

The Oklahoma Corporation Commission

Brownfields Program For Petroleum-Related Sites City or Rural

Program Began July 2008

**Patricia Billingsley, Brownfields Manager,
Oklahoma Corporation Commission**

Why Have an Oil & Gas Field Brownfields Program, Funded by EPA?

**Oklahoma (Corporation Commission),
and Texas (Railroad Commission),
currently have the only “oilfield”
Brownfields programs EPA funds**

So We Can Address Many Historic Petroleum Problems



MARYSUDIK WELL FROM NEAR-BY DERRICK
IT10 BIG WILD OIL WELL, OKLA CITY OIL FIELD.

Desired Outcome – Abandoned Pit

Environmental Restoration



Before



After

Desired Outcome – Old Improperly Plugged Well Uploading



Well drilled in 1920s, abandoned 1950s, recent unloading

The Problem:

Once upon a time oil and gas company or gasoline station owners sometimes simply abandoned a property without:

- Removing equipment or tanks or lines
- Cleaning up oil, removing/filling pits, or addressing salty soil pollution.
- Properly plugging the oil & gas wells.
- Checking the groundwater – which could be undrinkable or releasing gas fumes. 6

Brownfields -

- **Polluted or potentially polluted properties that can be returned to use, where**
- **The CURRENT owner/manager wanting to enter the Brownfields program DID NOT CAUSE THE POLLUTION**
- **Currently operated sites with Responsible Parties cannot be in the BF Program – separate RP program.**

Typical Eligible Oilfield Problems



Oily soil

**Old pipeline
underground, if leaked**



12/8/2010

Typical Eligible Oilfield Problems

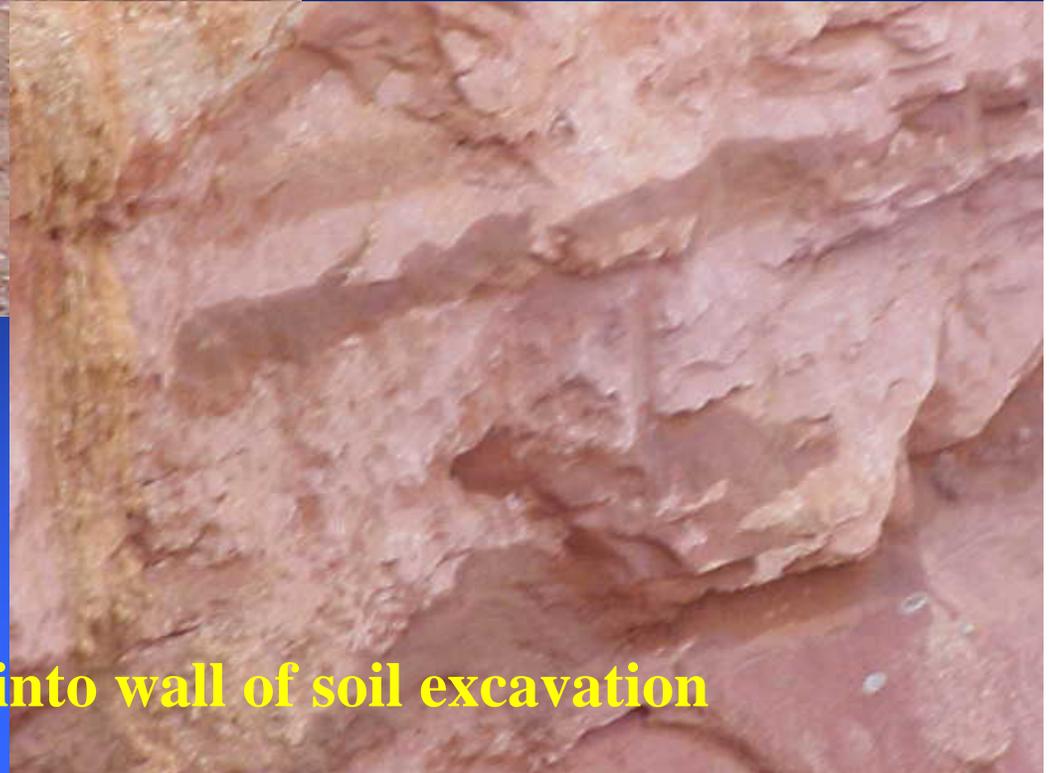
Old oil spill “pavement”
on soil surface



