

CFL Recycling in Humboldt County:

A Pilot Program

By:

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Problem

The current situation is that there are programs that are distributing compact fluorescent lights (CFLs) but only one place where they can be recycled. Further complicating matters is the location, Humboldt Waste Management Authority (HWMA), in Eureka only accepts CFLs for, four on both Fridays and Saturdays.

In Humboldt County local businesses and the university are partnering with Pacific Gas and Electric (PG&E) to increase residential usage of CFLs. As such there will be a growing demand for recycling centers to properly dispose for CFLs. This problem is especially acute because currently there is only one facility currently accepting CFLs for recycling. Further this facility, Humboldt Waste Management Authority is only open for 8 hours a week.

This lack of infrastructure to recycling spent CFLs creates a myriad of barriers to developing sustainable behavior. The first of these is that it is just easier throw the bulbs away. This is further compounded by years of habitual disposal into the municipal waste stream by most users. Further most people who buy CFLs probably don't know that it is illegal to just dispose of CFLs in the trash.

To prevent CFLs from entering the waste stream we propose a two part solution. The first is the addition of three new facilities to take back spent CFLs. All three of these locations - Arcata and Eureka Recycling Centers and the Redwood Coast Energy Authority office - will be open during the business week. An added bonus is that the recycling centers will be open on Saturday as well. The second half of our Project aims at educated the public through prompts, such as posters and advertisements. Further facilitating this will be continual outreach projects by both RCEA and Humboldt State University's Green Campus club.

Our project intends to get Humboldt more compliant with California State law Title 22, division 4.5, ch. 23, sec. 66273.8, stating that all CFLs must be recycled. Additionally we intend to better serve the CFL recycling demands of 53% of County residents living within a twenty minute drive of one of our four CFL recycling facilities (U.S. Census Bureau).

Background

An Increasing Demand for CFL Recycling

According to a report conducted by the California Integrated Waste Management Board in 2002, 15,555,556 fluorescent lamps were sold in CA in the year 2001 (CIWMB-2002). The numbers of CFLs being sold are increasing rapidly as organizations such as Energy Star promote CFLs through TV and printed advertisements. Programs such as the "Change A Light" campaign and RCEA's CFL Sweeps here in Humboldt are directly increasing the number of CFLs in the county. This October, PG&E distributed 1,000,000 CFLs in central and northern CA, RCEA distributed 3094, and Green Campus distributed 1250 here on the HSU campus. As a result of these programs, the number of expired CFLs generated in Humboldt County is increasing exponentially.

The California Integrated Waste Management Board estimates that 75 million waste fluorescent lamps and tubes are generated annually in California (CIWMB). These lamps and tubes contain over a half ton of mercury. The Association of Lighting and Mercury Recyclers estimates that 20% of fluorescent lamps being disposed in California are being recycled (ALMR). The exponential growth in CFLs sales and the low recycling rate are creating a significant mercury pollution problem here in California. California began a Take-It-Back Partnership in 2006 to address the need to increase opportunities for Universal Waste Recycling. The California Take-It-Back Partnership is a collaboration of state government; city and county

government; businesses; non-profit agencies and non-governmental organizations to provide free; local and convenient ways for California residents to recycle everyday household wastes such as batteries, fluorescent lamps and electronic devices that can no longer be disposed in the trash (DTSC). There are currently no Take-It-Back sites in Humboldt County.

Current Education Efforts on CFL Recycling

RCEA

The Redwood Coast Energy Authority (RCEA) has been actively educating Humboldt County residents about CFL recycling. The Redwood Coast Energy Authority's purpose is to develop and implement sustainable energy initiatives that reduce energy demand, increase energy efficiency, and advance the use of clean, efficient and renewable resources available in the region. RCEA was formed in 2003 as a Joint Powers Association (JPA), representing seven municipalities (the Cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Trinidad and Rio Dell) and Humboldt County. As a JPA, RCEA is governed by a Board composed of representatives from each of these jurisdictions. Current funding comes from a major two-year contract with Pacific Gas & Electric Company (PG&E) to promote energy efficiency and is funded by California ratepayers under the auspices of the California Public Utilities Commission (see Appendix A). The Redwood Coast Energy Resource Center is located at 517 5th St in Eureka CA.

The Redwood Coast Energy Resource Center houses many interactive displays that explain renewable energy technologies, explain energy efficiency technologies, and encourage environmentally sustainable behaviors. In 2005, Ben Mattio working with director David Boyd and Engineering professor Lonny Grafman initiated a service learning project between HSU

Engineering students and RCEA. The Engineering Design class successfully produced several interactive displays. The program was such a success that it was repeated in following semesters and the Energy Resource Center now houses over a dozen displays created by HSU students. These displays serve as educational tools for our community.

Do these displays follow good interpretative practices.

One of the interactive displays, created by HSU students, encourages residents to recycle CFLs. It describes why CFLs have mercury and the effects of mercury in the environment. One notable statement on the display reads "A CFL contains less mercury than is emitted by a coal-fired power plant servicing an equivalent incandescent light bulb." This is a good argument for those who feel that fluorescent bulbs are more detrimental to the environment than beneficial. Because CFLs produce a 75% energy savings over equivalent incandescent bulbs, the energy savings over the life of the bulb prevents the emission of more mercury than the CFL contains. This means that even if CFLs are improperly disposed, they are less harmful in terms of mercury than using incandescent bulbs. CFLs and other energy efficient technologies also reduce the emission of CO₂ from power plants, which help offset the effects of global climate change. When a CFL is recycled, the mercury it contains is purified and resold to be used again avoiding mercury contamination.

Energy Star

During the month of October, Energy Star ran its "Change a Light, Change the World" program for the 8th year. The program included a "Light Bus Tour" that travelled across the US and collected nearly a million pledges to change 2.6 million lights to CFLs to help fight climate change. The bus stopped for 16 events where it set up the Energy Star Change a Light Education Center. The Light Education Center had interactive displays that described how to use and

recycle CFLs responsibly. The program was successful in saving \$70 million in energy costs and the prevention of 1 billion pounds of greenhouse gas emissions (see Appendix A).

Change A Light

PG&E launched its own "Change a Light Campaign" during October for National Energy Awareness Month. PG&E gave away 1 million CFLs and is stated to save 400,000 megawatt hours of electricity and prevent the emission of more than 200,000 tons of greenhouse gas emissions. PG&E partnered with many local community groups and organizations. Two local organizations that PG&E partnered with for the Change a Light Campaign are RCEA and the Green Campus organization.

RCEA distributed one CFL to anyone who signed the Change a Light Pledge during the month of October. RCEA promoted the Change A Light Campaign at all of its workshops during the month of October. RCEA also promoted the Change A Light Campaign by tabling at the North Country Fair and addressing residents visiting the Energy Resource Center at the RCEA office. The CFLs were distributed with a packet of information describing why people should use CFLs and the savings they generate. The information packets also contained information about the mercury content of CFLs and proper CFL recycling guidelines. RCEA was sure to include information on where to recycle CFLs locally. The packets also contained a magnet in the shape of a CFL that read "Please remember to recycle your CFL" (see Appendix A).

Green Campus

The Green Campus Program is a State-wide program across 12 UC and CSU campuses, under the authority of the non-profit organization, The Alliance to Save Energy. The program

has been made possible through grants and funding from public utilities, which is the accumulation of taxes accessed on electrical ratepayer's bills. HSU Green Campus operates under the auspices of PG&E, SCE and the UC/CSU/IOU Energy Efficiency Partnership (see Appendix A).

The Green Campus program at HSU joined the Change A Light Campaign and handed out about 1250 CFLs to Humboldt State Students and community. Each participant was educated about proper CFL recycling and received a sheet explaining the mercury content in CFLs with directions on where to recycle locally (see Appendix A). Every Wednesday and Thursday in October they tabled on the quad to distribute CFLs free of charge. The CFLs were provided by PG&E. The Green Campus Program has been running a CFL Campaign for the last 3 years.

As a project coordinator for Green Campus in 2006, Ben participated in the yearly CFL Exchange in which we exchanged almost 1000 incandescent bulbs for CFLs. The incandescent bulbs collected were used in an art contest that was held at HSU's Slam Festival in the spring of 2007. The Green Campus program continues to educate Humboldt State Students and community through outreach projects.

Even though compact fluorescent light (CFL) bulbs are more efficient and use less energy than incandescent bulbs, they are still not without a drawback. The only drawback to CFLs is that they contain mercury, a known toxin. Though significant if introduced into the environment, this alone should not preclude their use. Rather, as showcased by the implementation of our project, the concern can be mitigated away by public education and developing more sites that accept CFLs for recycling. By reducing barriers for some to buy,

install and use CFLs there is hope that our program will also prevent CFLs from entering the municipal waste stream. The combination of more recycling facilities and education on proper CFL recycling is intended to help foster sustainable behavior.

Why mercury in CFL bulbs?

Mercury is the catalyst that turns electricity into visible light within CFL bulbs. The process, conceptually, is very simple and also shows why CFLs are more energy efficient than their incandescent counterparts. To produce visible light a chain of reactions is initiated by introducing electricity to the bulb. With an electrical current mercury atoms, within the bulb, gain a higher more unstable energy state. Unable to sustain the heightened energy state the mercury atoms shed electrons, which produce ultraviolet (UV) light, to become stable (Bethlehem Light Recycling). Humans cannot detect UV light, though, and a final conversion is required before visible light is produced. In the final reaction white phosphor crystals, that line the inside of CFL bulbs and gives CFLs that white hue, changes UV light into visible light. This conversion, of electrical energy to visible light, is 75% more efficient than that of incandescent light bulbs.

Comparing CFLs to incandescent lights, from an energy efficiency lens, it is clear why CFLs are the preferred alternative. The single largest factor for using CFLs is that very little energy is wasted in the process to make visible light. Compared to incandescent light bulbs CFLs waste little electrical energy. The easiest comparison comes when one tries to grab a CFL versus an incandescent light bulb. The CFL bulb may keep your hand warm on a cold night. A hand held on an incandescent bulb for any length of time, will surely burn the hand rather intensively until it is released.

Mercury in the Environment

The added energy consumed, for heating, by incandescent light bulbs also has negative environmental externalities. Over half of the energy produced in the U.S. comes from coal fired power plants. One of the externalities of burning coal is that mercury is volatilized into the atmosphere and precipitates down, either as wet or dry deposition. This externality isn't accounted for when electrical energy is produced, which creates a continued degradation of the environment that everyone must pay for and eventually everyone is affected by.

The gravest concern of volatilized mercury is once airborne it will eventually rain back down to earth. Once on the ground mercury mixes with water creating a chemical reaction. This reaction produces methyl mercury, one of the more pernicious toxins. According to a Canadian Government document on the health concerns of mercury is a section that reads, "Approximately 95% of ingested methyl mercury is absorbed, and absorption through the lungs and skin is also believed to be quite high." Like all toxins the variability of toxicity depends on the form and concentration that one comes into contact with any toxin.

Unfortunately the dependence on coal fired power plants has enabled mercury to reach a pervasive presence in our environment. Currently 48 states, in the U.S., post restrictions against the consumption of more than one serving of fish a week. This is especially true for women of childbearing age looking to become pregnant in the near future or young children, as they will be the most impacted. Contamination of methyl mercury is further compounded because it is slow to be expelled from the body. Thus relatively brief periods of exposure could lead to serious health problems. Some of the more serious health problems are intellectual impairment, tremors, coma, cerebral palsy, loss of hearing and death.

Mercury contamination is a very serious issue that needs to be addressed. National regulations are beginning to force higher standards for coal fired power plants. The switch from incandescent bulbs to CFLs will only help reduce the need for coal fired power plant electrical generation. But it is only a step. There also needs to be a market based incentive or a standard by which all companies in a field must strive for. One of these market based incentives is product stewardship.

Universal Waste Laws

In 1993 the US EPA proposed the Universal Waste Rule to allow for streamlined management of certain widely generated hazardous wastes. In 1999 lamps were added to the Universal Waste Rule. Although all universal wastes are a form of hazardous wastes, universal wastes are hazardous wastes generated largely by households and non-industry businesses. Examples of common universal waste lamps include, but are not limited to, fluorescent (including CFLs), high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps. The Universal Waste Rules provide procedures for proper collection, handling, and disposal to avoid mercury entering the environment through landfills not suited for hazardous waste. Most states have adopted the universal waste rule.

On February 9, 2004, regulations took effect in California that classified all discarded fluorescent lamps and tubes as hazardous waste. To avoid managing household hazardous wastes to the same stringent standards of other hazardous waste, California created their own Universal Waste Rule. Most businesses, institutions, and agencies are now prohibited from disposing of any type of fluorescent lamps and tubes in the nonhazardous solid waste stream (CA UWMB). When properly recycled, fluorescent lamps are managed under the requirements of California's Universal Waste Rule. Improperly recycled fluorescent lamps and other universal wastes get

thrown in with the rest of the municipal waste stream, causing it to be termed hazardous waste.

Under a temporary disposal exemption from 2004 to 2006, California households were allowed to discard their own fluorescent lamps and tubes as non-hazardous solid waste. After February 9, 2006, all fluorescent lamps must be recycled as described in California law Title 22, division 4.5, chapter 23, section 66273.8.

One of the significant problems facing waste categorized as universal waste is that for so long common practice was just to discard this waste into the municipal waste stream. The main problem was that there was no enforcement or effective social marketing program established by the EPA for enforcing and instituting change within the public. This led to low public acceptance of the new rules because they had to see how their actions could make a difference. For this the program, excluding car batteries, has been slow in effectuating consumer change and disposal habits. In the formative years of the Universal Waste Rules compliance was not new rules and regulations require that universal wastes like batteries, fluorescent lamps, and electronics get recycled.

Where CFLs Go

In researching the waste stream of CFLs out of Humboldt County we learned that Humboldt Waste Management Authority uses a company called AERC Recycling Solutions to dispose of all its mercury containing lamps. AERC Recycling Solutions is the only permitted mercury lamp processing facilities in Northern California. AERC processes all types of mercury lamps for recycling at their facility in Hayward, CA. The process breaks and recovers the commodity materials. Resultant glass and metal are marketed locally in the Bay Area, and mercury/phosphor powder is collected and shipped to AERC's corporate facility in Allentown, PA. There AERC operates a mercury retort process that heats the powder in big, hot ovens that

Does putting into the trash release mercury into the environment? CFLs are not toxic.

?

causes the mercury and phosphor to separate. Once cooled, the mercury is purified and re-sold for use in new CFLs and other electronics.

Product Stewardship

Product stewardship is a product-centered approach to environmental protection. The emphasis is placed on the manufacture to generate products that are the most environmentally benign. If they don't, manufacturers along with retailers, users and disposers will have to pick up the costs for the waste. In this instance then, it is in the best interest of the manufacturer to produce products that reduce environmental impacts and don't add to the exponentially increasing amount of trash being generated. In this regard a tax could be levied on the manufacturer for goods that are environmentally destructive or wasteful. Even better would be products that consumers lease, like current efforts in carpets, and when they are used traded in for newer products. This would link what Viederman refers to as the three pillars of sustainability; the economy, the community and the environment (Hackett, 2006).

So, in the absence of product stewardship, we propose...

Weighing Alternatives

We began searching for alternatives with a brainstorming exercise. Through the brainstorming exercise we created a list of potential solutions to the problem. The different potential alternatives that arose from this exercise included:

- Include individual prepaid CFL recycling boxes at point of CFL purchases
- Make available individual CFL recycle boxes at recycling centers and point of sale locations
- Setup a Curbside Universal Waste Pickup Program for residents (as in San Francisco)

- Setup a monthly “Free Drop-Off Day” for residential Universal Waste
- Create radio and newspaper ads encouraging CFL recycling
- Ensure all printed recycling guides/ books/ pamphlets for Humboldt County include information on CFL Recycling
- “Take-It-Back” Program
- Educate residents on CFL recycling
- Foster Product Stewardship or Extended Producer Responsibility

To understand which alternatives would be the most feasible for our project we began researching these ideas in order to weigh the alternatives. The research uncovered limitations that were either beyond what we could hope to achieve or would not work with the current framework that is already established for CFL recycling in Humboldt County. Individual prepaid CFL recycling boxes at retailers wasn't going to work. In conversations with Bill Ryan, of the California Department of Toxic Substance Control (DTSC), he said that programs that tried this ended up just being used as trash receptacles. Another concern with this is that the recycling boxes wouldn't be ^{staffed.} manned. Therefore people could haphazardly drop CFLs into the recycling boxes and cause the bulbs to break, exposing workers and customers to toxic mercury vapors.

