

**Attachments to the January 18, 2007, Minutes  
for the Los Angeles County  
Integrated Waste Management Task Force**

# Terminal Island Renewable Energy Project

**Bureau of Sanitation  
Department of Public Works  
January 18, 2007**



# Background

- ❖ Over one million tons of treated municipal biosolids are generated each year in Southern California
- ❖ 1/4 of that is generated by the City
- ❖ Currently, the City's pathogen-free, exceptional quality Class A biosolids material is mainly spread on farmland in Kern County for non-food crops.

# Challenges

- Kern County Ordinance
  - Biosolids Ban
  - Relocate Farm to Protect Groundwater Banking
- Proposed SB 926:
  - "Each county acquire, own, and operate land to dispose of their own waste in their county"
- Kern Ballot Initiative
  - Ban biosolids in City owned farm
  - Measure E passes, June 2006
- Proposed SB 55-more stringent testing requirements and indemnification

# Biosolids Beneficial Use/Disposal Alternatives

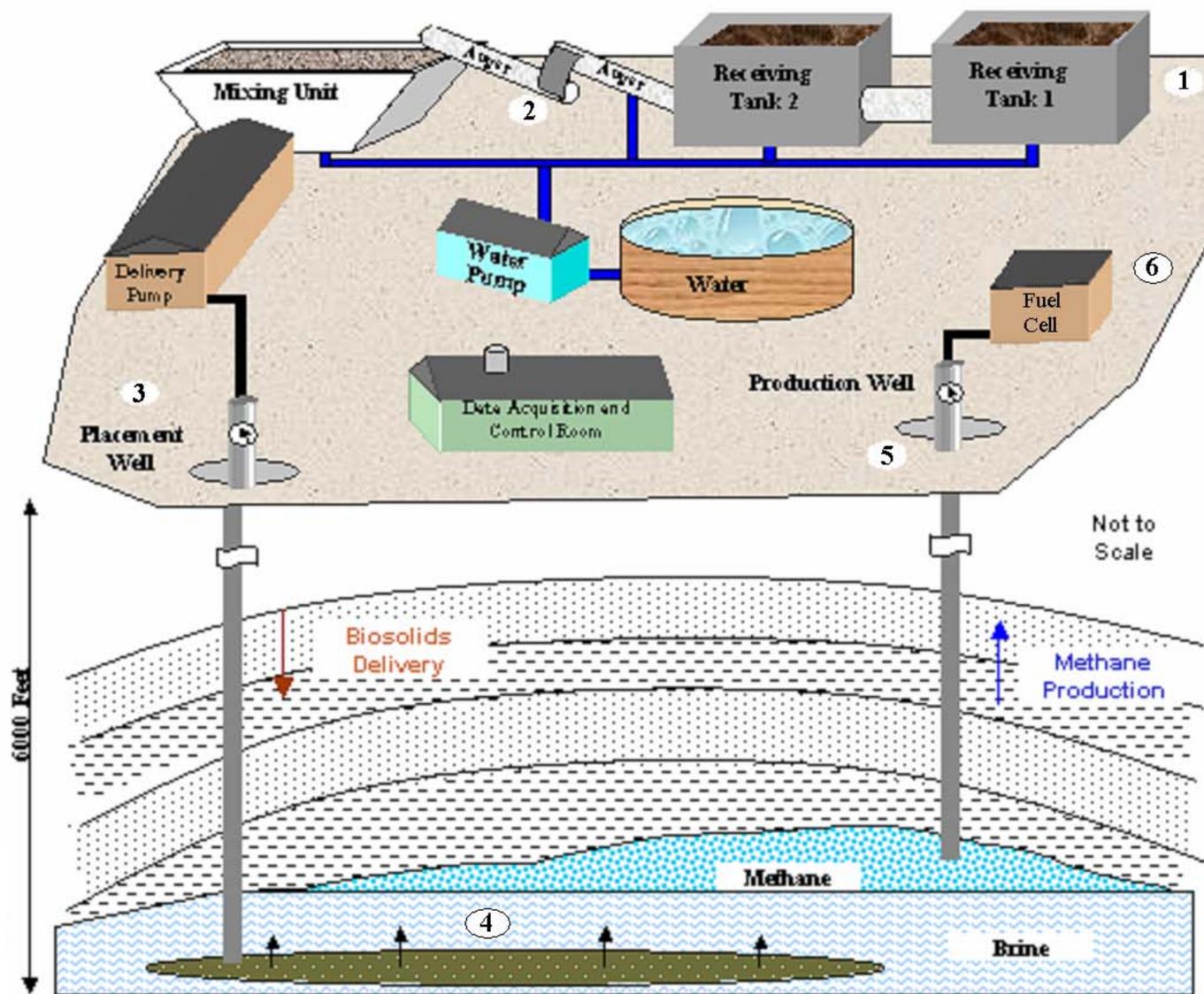
- Land application & land farming
- Bioremediation & compost
- Thermal conversion for energy recovery
- Heat drying/pyrolysis/gasification
- Chemical fixation for soil amendment
- Landfill & landfill cover
- Glass aggregate
- Incineration

# Renewable Concept

- Converts biosolids to renewable fuel through deep subsurface placement, thermal treatment & biodegradation
- Utilizes abandoned/depleted oil & gas reservoirs
- Uses proven technology widely used in the petroleum industry
- Can use the generated methane in fuel cell units to produce green power
- Offers a long-term solution with superior economics
- Environmentally-sound with renewable energy benefits