Oil sheen in creek near site
indicated there was a problem



Typical Eligible Oilfield Problems



12/8/2010 **Condensate seeping into wall of soil excavation**

Salty Soil

- Most oilfield wells produce water with oil
- This can be 17% salt (seawater is 3.5%)
- Saline water kills vegetation, soil erodes;
- Bad for buildings since metal & concrete in contact with salty soil corrode



12/8/2010

11

For Problem Properties -

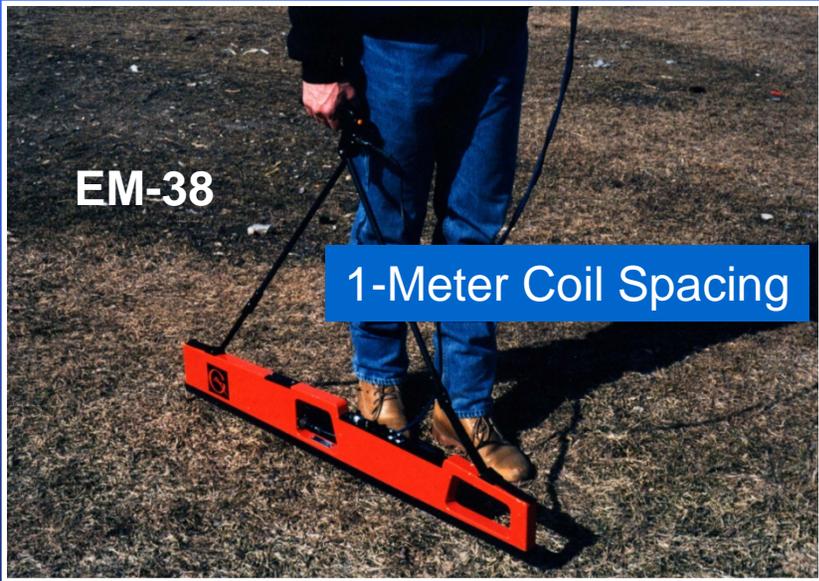
**What Can Our Program
Do?**

The Program Funds (no match req.)

- **Inspections of “abandoned” possibly polluted sites**
 - Inspector time and mileage costs covered
 - 436 sites were inspected last fiscal year
 - **Obtaining, digitizing/digital scanning, geo-rectifying, and GIS importation of old Aerial Photos, to evaluate old sites; have**
 - 1937, and Mid 1990s-2010, statewide
 - Filling in middle years, county by county
- 12/8/2010 **— Saved on server funded by BF program¹³**

We Help (funded) With:

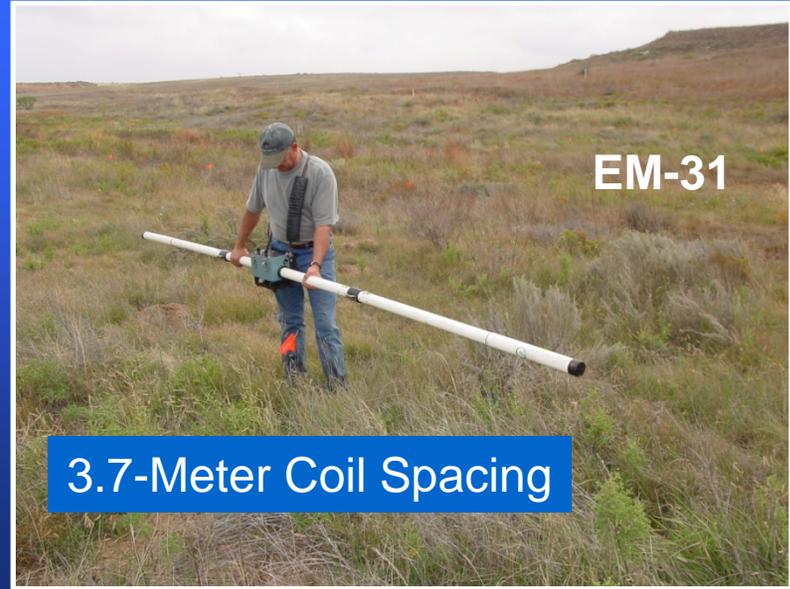
- **Onsite assessments – finding out how bad the problem really is**
 - **Corp Comm BF does limited soil and water sampling**
 - **Corp Comm BF does Electro-Magnetic surveys (EM) to map the extent and depth of produced water problems**
 - **at no cost to a landowner.**