The other thing we hoped to find were programs in existence that recycled CFLs individually, much like the way printer cartridges can be recycling free of charge in prepaid envelopes. Alas, there was nothing like this, due mainly to the categorization of CFLs as universal waste. This eliminated both the idea of making the boxes available at time of sale and

the idea of making them available at recycling centers and point of sale locations. We learned that CFL recycling is an emerging waste stream that is slowly developing.

In researching San Francisco's curbside Universal Waste Pickup Program we realized that it was made possible by the high density of the San Francisco area. Our community has a much lower density than San Francisco and the majority of the county is considered rural. Even our cities have a much lower density than exists in San Francisco. In meeting with Patrick Owen from Humboldt Waste Management Authority we learned that the current amount of residential Universal Waste collection is not great enough to make curbside Universal Waste Recycling economically feasible in low density areas such as Humboldt County. This idea was abandoned.

In our research we found that residents of Humboldt County can already dispose of their CFLs free of charge at the Waste Transfer Station in Eureka run by the Humboldt Waste Management Authority on Fridays and Saturdays from 9am to 1 pm. Residents are limited to 20 bulbs per quarter-year. Residents of Fortuna will be charged \$1.25 for each CFL. Because this service is already offered free of charge weekly, we did not think that offering a monthly "Free Drop-Off Day" would further CFL recycling.

Encouraging CFL recycling through radio and TV ads is a means to educate the public about CFL recycling. We thought of creating newspaper ads to be published in the North Coast Journal, Arcata Eye, Lumberjack, Times Standard, Eureka Reporter, and other local newsletters. Upon further research we found that the first hurdle to reducing barriers to CFL recycling was more convenience. Also in the book *Fostering Sustainable Behavior*, it states that, "programs that rely solely on providing information often have little or no effect on behavior." With this in mind it was decided that it didn't make sense to try to publicize something that is currently so

inconvenient. Further, it is difficult to encourage people to do things that are inconvenient, even if law requires it and it helps protect the environment from mercury contamination. Eventually the use of newspaper and radio ads will be utilized along with posters and flyers to tell people of the places they can recycle CFLs. It was determined that the first priority was to make CFL recycling more convenient.

In research we found that there are current recycling guides available for Humboldt County residents. Residents can find CFL recycling locations and information at HWMA, all recycling centers, in the phone book, and many websites including HWMA, CA EPA, Dept of Toxic Substances Control, Humboldt County Public Health, CA Take-It-Back, and others. We felt that the information available was adequate for those who were actively seeking CFL recycling. The bigger issue was that these resources direct all residents of Humboldt County to the single HWMA location in Eureka. Until other sites start recycling CFLs there is no need to focus on improving recycling guides. Like the advertisement section it would be futile to rely solely on this to improve CFL recycling habits.

The easiest way we found to recycle CFLs was the California statewide Take-It-Back Program. Statewide CFL recycling is conducted through the county level. In differing counties retailers and recycling centers serve as possible places residents can drop off their dead CFLs. The bins would be accessible to residents during the retailer's hours of operation, which would be a substantial increase the hours of availability over the current 8 hours a week that HWMA accepts CFLs. The Take-It-Back sites would be setup to be geographically convenient throughout the county so that residents wouldn't need to go out of their way. This form of CFL recycling would reach retail customers who make up a large percent of the population. Again the worry of CFLs breaking and posing a risk for customers and workers was present though.

We found existing Take-It-Back programs similar to what we had envisioned already in practice in several cities. For example the North Bay Watershed Association setup a similar Fluorescent Lamp Recycling Program in Marin, Sonoma, Petaluma, and San Rafael. In further research we found a statewide California Take-It-Back Program designed to encourage retailers to become Universal Waste collection sites. We decided to make this a prime focus of our project but only after we developed a pilot program with the recycling centers in the Eureka-Arcata area first. Enlisting local retailers in the CA Take-It-Back Program seemed like a great means to accomplish our goal.

Another focus of our CFL Take-It-Back Pilot Program is to set up CFL recycling at all recycling centers in the county. In a meeting with Patrick Owen from HWMA we discussed the collection of CFLs. One major concern was handling and the main reason why we didn't include retail stores in the first iteration of our pilot program. CFLs cannot be dumped into a bin like other universal wastes such as household batteries. CFLs are fragile and if broken they release mercury vapor into the air creating a temporarily toxic area. For this reason, trained staff must handle CFLs during recycling. Trained staff must manage CFL collection bins. The unmanned recycling centers in Humboldt County would unfortunately not be good candidates for CFL recycling.

We found that some recycling centers only accept CA CRV recyclables. Recycling centers not currently accepting Universal Waste would require additional training and responsibilities for staff. For these reasons we decided to focus the Take-It-Back Pilot Project on recycling centers that already accept other forms of Universal Waste because staff is already trained. This limited our focus to five recycling centers including: Arcata Community Recycling Center, Eureka

Community Recycling Center, Eel River Disposal, Humboldt Sanitation, and Redway Transfer Station & Recycling Center.

We determined that lack of public education about recycling CFLs was a large part of the problem. To educate residents we looked to Redwood Coast Energy Authority (RCEA). RCEA is actively pursuing energy efficiency programs in Humboldt County. Part of their mission is to promote sustainable energy practices and as such they have worked to educate Humboldt County residents about proper fluorescent lamp recycling. We decided to work with RCEA to educate residents about proper CFL recycling. RCEA's CFL Sweeps Program would provide the perfect opportunity for hands-on CFL education. Engaging in this program would physically put us into resident's homes with CFLs and the educational materials to teach them about CFL recycling. This opportunity was directly inline with our objectives and we made it a top priority of our project.

Lack of Product Stewardship is an important part of the problem. The problem is based on the fact that CFL design, manufacture, and sales are completely disconnected from their disposal. Manufactures^{pers} of CFLs currently have no responsibility for their products once they are sold. Used CFLs become a local responsibility of taxpayers through waste management. As such, manufacturers have little incentive to create less toxic designs, recycle their products, or design extended life CFLs. Although creating CFL Product Stewardship would solve many problems, it would require legislation to enforce. Groups such as the California Stewardship Council are working to pass CA legislation to require producer responsibility. We determined this venture to be outside the scope of our project and abandoned the idea.

Although, while we were in a meeting talking with Patrick, at Humboldt Waste Management Authority, an employee informed us that at one point CFLs had 97% less mercury in them. Policy changes in the early 90s changed the way CFLs were categorized, with the onset of the national Universal Waste Rules. The resulting rule change and disinterest by government politicians, he said, led to the increase in mercury content within CFLs.

*disinterest = unbiased
uninterested = not interested!*

Strategies for Implementation

- **Educate the community about CFL Recycling**
 - Become a Redwood Coast Energy Authority's CFL Sweeps Program Team Leader
 - Apply and accept the CFL Sweeps Team Leader position
 - Work closely with other Team Leaders- Kristopher Buihner and Christopher Escarcega
 - Act as Team Leader for the "Copepod Team"
 - Conduct the CFL Sweeps Program
 - Determine CFL Sweeps Logistics
 - Establish goals (3000 CFLs, 300 homes)
 - Determine Team sizes to reach goals
 - Estimate the number of homes to hanger to reach goal
 - Choose neighborhoods for CFL Sweeps
 - Prepare CFL Sweeps Teams
 - Advertise the Internship position to HSU students
 - Post and email Job Announcement
 - Design CFL Sweeps Intern Training
 - Safety
 - CFL Recycling

- Train CFL Sweeps Interns 10-15-07
 - Safety
 - CFL Recycling
- Secure Tools and Supplies
- Secure ID Badges and RCEA Vests
- Assemble Information Packets
 - CFL Recycling Guidelines
 - Energy Star FAQs about CFLs
- Conduct Door-Hanging advertising
 - 10-19-07, 10-26-07, 11-9-07
- Conduct CFL Sweeps
 - 10-20-07 Arcata
 - 10-21-07 Manila
 - 10-27-07 Mckinleyville
 - 10-28-07 Mckinleyville
 - 11-10-07 Mckinleyville/ Eureka
 - 11-11-07 Fortuna
 - Install CFLs
 - Educate residents
 - CFL Recycling Guidelines
 - Why CFL Recycling is Important
 - Distribute printed information
 - CFL Recycling Guidelines
 - Why CFL Recycling is Important

- **Create a CFL Take-It- Back Pilot Program**
 - Getting Started
 - Choose locations for Take-It-Back Pilot Program
 - Recycling Centers
 - ACRC
 - ECRC
 - RCEA
 - Hardware Stores
 - Determine program logistics
 - Funding for Universal Waste Handling
 - HWMA budget
 - HWMA storage space
 - Prepaid CFL Recycling by mail
 - Benefits
 - Costs
 - Cost Sharing with Retailers
 - 3 Options
 - Universal Waste Handling Requirements
 - Research CA Law requirements
 - Secure Training Materials
 - Train employees
 - Implement CFL Take-It-Back Pilot Program
 - Secure agreements to participate
 - Install collection bins
 - Train employees to handle Universal Waste

~~By who?~~
when? -

- Arrange bin pickup procedures
- Advertise CFL Take-It- Back locations/ program
 - Printed ads
 - Posters
 - Websites

Implementation Strategies

Educate the community about CFL Recycling

In order to educate the community about CFL recycling procedures and why CFL recycling is important, Ben chose to join the efforts of the Redwood Coast Energy Authority (RCEA). RCEA has been a leader in our community in educating residents about CFL recycling. I learned about RCEA's CFL Sweeps Program that was planned for October and November. The CFL Sweeps program involved directly installing CFLs in residents homes free of charge. The program seemed the perfect opportunity to educate residents about CFL recycling procedures and to conjure the desire to recycle CFLs. The program was previously conducted by RCEA in spring 2007 using the California Conservation Corps. The program was successful, but director David Boyd felt that motivated HSU students may be even more successful.

Working with David Boyd, RCEA Director, Ben and two other Humboldt State students, Kristopher Buihner and Christopher Escarcega, helped develop the CFL Sweeps Program. As such, the three of them also became CFL Sweeps Team Leader. Ben became field supervisor of the "Copepod Team" consisting of HSU students: Jocelyn Orr, Natalie Macias, Daniel Hernandez, and Eric Gregory. Kris Buihner became the field supervisor of the "Orca Pod Team"

consisting of HSU students: Aydee Virgen, Isaac Dietz, and Jamila Ghoul. Team Leader Christopher Escarcega focused efforts on the office details including database and invoicing.

In meetings with David Boyd, the team leaders established the goals and logistics of the CFL Sweeps Program. Goals for the fall 2007 CFL Sweeps were based off of the previous CFL Sweeps conducted by California Conservation Corps (CCC) participants. The target goals were set at installing 3000 bulbs and servicing 300 homes. Both the plans and goals were set above the previous CFL Sweeps conducted by the CCC. We even predicted that we could do it with only 10 installers, compared to the 18 utilized when working with the CCC. The assumed increased productivity was tied to better overall planning from the beginning, being that the sweeps were now a repeat program. Additionally, the utilization of Humboldt State students, who actively work and have a vested interest in energy efficiency, was seen to be a better fit than an amalgamation of random CCC participants.

To reach the 300 home target, fifty homes a day would need to be serviced over the three weekend CFL Sweeps Program. We estimated it would require placing 200 door-hangers on homes the Friday before the weekend to service the hoped for 50 homes a day. These estimates worked well the first 4 days of sweeps, but we needed to cut back the number of door-hangers for the last 2 days due to a reduction in staff. One concern was that we didn't want to flier more homes than we could service. During the sweeps with the CCC overflyering had occurred and many residents who had been expecting us called and voiced their disappointment when we didn't show up. This created a situation where RCEA interns were then required to go out and service those residences, which was a huge drain on resources in the office after the sweeps. For this reason we tried to ^{err}error on the side of under door-hanging, with the expectation of finishing early and visiting homes not hung. (For an example of the door-hangers look in Appendix B.)

The choosing of communities for our sweeps was determined on urban density and areas that had not already been done before. Thus we avoided low density and rural areas solely because our goals would not have been met if we had targeted these areas. The neighborhoods chosen were Arcata, Manila, Mckinleyville, Eureka, and Fortuna for. (Appendix B)

To prepare for the CFL Sweeps advertisement for the Energy Intern position was placed on Spring Board and posting in HSU Career Center(Appendix B). The applicants were directed to David Boyd and he chose 7 students to hire in addition to the team leaders. After the hiring of the Energy Interns training and prepared a training outline (Appendix B) focusing on safety, injury prevention and action, CFL disposal, and broken CFLs. The team leaders worked with David Boyd to create a training session. The training was conducted at RCEA from 6pm to 9pm on 10-15-07. During this evening workshop Ben taught the Energy Interns about CFL recycling procedures and why CFL recycling is important.

There were many supplies and tools to secure in preparation for the CFL Sweeps. Some of the supplies and tools included: carts, vests, ID badges, CFLs, stepladders, gloves, and broken CFL cleanup materials. In this area Ben helped assembled CFL Cleanup Kits for the likelihood of broken CFLs, which consisting of gloves, Ziplock bags, hand brooms, duct tape, and 5 gallon buckets. Also the Energy Interns were instructed on broken CFL cleanup procedures as defined by the EPA. Residents serviced during the sweeps received an information packet. The information packet included a sheet describing CFL recycling procedures and location (Appendix B). Also included was a Frequently Asked Questions Sheet about CFLs created by EnergyStar. This sheet explains the need to recycle CFLs and the effects of Mercury in the environment (see background).

The door hangers were distributed to the neighborhoods being serviced on the Friday before the sweeps. Kristopher Buihner and Ben distributed the door hangers. The door hangers informed residents of our CFL Sweeps Program and instructed them to be home between 9am and 4pm with their PG&E bill available (Appendix B).

The CFL Sweeps were conducted on 10-20-07, 10-21-07, 10-27-07, 10-28-07, 11-10-07, and 11-11-07. Our procedures were to meet at RCEA at 8:30 am, load up our cars with supplies, and carpool to the assigned neighborhood. Once there, teams worked to service the homes that were door-hangered. Each team of 2 serviced about 15 homes per day on average. Teams would communicate via radio to ensure all homes were serviced and to arrange tool shuttling and to restock with CFLs. I spent much time organizing logistics and ensuring team members had what they needed. If residents didn't have a PG&E bill, they called team leader Chris in the office to look up their account information. At 4:30 we packed up and headed back to RCEA to unload. Everyone worked to unload vehicles and return the tools and supplies to the RCEA office. The Energy Interns worked from 8:30am to 5 pm with overtime on some days. I worked from 8:15 to 7 pm most days.

Each community we visited was unique. Some people were excited, some people couldn't be bothered, and others said they already had all CFLs. I learned the importance of social marketing skills. Many residents were hesitant to let us in their homes at first. With further explanation and friendly encouragement, residents let us in. During the installation I would present them the information packet and educate them about CFL recycling procedures and why it is important. No resident that I spoke with previously knew where to take used CFLs. A few residents knew they contained mercury. A few knew they should be recycled, but didn't know

where. It was clear to me through this experience that more work needs to be done to educate residents about CFL recycling.

According to David Boyd our CFL Sweeps were highly successful. We installed a total of 3094 CFLs in 278 homes. We feel this program was a highly effective means to educate residents of Humboldt County. People are much more receptive to learning when they are directly benefiting from it. The offer of free CFLs and savings on electricity bills got us in the door. Once inside, we found the CFL Sweeps participants receptive to CFL recycling information. This program successfully educated residents who may not have sought this information on their own.