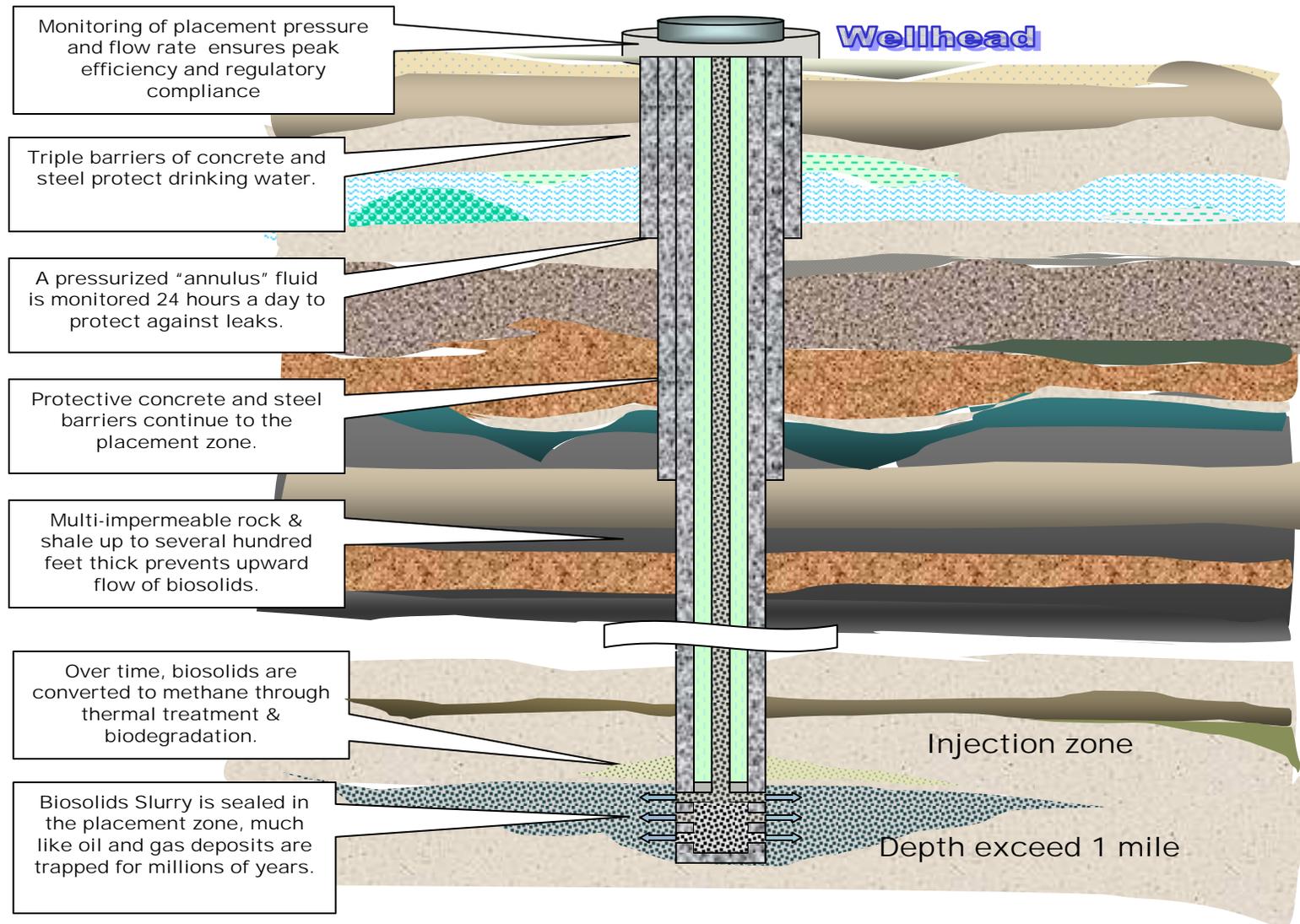
# Why Renewable Energy?

- Subsurface anaerobic biodegradation [digestion] converts biosolids to methane and inert CO<sub>2</sub>;
- CO<sub>2</sub>, a greenhouse gas, will be permanently sequestered in the formation brine;
- Methane will be captured for beneficial use;
- State-of-the-art fuel cell system will be provided by DWP to generate green power;
- Sustainable energy resource within City boundaries;
- Reduces dependency on natural gas.