EM-38

1-Meter Coil Spacing

Reads to
5' deep



EM-31

3.7-Meter Coil Spacing

Reads to
30' deep

↑ Purchased with EPA Grant Funds ↑



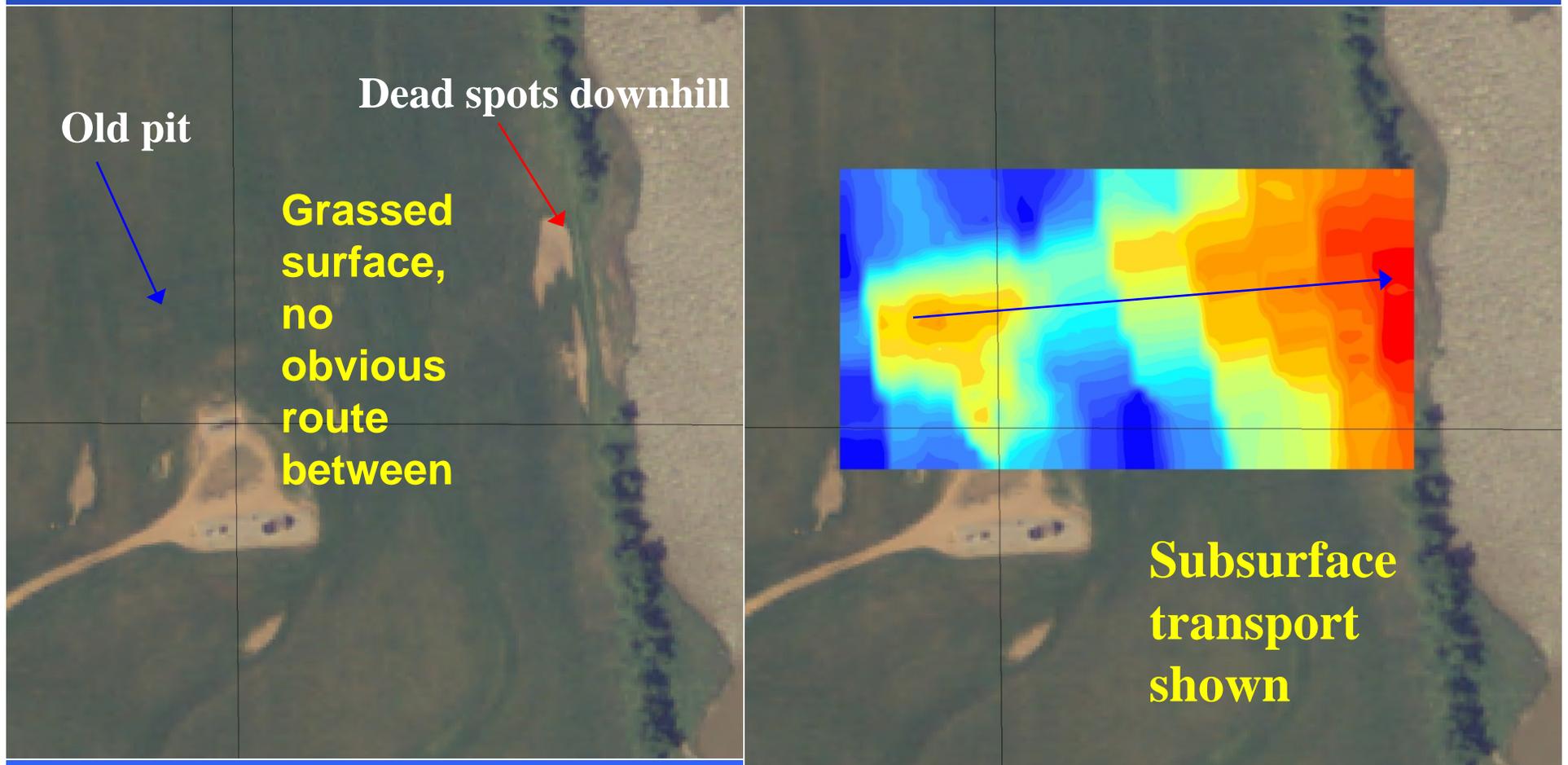
EM-34

10, 20, 40-Meter Coil Spacing

**Purchased
with State
Funds**

Reads to
>100' deep

Dead Vegetation, Kingfisher Co pit, well, or other source?



We Help With (our time funded):

- Arranging assessments –