Creating a CFL Take-It-Back Pilot Program

In speaking with Maureen Hart from RCEA, we (Ben and Gregg) were excited to learn about her interest in CFL recycling. She is an avid supporter of recycling projects and has close connections with Humboldt Waste Management Authority (HWMA). We learned of her work towards making RCEA a CFL collection site. She was already meeting with Patrick Owen from Humboldt Waste Management Authority (HWMA) to discuss CFL recycling. We saw an opportunity to work with HWMA and RCEA to develop a CFL recycling program.

We met with Patrick and Maureen and decided that the best way to accomplish our goal of establishing more CFL collection sites was to work with the people who had the means to make it happen. We joined efforts with Maureen and Patrick to develop the program. They were glad to have our support, because both of them had limited time to put into the project. We introduced the CA Take-It-Back Program to them and we merged our efforts.

How We Chose Locations for the Take-It Back Pilot Program

Current circumstances create barriers to CFL recycling. As such, after researching alternatives on how to make CFL recycling easier, it was decided to synthesize the best of a few approaches. The decision was to utilize the Take-It Back framework but for now we would only focus on getting both Eureka and Arcata Recycling Centers and the office of Redwood Coast Energy Authority as ^{locales} local^s for CFL recycling. The recycling centers were chosen because the staff there already is knowledgeable in handling of universal waste. Also in our meeting with Patrick at HWMA, he stated a couple of times that the future of recycling centers is going to be more of a place to drop off universal or hazardous wastes. The trend and efforts of urban recycling and garbage pickup nationwide is transitioning towards curbside pick-up and away from the more costly dropping off recyclables at recycling centers.

RCEA was included because of their educational exposure with the public in their CFL Sweeps. The other reason was that they would serve the function of a retailer. Before they begin to accept bulbs they have to be educated on how to handle CFLs and get universal waste training. The more important part of this trial at RCEA is that it is an office space. A potential problem could arise if broken bulbs are brought in or break on site. The Association Lighting and Mercury Retailers and Universal Waste Rules state that the office should be aired out and evacuated to allow the dissipation of the mercury vapors, ^{for} at least an hour. If retailers have to close their businesses while mercury vapors dissipate, customers are going to go elsewhere. On the other hand retailers like Ace in other parts of the state are already accepting CFLs for recycling. So it seems as if the pilot program could work and because of this we are very hopeful that this pilot will be a success and be able to expand to CFL retailers soon.

outdoor site?

Determine Program Logistics

We began work on the program logistics. One of the big concerns was costs. Patrick explained the situation of Universal Waste recycling funding at HWMA. The Universal Waste Law that went into effect in 2006 was an unfunded mandate. There was no additional funding appropriated to meet the requirements of the Universal Waste Law. Patrick explained that HWMA only has funding to hire one additional employee per year for all of HWMA operations. For these reasons, Patrick was highly concerned about an increase in the number of CFLs being collected. HWMA's hazardous waste facility was built just a couple years ago and it is already reaching maximum capacity. Storage space for CFLs would become an issue if the pilot program generated large numbers of CFLs. HWMA agreed to pay for the recycling of CFLs from the following Take-It-Back Pilot locations: ACRC, ECRC, and RCEA. Our plans to setup additional Take-It-Back locations at local retailers would require different arrangements. We began to research the possibility of using prepaid fluorescent lamp recycling.

Prepaid fluorescent lamp recycling uses boxes or containers with prepaid shipping labels that are shipped from the fluorescent lamp recycler. Once the boxes are filled, they are simply mailed back to the fluorescent lamp recycler using Fed Ex or UPS. The benefit of using this form of recycling is that it would not require HWMA to empty collection bins, it would not increase the CFL handling workload at HWMA, and it would not increase the CFL storage requirements at HWMA. The CFLs would bypass HWMA and go directly to the chosen fluorescent lamp recycler. The drawback to this form of recycling is it is more expensive. HWMA currently pays about \$0.28 per bulb for recycling. The prepaid recyclers varied greatly in cost, but averaged about \$1.00 per bulb. Patrick felt that the added convenience and reduced workload was worth the difference once multiple Take-It-Back sites were developed.

In order for the pilot program to work, some costs would need to be deferred from HWMA. The CA Take-It-Back program does not provide any funding. They do provide advertising through their website and on printed materials. We discussed the idea of setting up a cost share with the retailers we enrolled in the program. In exchange for advertising and good PR, the retailer would be expected to contribute to the cost of the CFL recycling fees. In a meeting with Patrick and Maureen we discussed different options for cost sharing. One idea was to have the retailer pay for the entire cost. This seemed it would be hard to sell and could cause retailers to dropout if costs were perceived as exorbitant. The next idea was to have retailers pay for every other prepaid box. This would evenly share the cost between HWMA and the retailer. The drawback is that the cost would be based on the number of CFLs collected and would have no limit. The next idea was to have the retailer pay for a set number of boxes per year and HWMA would cover the rest. This would allow the business to know the cost of participating in the program in advance. This was the favored option for cost sharing.

Another area of research that we focused on was training requirements for handling Universal Waste. Because CFLs are Universal Waste, the Take-It-Back site employees will need to be properly trained. This information proved challenging to find. Universal Waste refers to all household hazardous waste and we were only interested in fluorescent lamp handling. After much searching we found a training CD and printed training module available from the Association of Lighting and Mercury Recycler's website that focuses only on handling fluorescent lamps. These materials will be used to train employees of the Take-It-Back sites. I have requested that an employee from HWMA ^{who} ~~that~~ is trained to handle hazardous waste be present for the training to answer questions. The Arcata Recycling Center and the Eureka Recycling Center already accept Universal Waste and should need minimal training. The RCEA

office staff and hardware store employees will need training. Training for RCEA staff is scheduled for the 3rd week of December.

Implementing CFL Take-It Back Program

To implement the CFL Take-It-Back Pilot Program we have secured oral agreements with Arcata Community Recycling Center (ACRC), Eureka Community Recycling Center (ECRC), and RCEA. In a meeting with Patrick he expressed his preference in an oral agreement for the pilot program. He felt that it would make it easier to adjust things where needed. Once the CFL Take-It-Back Pilot Program has worked out the kinks, a written agreement will be drafted for retailers who wish to join as Take-It-Back sites. Our monitoring and evaluation plan will help determine what changes should be made to the program and what terms should be included in the agreement.

The bins of choice will be medium-sized cardboard boxes with plastic bags inside. The other bin type we discussed with Patrick was fiber barrels. The fiber barrels would be substantially larger and couldn't be easily transported. The main concern with the larger fiber barrels was CFL breakage. The CFL recycling companies don't want the CFLs wrapped in anything; they want them bare. The weight of 3 feet of stacked CFLs could cause breakage. The boxes will have labels properly identifying it as Universal Waste Lamps. It is also important to display the accumulation start date because Universal Waste Laws limit fluorescent bulb storage to one year. Posters encouraging CFL recycling and listing Take-It-Back locations will be displayed at all CFL Take-It-Back Pilot Program locations. We have gathered posters from the Department of Toxic Substance Control that informs people to keep fluorescents out of the trash. We will be posting these at the CFL Take-It-Back Pilot Program locations as well.

HWMA has agreed to collect and pay for the recycling of CFLs from ACRC, ECRC, and RCEA. These locations will simply need to call HWMA when the CFL collection box is full and arrange pickup. ACRC and ECRC already have scheduled pickups for HWMA to transport other forms of Universal Wastes to HWMA. The CFL collection bin can be included in these pickups and not require additional trips. The collection bin at RCEA will require a separate pickup.

Advertising the CFL Take-It-Back Pilot Program

Our goal is to reduce the barriers that are imposed on residents looking to recycle their CFLs. For our Take-It Back Pilot Program we highlight on three main areas we believe educational material will be most likely to change people's habits, from improper disposal of CFLs to recycling. It is believed that the more people see or can access information about CFL recycling the more likely they are to recycle their CFLs. Some significant barriers stand in our way though. Only since 2004 have California residents been mandated to be properly dispose of their CFLs, and then only in 2006 was it required. Up until this point CFLs were no different than incandescent bulbs, in that when they no longer functioned you just threw them in the trash. By in the last couple of years have residential our research has concluded that there are a few reasons why people don't act in a more ecologically minded manner. Others simply known that CFLs are better but not that they are potentially destructive to the environment and human health if not properly disposed of.

To counteract these tendencies or barriers to CFL recycling our goal is to make recycling much easier. The greatest possibility for educational exposure is being able to place advertisements in the major local newspapers. Patrick Owen, of HWMA, stated during our

meeting that there was funding available for printed ads. Although there is no funding from the state, through either the DTSC or California Integrated Waste Management Board, possibilities for funding could come from Pacific Gas and Electric. We believe that this would be the best and most likely avenue to educate people on the reasons and places to recycle spent CFLs. Even though we won't use this for our Pilot Program we are looking into it for when we expand the Take-It Back Program to hardware and lighting stores.

When the program is expanded, advertisements for all of the retail participants will be included in an assortment of the major local newspapers. Once the program expands it will only facilitate the ease with which people will be able to recycle their spent fluorescent bulbs. And unlike the four current locations that will be taking spent CFLs, the option of directly purchasing another, new, CFL will aid in product and end use responsibility.

Another avenue to increase public exposure to our Take-It Back Pilot Program is to place CFL recycling posters in strategic locations. The primary locations will be at both the Eureka and Arcata recycling centers, Humboldt Waste Management Authority and RCEA. Other key areas will be posters or signs next to CFLs in hardware and lighting stores. Secondary places would be at public notification forums, like billboards outside the Co-op, Humboldt State University, and within participating business store windows.

The posters will also vary and hopefully be catchy. This is one of the recommendations in the book *Fostering Sustainable Behavior*. The advice here is to use prompts that aid in the sustainable activity that you are trying to effectuate change in the community by. We have been lucky enough to get some posters from Bill Ryan, with the California State agency Department of Toxic Substance Control (DTSC). These posters and other downloadable posters from

American Lighting and Mercury Retailers and the California Integrated Waste Management Board (CIWMB) explicitly state that CFLs should not go in the municipal trash. The good thing is they don't just say it, it shows a full garbage can doesn't contain CFLs.

The final form of advertisement will be a sign-up on the DTSC and CIWMB website for participating take-it back partners. Sometimes people know that it is illegal to throw away CFLs but can't remember where any drop off facility is. To facilitate this all partners in the program will be included in the two websites and what they take back. At this juncture though only spiral fluorescent lamps will be accepted at the new recycling facilities. This will provide web users with the exact and most immediate locations and times that CFLs can be dropped off for recycling.

Monitoring and Evaluation

With Patrick Owen at Humboldt Waste Management Authority we are about ready to initiate implementation strategies for the CFL Take-It Back Pilot Program. After all of the research and planning it seems serendipitous to have something almost tangible in our hands. Our goals though are more than just to say that we came up with a program, we want to see it work. Hopefully our working closely with Patrick will help guarantee that this program takes off.

Now that we have devised a program we have to make sure that it will be running effectively. For this reason monitoring will be a crucial strategy to help fix and alleviate any problems that could prevent the program from working. One way we will be to ensure that every 2-3 months we check to see if the posters we placed in retail stores, on message boards and recycling centers are still up. Currently this is our established medium through which educational material is passed to potential recyclers.

We hope, in the near future, to be able to get some funding from our contact at Pacific Gas and Electric for educational purposes, but that is something we are still working on. Specifically this would go to advertisements in the major local newspapers. Also Patrick mentioned that he had some money set aside for a project like this that we might be able to tap into. To evaluate the effectiveness of these potential and real measures biannual surveys could be conducted at the two recycling centers. These surveys would help us gauge the extent to which our educational components are working and how people are finding out about the program. Accompanying this will be a tally of survey responses for those people who brought in bulbs to be recycled, along with any suggestions they see as reducing the barriers to broader CFL recycling.

The one constant monitoring program will be a monthly tallying of the CFLs brought into the four Take-It Back recycling facilities. Each facility will individually count the number of bulbs brought in, along with the summation for all four. One of the ancillary benefits coming from keeping monthly totals is that we will be able to track months when there is more public outreach going on. Events like the CFL Sweeps by RCEA and distribution efforts from Green Campus should garner more public support and consequentially increase the amount of CFLs brought in. Of course there probably won't be large jumps overnight but we predict some statistical correlation will be found that ties public outreach with consumer willingness to act more sustainably.

There are also a few other programmatic goals that we would like to accomplish. One necessity, to help maximize effectiveness, is to sign up the three new CFL recycling facilities on both the Department of Toxic Substance Control and the California Integrated Waste Management Board's Take-It Back web sites. The other is to get an employee from HWMA to

do a training workshop at RCEA. This workshop will cover how to handle and deal with universal waste and all the precautions that need to be taken into account.

Our hopes are that the project can find its legs and begin to materialize as an effective strategy to recycle CFLs, as has been documented in the Statewide Take-It Back Program. Most importantly though that our program will serve to foster sustainable behavior and waste reduction.

References

- 1) ALMR. "Rebuild America: Power Point Training Module." ALMR. July 2002. The Lighting Colaborative Inc. 14 Nov. 2007 <<http://www.almr.org/rebuildamerica.html>>.
- 2) CA UWMB <http://www.ciwmb.ca.gov/wpie/fluoreslamps/>
- 3) CIWMB-2002 Leary, Mark. Household Universal Waste Generation in California. State of California. Sacramento: California Integrated Waste Management Board, 2002. 6. 10 Oct. 2007 <<http://www.ciwmb.ca.gov/Publications/default.asp?pubid=965>>.
- 4) CIWMB-2007 "Waste Prevention Information Exchange." California Integrated Waste Management Board. 1 Nov. 2007. State of California. 10 Oct. 2007 <<http://www.ciwmb.ca.gov/wpie/fluoreslamps/>>.
- 5) DTSC "Promoting a Healthier Environment: the California Take-It-Back Partnership." California Department of Toxic Substances Control. 2007. State of California. 12 Oct. 2007 <<http://www.dtsc.ca.gov/TIB/index.cfm>>.
- 6) Hackett, Steven C. Environmental and Natural Resource Economics. Armonk, NY: M.E. Sharpe, 2006.
- 7) Kubasek, Nancy K., and Gary S. Silverman. Environmental Law. Upper Saddle River: Pearson Prentice Hall, 2008.
- 8) McKenzie-Mohr, Doug, and William Smith. Fostering Sustainable Behavior. Gabriola Island, Canada: New Society, 1999.
- 9) "Tech Bulletin #11." Bethlehem Lamp Recycling. 13 Oct. 2007 <<http://www.bethlehemapparatus.com/info.htm>>.

10) United States. U.S. Census Bureau. 2006 Population Estimates. 9 Dec. 2007

<http://factfinder.census.gov/servlet/SAFFPopulation?_event=ChangeGeoContext&geo_id=05000US06023&_geoContext=&_street=&_county=humboldt&_cityTown=humboldt&_state=04000US06&_zip=&_lang=en&_sse=on&ActiveGeoDiv=&_useEV=&pctxt=fph&pgsl=010&_submenuId=population_0&ds_name=null&_ci_nbr=null&qr_name=null@=null%3Anull&_keyword=&_industry=>>.

Appendix A

Background Information

About CFL Programs

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The Green Campus Program is a State-wide program across 12 UC and CSU campuses, under the authority of the non-profit organization The Alliance to Save Energy. The program has been made possible through grants and funding from the Public Utilities which comes from the ratepayers themselves. HSU Green Campus operates under the auspices of PG&E, SCE and the UC/CSU/IOU Energy Efficiency Partnership. Thank you, citizens of California, for making our work possible.

For more information, please refer to our parent non-profit, at ASE.org. Want to contact us? Drop us a line at: greenhsu@humboldt.edu, or individual team members can be reached by their HSU ID (Axe ID) @humboldt.edu

At Humboldt State University, Green Campus is comprised of four paid intern positions and a network of volunteers who receive Official Green Campus T-shirts as compensation for their time and effort in our cause.

This fall, there are two returning interns, and two new interns, Andrea and Sarah.