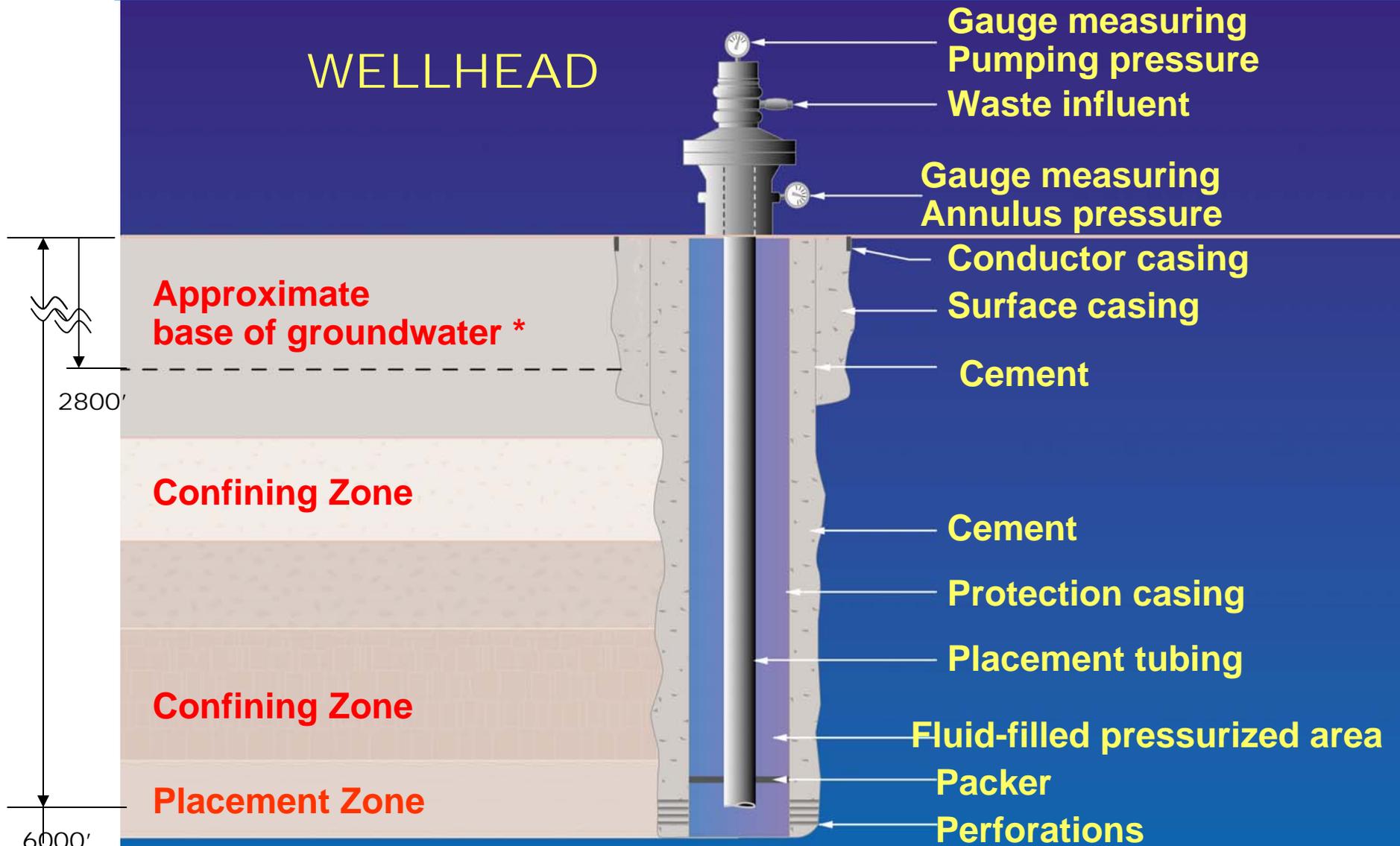


# Biosolids Placement Safeguards

Protecting Public Health and Drinking Water Resources

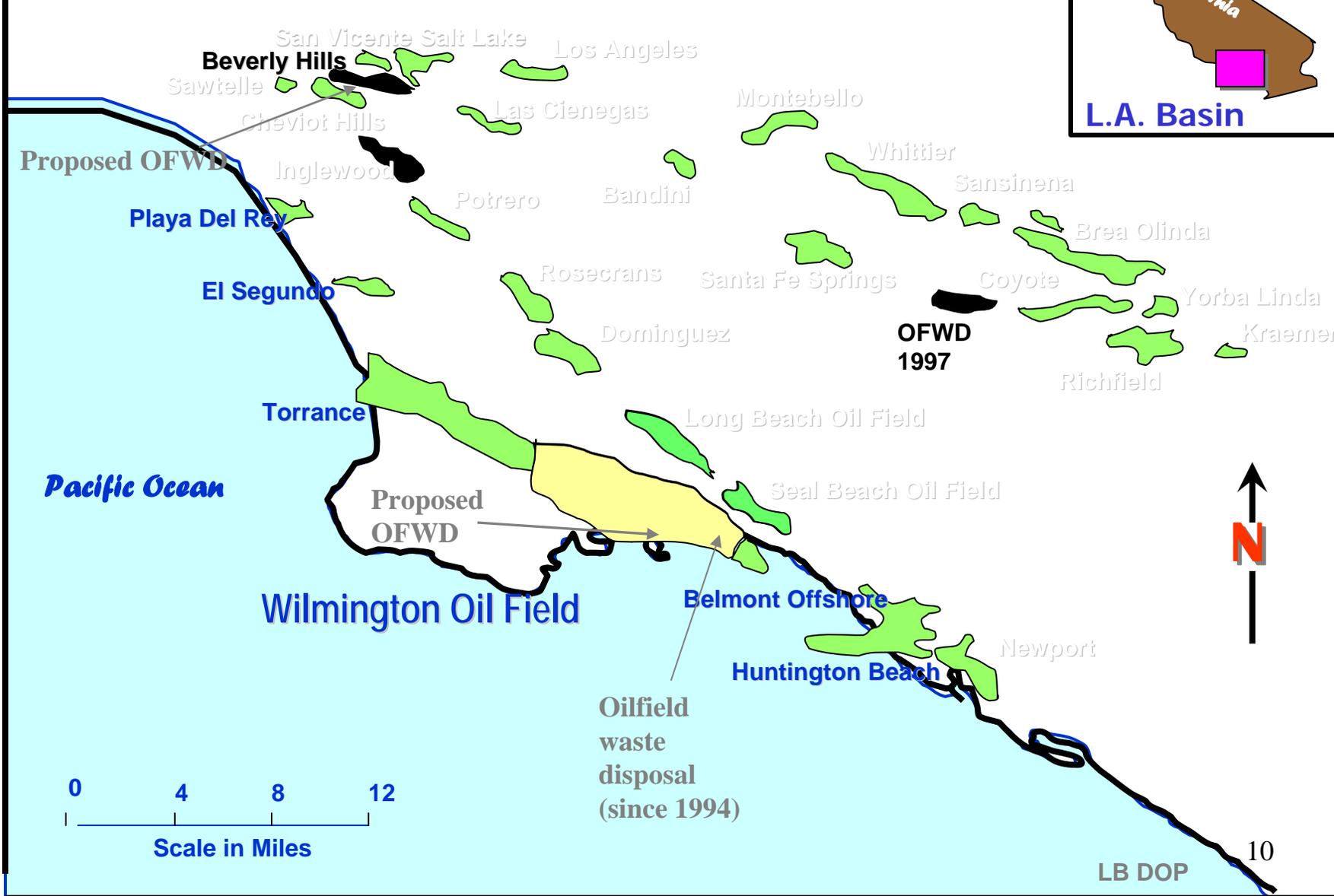


# Well Construction



**EPA** \* Not suitable as drinking water

# Regional