ALERT

Date: 10/15/19
Submitted in ECCEJ Committee
Council File No. 19-1124
Item No. 3
Deputy: Leyla Campos

What: Councilman Bonin Motion; Koretz second to investigate SOCALGAS/PLAYA del REY underground gas storage operations.
When: Tuesday, October 15, 2019 at 1:00 pm,
Where: Room 1010 (10th Floor), LA City Hall (200 No. Spring Street)

The ENERGY, CLIMATE CHANGE, AND ENVIRONMENTAL JUSTICE COMMITTEE

Details: Councilman Bonin's Motion (19-1124) Moves that the Petroleum Administer and numerous City Depts and Attorney's Office, investigate and report back in 90 days on the oil, gas and storage operations of SoCalGas/Playa del Rey in order to determine its compliance with the City of LA's Conditional Use Permit, compliance with new state storage rules and multiple agency requirements. **The approval of this Motion in this Committee Meeting would send this Motion back before the full LA City Council for a final vote to implement this Motion. Please Attend and lend your voice of support for this Motion.**

The Sierra Club, Airport -Marina Group recently submitted a Compliance Review Request to the City of LA, for investigation into SOCALGAS' Compliance with the City of LA's Conditional Use Permit citing additionally that the antiquated Permit was created during a timeframe of open space surrounding the SoCalGas operations that no longer exists. In light of numerous changed conditions and a lengthy history of dangerous incidents including a shutdown in 2010-11 of injection operations by the by the Division of Oil & Gas & Geothermal Resources (DOGGR) for reservoir leakage to the surface, SoCalGas, Playa del Rey is sorely in need of the City's own evaluation of the pros and cons of this field's continued operations.

This groundbreaking Motion for investigation will, for the first time, since having been permitted by the city, in 1955, place SoCalGas squarely before the City of Los Angeles for scrutiny into whether Los Angeles should continue to allow for underground gas storage operations in the City of Los Angeles.

The SoCalGas/ Playa del Rey underground gas storage operations have the distinction of being currently permitted directly under people's homes. Many, if not most people are utterly unaware of these ultrahazardous operations ongoing below their homes, playgrounds and in and under our Ballona Wetlands Ecological Reserve.

SoCalGas records reveal the one mile buffer zone of Aliso Canyon was created in the attempt to avert the leakage problems into residential neighborhoods that have occurred and continue to occur at SoCalGas/Playa del Rey. As we have seen at Aliso Canyon SoCalGas operations, even a one mile buffer zone has not provided necessary safety.

The City is in good company because in a state legislatively ordered report on all of California's underground gas storage operations, SoCalGas/ Playa del Rey was singled out as the most dangerous due to its lack of containment problems and its proximity within neighborhoods. The Report, aka CCST Report ALSO RECOMMENDS A COST-BENEFIT ANALYSIS for the potential shut-down of the SoCalGas/PDR operations. And, recently the DOGGR, ROOT CAUSE ANALYSIS done for the oilwell blowout (RGC 10) in Marina del Rey---also recommends a full investigation of the oilfield formation inclusive of all the wells in the area.

BUSY DAY--happening this same day--same Committee Meeting is the Petroleum Administrator's Report per oilfield issues in Los Angeles wherein Stand -LA and others will be weighing in on the Report and the continued need of oildrilling buffer zones.
Please attend and lend your support to this very important health and safety issues.

Hope to see you there,
Patricia McPherson, Airport-Marina Group

Grassroots Coalition previously submitted per Bonin Motion 19-1124 to Clerk
Sierra Club resubmitted 10/15/19 Second by Koretz
Clim. Energy Com. Motion 19-1124

September 22, 2109

LA City Councilmembers:

Grassroots Coalition and Sierra Club Airport Marina Group request your support in performing a Compliance Review of Conditional Use Permit Plan Case 6162 (SoCalGas/ Playa del Rey).

It has come to our attention that Councilman Bonin will be putting forth a motion for support by LA City Council members for actuating this Compliance Review based upon the information contained herein and potential additional information.

Grassroots Coalition and Sierra Club support such a motion and likewise support any and all LA City actions that promote investigation of the operations of SoCalGas/Playa del Rey.

We support such investigations that promote the health and safety of the environment and its inhabitants and that may lead to the shut down of the SoCalGas/Playa del Rey underground gas storage operations.

The following Compliance Review Request # 453028, for Conditional Use Permit - City Plan Case 6162 (SoCalGas/Playa del Rey) is provided for your review.

Grassroots Coalition and this Request are supported by the Sierra Club, Airport Marina Group, as well as Protect Playa Now, both of whom submitted support letters requesting the Review, and both of whom utilize the data and information provided by Grassroots Coalition in their support letters.