Jocelyn Orr - Green Campus Coordinator - 4th year Junior - Studying: Environmental Ethics: Advocacy, Journalism Minor - jmo32

Carmen King - Green Campus Coordinator - Senior - Studying: Economics, NR planning and sustainable development, Scientific Diving Minor, NRPI Minor - cgk5

Sarah Schneider - Green Campus Coordinator - Junior - Studying: Environmental Ethics: Water Resources Policy, Political science minor - sys2

Andrea Lanctot - Green Campus Coordinator - Junior - Studying: Environmental Science - Appropriate Technology - aml66

Past GC Coordinators at Humboldt State
 Zach Mermel - Started term as a CCAT Co-Director
 Patrick McAuley - Started term as a CCAT Co-Director
 Nate McKeever - Runs a business as a certified electrician
 Krystal Rogers - Jan '05 - June '06. Graduated June '06
 Andrea Allen - Jan '06 - June '06. Works at Shatz Energy Research Center (SERC)
 Jeffrey Steuben - Jan '06 - June '07. Started term as a CCAT Co-Director
 Ben Mattio - August '06 - June '07. Works at CCAT, and graduates Fall 2007

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WATCH FOR:

Spring Semester 2008:
Green Campus will be welcoming a new coordinator to the program!

**ENVS 480
Green Campus
Internship Course:**
Starting this spring 2008 a brand new one-unit internship course will be offered



**CHANGING THE
WORLD ONE
BULB AT A TIME**

Throughout the month of October, Green Campus program coordinators and our volunteers handed out approximately 1250 compact fluorescent (CFL) bulbs to the Humboldt State campus community. The five week event was sponsored by Pacific Gas & Electric and corresponded with the ENERGY STAR® "Change a Light, Change the World" campaign. Wrapping up its 8th year, the ENERGY STAR® campaign has helped to spread the word about energy efficiency and energy-saving technologies through education and outreach nationwide.

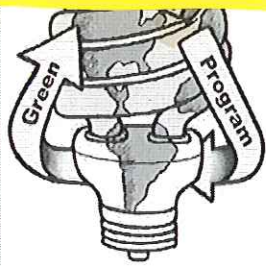
Each Wednesday and Thursday in October, Green Campus set up shop on the UC quad, rain or shine, to give free CFLs. Although the bulbs came at no cost to Green Campus, through the generosity of PG & E, there was one catch: each person who took a CFL had to sign a pledge stating they would save energy by using their new 13 or 14 watt CFL.

With CFL exchanges and giveaways of the program, a significant difference was the number of people who were already familiar with the "funny-shaped" bulb. Anyone who approached the table walked away with two. Those who politely declined generally had a full house of CFLs already. The stark realization that energy efficiency was leading fast about energy efficient lighting was wonderful news; and it allowed Green Campus to have free time to share other energy saving tips with campus community members.

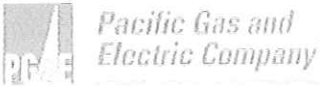
As always, Green Campus will continue to supply the campus community with CFLs and power strips. Please contact us at greencampus@humboldt.edu for CFLs, power strips, or any questions regarding energy conservation.

★ CFL Recycling Info distributed with CFLs

WARNING! CFL's contain MERCURY VAPOR and are considered Household Hazardous Waste. TAKE CARE WHEN HANDLING! If a CFL is broken indoors, immediately open all windows and doors to provide proper ventilation. Collect all broken pieces and place them in a ziploc bag. Dead/broken CFLs CANNOT be thrown away. They need to be taken to a hazardous waste facility. You can dispose of CFLs at the Humboldt Waste Management Authority at 1059 W Hawthorne in Eureka; on-campus residents can take them to Housing's Front Desk or the Club's Office.



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News Release

Release Date: October 3, 2007

Contact: PG&E News Department (415) 973-5930

PG&E Gives Away 1 Million Energy Efficient Light Bulbs

Largest CFL Promotion of its Kind to Kick-off with Change a Light Day in Berkeley

BERKELEY – Pacific Gas and Electric Company today announced that it's launching a groundbreaking campaign to give away one million compact fluorescent light bulbs (CFLs) during the month of October to help its central and northern Californian customers become more energy efficient. PG&E will kick-off the largest, one-month utility CFL promotion of its kind by giving away 7,500 bulbs during the national Change a Light Day celebration in Berkeley.

"Energy efficiency is a quick and cost-effective way for our customers to save money, reduce greenhouse gas emissions and combat global climate change," said Brad Whitcomb, vice president of customer products and services for PG&E. "We're thrilled to continue our partnership with the communities we serve as we begin this grassroots effort to promote energy efficiency."

PG&E's one million CFL giveaway during National Energy Awareness Month could potentially generate a collective savings of more than 400,000 megawatt hours and prevent the emission of more than 200,000 tons of greenhouse gases not emitted over the lifetime of the CFL. This is the equivalent of powering almost 60,000 homes in northern California for a year, or removing 31,000 cars from the road for a year, or planting 60,000 acres of trees.

To reach its one million CFL giveaway goal, PG&E has called upon more than 1,000 PG&E employee volunteers to help distribute CFLs at over 300 events across northern and central California. The company is also partnering with local community groups and the Sierra Club to broaden its reach. CFL giveaway activities include today's ENERGY STAR Change a Light Campaign launch in Berkeley, tomorrow's National Energy Awareness Month launch, featuring the ENERGY STAR Change a Light Bus, at the Marina Safeway store in San Francisco, and Lights Out San Francisco on October 20, as well as many others. These energy efficiency awareness activities will help promote meaningful energy efficiency initiatives and decrease California's energy consumption.

"We are thrilled that ENERGY STAR partner PG&E stepped forward to host the national bus tour to help us encourage as many people in California to start saving energy today, starting by changing to energy-efficient lighting," said Wendy Reed, ENERGY STAR Change a Light, Change the World Campaign Manager. "Each American needs to see that they are part of the solution to fight global warming, and we hope this tour will help individuals understand the connection between personal energy use and our climate."

PG&E is a national leader in helping its customers use energy efficiency as a cost-effective way of reducing their energy bills, while helping the state achieve its greenhouse gas emissions reduction goals. Over the past three decades, PG&E's 85 distinct residential and commercial energy efficiency programs have helped customers save more than 118 million megawatt-hours of electricity and 10.7 billion therms of natural gas. These joint efforts resulted in enough savings to power over 18 million homes and heat 15 million homes, while preventing more than 125 million tons of CO2 from entering the atmosphere.

PG&E has a long and distinguished history of recognition for its environmental leadership. As part of its Change a Light campaign, PG&E will work to raise public awareness around the need to recycle fluorescent bulbs and will be providing information on where and how the public can recycle used CFLs. In addition, PG&E will provide a collection container for the public to drop off used CFLs at the kick-off events in Berkeley and San Francisco, and will recycle the collected bulbs. PG&E is an active member of the California Take-It-Back Partnership, working to promote and facilitate CFL recycling.

For more information about Pacific Gas and Electric Company, please visit our website at www.pge.com

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Have You Seen the Light? Nearly 1 Million Take Pledge to Make Energy Efficient Change

Release date: 10/23/2007

Contact Information: Enesta Jones, (202) 564-4355 / jones.enesta@epa.gov

(New York City, N.Y. - Oct. 23, 2007) The 20-day national Energy Star Change a Light Bus Tour concluded today with **nearly 1 million Americans across the country pledging to change more 2.6 million lights to help fight climate change.** This represents a potential savings of nearly \$70 million in energy costs and prevention of 1 billion pounds of greenhouse gas emissions. EPA Administrator Stephen L. Johnson ended the 10-city tour at Manhattan's Union Square.

"Some have said one person can't change the world. Well, how about a million people? By teaching nearly a million Americans that protecting the environment and saving money is as easy as changing a light, we are brightening our country's future, one light – and one person – at a time," said EPA Administrator Stephen L. Johnson.

"By switching to CFLs at home and at work, Americans are increasing energy efficiency and furthering President Bush's energy initiatives aimed at using advanced technologies to meet our energy challenges," Secretary Samuel W. Bodman said. "The cleanest, most abundant and affordable energy available is the energy we waste everyday. Switching to CFLs, which use less energy, last longer, and reduce energy costs for consumers, is a quick and easy way that Americans can save energy everyday."

If every U.S. household changed just one light bulb or fixture to an Energy Star bulb, each year our country would save \$600 million in energy costs, enough energy to light 3 million homes, and prevent greenhouse gases equivalent to the emissions from more than 800,000 cars. Lighting accounts for about 20 percent of a home's electricity use. Energy Star qualified light bulbs and fixtures use about 75 percent less energy than standard incandescent lighting, with bulbs that last six to ten times longer. One Energy Star qualified bulb can save about \$30 or more in energy costs over its lifetime.

The bus stopped for 16 events in 10 cities. The Energy Star Change a Light campaign promotes lighting that has earned the government's Energy Star label for efficiency as a first step toward saving energy. The campaign encourages individuals to take the online Energy Star Change a Light pledge. The pledge is a public commitment to change out at least one inefficient light at home with an energy-efficient one.

Since this year's tour began approximately 100,000 Americans have taken the pledge

and 885 organizations (such as governments, schools, businesses and non-profit organizations) have joined to encourage their communities to take the pledge.

Consumer event stops were held at California's Disneyland® Resorts; a Broncos Football Game in Denver; Navy Pier in Chicago; a Falcons Game in Atlanta; Faneuil Hall Marketplace in Boston; and today's stop in Manhattan's Union Square. Media event stops showcased what a few leading schools and their students are doing to participate in the national Energy Star Change a Light Campaign. EPA presented Environmental Leadership Awards to faculty and students at schools in Denver, Chicago and Atlanta.

Another tour highlight took place in Boston, where the Freedom Trail Foundation helped declare the coming of a new revolution – a revolution in how Americans use energy. "Paul Revere" re-enacted seeing the lighted signal from the Old North Church, 200 years after his famous ride. This time, his signal was Sylvania's Energy Star qualified lights, glowing from the church's steeple across the Charles River.

At each tour stop, the Energy Star Change a Light Education Center was set up with interactive displays to convey the importance of looking for the Energy Star label on lighting, how to use and dispose of compact fluorescent lamps (CFLs) responsibly, and the connection between our personal energy use and our climate. The education center was co-sponsored by JCPenney, 2007 Energy Star Partner of the Year for Energy Management.

The top five organizations leading the pledge initiative as of today, in order of most pledges to least, are: Alabama Power Co.; National Association of Counties; Georgia Power Co.; New Jersey's Clean Energy Program; and Arizona's Salt River Project. The top five organizations in five different categories can be viewed from the pledge site.

Motor Coach Industries (MCI), a large North American manufacturer of inter-city motor coaches, provided the bus for the tour. MCI's bus is a state-of-the-art J4500 LX motor coach, powered by a 2007 EPA-model clean diesel engine fitted with a particulate scrubber, and fueled by ultra low sulfur diesel. The bus itself served as a reminder that leaving our car at home and taking public transportation when we can is another way we can reduce our personal impact on the climate.

Energy Star Bus Tour: <http://www.energystar.gov/bustour>

Photos and updates from the road: <http://www.energystar.gov/bustour>

Energy Star is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy designed to save money and protect the environment through energy efficient products and practices.

Energy Star: <http://energystar.gov>

U.S. Environmental Protection Agency: epa.gov

U.S. Department of Energy: <http://www.energy.gov>

R291

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**Redwood Coast
Energy Authority**

427 "F" Street, Suite 236
Eureka, CA 95501
707-269-1700
707-269-1777 Fax

FACT SHEET

Mission: The Redwood Coast Energy Authority's (RCEA) purpose is to develop and implement sustainable energy initiatives that reduce energy demand, increase energy efficiency, and advance the use of clean, efficient and renewable resources available in the region.

Governance: RCEA was formed in 2003 as a Joint Powers Association (JPA), representing seven municipalities (the Cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Trinidad and Rio Dell) and Humboldt County. As a JPA, RCEA is governed by a Board composed of representatives from each of these jurisdictions. In addition, RCEA has three staff (Executive Director, Program Manager, Program Assistant).

Funding: All of RCEA's funding comes from contracts and grants, bringing resources to Humboldt County that would not otherwise be available. The operating budget for FY2004/05 is still being finalized, but will be approximately \$675,000. Current funding comes from a major two-year contract with Pacific Gas & Electric Company (PG&E) to promote energy efficiency (funded by California ratepayers under the auspices of the California Public Utilities Commission), and a smaller contract with the US Department of Energy (DOE) to promote the use of solar energy.

Current Programs: The following programs are under development, and should be operational by October 2004:

- ❖ **The Redwood Coast Regional Education Center** serves as a one-stop-shop for energy efficiency information for residential, commercial/industrial, and public agency energy users in Humboldt County. This program includes:
 - An energy information web-site, www.redwoodenergy.org.
 - An energy information hot-line, (707) 269-1700.
 - An energy book, video, and tool lending library.
 - On-going free public workshops, demonstrations, & displays.
 - Public Agency Utility Management System coordination.
 - County General Plan Update - *Energy Element* development.

- ❖ **The Million Solar Roofs (MSR) Program** will assist Humboldt County with achieving 500 solar electric and solar thermal installations by the year 2010. FY2004/05 MSR activities include:
 - Development of a Humboldt County *Solar Strategic Plan*.
 - Grid-connected solar electric system training for building professionals.
 - *Solar Schools* program, to incorporate solar energy information in the K-12 curriculum.
 - Co-sponsorship of solar-related events.
 - Update and re-printing of the *Solar Works! Guide*.

www.redwoodenergy.org

Print This Article | Close this window

GE hopes to cut mercury in "green" light bulbs

Wed Oct 24, 2007 9:31pm BST

By Timothy Gardner

NISKAYUNA, New York (Reuters) - General Electric Co is working to cut the amount of mercury in energy-saving fluorescent lightbulbs which have soared in popularity.

Residents and businesses are buying up compact fluorescent lightbulbs (CFLs) because they reduce power bills as well as emissions of carbon dioxide, the main gas blamed for global warming. CFLs use only one-fourth to one-fifth the energy of incandescent bulbs producing the same light and can last 10 years.

The corkscrew-shaped devices are made by many companies and on average contain about 5 milligrams of mercury, a toxic metallic element, according to the Environmental Protection Agency.

Five milligrams is tiny amount, about the size of the tip of a ballpoint pen, and much less than the amount that was held in old thermometers. But with sales of CFLs hitting 150 million units last year, and more expected this year, some scientists and environmentalists are worried that most of the bulbs are ending up in landfills instead of being recycled.

"We're raising investments to get mercury down. If we can get it down to 1 milligram of mercury, that is a big breakthrough," Lorraine Bolsinger, vice president for GE's green unit called ecomagination, told reporters at the company's global research center in upstate New York.

Mercury is a poison that can hurt the nervous system and damage the kidneys and liver.

Garbage haulers are worried because bulbs that are not recycled can break before they reach landfills and may contaminate them. John Skinner, the director of the Solid Waste Association of North America, said in an interview that many bulbs still end up in the waste stream despite efforts to recycle them.

U.S. regulators, manufacturers and environmentalists note that because CFLs require less electricity than traditional incandescent bulbs, they reduce overall mercury in the atmosphere by cutting emissions from coal-fired power plants.

But some of the mercury emitted from landfills is in the form of a vapor that can reach ecosystems more readily than mercury released directly from coal-fired power plants, according to Steve Lindberg, emeritus fellow of the U.S. Department of Energy's Oak Ridge National Laboratory.

Still, the bulbs are growing in popularity around the world. Pacific Gas and Electric Co., a subsidiary of PG&E Corp, said this month it will give away 1 million of the bulbs to reduce energy use and cut emissions of greenhouse gases.



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www.redwoodenergy.org

Colorado Daily.com

The Online Edition of the Colorado Daily

[Print Page](#)

'Green teams'

Thursday, November 8, 2007 8:42 PM MST

Colorado Daily Staff Report

The city and CU-Boulder have many similar goals, one of which is energy conservation in Boulder.

With funding by the City of Boulder, the University of Colorado-Boulder Environmental Center has created a Green Team charged with educating university students on energy conservation and recycling.

Now through the middle of November teams of CU students are visiting students residing in the Goss Grove and University Hill neighborhoods handing out free energy-saving light bulbs provided by the city and information about how saving energy will reduce their impact on climate change and lower their energy bills.