 - Targeted Brownfield Assessments (TBAs) are FREE on public, quasi-public, and non-profit sites, and for tribes.
 - We request them; EPA contracts **and funds** the work.

We Can Help With:

- Abandoned Wells

- Corp Comm has a state-funded program to plug abandoned wells

- We request it to be done

- at no cost to site owners or developers

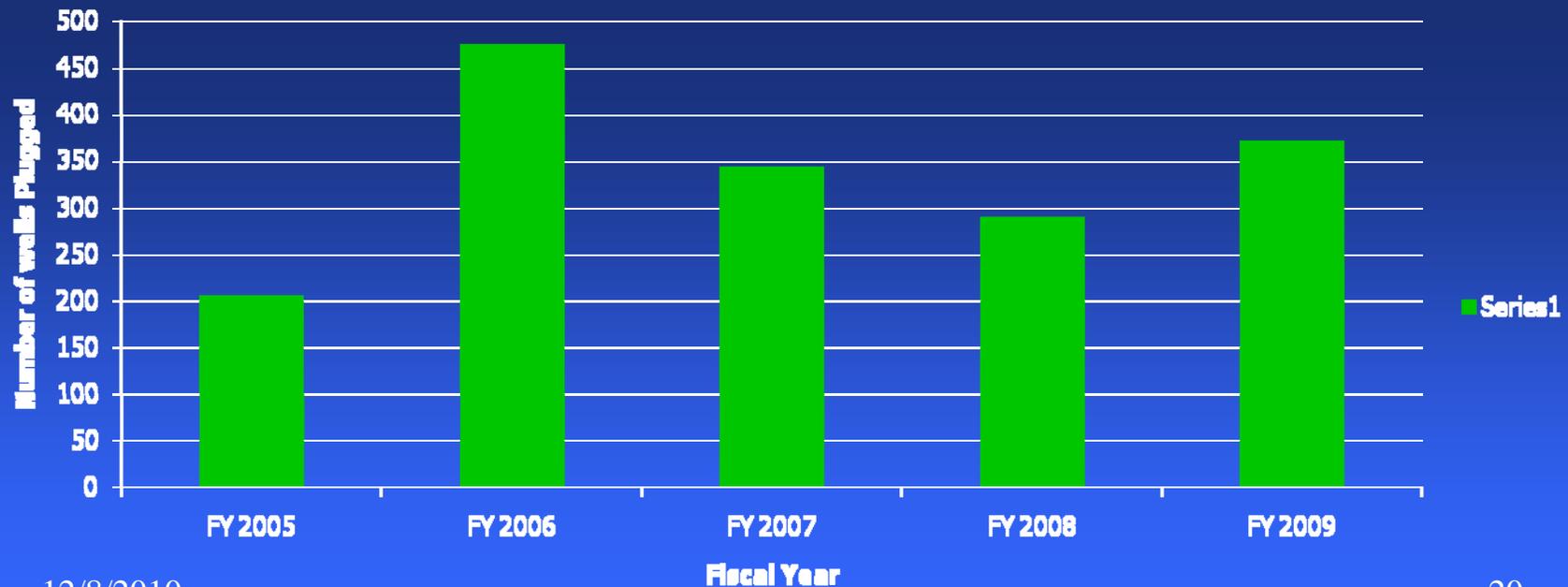
Unplugged Wells – Referred to Corp Comm's Plugging Program