Respectfully yours,

Patricia McPherson
President - Grassroots Coalition

Kathy Knight
Chair - Sierra Club Airport-Marina Group

GRASSROOTS COALITION

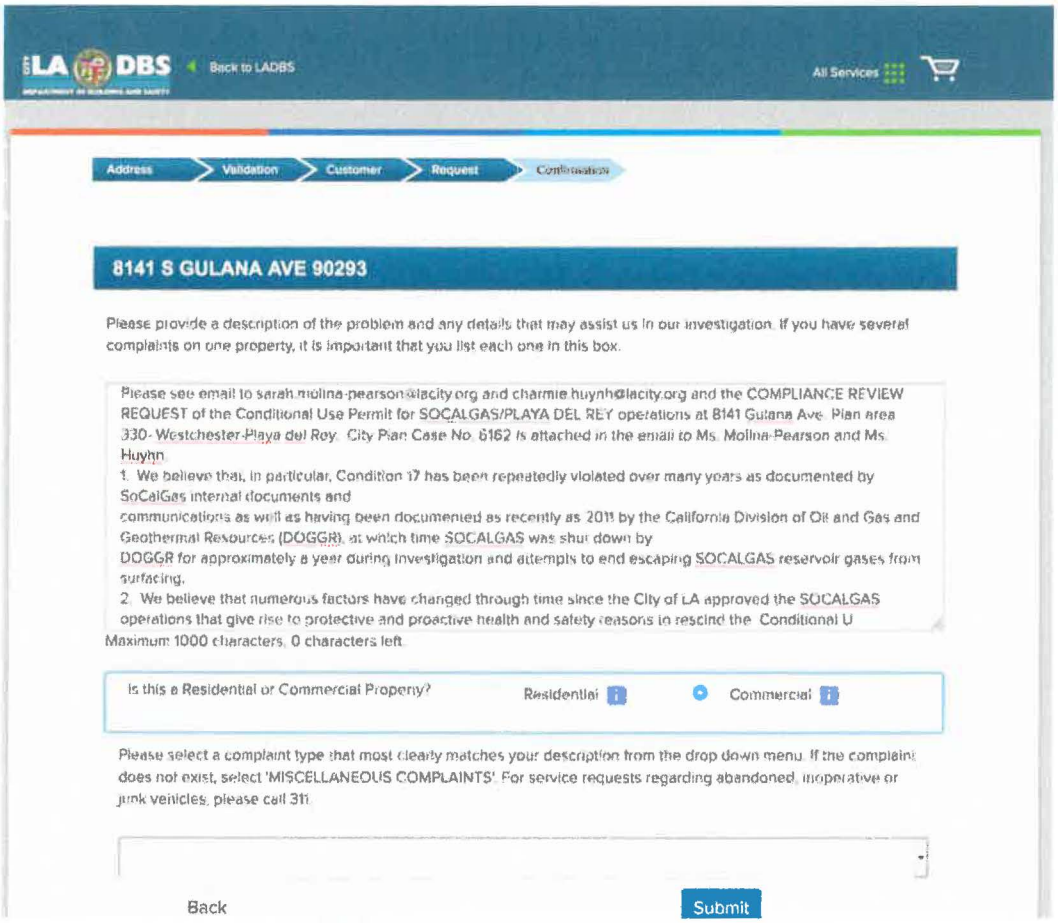
SIERRA CLUB

Attached, please find materials given to LA City Planning and LADBS as data supporting the Compliance Review Request.
Also attached, please find Division of Oil and Gas and Geothermal Resources Order 1008, which required the shut down of SoCalGas-Playa del Rey operations for approximately one year while reservoir gas leakage to the surface was addressed in this incident. This Order demonstrates DOGGR'S awareness of reservoir gas leakage to the surface from SOCALGAS operations in Playa del Rey.

SoCalGas has long denied Reservoir gas leakage to the surface to the City of Los Angeles. DOGGR ORDER 1008 and the SOCALGAS/PDR documents in the slides below provide evidence that SOCALGAS/PDR has long known of lack of containment of their reservoir gases.

[cont'd]

I. ONLINE REQUEST FROM GRASSROOTS COALITION dated August 2, 2019, pertaining to the Compliance Review Request #453028, sent online to LADBS per instructions from Ms. Nepomuceno-Juacalla. Grassroots Coalition attached supporting documents: YouTube "How Hazardous is Too Hazardous" and Slide Presentation regarding SOCALGAS/PDR underground gas storage operations (4/16/19 pdf) to that request.



"How Hazardous is too Hazardous", by Grassroots Coalition's Patricia McPherson
https://www.youtube.com/watch?v=7ZgQtCKEvc8&t=93s

Slides of the Presentation:
Patricia McPherson regarding SOCALGAS PLAYA DEL REY Operations 4.16.19.pdf

In a message dated 8/2/2019 10:07:32 AM patriciamcpherson1@verizon.net writes:
Hello Carolynn,

This time the address was accepted and we have filled out the Request.
The final box is marked…miscellaneous and the Number is 453028.
Thank you for your assistance and continued attention to this matter of great public concern,
Patricia McPherson, Grassroots Coalition

[cont'd]

II. DIVISION OF OIL AND GAS AND GEOTHERMAL RESOURCES **ORDER 1008**

NATURAL RESOURCES AGENCY EDMUND G. BROWN, JR., GOVERNOR

DEPARTMENT OF CONSERVATION

Managing California's Working Lands

Division of Oil, Gas, & Geothermal Resources

801 K STREET • MS 20-20 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 445-9686 • FAX 916 / 323-0424 • TDD 916 / 324-2555 • WEB SITE conservation.ca.gov

ORDER NO. 1008

by

Elena M. Miller

STATE OIL AND GAS SUPERVISOR

DATED

March 4, 2011

Southern California Gas Company (S4700)

Playa Del Rey field

Los Angeles County

[cont'd]

On February 24, 2011, water and storage gas was found to be leaking into the surface/production casing annulus of the "Riegle" 1 well (API: 03726998, S27, T2S, 15W). Southern California Gas Company immediately directed a service company to pump water down the annulus to stop the well from flowing. Water and gas samples were collected and tested. Preliminary gas sample analyses indicate the gas is from the gas storage zone. Pressure continues to buildup in several wells surrounding the "Riegle" 1 well.

The State Oil and Gas Supervisor (Supervisor) has determined that there is a connection between Southern California Gas Company's injection operations in the Playa Del Rey field and the water and gas leak from several wells in the vicinity of, and including the "Riegle" 1 well. Section 3106 of the Public Resources Code (PRC) states: "The supervisor shall so supervise the drilling, operations, maintenance, and abandonment of wells and the operation, maintenance, and removal or abandonment of tanks and facilities attendant to oil and gas production, including pipelines not subject to regulation pursuant to Chapter 5.5 of Part 1 of Division 1 of Title 5 of the Government Code that are within an oil and gas field, so as to prevent, as far as possible, damage to life, health, property, and natural resources; damage to underground oil and gas deposits from infiltrating water and other causes; loss of oil, gas, or reservoir energy, and damage to underground and surface waters suitable for irrigation or domestic purposes by the infiltration of, or the addition of, detrimental substances." In addition, in reference to underground injection projects, Title 14, Section 1724.10 (h) of the California Code of Regulations states: "Data shall be maintained to show performance of the project and to establish that no damage to life, health, property, or natural resources is occurring by reason of the project. Injection shall be stopped if there is evidence of such damage, or loss of hydrocarbons, or upon written notices from the Division. Project data shall be available for periodic inspection by Division personnel."

Therefore, to protect health and safety and in furtherance of the authorities cited above, and acting pursuant to Section 3224 and 3226, the Supervisor orders that all injection associated with Southern California Gas Company's gas storage project in the Playa Del Rey field immediately cease until the time that the Supervisor is satisfied that the situation has been remediated and that the storage gas and zone water is confined to the intended zone.

With permission from the Division, injection may be conducted for the limited purpose of conducting testing while this order is in effect.