They're also educating students about changes to the City's recycling services as well as the benefits of recycling.

"City workers can't relate to students the way other students can," says Rob Hall, Energy Program Manager at the CU Environmental Center. "And students are just more credible to other students when they're trying to get their peers to change behavior."

"These teams are effective in getting information to students because it is students themselves who are speaking about the issue," added Scott Gaston, Energy Conservation Teams coordinator. "The city needed help reaching the students, and we were willing to give them."

The collaboration between the City and CU arises out of their shared goals to reduce the emissions causing climate change and to reduce waste and conserve resources through increased recycling rates. The City of Boulder has set ambitious and ground-breaking goals on the issue of climate change since signing onto the Kyoto Protocol in 2002 in an effort to reduce Boulder's green house gas emissions citywide by 20 percent by the year 2010.

Because homes make up a large percentage of the city's energy use, the city is putting resources into helping homeowners and renters reduce energy use.

"We wanted to help them, and we agreed the students would be better than some Boulder official going around and doing it, so we created the Green Teams," said Gaston. "We go door to door, and we basically preach energy conservation and education."

The team, composed of four students and Gaston himself, are currently working the Goss Grove neighborhood, and will be heading to the Hill within the next few weeks, he said. The Green Team is active Monday, Wednesday, Thursday and Friday each week until the university's December break.

"The first challenge is getting students to understand the connection between their energy use and climate change," said Hall. "Once they learn there are also immediate benefits of more money in their pockets, it's hard for them to see a reason not to at least do something."

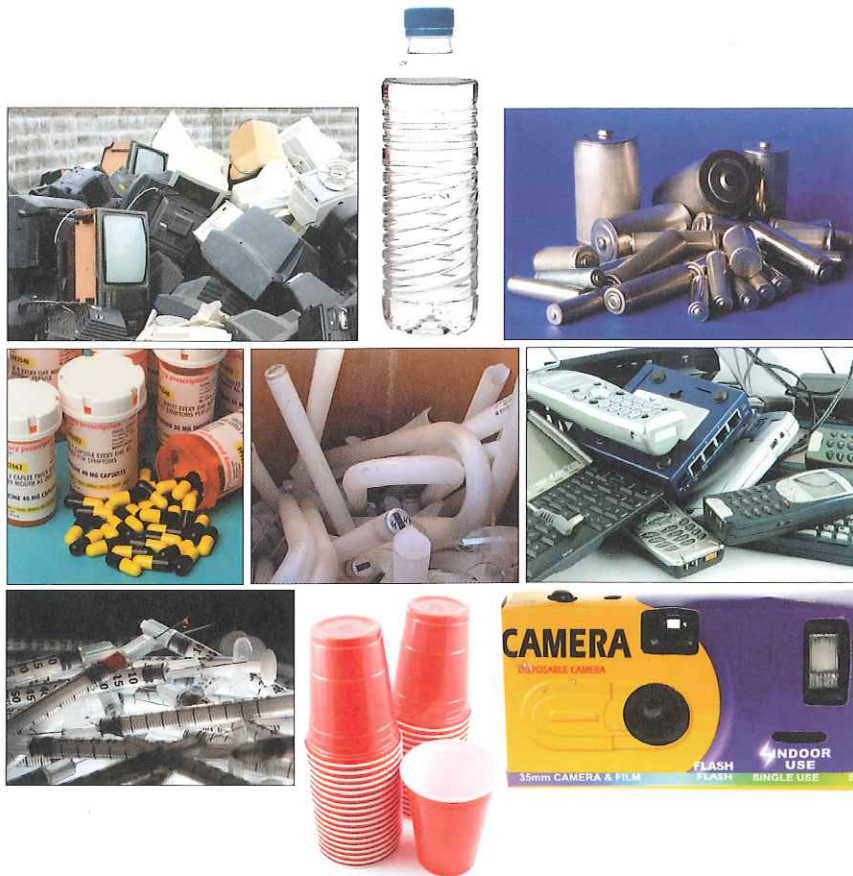
Hall says most students believe climate change is happening and that it is serious, but that they are unaware their electricity, heating or hot water are part of the cause.

As a result, energy materials distributed focus on free or very inexpensive actions students can take to reduce their energy, that Hall says, most students are not aware of. These range from no-cost actions, like setting computers to go to sleep or checking for leaky refrigerator doors, to low-cost actions like using energy-saving light bulbs.

Energy green teams are also providing residents with free compact fluorescent light bulbs ("CFLs") to replace their conventional, round incandescent bulbs. CFLs use only 25 percent of the electricity of incandescents to provide the same amount of light and are one of the easiest and quickest ways to immediately start saving energy in the home.

A Better Way

Product Stewardship



Most of the companies that make this stuff aren't paying a nickel to recycle it. In fact, they designed it for disposal—and you're picking up the tab!

We think it's time to change that.

\$100,000,000

The cost of collecting and properly recycling or disposing of hazardous products easily exceeds \$100 million a year in California.

A recent study by the U.S. Geological Survey found pharmaceuticals in 80% of the streams they tested. Half the streams had seven or more drugs.



There's a long list: Batteries...syringes...
electric switches...cell phones...aerosol cans...
electronic equipment...fluorescent light tubes...
computer monitors...thermometers...

These and hundreds of other products make our lives easier...until we don't need them anymore. Then, if they're not disposed of responsibly, the acids, mercury and other heavy metals they contain become a danger to our health and the environment.

The U-Waste Ban: A for effort, F on the final

California's Universal Waste Ban prohibits an array of residentially generated hazardous products from normal household trash disposal, effective early 2006. Treated lumber was banned in January 2007, and needles and other "sharps" will be banned in September 2008. Pharmaceuticals are expected to be added soon.

Unfortunately, the state-mandated bans must be enforced by local governments.

And they don't have the money to do it.

It's the classic unfunded mandate—a government directive without the resources to enforce it. The intentions were good, but the responsibility is misplaced onto local governments.

Two systems. No connection.

We currently operate under two completely separate and disconnected systems. One system designs, manufactures and sells products to us and then effectively rides off into the sunset.

Once the consumer is done with those products, the other system is engaged when local governments—and their taxpayers—become financially responsible for managing the disposal of these private goods, many of which are toxic and disposable *by design*.

These two systems don't communicate with each other. Local governments don't have any input into how toxic or durable the products are, and manufacturers don't have to design creative and safe ways to dispose of them at the end of their useful life.



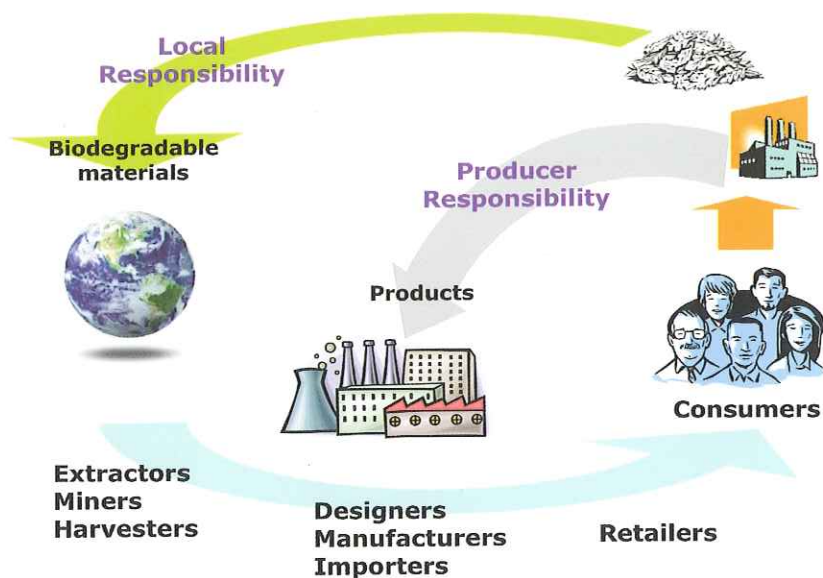
A better way: Producer Responsibility

Extended Producer Responsibility (EPR), or Product Stewardship, means whoever designs, produces, sells or uses a product takes responsibility for minimizing its environmental impact through all stages of the product's life cycle. And the producer, having the greatest ability to minimize impacts, has the most responsibility. Product recycling should be an extension of the marketing system, mirroring the production and distribution process in a kind of "reverse retail" process; and it should be managed through commercial arrangements—all as part of excellent customer service.



Implement Producer Responsibility

We suggest that manufactured product discards be managed by producers or their agents. Local governments should focus limited resources on managing things that are grown — like yard trimmings and food scraps.



The Producer Responsibility idea is picking up support:

- Some manufacturers, retailers and local governments in the U.S. have started to implement policies and programs that have EPR components. Manufacturers are already doing this in other countries... the same manufacturers that aren't doing it here.
- Taxpayer groups like EPR because it relies on the market — not tax dollars — to solve the problem.

And there is still a role for government:

- Laws are needed to provide manufacturers the level playing field they want. These programs need standards, transparency and accountability to achieve the desired results. And that means they need legislative mandates.
- Local government also has a critical role to play in leading the transition to Producer Responsibility. The **Take It Back Network** in Washington State — created by local governments partnering with retailers, charities and green groups — demonstrates that retailers can provide more convenient take-back services than the few locations local governments can provide.

Join the campaign. We'll tell you how.

See the back for ways you can help demand Producer Responsibility from companies who design, manufacture and sell the products we use daily.

U.S. waste production

Growing...and changing!

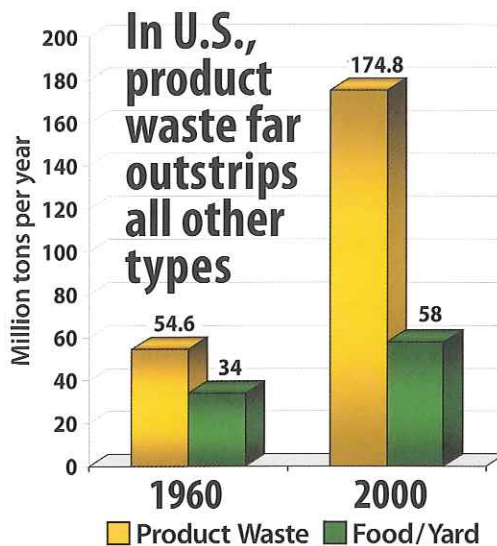


A century ago, when local governments assumed responsibility for solid waste, it consisted mostly of coal ash left over from heating and cooking. The rest was mainly food, with a small amount of simple manufactured products like paper and glass.

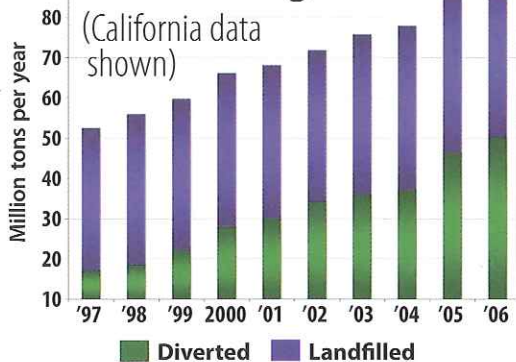
Today, manufactured products and associated packaging make up 75% of what we throw out.

In California, while the amount of waste *diverted* from landfills has certainly increased in recent years, the amount of waste we still send to landfills has changed very little. Californians will send about the same amount of solid waste to landfills this year as we did in 1990: 40 million tons.

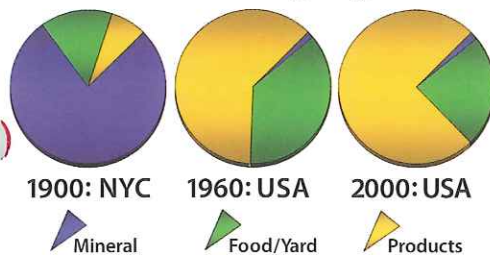
That's because diversion addresses these consumer products at the end of their lives. It does nothing



Waste production is increasing...



...and changing.



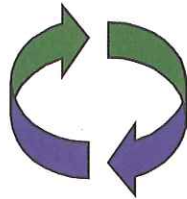
to provide incentives to reduce the generation or consumption of wasteful products—and it's generation and consumption that have exploded in recent years.

The simple fact is that existing recycling efforts and disposal bans aren't reducing total waste generation. Despite our best efforts, we're losing the battle.

Effective waste management can't be an afterthought. It must be a key part of product design, manufacturing, packaging and retailing.

Help make Producer Responsibility the standard in California!

- 1 Pass Resolutions, Ordinances, Plans and Policies**
Use model EPR plans and policies on our website.
- 2 Advocate for Statewide Legislation**
Add producer responsibility to whatever advocacy efforts your jurisdiction is pursuing in Sacramento.
- 3 Join CPSC and Speak with a Unified Voice**
Participate in CPSC and help us speak with a unified voice here in California. There IS power in numbers. Contact CPSC at the address below.



California Product Stewardship Council

P.O. Box 216381
Sacramento, CA 95821

www.caproductstewardship.org

Carol Misseldine

Executive Director, Operations and Education
Phone: 415-388-5273
Email: cmisseldine@mindspring.com

Heidi Sanborn

Executive Director, Programs and Policy
Phone: 916-485-7753
Email: hksanborn@comcast.net

Developed with support from  **The Product Policy Institute**

Appendix B

RCEA Sweeps Info

Energy Interns loading
up with CFLs



McKinleyville
Kids teach
the Energy
Interns
"The Robot"

Eric and Daniel
service another
McKinleyville home



Daniel Hernandez
talking with Manilla
residents



Team Leader Kristopher
Buhner with an enlightened
Eureka resident



Eric Gregory servicing
a McKinleyville home



Eric, Jocelyn, and Natalie
getting an early start
in McKinleyville

★ Energy Intern Job Announcement



Redwood Coast Energy Authority

517 Fifth Street

Eureka, CA 95501

Phone: (707) 269-1700 Toll-Free (800) 931-RCEA Fax: (707) 269-1777

E-mail: info@redwoodenergy.org Web: www.redwoodenergy.org

Redwood Coast Energy Watch Energy Resource Internship

Description:

RCEW will be hiring eight temporary energy efficiency interns to replace inefficient incandescent bulbs with efficient compact fluorescent bulbs in PG&E ratepayer residences in select Humboldt County neighborhoods. In addition, energy efficiency interns will educate customers about proper CFL disposal, available PG&E programs and incentives, and general residential energy efficiency.

Desired Skills and Education:

- Interest and some education in energy efficiency
- Solid interpersonal communication skills
- Professional appearance
- Strong desire to implement energy efficiency measures
- Strong desire to educate the public in energy efficiency
- Possession of a valid California driver's license and an available vehicle are a plus

Intern Availability:

- Applicants will need to commit to being available on all six sweep days (approximately 8:30am - 5:30pm on the weekends of **October 20-21**, **October 27-28**, and **November 10-11**) as well as 6:00-8:30pm Monday, **October 15** for required training.

Compensation:

- Compensation for this position is \$8.50/hour. Interns who drive a personal vehicle for this project will be reimbursed \$0.485/mile.

Continuing Employment Opportunity:

- There may be a limited number of continuing RCEA internship opportunities at the conclusion of the sweeps. We are especially interested in interns who have computer and graphic design skills in addition to an interest in energy.

How to Apply:

- Applicants should send a cover letter and resume to the RCEA via mail, fax, or email (preferred):

Mail: Redwood Coast Energy Authority
Attention: David Boyd
517 5th St
Eureka, CA 95501

Fax: 707-269-1777

Email: dboyd@redwoodenergy.org

- **The deadline for application is 5pm, Wednesday, October 3rd, 2007.**

The Redwood Coast Energy Authority's purpose is to develop and implement sustainable energy initiatives that reduce energy demand, increase energy efficiency, and advance the use of clean, efficient and renewable resources available in the region.

The Redwood Coast Energy Watch partnership program is designed to help communities within the region achieve long-term energy savings by contacting customers through localized marketing and communications efforts, informing them about locally available energy efficiency resources, and assisting them with the direct installation of energy efficiency measures.