12/8/2010

Abandoned Wells

- Corp Comm Field Op's program for abandoned wells plugs 200 to >450 wells per year at no cost to site owners or developers



We Can Arrange (our time funded):

- The OERB (Oklahoma Energy Resources Board) has a Fund & contractors to assess and remediate an Oilfield site at no cost to qualified owners/developers; **Corp Comm BF inspects the sites, refers to OERB. (In Texas, RR Comm administers own fund)**
- A tank pull for a PST site, when needed to assess beneath it; coupled with referral to our PST Program with Funds that cover most assessment and cleanup costs.

We Can Help With:



- **Gas Emissions**

- If gas is seeping into a building, Corp Comm has a program to locate the source and/or vent the problem.
- Sources can include: old wells, decaying vegetation swamp gas, and vapors off subsurface plumes.

We Help With (funded):

Legal Liability

- We determine who/what company is liable for old pollution found
- If we oversee work for a site enrolled in our BF program, enrollees And future purchasers receive **Exemption From State AND Federal Liability** (since the BF program is EPA-delegated)
- The OERB and PST cleanup funds cannot provide this liability release.

We Help With (funded):

- **Checking records for the property with Corp Comm Oil & Gas and PST Divisions**
- **Assessing the property – Visual Inspection, site history etc.**
- **Why - Teach what happens if not done**

To Help Prevent This Leaked Gasoline Sparked While Digging



12/8/2010

25

To Help Prevent This

Left behind buried unplugged well leaked up into this parking lot after development



We Issue (funded):

- **Site Petroleum Eligibility Letters, and**
- **Grant Application Support Letters, to**

**Entities Seeking site-specific EPA
BF Grant Funds**

Summary - Why Have an “oilfield” State Brownfields 128a Program?

- EPA funds ~2.5 FTE for us, plus
- Funding for travel, training, outreach, etc.
- Pays for assessment, site oversight work
- Pays for equipment and data – EM, Server, laptop, old aerial photos
- We can arrange free EPA TBAs for towns, re-development agencies, non-profits
- We assist and inform site owners & public
- Liability release Certificates, state/federal¹²⁸

Three Very Different Sites That Came Into Our BF Program

Site 1 - Our First Completed Site

The Mayo Hotel in Tulsa

18 story, opened 1925. On National Historic Register. Abandoned 1981, acquired for renovation 2001

Lower floors renovated to hotel & meeting rooms, upper floors are condo apartments



Site 1

During renovation (bringing in/installing new electrical), large old tank full of sludge discovered in sub-basement. **Tank there first, building built over it.**



Sampling of sludge showed **crude oil, barium**. Probably used for heating oil; abandoned when building converted to gas heat 1950. Not PST eligible.

12/8/2010

Site 1

Pumped liquid off; Because heavy equipment could not get into the sub-basement, lots of difficult contractor hand work to remove sludge, sample around tank



Downgradient sampling showed groundwater met cleanup standards!

Site 1



Vault/tank cleaned out, properly abandoned & filled in;
new concrete floor poured, new building electrical
systems installed in sub basement. **Done!**

12/8/2010

BF Program's Role In Project

- **Oversite – review work done, reports, sampling data; request downgradient GW sampling.**
- **Issue liability release certificate to building Renovator**

Site 2, in Progress



NW OKC Site – Proposed shopping center near homes and school; ARROW shows bare soil areas near creek