[cont'd]

III. COMPLIANCE REVIEW OF THE CONDITIONAL USE PERMIT OF SOCALGAS/PDR AT PLAYA DEL REY OPERATIONS AND RECONSIDERATION OF PERMITTING IN LIGHT OF CHANGED CIRCUMSTANCES

(From: patricia mc pherson <patriciamcpherson1@verizon.net>

Subject: LA CITY CONDITIONAL USE PERMIT SCG/PDR--REQUEST FOR COMPLIANCE REVIEW & REEVALUATION OF PERMIT DUE TO CHANGED CIRCUMSTANCES
Date: August 1, 2019 at 12:45:06 PM PDT
To: Sarah Molina-Pearson <sarah.molina-pearson@lacity.org>, "P. E. Charmie Huynh" <charmie.huynh@lacity.org>
Cc: uduak.ntuk@lacity.org, len.nguyen@lacity.org, Samuel.Liu@sen.ca.gov, Olina.wibroe@sen.ca.gov, Diane Fletcher-Hoppe <dfletcherhoppe@aol.com>, Tom Williams <ctwilliams2012@yahoo.com>, "Wilson, Jayme" <Jwilson@bos.lacountygov>, Ari.Ruiz@asm.ca.gov, "Kaufmann-Macias, Terry" <TERRY.KAUFMANN-MACIAS@LACITY.ORG>, Nick Karno <nick.karno@lacity.org>, "Taing, Adam@Waterboards" <adam.Taing@waterboards.ca.gov>, "Kang, Jim@Waterboards" <Jim.Kang@Waterboards.ca.gov>, thizar.williams@waterboards.ca.gov, Jeanette Vosburg <saveballona@hotmail.com>, "Todd T. Cardiff, Esq." <todd@tcardifflaw.com>)

Good Morning Sarah and Ms. Huynh,

Thank you for your assistance yesterday regarding our request for garnering a Compliance Review of the SOCALGAS Facility, 8141 Gulana Avenue —Plan Area 330- Westchester-Playa del Rey.

The 1955 City Plan Case No. 6162 is attached below which contains the CONDITIONS OF THE PERMIT.

The SoCalGas operations requested " permission to establish and maintain a plant for the storage and distribution of gas, including the injection and withdrawal of gas by means of compressor engines… "cont'd as shown in the pdf for LA City Plan Case 6162.

In subsequent years, the city readdresses and cites LA City Plan Case 6162 in LA City documents reflecting additional well drilling or other work on the property cited in City Plan Case No. 6162.

I believe you pulled up one such document but, more are available from Grassroots Coalition upon request, which we copied from LA City/ SoCalGas files of City Plan Case No 6162 that were lodged in the Piper Center archives. Other tangential files of communications and legal documents of transfer we had also copied and are available upon request.

We are REQUESTING:

A COMPLIANCE REVIEW OF THE CONDITIONAL USE PERMIT FOR SOCALGAS OPERATIONS AT 8141 GULANA AVE., WESTCHESTER/PLAYA DEL REY and RECONSIDERATION OF PERMITTING IN LIGHT OF CHANGED CIRCUMSTANCES

1. We believe that, in particular, Condition 17 has been repeatedly violated over many years as documented by SoCalGas internal documents and communications as well as having been documented as recently as 2011 by the California Division of Oil and Gas and Geothermal Resources (DOGGR), at which time SOCALGAS was shut down by DOGGR for approximately a year during investigation and attempts to end escaping SOCALGAS reservoir gases from surfacing.

[cont'd]

CONDITION 17

2. We believe that numerous factors have changed through time since the City of LA approved the SOCALGAS operations that give rise to protective and proactive health and safety reasons to rescind the Conditional Use Permit given by the City of LA to SOCALGAS/PLAYA DEL REY in the mid-50s.

3. What should the City's course of action be, based upon new information of SCG/PDR operations that were not made known to the City of LA by SOCALGAS personnel which provides information of operations influencing directly or indirectly gas migration to the surface of reservoir gases/ oilfield gases and/or a combination thereof?

4. What should the City's course of action be regarding the City's lack of approval for gas storage beyond the City's approved 240 acre boundary? Gas storage/ migration has been occurring since the 50's into the Venice Peninsula, outside the LA City approved 240 acre boundary as acknowledged by the Reigle Report done for SOCALGAS.

   There is also ongoing oilfield gas migration into the 950 acre Marina del Rey area, of which the recent blow out of the oil well known as RGC 10 may have been, at least in part, due to direct or indirect operations of SOCALGAS i.e. Re-pressurization within the oilfield formation.

   The California Council of Science and Technology (CCST), in a 2018 Report commissioned by the California State Legislature to review all underground gas storage facilities in California, characterized the Playa del Rey facility as one of the most dangerous underground gas storage facilities in California. The CCST Report questions the impact of closing the site and therefore recommended a cost-benefit analysis, including full consideration of risks associated with loss-of-containment from this facility.

   For the actual Report and quotes from the Report please link to-

   http://saveballona.org/water/ccst-report-risk-viability-socalgas-playa-del-rey-underground-natural-gas-storage.html

Both LA City Councilman Mike Bonin and State of Ca. Senator Ben Allen have sent letters requesting this study to be performed.

5. We believe, based upon numerous SoCalGas documents and investigation of numerous and ongoing incidents at SCG/Playa del Rey, that SOCALGAS has not been forthright regarding the Playa del Rey operations with the City of Los Angeles.

   GC provides the City of LA with a link to our presentation of SoCalGas leakage issues and the link to the slides of that presentation. This information has been previously provided to Ms. Terry Macias-LA City Land Use Attorney.

[cont'd]

GC is prepared to provide further documentation that we have accrued through approximately 30 years of investigation into the operations of SCG/Playa del Rey which includes documentation from our litigation with SoCalGas which lasted approximately 8 years via the CPUC litigation process, and from various lawsuits against

SOCALGAS in other litigation.

SOCALGAS History of Underground Gas Storage Field Operation presentation and SLIDES- (please also note the Proposition 65 groundwater contamination lawsuit against SOCALGAS which has given rise to new remediation efforts for SCG's contamination of underlying groundwater that is classified as DRINKING WATER.)

http://saveballona.org/socal-gas-underground-storage-still-leaking-27-slides-presentation-pdf.html

CHANGES THROUGH TIME THAT CONTRIBUTE TO THE HEALTH AND SAFETY REASONS TO RESCIND THE CONDITIONAL USE PERMIT FOR SOCALGAS OPERATIONS IN PLAYA DEL REY

Today, SCG's operation of its underground gas storage facility in Playa del Rey is unique as it is the only actively operating underground gas storage facility that operates directly under and adjacent to the homes and neighborhoods of Westchester, Playa del Rey and Venice. (Venice area operations are outside the LA City approved 240 acres of the CUP and there has been no expansion permitting by the City of Los Angeles or the CPUC or DOGGR. Only individual well permitting has been approved.)

People now owning or living above or adjacent to SOCALGAS operations have, in many if not most cases, not been made aware of this situation.

HISTORY

- During 1941-2 "gas has been and continues to be injected into the entire underground area covered by the original condemnation suit and withdrawn to meet necessary demands to serve the Los Angeles Metropolitan area.
- In 1941, the major portion of the property condemned was undeveloped, having no houses, paved roads, or utility services but with a few scattered and depleted oil wells in existence."
- "On October 15, 1954, Southern California Gas Company obtained title to all of the mineral rights and gas storage rights which had been condemned in said suit as well as the surface rights involved in said suit and not previously disposed of the United States by revetment or otherwise. Additionally, Southern California Gas Company acquired other surface rights so as to hold title to said plant and a substantial area around it."
- "There is at the present time no substantial residential or business property developed in the area immediately surrounding the plant site. Applicant has, however, acquired at considerable cost title to the surface of an area of sufficient size so residences to be hereafter constructed in the neighborhood will be far enough from any compressor engines as to preclude any material annoyance."