~~A~~ CFL Sweeps Supplies

Subject: Quartermaster Report - 10/17/2007 rev1

From: Christopher Escarcega <cescarcega@redwoodenergy.org>

Date: Wed, 17 Oct 2007 14:51:11 -0700

To: David Boyd <dboyd@redwoodenergy.org>

CC: Ben Mattio <bmattio@redwoodenergy.org>, Kristopher Buihner <kbuihner@gmail.com>, Christopher Escarcega <cescarcega@redwoodenergy.org>

David -

I've added your suggestions to the list below. I think we should use carts instead of milk crates since we've decided to break into pairs. Ben/Kristopher, any thoughts on this?

Installation Equipment

Step Ladders (x 5) - Pierson's/Target

Bungee Cords (x5) - Pierson's/Target

Work Gloves (x10 pairs) - Pierson's

Safety

- ✓ First Aid Kits (x 2) - Broadway Medical
- Contractor Bags (1 LG box) - Pierson's (20) *crate*
- Big Mercury Spill Kits (x 2)
- ✓ - whisk broom (x2) - Pierson's
- 5gal bucket with screw/snap tops (x2) - Pierson's
- ✓ - 1-quart ziplock bags - Target
- ✓ - Nitrile disposable gloves (non-latex) - Broadway Medical
- ✓ - dustpans (x2) - Target

- duct tape

If there's something missing from this list, please send me a reminder and I'll tag it on to subsequent revisions as necessary. David, Ben is planning on doing a shopping trip Thursday, Oct 17, to pick up the above supplies. He'll be in touch for credit card info at each stop.

In stock items:

Pens (3 boxes)

Document Cases (10)

Clipboards (10)

Handcarts (10)

Literature Packets (~ 350) - *not yet assembled*

ID Badges & Lanyards (11)

Digital Cameras (x2)

Ordered items:

Safety Vests (15)

--
Christopher Escarcega
Energy Resource Intern

Redwood Coast Energy Authority

517 5th Street

Eureka, CA 95501

707.269.1700 voice

707.269.1777 fax



Redwood Coast Energy Authority

517 Fifth Street

Eureka, CA 95501

Phone: (707) 269-1700 Toll-Free (800) 931-RCEA Fax: (707) 269-1777

E-mail: info@redwoodenergy.org Web: www.redwoodenergy.org

RCEW Sweeps Training 10/15/2007

★ Energy Intern Training Outline

David Boyd, *Executive Director*

Kristopher Buihner, *Energy Resource Intern*

Chris Escarcega, *Energy Resource Intern*

Ben Mattio, *Energy Resource Intern*

1. Welcome/Orientation (David)
2. Hiring
 - a. Hiring Paperwork (Chris/Ben)
 - b. Photos (Kristopher)
3. CFL Training
 - a. Installation Standards Training (David)
 - b. Safety (Ben)
 - c. Customer Service (Kristopher)
 - i. Details
 - ii. Roleplay activity
 - iii. If you don't know an answer, refer customer to RCEA
 - d. Data Collection (Chris)
 - i. Why do we do we need to document installs?
 - ii. What is essential?
 - iii. Voluntary demographic data and sensitivity
 - iv. How to fill out the data collection form
4. Q & A
5. Team Organization

The Redwood Coast Energy Authority (RCEA) is a Joint Powers Association representing seven municipalities (the Cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Trinidad and Rio Dell,) the County of Humboldt, and the Humboldt Bay Municipal Water District. RCEA's mission is to develop and implement sustainable energy initiatives that reduce energy demand, increase energy efficiency, and advance the use of clean, efficient and renewable resources available in the region.

*Energy Intern Training Content

Prepared and Presented by Ben Mattio

Safety

Installations

- Leave your cart in a visible location outside the home you are working in so that other team members can easily locate you
- Use gloves to remove hot incandescent bulbs
- Avoid removing broken or damaged incandescent bulbs
- Stepladders
 - o Extend and lock legs before use
 - o Do Not lean stepladder against wall or other object
 - o Ensure all legs are on solid, level ground
- Avoid Hazardous Fixtures *when in doubt - leave it alone*
 - o Bulb sockets hanging from electrical wire
 - o Wet lamp fixtures or fixtures not protected from rain
 - o Fixtures above stairs
 - o Any fixture you feel unsafe working with
- Leave any home in which you do not feel safe
Don't leave work area without notifying Team Leader

Injuries

reference last page of packet - remove

- First Aid Injury
 - o Report injury to Team Leader
 - o Team Leader will evaluate severity of injury
 - Use First Aid Kit For minor cuts and burns
 - Seek Medical Attention for major injuries
 - o Complete Initial Injury Packet
- Major Injury/ Illness
 - o Report injury to Team Leader
 - o Take injured person to St. Joseph's Hospital Emergency Room- See Map
 - o Complete Initial Injury Report
- Life Threatening Injury
 - o Dial 911 and follow operators instructions
 - o Contact Team Leader
 - o Complete Initial Injury Report

CFL Disposal

reference Energy * sheet

- Mercury
 - CFLs contain a small amount of mercury (about 5 milligrams)
 - No mercury is released when bulbs are intact, in use, or when properly recycled at universal waste sites
- ~~CFLs~~ ^{All fluorescent bulbs} are considered universal waste and need to be properly disposed *CA Law effective Feb 8, 2006*
 - Bring bulbs to the Waste Transfer Station (Eureka) for FREE DISPOSAL
1059 West Station (Red Building)
Friday- Sat, 9am-1pm
707-441-2005

A CFL contains less mercury than is emitted by a coal-fired power plant serving an equivalent incandescent light bulb.

Broken CFLs

reference Energy * sheet

Hard Floor

- Open a window and leave the room for 15 min or more to allow mercury vapor to dissipate
- DO NOT VACUUM BROKEN LAMP DEBRIS
- Use disposable gloves to avoid contact with skin
- Scoop up fragments and powder with stiff paper and place in a sealed plastic bag
- Place sealed bag containing broken CFL in "Broken CFL Pail" for proper disposal
- Wash your hands

Carpet

- Open a window and leave the room for 15 min or more to allow mercury vapor to dissipate
- DO NOT VACUUM BROKEN LAMP DEBRIS
- Use disposable gloves to avoid contact with skin
- Scoop up fragments and powder with stiff paper and place in a sealed plastic bag
- Use tape or wet paper towel to pick up small pieces or powder
- Place sealed bag containing broken CFL in "Broken CFL Pail" for proper disposal
- Wash your hands

~~#~~ Door-Hangers Used
to notify residents



FREE CFLs for Your Home

In a joint project known as the Redwood Coast Energy Watch (RCEW), Pacific Gas & Electric Company (PG&E) and the Redwood Coast Energy Authority (RCEA) are offering FREE home lighting upgrades in your neighborhood.

RCEW Energy Teams will be
in your neighborhood on
Sunday, October 21st

Here's how it works: RCEW will conduct door-to-door sweeps in neighborhoods throughout Humboldt County. Residents in these neighborhoods—including yours—will have the opportunity to exchange their inefficient incandescent light bulbs for cost- and energy-saving compact fluorescent lamps, for free. You will also have the opportunity to exchange up to two inefficient and unsafe halogen torchieres for free dimmable fluorescent torchieres.

[more](#) →



All you need to do: Make sure someone is home between 9 a.m. and 4 p.m. on the date indicated, and have your PG&E bill or account number available. Planning ahead for which lamps you want upgraded will make things go more smoothly. RCEW Energy Team members will install the lamps for you at no charge. It's that easy.

For more information, call the Redwood Coast Energy Authority at 800-931-RCEA or 707-269-1700.

REDWOOD COAST
energy
watch

A joint project of:



**Pacific Gas and
Electric Company**



**Redwood Coast
Energy Authority**

This program is funded by California utility ratepayers under the auspices of the California Public Utilities Commission (CPUC). © Pacific Gas and Electric Company 2007.

** Included in CFL Sweeps Info Packet*

How do I properly dispose of CFLs in Humboldt County?

Compact Fluorescent Lamps (CFLs) are considered Universal Waste, and must be disposed of properly. The Humboldt Waste Management Authority (HWMA) accepts CFLs and fluorescent tubes for shipment to a recycling facility in the Bay Area.

Residential

Humboldt County residents can recycle CFLs for FREE at the Waste Transfer Station in Eureka:

Waste Transfer Station (Red Building)

1059 West Hawthorne, Eureka

Friday-Saturday, 9am-1pm

All residential CFL recycling is limited to 20 bulbs per quarter-year.

Commercial

Humboldt County businesses can recycle CFLs for \$1.25/bulb and fluorescent tubes for \$0.12/foot. Businesses need to call HWMA at 707-441-2005 to set up an appointment.

Note

For Fortuna residents there is a charge of \$1.25 for every CFL recycled, and \$0.12/foot for fluorescent tubing. Fortuna businesses are charged these same rates, plus a \$10.00 administration fee.

** Included in CFL Sweeps Info Packet*



LEARN MORE AT
energystar.gov

ENERGY STAR®, a U.S. Environmental Protection Agency and U.S. Department of Energy program, helps us all save money and protect our environment through energy efficient products and practices. For more information, visit www.energystar.gov.

Frequently Asked Questions Information on Compact Fluorescent Light Bulbs (CFLs) and Mercury August 2007

Why should people use CFLs?

Switching from traditional light bulbs to CFLs is an effective, accessible change every American can make right now to reduce energy use at home and prevent greenhouse gas emissions that contribute to global climate change. Lighting accounts for close to 20 percent of the average home's electric bill. ENERGY STAR qualified CFLs use up to 75 percent less energy than incandescent light bulbs, last up to 10 times longer, cost little up front, and provide a quick return on investment.

If every home in America replaced just one incandescent light bulb with an ENERGY STAR qualified CFL, in one year it would save enough energy to light more than 3 million homes and prevent greenhouse gas emissions equivalent to those of more than 800,000 cars.

Do CFLs contain mercury?

CFLs contain a very small amount of mercury sealed within the glass tubing – an average of 5 milligrams – about the amount that would cover the tip of a ballpoint pen. By comparison, older thermometers contain about 500 milligrams of mercury. It would take 100 CFLs to equal that amount.

Mercury currently is an essential component of CFLs and is what allows the bulb to be an efficient light source. No mercury is released when the bulbs are intact or in use. Many manufacturers have taken significant steps to reduce mercury used in their fluorescent lighting products. In fact, the average amount of mercury in a CFL is anticipated to drop by the end of 2007 thanks to technology advances and a commitment from members of the National Electrical Manufacturers Association.

What precautions should I take when using CFLs in my home?

CFLs are made of glass and can break if dropped or roughly handled. Be careful when removing the bulb from its packaging, installing it, or replacing it. Always screw and unscrew the lamp by its base (not the glass), and never forcefully twist the CFL into a light socket. If a CFL breaks in your home, follow the clean-up recommendations below. Used CFLs should be disposed of properly (see below).

What should I do with a CFL when it burns out?

EPA recommends that consumers take advantage of available local recycling options for compact fluorescent light bulbs. EPA is working with CFL manufacturers and major U.S. retailers to expand recycling and disposal options. Consumers can contact their local municipal solid waste agency directly, or go to www.epa.gov/bulbrecycling or www.earth911.org to identify local recycling options.

If your state permits you to put used or broken CFLs in the garbage, seal the bulb in two plastic bags and put it into the outside trash, or other protected outside location, for the next normal trash collection. CFLs should not be disposed of in an incinerator.

ENERGY STAR qualified CFLs have a warranty. If the bulb has failed within the warranty period, return it to your retailer.

How should I clean up a broken fluorescent bulb?

The following steps can be performed by the general public:

1. Open a window and leave the room for 15 minutes or more.
2. Carefully scoop up the fragments and powder with stiff paper or cardboard and place them in a sealed plastic bag.
 - Use disposable rubber gloves, if available (i.e., do not use bare hands). Wipe the area clean with damp paper towels or disposable wet wipes and place them in the plastic bag.
 - *Do not use a vacuum or broom to clean up the broken bulb on hard surfaces.*
3. Place all cleanup materials in a second sealed plastic bag.
 - Place the first bag in a second sealed plastic bag and put it in the outdoor trash container or in another outdoor protected area for the next normal trash disposal.
 - *Note:* some states prohibit such trash disposal and require that broken and unbroken lamps be taken to a local recycling center.
 - Wash your hands after disposing of the bag.
4. If a fluorescent bulb breaks on a rug or carpet:
 - First, remove all materials you can without using a vacuum cleaner, following the steps above. Sticky tape (such as duct tape) can be used to pick up small pieces and powder.
 - If vacuuming is needed after all visible materials are removed, vacuum the area where the bulb was broken, remove the vacuum bag (or empty and wipe the canister) and put the bag or vacuum debris in two sealed plastic bags in the outdoor trash or protected outdoor location for normal disposal.

What is mercury?

Mercury is an element (Hg on the periodic table) found naturally in the environment. Mercury emissions in the air can come from both natural and man-made sources. Coal-fired power plants are the largest man-made source because mercury that naturally exists in coal is released into the air when coal is burned to make electricity. Coal-fired power generation accounts for roughly 40 percent of the mercury emissions in the U.S.

EPA is implementing policies to reduce airborne mercury emissions. Under regulations EPA issued in 2005, mercury emissions from coal-fired power plants will drop by nearly 70 percent by 2018.

The use of CFLs reduces power demand, which helps reduce mercury emissions from power plants.

For more information on all sources of mercury, visit <http://www.epa.gov/mercury>.

EPA is continually reviewing its clean-up and disposal recommendations for CFLs to ensure that the Agency presents the most up-to-date information for consumers and businesses.

For more information about compact fluorescent bulbs, visit http://www.energystar.gov/index.cfm?c=cfls.pr_cfls