Site 2

1941, 1951 Aerial Photos show pits & oilfield activity



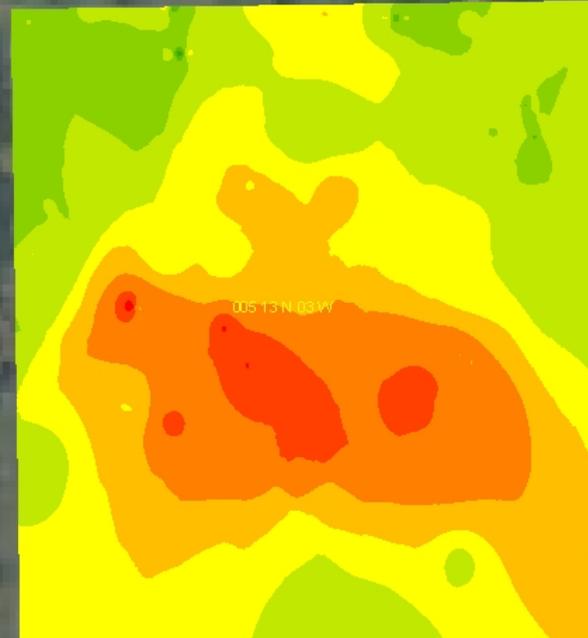
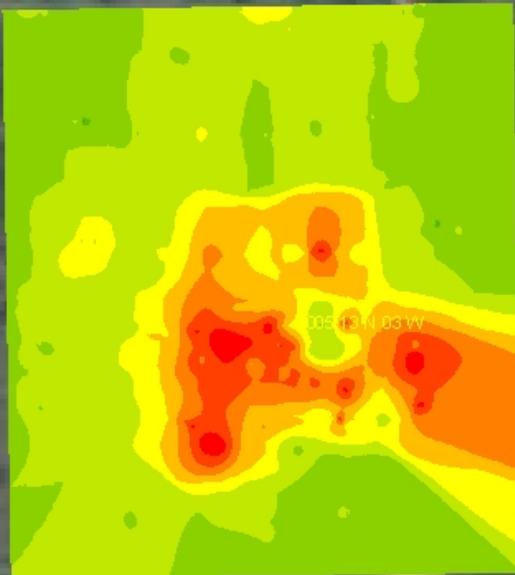
12/8/2010



36

Site 2

EM 38 (near surface) and EM-31 (to 10 m deep) work done by Commission BF staff shows extensive saline pollution, confirmed by soil sampling



BF Program's Role In Project

- **Oversite – review work done, reports, sampling data;**
- **Historic records check**
- **Obtain old aerial photos, determine historic nature of impacts;**
- **Responsibility determination;**
- **GIS mapping;**
- **EM Survey;**

Site 2

Current status of site – stalled due to the economy.

Site 3 - Old Well Location

- Part of old Oklahoma City well field; good locations on ~1/2 of wells drilled, not rest....
- Phillips had already plugged all known wells, drilled by it and others, in the section
- Oklahoma City bought land for Fire Station

Oil Wells Around Bricktown Firestation Site
Wells In List, No Spot, Are Somewhere in the qtr qtr qtr



NE part of site with old well, plugged, and oily soil

Site 3 – Views of Abandoned building, land, MW



Site 3 - Old Well Location

- Initial sampling showed oily soil down to water table @ 21', dissolved plume, NE part of site; NO RP IN BUSINESS.
- **BF program can sever soil, groundwater issues, deal with them separately – soil now, plume later.**
- OERB agreed to excavate oily soil

Site 3 Digging, Debris



Excavated oil-contaminated soil was sent to the County Commissioners for use as road building material.

Site 3 – Concrete debris found in hole, plugged well



During excavation, a second unknown well 20' from the first was found! And dealt with.



Chunk of
concrete

12/8/2010

Site 3 – Building Begins, August 2010



Our 3rd Site – Old Well Cleaned up, Building the new Bricktown Fire Station



The new station uses recycled materials, and will be LEED certified with enhancements designed for low energy consumption.

12/8/2010

47

BF Program's Role In Project

- Oversight – review work done, reports, sampling data;
- Check records;
- GIS mapping;
- Arrange OERB cleanup;
- Second well to Field Ops!
- Liability release to City upon completion.

For Additional Information

See our website OCCeweb.com and

Click on, in turn:

- Divisions, Oil & Gas, Brownfields.
- Public Information, forms, and guidance are on this Brownfields website.

For the Latest Brownfields Information

Brownfields National Homepage

www.epa.gov/brownfields

EPA Region 6

www.epa.gov/region6/brownfields

Brownfields Law

<http://www.epa.gov/brownfields/sblrbra.htm>