[cont'd]

The additional lands owned by SOCALGAS acted as a buffer zone of sorts and/or as open land which were used to distance the public from any potential gas migration to the surface. These lands also included lots with wells that were repurposed into retrieval wells and importantly used as monitoring wells to determine how and where the reservoir and all the influenced oilfield gases were migrating.

From mostly vacant land to densely infilled neighborhoods…

These lands that included wells with a lengthy history of leakage, were sold off by SOCALGAS in roughly the 2000-10 timeframe.

This timeframe was when the Grassroots Coalition 851 Case litigation against SOCALGAS under the CPUC process was taking place. GC did not prevail in this portion of our litigation and the lands became available for sale. Some of the SCG property had earlier been sold off, without CPUC approval as the density of the overlying neighborhoods infilled and encroached upon the SOCALGAS operations. Grassroots Coalition prevailed in its Complaint Case. The Settlement Agreement, while including new City of Los Angeles terminology and gas testing practices based upon the City's oil/gas experts-Exploration Technologies Inc., Victor Jones and Walt Merschat,(ETI Methodology) has not been fulfilled to those stringent standards.

SETTLEMENT AGREEMENT (http://saveballona.org/1990.settlement.agreement.html)

Today, there is still more infill and high-density living over and adjacent to the leaky underground gas storage operations.

For these reasons, we seek a Compliance Review of the Conditional Use Permit for SOCALGAS/PLAYA DEL REY Operations to determine:

1. If SOCALGAS is out of Compliance with Condition 17 or other conditions that it must maintain in order to not have its permit rescinded.
2. If potential negative health and safety consequences outweigh the benefits of having SOCALGAS / PLAYA DEL REY Operations continue.
3. Based upon new information of SCG/PDR operations that were not made known to the City of LA by SOCALGAS/PLAYA DEL REY personnel which provides information of operations influencing directly or indirectly gas migration to the surface of reservoir gases/ oilfield gases and/or a combination thereof.
4. What the City's course of action should be regarding the City's lack of approval for gas storage beyond the City's approved 240-acre boundary. Gas storage/ migration has been occurring since the 50's into the Venice Peninsula, outside the LA City approved 240-acre boundary as acknowledged by the Reigle Report done for SOCALGAS.
5. There is also ongoing oilfield gas migration into the Marina del Rey area (potentially 950 acres), of which the recent blow out of the well known as RGC 10 may have been, at least in part, due to direct or indirect operations of SOCALGAS i.e. re-pressurization within the oilfield formation.

[cont'd]

At your earliest convenience, please let us know what, if anything, further we need to provide in order for the review to take place. We are copying this

Request TO LADBS as a start of our Request. Currently, the LADBS online does not provide anything for the 8141 Gulana SCG address.

Thank you for your detailed attention to these matters of great public importance,

Patricia McPherson, Grassroots Coalition

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IV. SIERRA CLUB AIRPORT-MARINA GROUP - LETTER OF SUPPORT

Kathy Knight
Chair Sierra Club Airport Marina Group
3250 Wilshire Blvd., Room 1106
Los Angeles, CA 90010

September 14, 2019

RE: Compliance Review Request (453028) of Conditional Use Permit of SoCalGas/ Playa del Rey

To Whom It May Concern:

The Sierra Club, Airport-Marina Group, fully supports the Grassroots Coalition Compliance Review Request (453028)
for compliance evaluation of the Conditional Use Permit (CUP) of SOCALGAS/PLAYA DEL REY, located at 8141 Gulana Ave. 90293.

The Sierra Club has long pursued safety and compliance issues pertaining to operations of SOCALGAS/PLAYA del Rey.
The Plan Area is registered as 330-Westchester-Playa del Rey. The City Plan Case No. 6162 has been provided to the City of Los Angeles and is attached to the Grassroots Coalition Compliance Request sent to Ms. Molina-Pearson and Ms. Huyhn. The Request has also been sent to City Planning attorney Ms. Macias as well as to City Councilman Bonin of CD 11(within which lies the SCG/PDR operations). Carolynn Nepomuceno Juacalla of LADBS is also in receipt of the Request. This request has also been sent for informational purposes to the City's Petroleum Engineer, Uduak Ntuk.

The Sierra Club, Airport Marina Group has the data supplied to this Request that demonstrates the reasoning for believing that, in particular, Condition 17 has been repeatedly violated over many years as documented by numerous internal SoCalGas documents that have been provided by GC.

The Division of Oil and Gas and Geothermal Resources (DOGGR) SHUT DOWN of SoCalGas/Playa del Rey operations in 2011, due to reservoir gas leakage to the surface, also demonstrates a violation of Condition 17.

We also believe that numerous factors have changed through time since the City of Los Angeles approved the SoCalGas/ PDR operations and that these conditions* give rise to protective and proactive health and safety reasons to rescind the Conditional Use Permit for SoCalGas/ Playa del Rey.

* Conditions include the legislative CCST Report that found the SoCalGas/Playa del Rey facility/operations to have serious containment problems. Legislators, including CD 11's Councilman Bonin and state senator Ben Allen have requested the recommended studies take place in order to determine the need for the potential shut-down of SCG/PDR operations.

* A 'root cause' evaluation has just been released by DOGGR pertaining to the oil well RGC 10 blow- out in Venice/Marina del Rey (Jan. 2019) which recommends a full evaluation of the hundreds of wells and their geologic setting in Playa del Rey which includes SoCalGas/Playa del Rey mineral rights and operational territory.

[cont'd]

For these reasons and more, the Sierra Club, Airport-Marina Group supports and recommends the Compliance Review Request and process occur for Conditional Use Permit of SOCALGAS/PLAYA del REY.

Thank you,

Kathy Knight

P.S. *Airport Marina Group Sierra Club Executive Committee (Ex-Com) adopts our fellow Ex-Com Member and Conservation Chair, Patricia McPherson (also President of Grassroots Coalition) 30 years' of activism, research, and creating public awareness of health and safety issues regarding SoCalGas/Playa del Rey Gas Storage Field Operations.*

[cont'd]

V. PROTECT PLAYA NOW - LETTER OF SUPPORT

To: Carolynn Nepomuceno Juacalla Structural Engineering Associate III,
Sarah Molina-Pearson
P.E.Charmie Huynh
Los Angeles Department of Building & Safety
201 N. Figueroa St. Suite 1080A, Los Angeles, CA 90012

Hello Ms. Juacalla, Ms. MolinaPearson, and Ms. Huynh,

My name is Diane Fletcher-Hoppe, Ph.D. I have been on all of the emails from Patricia McPherson, Grassroots Coalition, concerning the LA CITY CONDITIONAL USE PERMIT SCG/PDR--REQUEST FOR COMPLIANCE REVIEW & REEVALUATION OF PERMIT DUE TO CHANGED CIRCUMSTANCES.