Oil Fields



## Why Terminal Island ?

- Within the City and treatment facility boundaries
- In an Industrial area
- Ideal geology
- Use tertiary effluent or BRINE\*



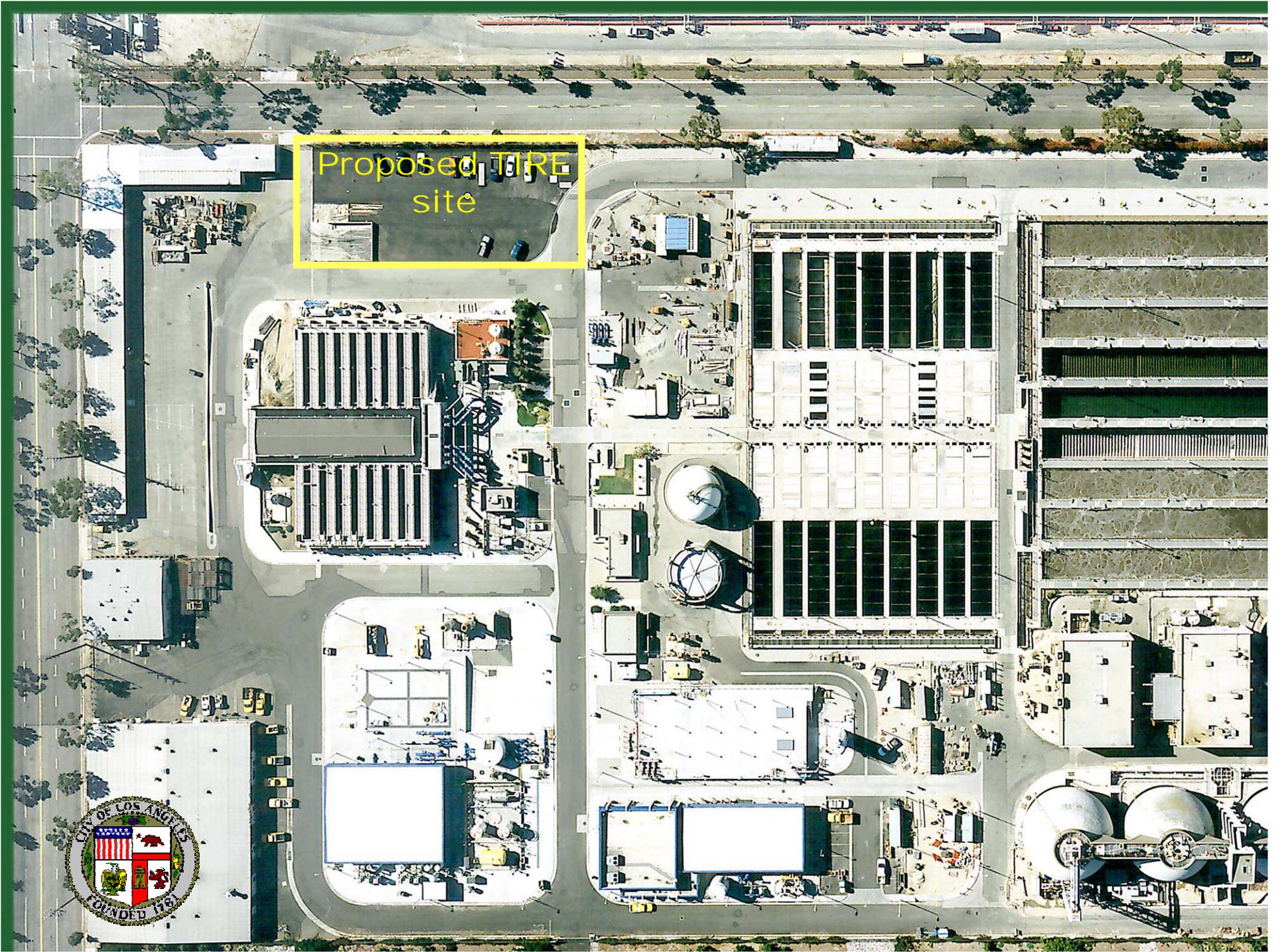
# Current Oilfield Waste Disposal Projects