Address

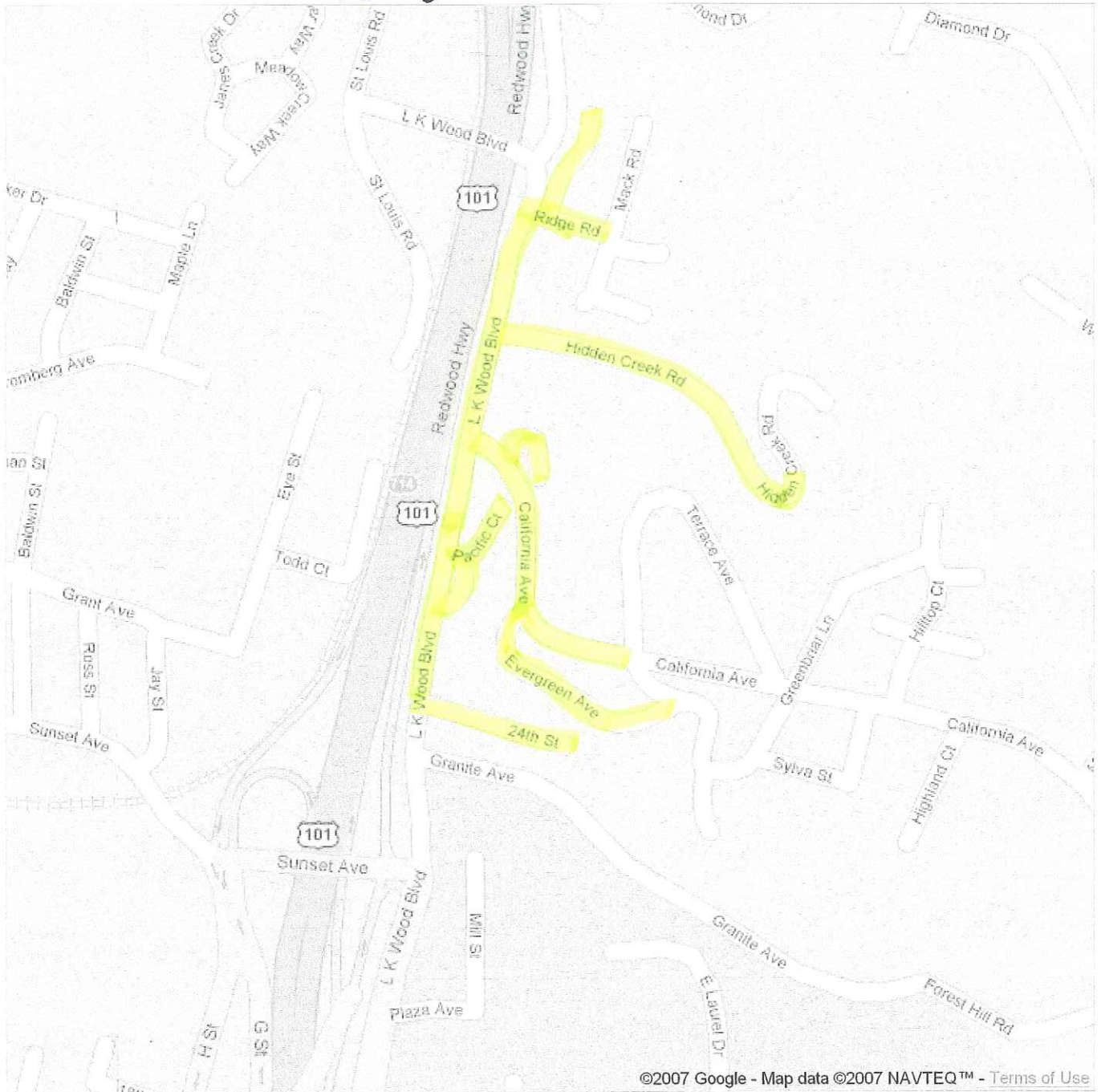
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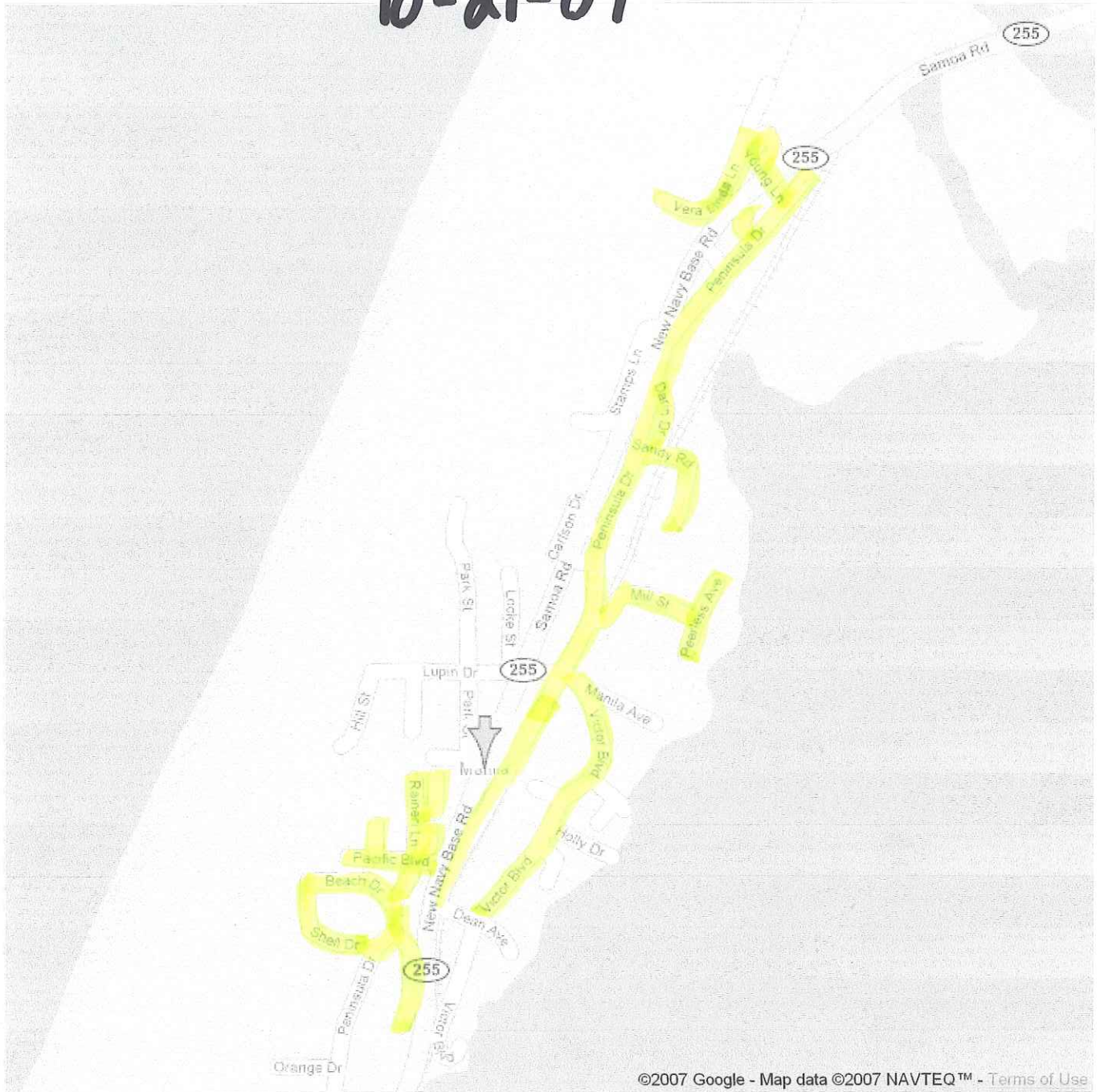
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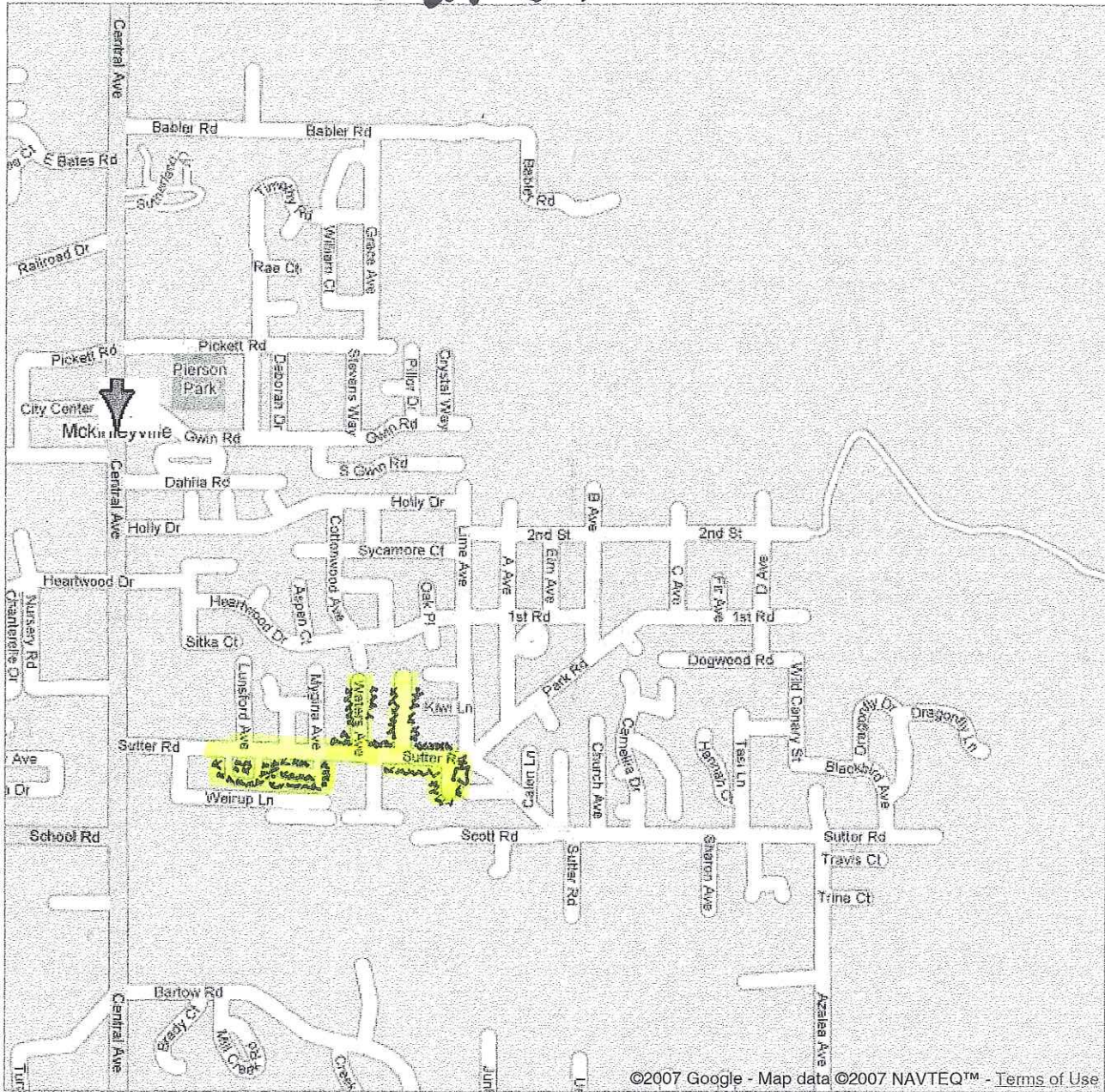
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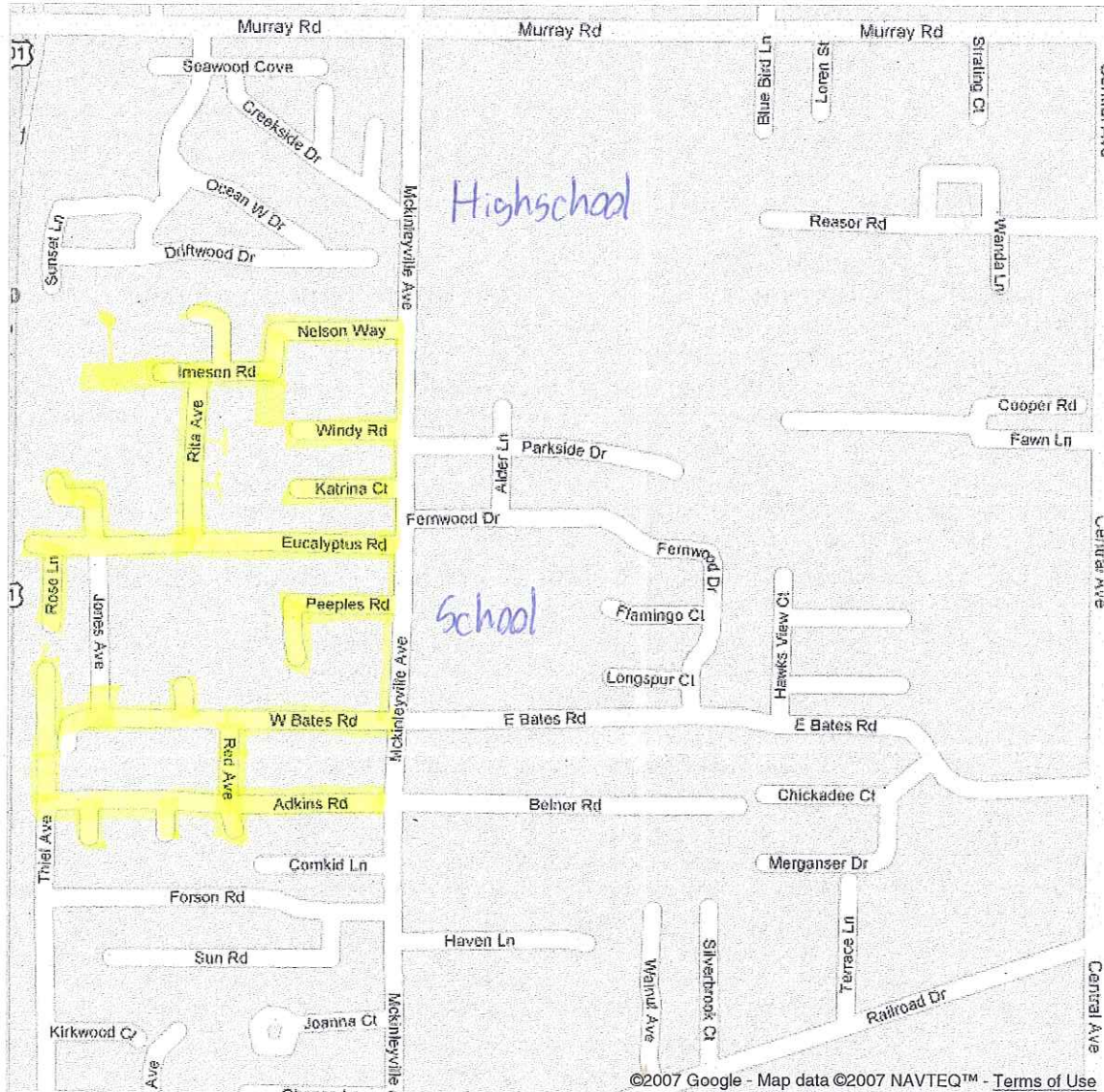