I am on the Steering Committee and Volunteer for Protect Playa Now. On behalf of Protect Playa Now, I have sent a request to LADBS for a COMPLIANCE REVIEW & REEVALUATION OF PERMIT DUE TO CHANGED CIRCUMSTANCES of the LA CITY CONDITIONAL USE PERMIT SCG/PDR. Our REQUEST Number is: 453947

Protect Playa Now is a collection of concerned citizens mobilizing to protect Playa del Rey fossil fuel infrastructure

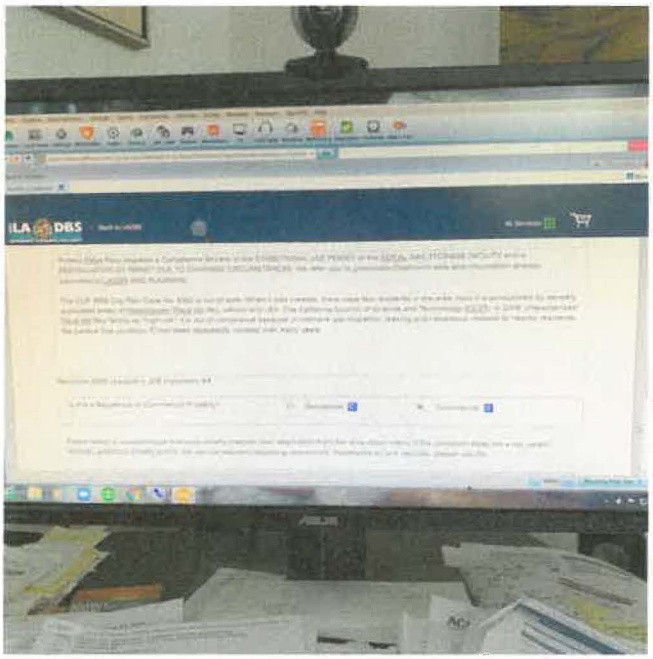
We have just had a Community Forum, July 21, 2019, on the MDR Well Blowout and the dangers of the SoCal Gas Storage Facility and Playa del Rey Gas and Oil Field. At this Community Forum Councilman Mike Bonin and Representative Wibroe for State Senator Ben Allen presented their letters recommending a cost-benefit analysis including full consideration of risks associated with loss-of-containment from this facility. This analysis was recommended by the California Council of Science and Technology (CCST) in a 2018 report commissioned by the California State Legislature to review all underground gas storage facilities in California.

Below is a screen photo of the LADBC request I sent today. I'm sorry is is so blurry, but the words are as follows:

"Protect Playa Now Requests a COMPLIANCE REVIEW of the CONDITIONAL USE PERMIT of the SoCal Gas Storage Facility and a REEVALUATION OF PERMIT DUE TO CHANGED CIRCUMSTANCES. We refer you to Grassroots Coalition's data and information already submitted to LADBS and PLANNING.

[cont'd]

"The CUP 1955 City Plan Case No. 6162 is out of date. When it was created, there were few residents in the area; now it is surrounded by densely populated areas of Westchester, Playa del Rey, Venice and LAX. The California Council of Science and Technology (CCST) in 2018 characterized the Playa del Rey facility as "high risk." The SoCal Gas Storage Facility is out of compliance because of methane gas migration, leaking and hazardous impacts to nearby residents. We believe that condition 17 has been repeatedly violated over many years."



We at Protect Playa Now look forward for following the course of this request.

Sincerely,
Diane Fletcher- Hoppe, Ph.D.
Steering Committee member and Volunteer for ,
Protect Playa Now

[cont'd]

VI. ADDENDUM:
TIMELINE OF SOCALGAS/PDR UNDERGROUND GAS STORAGE OPERATIONS

[This is newly provided to City Council as a part of this request.]

SoCal Gas PDR Underground Gas Storage Operations
Timeline of Incidents & Events in Playa del Rey / Ballona Wetlands Area
(Updated: June 15, 2019)
(PDR has more incidents than listed below; the following are some of the key events and incidents.)

Publicly Known Incidents & Study Outcomes

2000 -2001 – Environmental Technologies Inc. (ETI) establishes thermogenic predominance of outgassing in Ballona region... one of the largest oilfield gas leakages in the U.S.(ETI) ETI establishes that SCG's own records recognize that "their well casings are conduits for gas venting to the surface and never reported it to authorities. The admittance of this observation being common and observed over many years means that the interest of the public and the state of California is not being served. There is no question that there is justification for an investigation of casing leakage associated with the gas storage field." ETI 6/16/2000

2003- Major Incident- Condensate blow from bluff top SCG operations - oils/gas mists over homes, environment from SCG to east of Lincoln Blvd. area. SCG cleanup crews power wash oiled streets into storm drains. SCG repaints homes; washes cars.

(1994 Report regarding excess fluids in lines- *"severe operational and maintenance problems in the station, the liquids are also ending up at Del Rey Junction. This translates to **PCB testing, handling, transportation, and disposal costs**. Internal corrosion due to stagnant liquids in pipelines is also of great concern.") (Del Rey Junction is on Jefferson Blvd./Slauson and has had numerous odor incidents)*

2004- Line leak on Mindanao —SCG calls it condensate (SCG earlier letter warns of line leaks here) Hazmat at cleanup (lines also cross through Area A -Ballona and cross over/under Channel into Ballona to SCG

[cont'd]

2005- OES (Office Emergency Services) Notice filed on large leakage area of thermogenic gas in freshwater marsh...ETI previous studies had registered low- level leakage in 2000-2001.

Well-University City Syndicate was re-abandoned (approximately 2002/3), but leaks shortly thereafter; several bags cement thrown at top and left (DOGGR)... leakage again appears shortly thereafter. (Playa Vista school area also increases in gas levels to Tier 3 per new Methane Code (See BURNING QUESTIONS-KNBC); ETI study same area in 2000-1 recorded low level)

12/20/07 CPUC Decision 07-12-035 GC v SCG Settlement Agreement (SA) 2008- GC v SCG via CPUC litigation process Settles with more stringent gas monitoring requirements and subsidence monitoring.

2008- Prop. 65 litigation (ELF/Rose, Klein, Marias) against SCG prevails utilizing data of GC v SCG /CPUC Gas Studies done revealing numerous wells leaking contaminants into the groundwater.