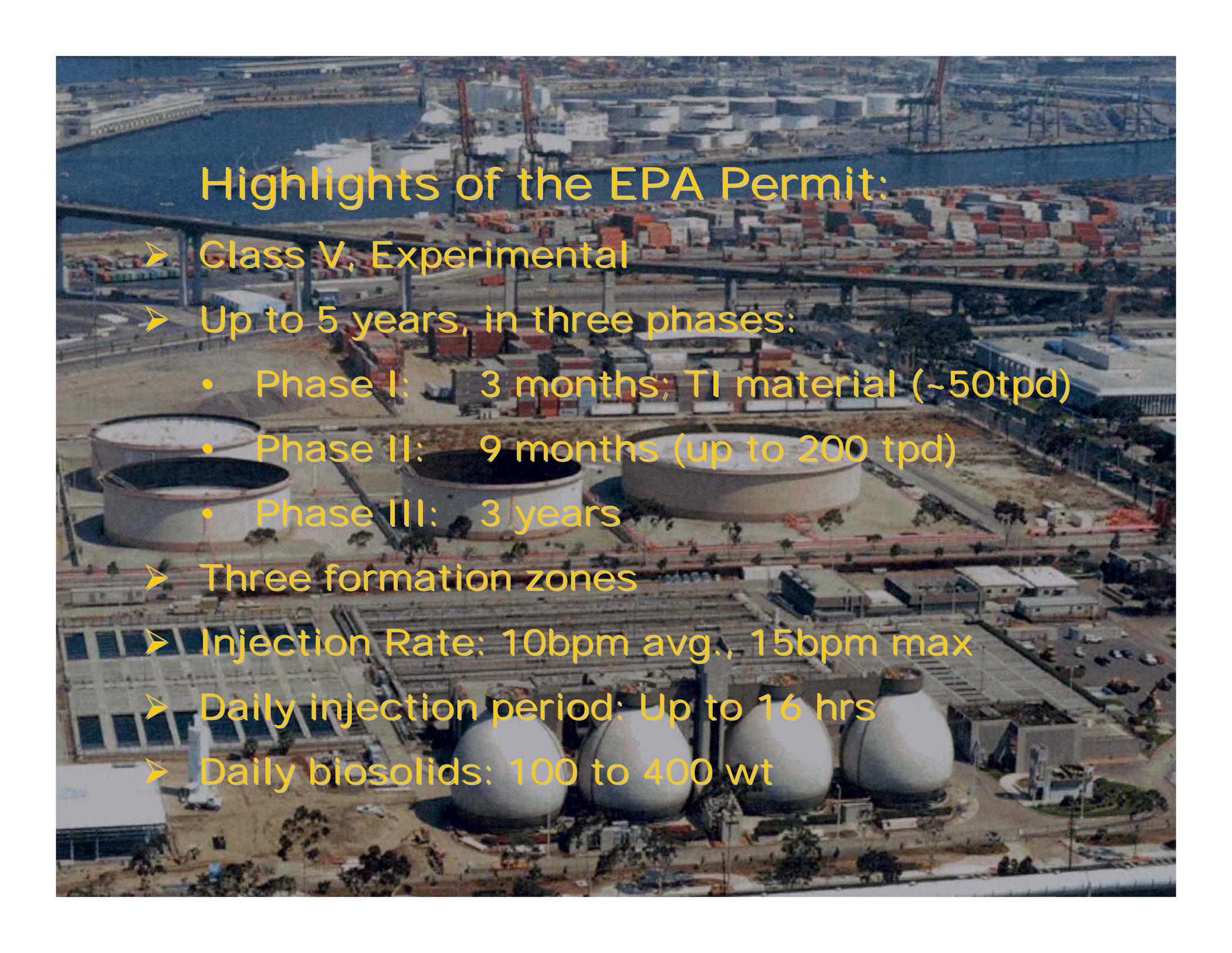
Source: State DOGG

<u>Field</u>	<u>Year Started</u>	<u>Amount (Bbl/day)</u>	<u>Depth (Tvd)</u>
Oxnard	1996	1,000 - 1,600 b/d	2000 ft
Inglewood	1998	500 b/d	2900 ft
Wilmington*	1994	800 - 1,200 b/d	4500 ft
<b>TIRE</b>		<b>300 – 1150 b/d</b>	<b>6000 ft</b>

\* Over 2 Million bbls since 1994

Proposed TIRE site





## Highlights of the EPA Permit:

- Class V, Experimental
- Up to 5 years, in three phases:
  - Phase I: 3 months; TI material (~50tpd)
  - Phase II: 9 months (up to 200 tpd)
  - Phase III: 3 years
- Three formation zones
- Injection Rate: 10bpm avg., 15bpm max
- Daily injection period: Up to 16 hrs
- Daily biosolids: 100 to 400 wt

