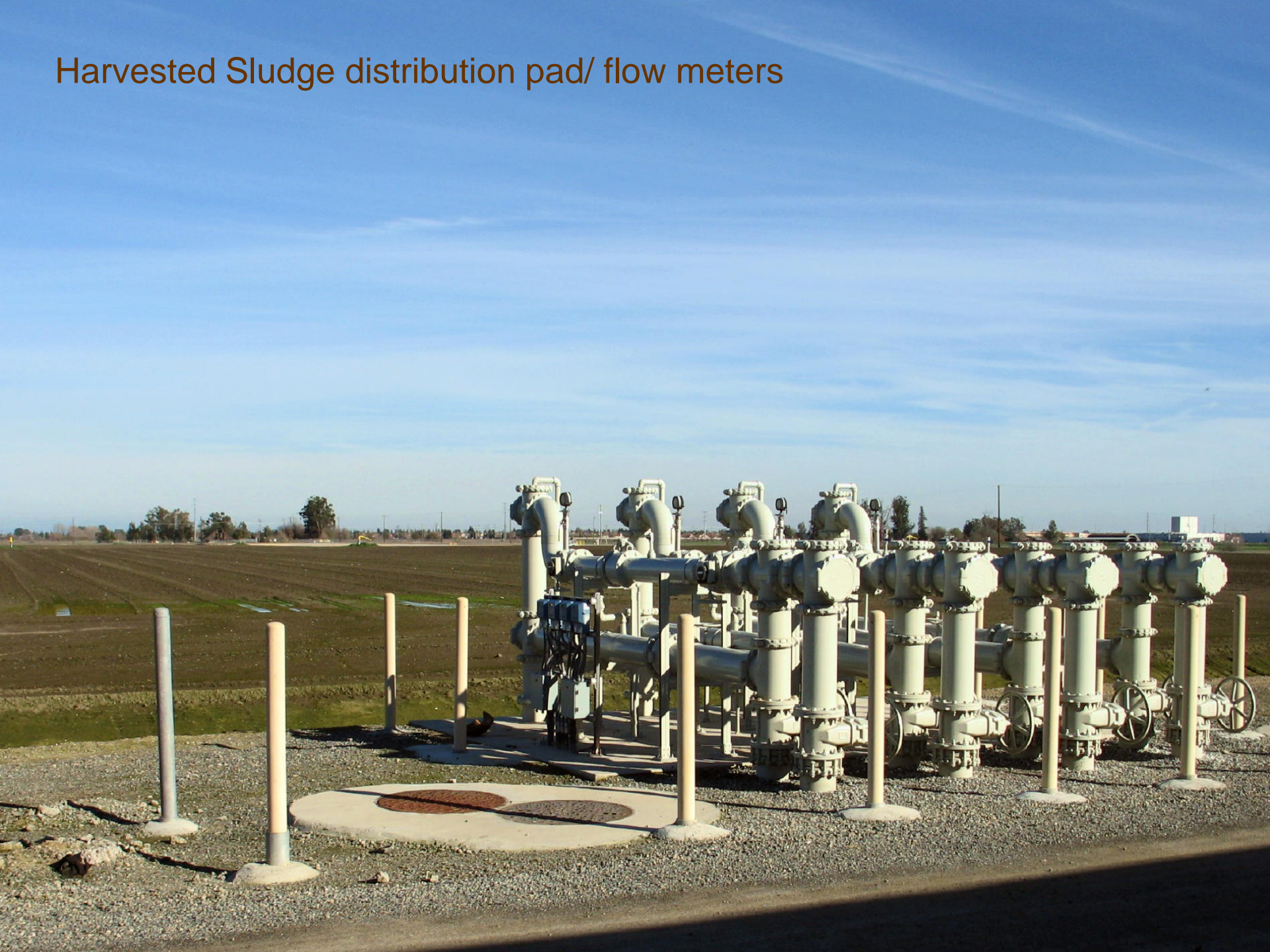
Solids Storage Basins

Dredging Operation - April to October





Harvested Sludge distribution pad/ flow meters





Injection of 6% TS solids
Disc + Plow + Disc maximizes evaporation
3 day turnaround until next Solids Injection







Recent History - Solids Disposal

- 1982 to 1999 – 20 solids storage ponds & 5 disposal fields
- 1990s - RWQCB concerns
 - Groundwater aquifer - 30 ft. below solids injection fields
 - Nitrate detected at monitoring wells
 - SRWTP constructed perimeter ground water collection system



Recent History – Solids Disposal

- 1999 - RWQCB Cease & Desist Order
 - SRWTP had to close five DLDs or line them
 - Effective Nov. 1999; extended to Nov. 2001
 - Eventually lead to Lined DLD option (2002, 03)
 - And to the BRF (2004)



C&D Order

Impact to Solids Handling Program

- BOS Decision
 - Proceed with design/construction of 3 LDLDs
 - Onsite to handle 70% of digested solids load
 - Close other two DLDs (w/ ET Cover)
 - RFP and Negotiate for design-build-own-operate pellet plant
 - Offsite disposal of 30% of digested solids load
 - EPA CFR 503 - Class A biosolids pellets
 - Heat drying – retains the nutrients
 - Synagro – lot of hauling/land application experience
 - *BRF presentation – later at the Plant*



Lining the DLDs

- Lined DLD Design
 - Leachate Collection and Return System (LCRS)
 - Compacted clay subgrade; 60 ml liner
 - A foot of pea gravel
 - Geomembrane; native DLD soil
 - All percolation water collected & sent to headworks
- Construction
 - DLDL 2 & 4 completed in 2002; LDLD 3 completed in 2003
 - Total cost \$21M





clay



Biosolids









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Questions ?