2009 June- URS gas study per SA requirements; finds reservoir outgassing from multiple wells on Ballona flats & DR 10 north of Channel

1/13/10 URS Report phase 1; 11/16/10 DR 10-helium)

2010- DOGGR magnetometer finds well head (now underwater); does GPS...small continual bubbling around area. Approximately 100 feet away broiling outgassing is GPS'D and videotaped by DOGGR personnel in approximately 8' of water. https://www.youtube.com/watch?v=LR1r9X2VGZo&feature=geosearch https://www.youtube.com/watch?v=NNA2f3GvUPg

2/24/11- SoCalGas Incident—mud/water, storage gas leaking to surface Riegle 1 (south side of Ballona Channel) Same wells as outgassing in 2009 URS Study.

3/4/2011 DOGGR ORDER 1008 and Shut down occurs of SCG operations for approx. 1 year due to reservoir gas leakage. DOGGR investigation.

2012? - MANHOLE COVER AND CONCRETE surround blows out in Venice... **2013- Flaring Blowout**-2 flame areas...tremors felt by neighbors...Al Jazeera coverage

[cont'd]

http://america.aljazeera.com/watch/shows/live-news/2016/2/porter-ranch-leak-raises- concerns - elsewhere.htmlJAZEERA

https://youtu.be/c4O6jI2y_m4

2013- SoCal Gas incident in Playa del Rey, YouTube by Andy Lesniak

https://youtu.be/bmdZqyYXAGg

2014- High pressure line valve ruptured—SCG intruder- steals truck onsite runs over valve area...Homeland Security issues raised2014 HazMat Crews Investigate Gas Leak In Playa Del Rey « CBS Los Angeles https://youtu.be/BbpOEk_1Vao

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"The Playa del Rey facility...has a long history of loss-of-containment incidents..."

http://saveballona.org/water/ccst-report-risk-viability-socalgas-playa-del-rey-underground-natural-gas-storage.html

7/23/17- Video of dramatically heightened outgassing over Playa Vista abandoned well- University City Syndicate (Jonathan Coffin video 2017) https://www.flickr.com/gp/stonebird/5KU61h

2018- Ballona Freshwater Marsh—outgassing over University City Syndicate dramatically increases (Jonathan Coffin video 2017) https://www.flickr.com/gp/stonebird/5KU61h

Division of Oil & Gas & Geothermal Resources (DOGGR) video retrieved by GC via Public Record Act; this video demonstrates DOGGR finding University City Syndicate well head via a magnetometer and then GPS-ing the location outgassing over well head.

[cont'd]

http://www.youtube.com/watch?v=LR1r9X2VGZo&feature=geosearch (2010)

Second video is of DOGGR personnel GPS-ing oilfield outgassing just east of the wellhead.

http://www.youtube.com/results?search_query=playa+vista+gas+leak+wetland&aq=f (2010)

2019- FLIR Imaging taken by EARTHWORKS per Grassroots Coalition's request. The outgassing over University City Syndicate has strengthened through the past several years.
https://www.youtube.com/watch?v=QDXIPAYaCHA&feature=youtu.be

2013- Al Jazeera America News...Porter Ranch leak raises concerns elsewhere--Playa del Rey

2013- KNBC Burning Question NBC 4 part 1 – Is Playa Vista Safe? Part 1 – YouTube, Grassroots Coalition

2019- AQMD Issues Warning Notice Posted on Ballona Wetlands due to Benzene and Formaldehyde levels.

2019- DOGGR Emergency Order 1143, abandoned well blow out in MDR. Order applies immediate measures to be taken and orders 'Root Cause' investigation. WHAT is the condition of other old wells in the area? Troxel and Block 11 and Townsite wells that were all found to be leaking during CPUC litigation and investigation ending in 2008?

- How far north are SCG gases migrating? What pressurization is occurring in the Venice Peninsula, MDR due to SCG operations and gas migration to this area?

Courtesy Grassroots Coalition.org,
Jeanette@saveballona.org 310-721-3512

[cont'd]

Grassroots Coalition 10/15/19
Motion 19-1124

COURT OF APPEAL STATE OF CALIFORNIA

STADISH V. SOCALGAS: OPINION JUNE 16, 1999

AS FAR AS WE CAN TELL, NEITHER THE PUC NOR THE DOG HAS CONSIDERED FOR THE LAST 55 YEARS WHETHER SOUTHERN CALIFORNIA GAS COMPANY IS RELEASING TOXIC POLLUTANTS INTO THE AIR OR GROUNDWATER WHICH ARE HARMFUL TO THE HEALTH AND SAFETY OF THE RESIDENTS IN THE SURROUNDING NEIGHBORHOOD.

Grassroots Coalition 10/15/19 CimEn. Com. Motion 19-1124

SoCal Gas PDR Underground Gas Storage Operations:

Timeline of Incidents & Events in Playa del Rey / Ballona Wetlands Area

Updated: June 15, 2019

PDR has more incidents than listed below; the following are some of the key events & incidents

Publicly Known Incidents & Study Outcomes

2000-1 – Environmental Technologies Inc (ETI) establishes thermogenic predominance of outgassing in Ballona region.....one of the largest oilfield gas leakages in the U.S.(ETI) ETI establishes that SCG's own records recognize that "their well casings are conduits for gas venting to the surface and never reported it to authorities. The admittance of this observation being common and observed over many years means that the interest of the public and the state of California is not being served. There is no question that there is justification for an investigation of casing leakage associated with the gas storage field." ETI 6/16/2000

2003- Major Incident- Condensate blow from bluff top SCG operations -oils/gas mists over homes, environment from SCG to east of Lincoln Blvd. area. SCG cleanup crews power wash oiled streets into storm drains. SCG repaints homes; washes cars.

(1994 Report regarding excess fluids in lines- *"severe operational and maintenance problems in the station, the liquids are also ending up at Del Rey Junction. This translates to* ***PCB testing, handling, transportation, and disposal costs****. Internal corrosion due to stagnant liquids in pipelines is also of great concern.") (Del Rey Junction is on Jefferson Blvd./Slauson and has had numerous odor incidents)*

2004- Line leak on Mindanao —SCG calls it condensate (SCG earlier letter warns of line leaks here) Haz Mat cleanup (lines also cross through Area A -Ballona and cross over/under Channel into Ballona to SCG

2005- OES (Office Emergency Services) Notice filed on large leakage area of thermogenic gas in freshwater marsh...ETI previous studies had registered low level leakage in 2000-1.