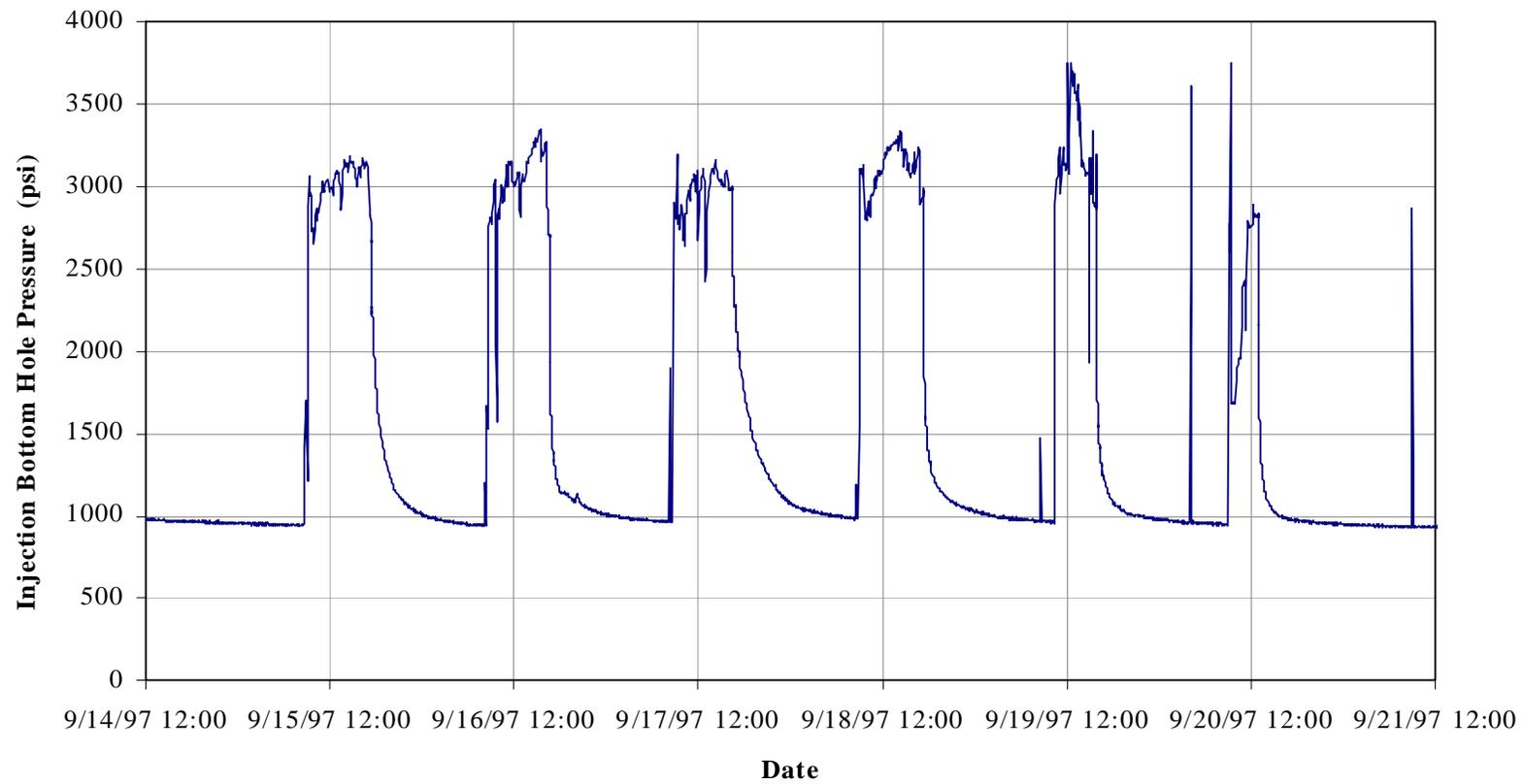
# Project Features

- A 5-year demonstration project
- US-EPA issued final Class V permit
- Will use a multiple casing, heavily protected delivery well for the placement of biosolids;
- Natural heat deep in the earth biodegrades the material to methane and carbon-dioxide;
- Placement zone is protected by at least a dozen impermeable confining layers and major fault lines:  
**Isolation, Protection, and Confinement;**

•(Cont'd)

# Project Features (cont'd)

- Three new wells to be drilled for placement and monitoring
- Wells will be monitored by a series of state of the art technologies, including:
  - Geophones, tilt meters, gamma ray, density meters, pressure probes, micro-seismograms, etc.
  - Signal from USGS, and area of review (3 wells)
- Extensive lab analysis: gas, formation fluid, pathogens, etc.
- Dedicated control room with alarms to main CR
- Depressurization period (8-10 hours)
- Phased approach in increasing the process capacity, 50 tons increase in every 90 days



# Project Safeguards

**Regulations:** 40CFR 123,144-148 (UIC), 40CFR 503 (biosolids);

**Permits:** EPA, Coastal, Harbor Dept., SCAQMD;

**Public Outreach:** Conducted more than 40 project presentations and tours to NC's, PCAC, Mayor's Office, CD15, MWD;

**Partnerships & Participants:**

LADWP, Cal-Tech, Berkeley National Lab, DOE's National Argonne Lab, Terralog Tech, USGS;

# Project Safeguards

## Technical Advisory Committee:

- EPA's Offices of Ground Water Protection, Underground Injection Control (UIC), and Biosolids Management;
- State of CA, Division of Oil, Gas, and Geothermal;
- California Institute of Technology (CalTech);
- US Geological Survey (USGS);
- Lawrence Berkeley National Lab.

## Oversight Committee:

Mayor's Office, CD15, NC reps, Harbor, BoS, BoE, Environmental Community and PCAC.

## FAQS

### ➤ Is there any water quality impact? No

Biosolids are placed into deep, isolated formation, separated from the lowermost groundwater by at least 1/2 mile and many layers of impermeable natural barriers.

By incorporating state-of-the-art technology, the mechanical integrity of biosolids placement is guaranteed.

Delivery well is protected with multiple concrete casings

### ➤ Is there any adverse air quality impact? No

Reduction of truck traffic will improve air quality in the Los Angeles Basin

Eliminates dust, odors, surface emissions, etc.