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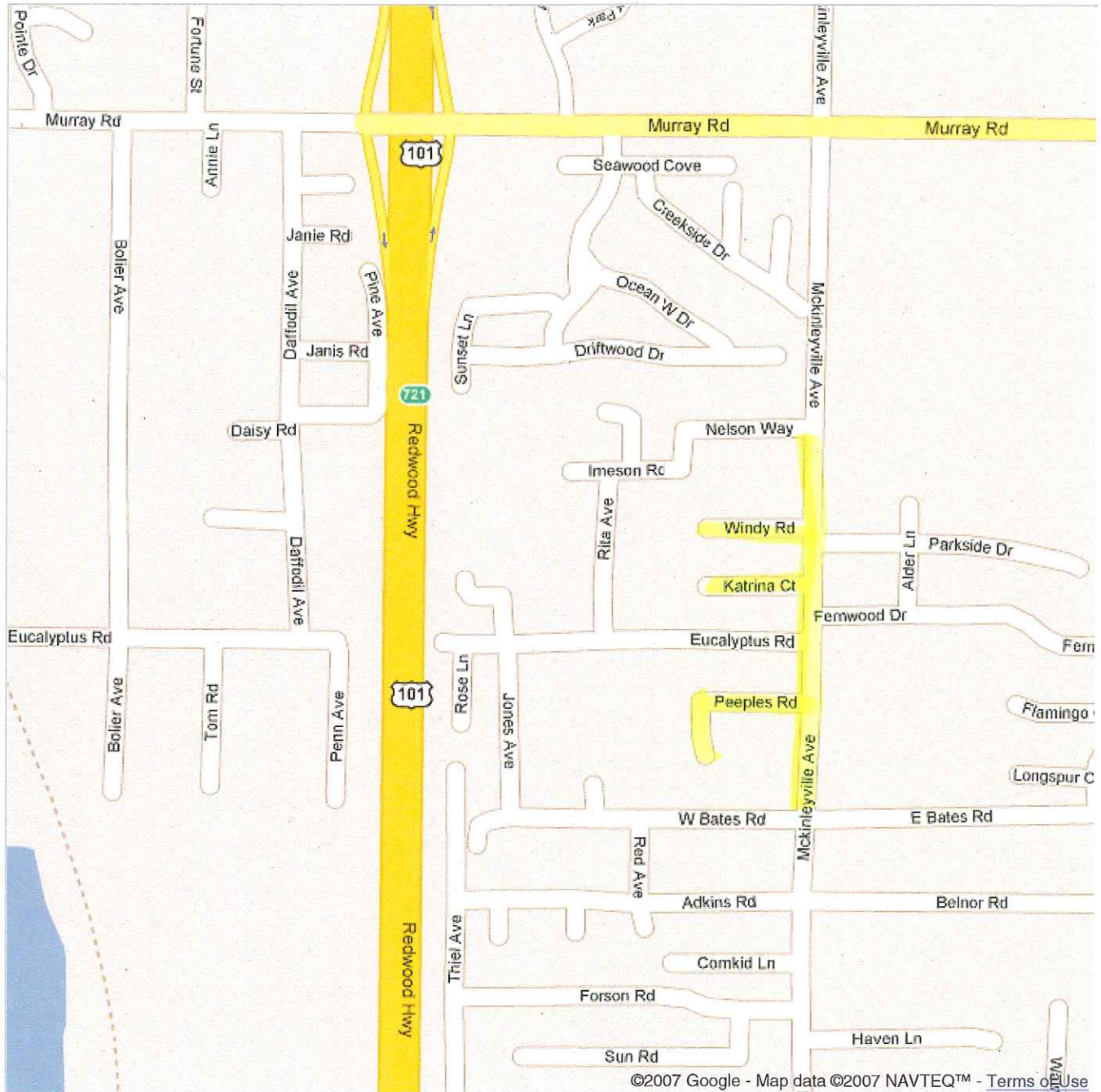
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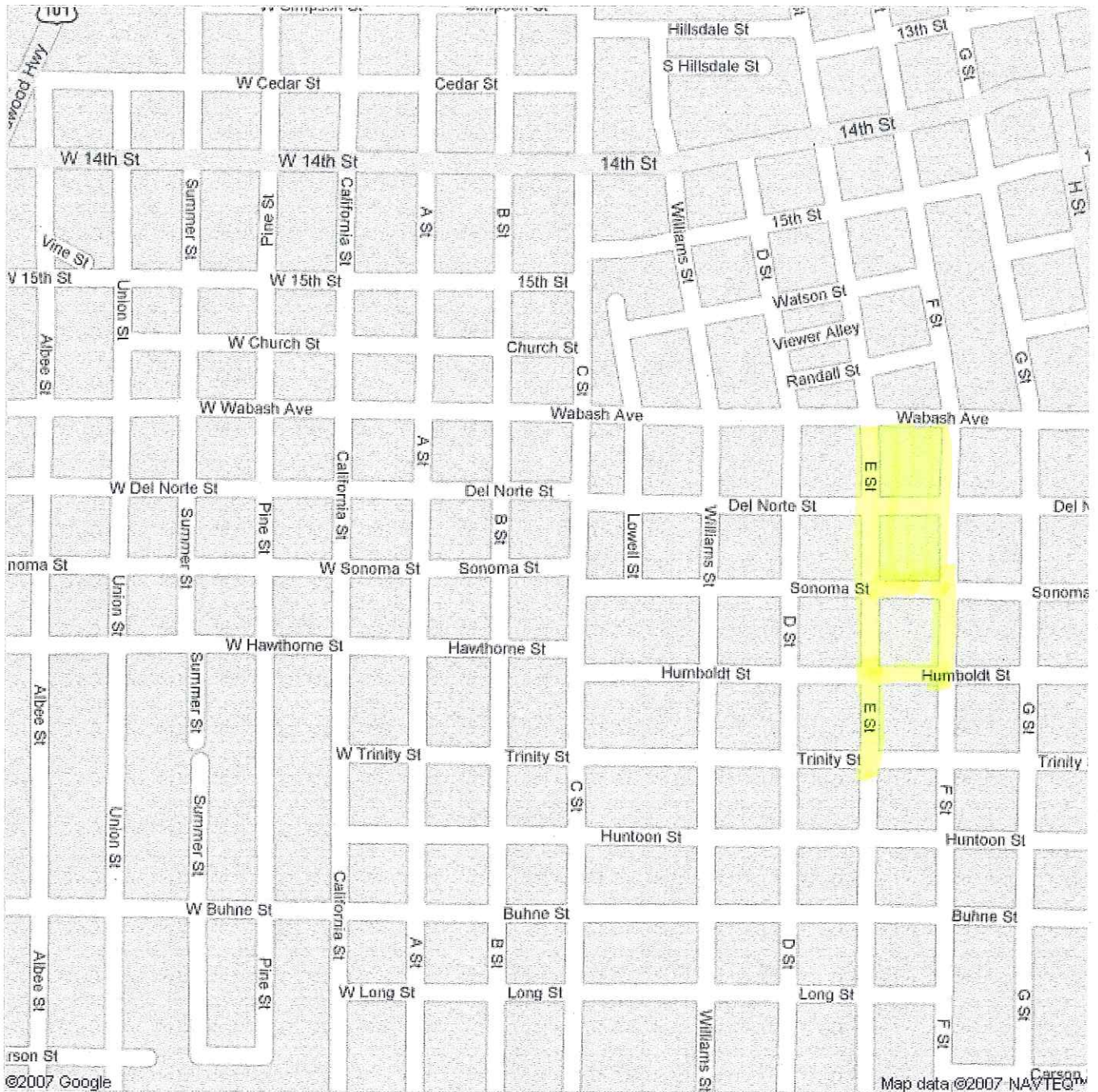
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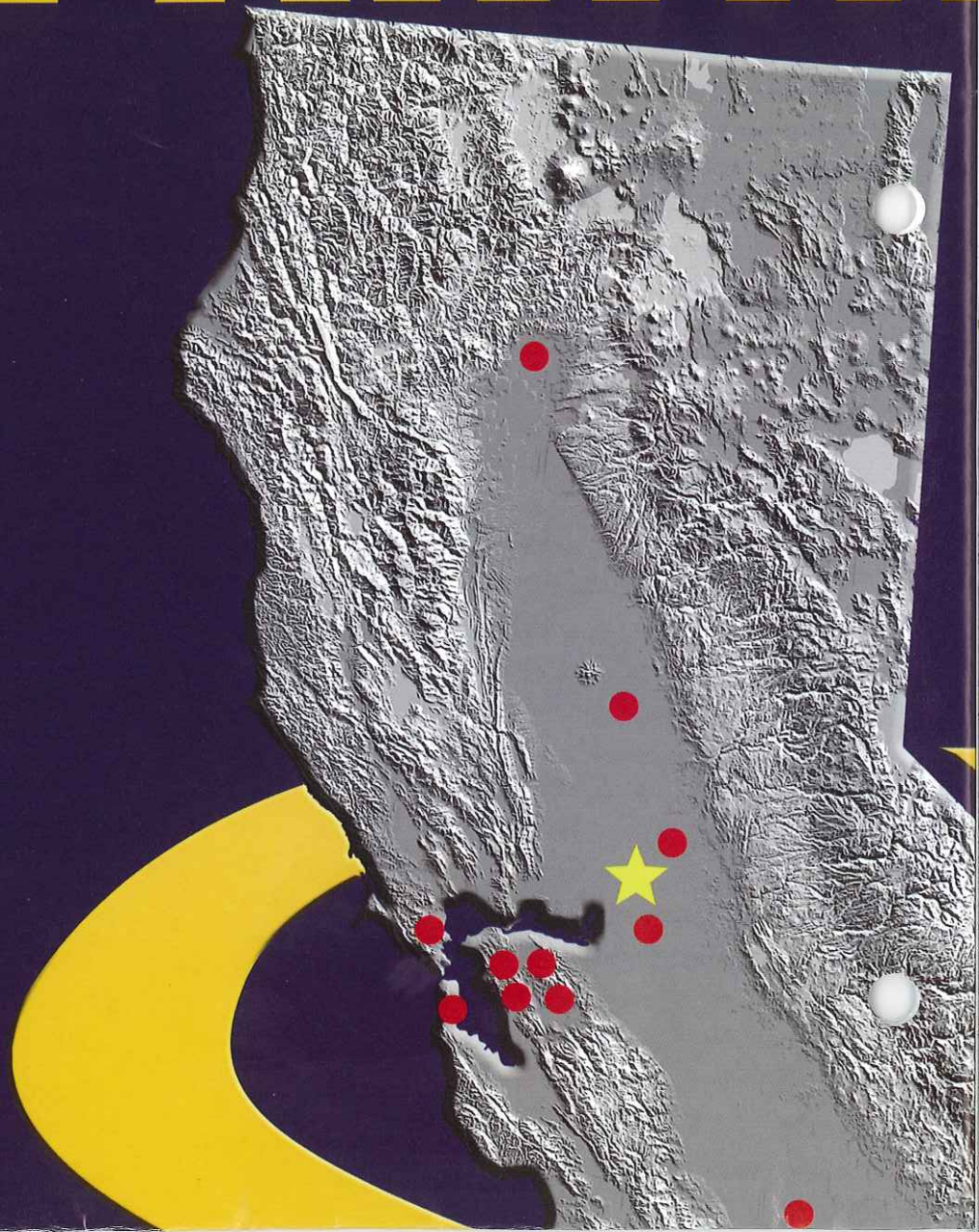


Appendix C

Posters

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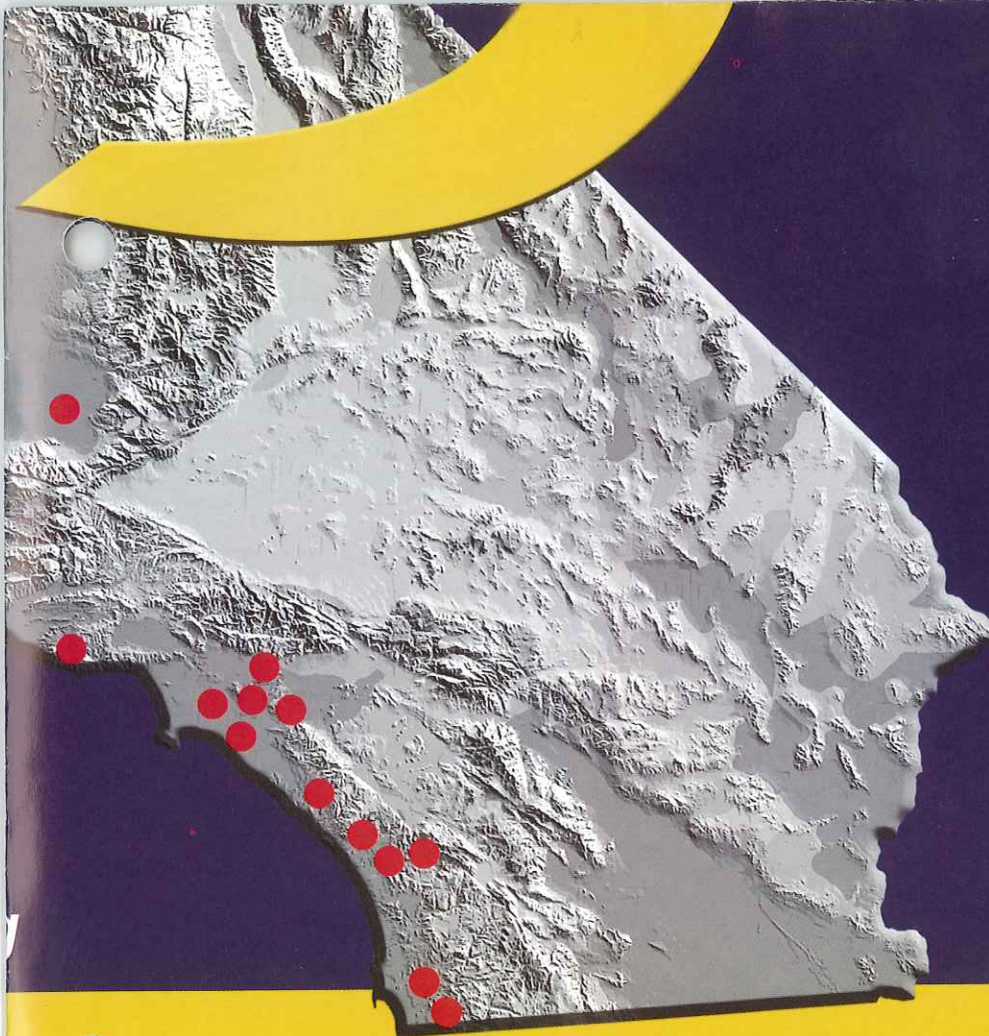
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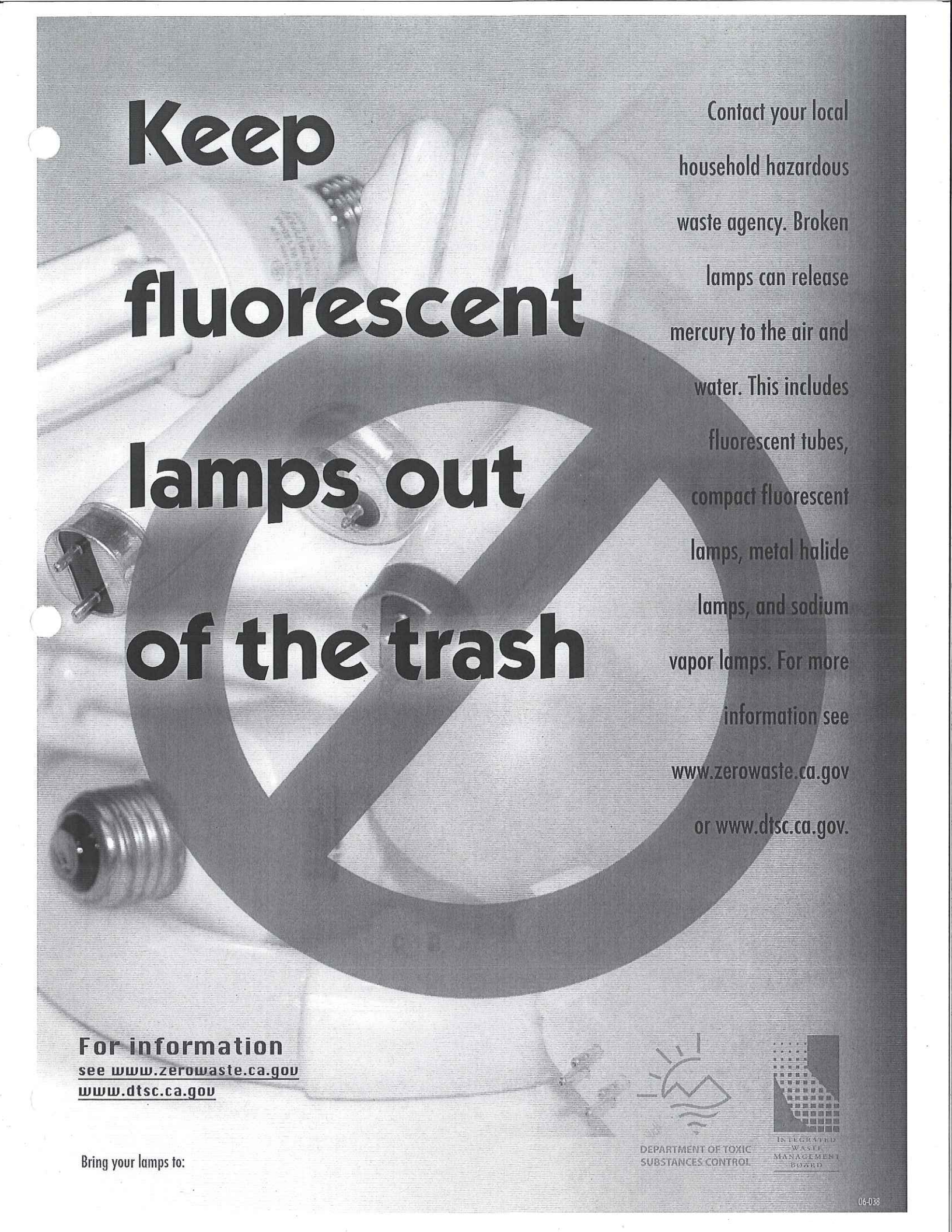
These Items Accepted Here For Recycling





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Keep fluorescent lamps out of the trash

Contact your local household hazardous waste agency. Broken lamps can release mercury to the air and water. This includes fluorescent tubes, compact fluorescent lamps, metal halide lamps, and sodium vapor lamps. For more information see www.zerowaste.ca.gov or www.dtsc.ca.gov.

For information
see www.zerowaste.ca.gov
www.dtsc.ca.gov

Bring your lamps to:



DEPARTMENT OF TOXIC
SUBSTANCES CONTROL



INTEGRATED
WASTE
MANAGEMENT
BOARD



DON'T TRASH FLUORESCENT LIGHT BULBS!

IT'S NOT GOOD FOR THE ENVIRONMENT

Fluorescent and HID
Light Bulbs contain
mercury and should
not be disposed of
in the trash

Are you in
compliance with
Federal and State
Laws?

Brought to you by
the Lamp Recycling
Outreach Project



This symbol on a bulb or package means that the bulb contains mercury

FUNDED BY THE U.S. EPA



FOR SAFE RECYCLING OPTIONS VISIT: WWW.LAMPRECYCLE.ORG OR WWW.ALMR.ORG