Well-University City Syndicate was re -abandoned (approximately 2002/3)but leaks shortly thereafter; several bags cement thrown at top and left(DOGGR)...leakage again appears shortly thereafter. (Playa Vista school area also increases in gas levels to Tier 3 per new Methane Code (See BURNING QUESTIONS-KNBC) ; ETI study same area in 2000-1 recorded low level)

12/20/07 CPUC Decision 07-12-035 GC v SCG Settlement Agreement (SA)

2008- GC v SCG via CPUC litigation process Settles with more stringent gas monitoring requirements and subsidence monitoring.

2008- Prop. 65 litigation (ELF/Rose,Klein,Marias) against SCG prevails utilizing data of GC v SCG /CPUC Gas Studies done revealing numerous wells leaking contaminants into the groundwater.

2009 June- URS gas study per SA requirements; finds reservoir outgassing from multiple wells on Ballona flats & DR 10 north of Channel

1/13/10 URS Report phase 1; 11/16/10 DR 10-helium)

2010- DOGGR magnetometer finds well head (now underwater); does GPS...small continual bubbling around area. Approximately 100 feet away broiling outgassing is GPS'D and videotaped by DOGGR personnel in approximately 8' of water.
https://www.youtube.com/watch?v=LR1r9X2VGZo&feature=geosearch
https://www.youtube.com/watch?v=NNA2f3GvUPg

2/24/11- SoCalGas Incident—mud/water, storage gas leaking to surface Riegle 1 (south side of Ballona Channel) Same wells as outgassing in 2009 URS Study.

3/4/2011 DOGGR ORDER 1008 and Shut down occurs of SCG operations for approx. 1 year due to reservoir gas leakage. DOGGR investigation.

2012?—MANHOLE COVER AND CONCRETE surround blows out in Venice…

2013- Flaring Blowout-2 flame areas…tremors felt by neighbors…Al Jazeera coverage

2013- Al Jazeera America News…Porter Ranch leak raises concerns elsewhere--Playa del Rey
http://america.aljazeera.com/watch/shows/live-news/2016/2/porter-ranch-leak-raises-concerns-elsewhere.htmlJAZEERA

2013- KNBC Burning Question NBC 4 part 1 – Is Playa Vista Safe? Part 1 – YouTube, Grassroots Coalition
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Courtesy Grassroots Coalition.org, Jeanette@saveballona.org 310-721-3512

Engage, Participate in SoCal Gas Adequate Monitoring And/Or Shutdown

1. **Request a Permit Compliance Review for SOCALGAS'S CONDITIONAL USE PERMIT TO OPERATE.**
- Ask for elected's assistance in bringing this issue to the LA City Attorney Michael Feuer; Deputy Attorney Terry Kaufmann-Macias - Ask directly- Terry.Kaufmann-Macias@lacity.org

2. **Engage the California Public Utilities Commission — Public Safety Complaint** http://www.cpuc.ca.gov/pubsafetycomplaint/ 1 800 755 1447 Public Advisor Office; public.advisor@cpuc.ca.gov;

3. **Request engagement of the LA City Petroleum Administrator—Uduak Ntuk** at Uduak.Ntuk@lacity.org; (Uduak (Joe) Ntuk) is with LA City Department of **Public Works.**

4. **Request elected assistance in commissioning a cost-benefit analysis including full consideration of risks associated with loss-of-containment from the SCG/Playa del Rey facility as recommended in the CCST Report- Long-Term Viability of Underground Natural Gas Storage in California.**

5. **Use your senses and skills to video or otherwise document any gas leakage that you may suspect and /or find. Be sure to add date and time of each occurrence.** Equipment can be rented for monitoring; communities work together to purchase monitoring devices; engaging with other groups can often provide support to monitor; smelling odors you think are gas related? **Call 1-800-cut smog (Air Quality Management District AQMD)**

6. **Work with groups and individuals to ensure unbiased and prudent fulfillment of the Division of Oil & Gas & Geothermal Resources (DOGGR)**
- ROOT CAUSE ANALYSIS of the RGC 10 Blow out. (DOGGR Emergency Order 1143) - Ask about the nexus of SCG underground storage gas migration and Venice/ Marina del Rey safety. Make the same request for all areas above or adjacent to SCG underground gas storage operations.

7. **Who are the elected, city or county departments to ask?**
Here are a few ideas:
Your: Councilman
County Supervisor
LA Mayor Eric Garretti
Natural Resource Committee members —both State Senate and Assembly.

8. **Remember to request answers from DOGGR, PUBLIC HEALTH AND SAFETY** (Angelo Bellomo – Dept. of Public Health) Mr. Bellomo is well versed in oil/gas field problems and is a co-author of our Prop. 65 ...list of chemicals that can cause birth defects and/or cancer.)

9. **Ask LA City to Conduct a Permit Compliance Review of SoCal Gas' Conditional Use Permit.**

Nuisance or Other

"No person in the course of doing business shall knowingly discharge or release a chemical known to the state to cause cancer or reproductive toxicity into water or onto or into land where such chemical passes or probably will pass into any source of drinking water, notwithstanding any other provision or authorization of law except as provided in Section 25249.9"

SCG/PDR documents demonstrate leakage into the underlying aquifers. SCG/PDR documents demonstrate that BTEX chemicals, known by the state to cause cancer or reproductive toxicity, have been found underlying SCG operations.

The aquifers of Ballona Wetlands are classified as potential drinking water, wherein lies the discharge/release of chemicals by SCG/PDR operations, which per legal purposes classifies as drinking water.