Reduces greenhouse gas released to atmosphere

Utilizes green power fuel cell units to generate electricity (up to 3500 kw) to power 3000 City residences

### ➤ What happens during earthquake?

System automatically shuts off, wells will be completely bottled-up and inspected.

### ➤ Would this project prevent further settlement of the ground in the Harbor area? Yes.

The ground in the Harbor area has subsided 25-30 ft. over the last many decades.

### ➤ What happens to biosolids?

Biogenesis: Organics transform to methane gas and oil, and inorganic stay there for many millions of years.

### ➤ How would this project enhance oil and gas production?

Migration: More than 35% of in-situ oil and gas still trapped in the reservoirs.

### ➤ How far is this proposed project from the nearest residential area?

At least one and a half miles.



# SUMMARY

1. T.J.R.E. will produce renewable energy in a safe and effective fashion;
2. Utilizes decades-old proven technology currently in use by the petroleum industry;
3. Sophisticated delivery and state of the art monitoring equipment ensures safe and proper handling;
4. All work performed on city-owned property and monitored by trained city employees and contract experts;



(cont'd)

## SUMMARY (cont'd)

5. Environmentally responsible project and in compliance with all regulations;
6. Improves air quality, protects water quality, and eliminates odors;
7. Can use brine as dilution (re-slurry) water;
8. Modest capital cost (\$3-4 millions);
9. Long term prospect;
10. Substantial cost savings to tax payers.



# PROJECT STATUS

1. U. S. EPA permit approved November 2006
2. CEQA documents completed, awaiting City Council approval
3. Port of Los Angeles permit approval.
4. Development Contract executed with contractor



# ADDITIONAL INFORMATION

1. Terminal Island Renewable Energy Project
2. City's biosolids management program
3. Kern County legal challenge

Website:

<http://www.lacity.org/SAN/biosolidsems/index.htm>



# Update on Franchise Solid Waste Collection System for Unincorporated Communities



County of Los Angeles

Department of Public Works

Hossam Banna, P.E.

Program Development Section

Public Works, EPD



# Current Status

- We have identified an estimated 30 franchise areas.
- Awarded 5 exclusive Franchise residential agreements (La Crescenta/Montrose, West Whittier, South San Gabriel, Basset/Valinda, Rowland Heights)
  - Implemented La Crescenta/Montrose in January 2007
  - Three areas are scheduled to be implemented in April 2007
  - One area is scheduled to be implemented in July 2007



# Current Status

- Four additional franchise areas are scheduled to be implemented in fall 2007
- We have conducted over 50 community meetings and anticipate an additional 40 meetings to be conducted in 2007.
- We are currently identifying programs that can address community needs, increase the diversion rate and increase recycling awareness for our residents.



# Why Change the Current System?

The current system is not able to:

- Meet AB 939 Waste Reduction Mandate
- Regulate Rates
- Ensure Service Excellence



# Types of Franchise Agreements

- **Exclusive** - One hauler collects solid waste in a designated area following a competitive process
- **Non-Exclusive Agreement** - More than one hauler may collect solid waste in a designated area following a competitive process
- **Semi-Exclusive Agreement** - Same as non-exclusive except the number of haulers is limited



# Proposed Standard Scope of Services

- Automated Three-Can Service, Once a Week
- Unlimited Bulky Item Collection at the curbside
  - 2 Free Collections/Year
  - Combination of furnitures, appliances, consumer electronic devices such as: TVs, CRTs, computer monitors
- Annual Clean-Up Event
- 4 Community Clean-Up Projects



# Proposed Standard Scope of Services

- Standard Senior Discount
  - 65 years or older, head of household and qualify for a Lifeline utilities discount
- Roll-out Services – no additional charge
  - Manual cart roll-out for customers who are 65 or older and/or disabled



# New and Innovative Recycling Programs

- Waste haulers will pay a 10% franchise fee to the County. County Franchise Ordinance requires funds collected to be used for solid waste management and the implementation of new and innovative recycling programs in your community, such as:
  - Universal and Electronic Waste Collection Events
  - Additional Household Hazardous Waste (HHW) Round-Up Events
  - School Recycling Pilot Program
  - Waste Tire Recycling Program
  - SHARPS disposal program
  - Residential Recycling Incentive Program
  - Smart Gardening Workshops



QUESTIONS?

**STATUS OF STATE LEGISLATIVE BILLS PRESENTED TO THE  
LOS ANGELES COUNTY INTEGRATED WASTE MANAGEMENT TASK FORCE  
2007-2008 SESSION  
January 10, 2007**

Bill	Author	Status	Summary	Task Force Position
AB 35	Ruskin	Introduced 12-04-06	<p>Existing Law: AB 939 requires each city, county, and regional agency to develop a source reduction and recycling program and to divert 50% of all solid waste destined to landfills.</p> <p>Proposed Law: This bill would enact the Sustainable Building Act of 2007 and require the Waste Board by July 1, 2009, to adopt regulations for sustainable building standards related to the construction or renovation of buildings owned or leased by the state. It would require on or after July 1, 2010 that state buildings be built, designed, and operated in accordance with those regulations.</p>	
AB 48	Saldana	Introduced 12-04-06	<p>Existing Law: SB 20 required regulations to prohibit an electronic device from being sold or offered for sale in this state if the electronic device is prohibited from being sold in the European Union on and after its date of manufacture, due to the presence of certain heavy metals.</p> <p>Proposed Law: This bill would amend the definition of Consumer Electronic Device to include most consumer electronics, and phase out sales of such devices beginning January 1, 2010. The proposed definition of CED's and toxic phase out provisions would parallel ROHS Directives adopted by the European Union in 2003.</p>	

## Frias, Christine

---

**From:** De La O, George  
**Sent:** Thursday, January 18, 2007 6:40 AM  
**To:** Ang, Jennifer; Frias, Christine; Chang, Erayna; Kesablyan, Armine  
**Cc:** Banna, Hossam  
**Subject:** FW: Disposal of Compact Fluorescent Lightbulbs (CFL)

**Importance:** High



RE: Contact Us  
Form// (KMM200..

Good morning all. Please distribute to TF as requested by Mohajer. Armine, will you present something or do you plan to just have the Vice Chair skip your item?

-----Original Message-----

From: Mike Mohajer [mailto:mikemohajer@yahoo.com]  
Sent: Wednesday, January 17, 2007 10:39 PM  
To: De La O, George  
Cc: Ruiz, Carlos; Kesablyan, Armine  
Subject: FW: Disposal of Compact Fluorescent Lightbulbs (CFL)  
Importance: High

George/Armine,

Pls distribute a copy to all as a part of the Item IX, 1/18/07 Agenda.  
Thanks, Mike

-----Original Message-----

From: Mike Mohajer [mailto:mikemohajer@yahoo.com]  
Sent: Tuesday, November 28, 2006 8:53 PM  
To: Steven.Conroy@sce.com  
Cc: Margo Reid Brown; Leonard Robinson  
Subject: RE: Disposal of Compact Fluorescent Lightbulbs (CFL)

Mr. Conroy,

Thank you so much for taking time to respond to my 11/1/06 inquiry re the proper management of unwanted "compact fluorescent lightbulbs" (CFLs), a copy attached, which SCE promotes extensively. While I commend SCE for its efforts by promoting a means to save energy and thus reduce our dependence on fossil fuel, I was very disheartened by your/SCE response. SCE must know that the State of California (Department of Toxic Substances Control, DTSC) has prohibited the disposal of CFLs generated by residents in municipal solid waste landfills effective February 8, 2006 (mercury content, etc). To this end, I was looking forward to some assistance from SCE similar to the program being provided by PG & E in Northern California. Unfortunately, my expectation from SCE to provide at least a similar service to its customers as the one being provided by PG & E was too much at this time. I strongly feel that SCE should reconsider its position by accepting some responsibility for proper management of CFLs to protect the well being of our citizens' health & safety as well as the environment.

For your consideration and the follow up on the PG & E program and action, you may also want contact the California DTSC and/or the California Integrated Waste Management Board as to the proper management of unwanted CFLs. Looking forward to your response and positive action by SCE.

Regards,

MIKE MOHAJER

<mailto:mikemohajer@yahoo.com>

-----Original Message-----

From: Steven.Conroy@sce.com [mailto:Steven.Conroy@sce.com]

Sent: Tuesday, November 28, 2006 12:45 PM

To: MikeMohajer@yahoo.com

Subject: Disposal of Compact Fluorescent Lightbulbs (CFL)

Mr. Mohajer. Thanking you for your question re: how to dispose of compact fluorescent lightblubs (CFL). Southern California Edison does recommend the use of CFLs due to their energy-usage savings vs. incandescent lightblubs. As you might know already CFLs can use as much as 30% less energy.

You are correct that manufacturers of CFLs do recommend the disposal of CFLs be treated as a hazardous waste. Although SCE does not have a formal disposal program for CFLs', we highly recommended that non-functioning CFL lightblubs be disposed of as recommend by the manufacturer.

One suggest you might find useful is that most communities have bi-yearly to yearly hazardous waste disposal program. Many, if not all, allow community members to bring hazardous-type materials for proper disposal. You might want to contact your local city or county waste disposal service for additional information.

Steven Conroy  
Media Relations Manager  
Southern California Edison  
626.302.1712 (PAX 21712)  
conroysc@sce.com

## Frias, Christine

---

**From:** Mike Mohajer [mikemohajer@yahoo.com]  
**Sent:** Wednesday, November 15, 2006 9:59 PM  
**To:** Southern California Edison KANA Webmaster 3  
**Subject:** RE: Contact Us Form// (KMM2007628I22462L0KM)

Unfortunately I have yet to get a response to my question as listed in my 11/1/06 email. What branch w/in SCE is responsible for proper management of hazardous waste/universal waste and the manager name. Thank you

regards,

MIKE MOHAJER  
<mailto:mikemohajer@yahoo.com>

-----Original Message-----

From: Southern California Edison KANA Webmaster 3  
[mailto:cfiweb3@sce.com]  
Sent: Monday, November 06, 2006 9:28 AM  
To: MikeMohajer@yahoo.com  
Subject: Re: Contact Us Form// (KMM2007628I22462L0KM)

Dear Mr. Mohajer:

Thank you for visiting and writing to us at sce.com. I am forwarding your note to the appropriate person and he will be in contact with you as soon as possible.

Thank you again.

Corporate Communications

Original Message Follows:  
-----

Requestor Information:

First Name: .....Mike  
Last Name: .....Mohajer  
Account Number: .....  
Street Address: .....  
City,State,Zip: .....  
Phone Number: .....  
E-mail Address:.....MikeMohajer@yahoo.com

Message:.....SCE as a part of its energy savings tips promotes use of the compact fluorescent lightbulbs (CFL). CFLs are considered to be hazardous waste and cannot be disposed of with regular household trash. What type of plan SCE has to assist residents to get rid of their CFLs? Thanks (11/01/06)