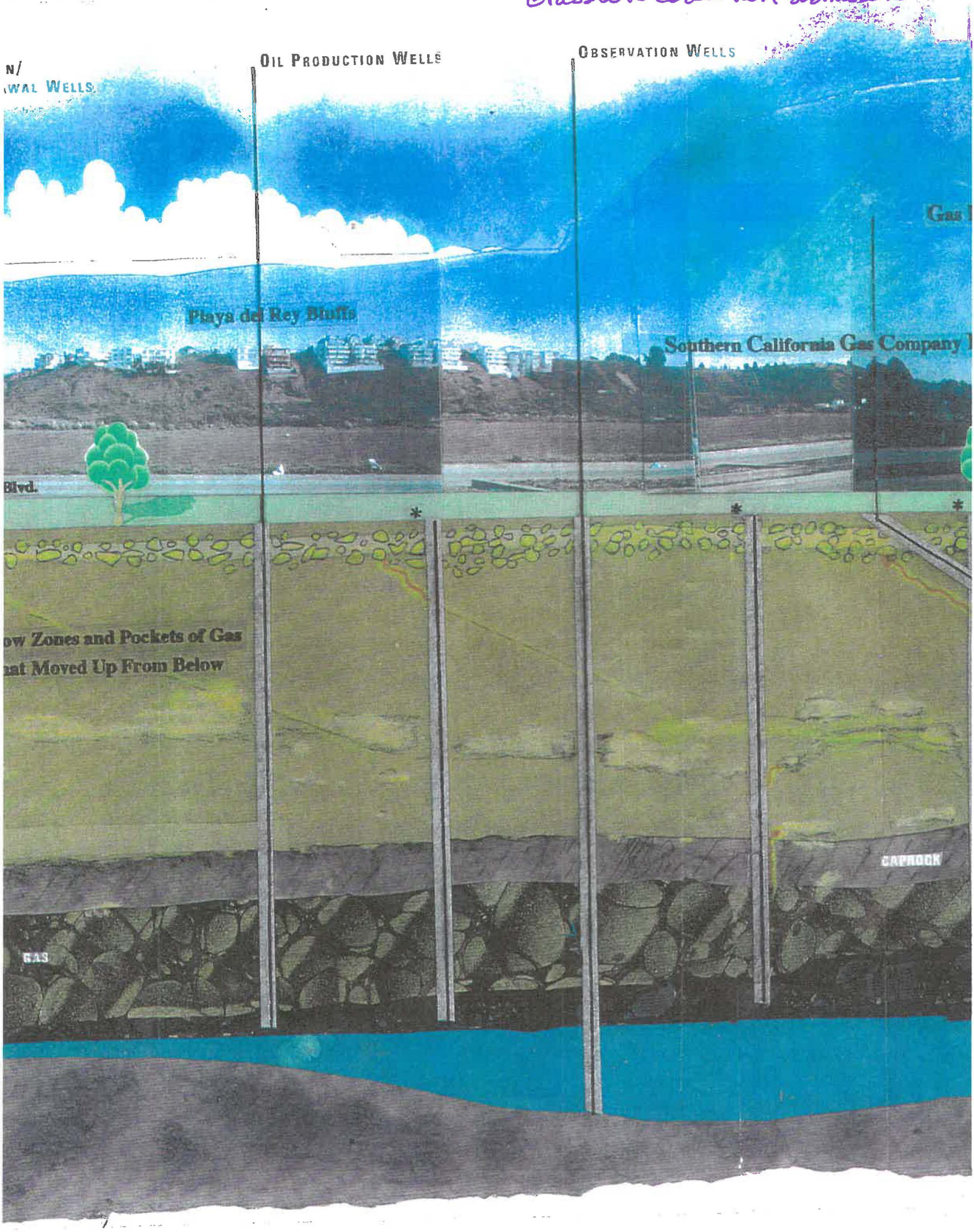
SCG/PDR is believed to have been violating Health and Safety Code section 25249.11 since SCG has been in operation. SCG/PDR documentation of BTEX contamination of groundwater and soils is contained in their 1999 studies for the Harlan and Fast well operations.

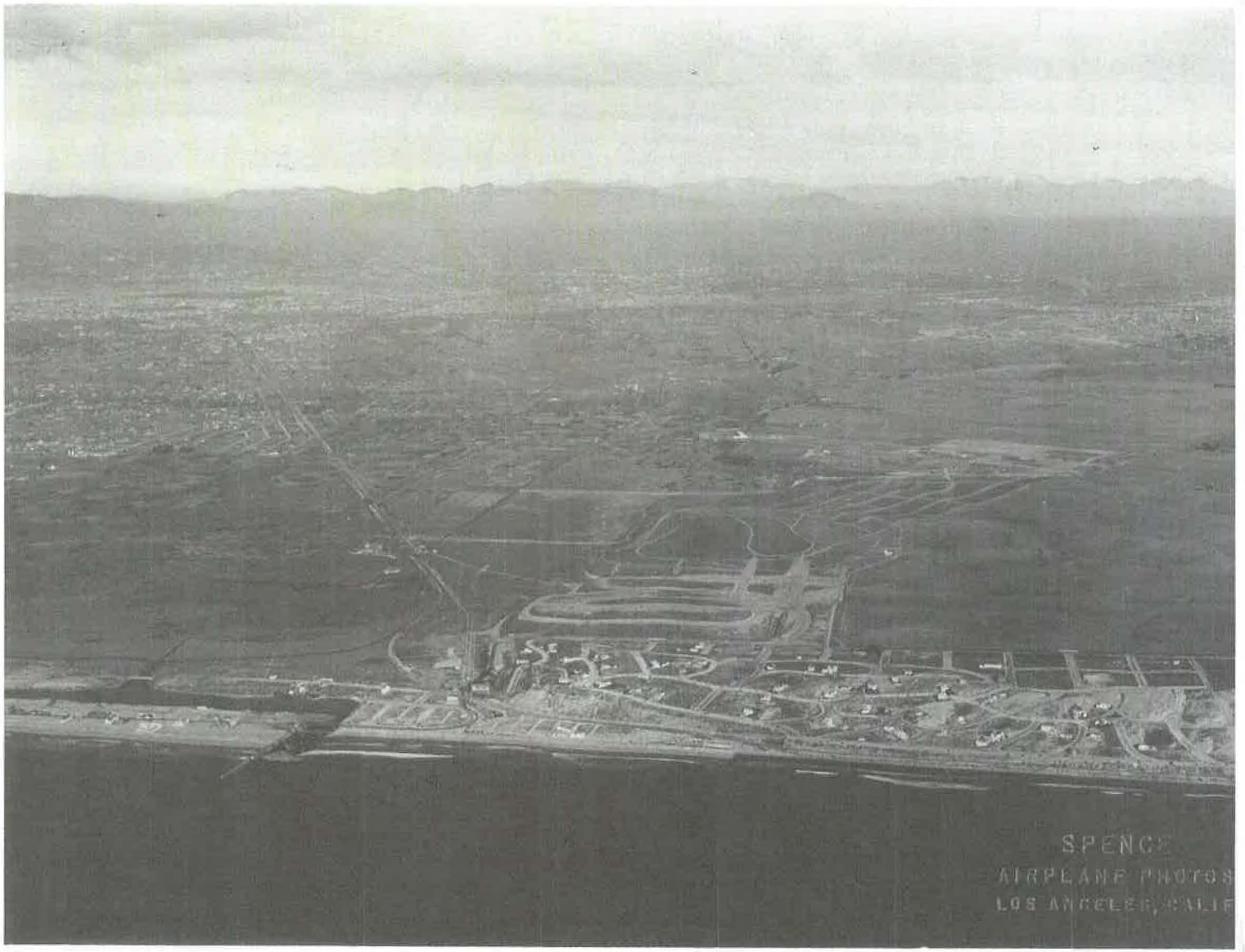
The Proposition 65 lawsuit that was filed by ELF, inclusive of data accrued by Grassroots Coalition and Bernard Endres PhD, during litigation via the CPUC (Complaint Case and 851 (Lot Sale) Case) and various private litigation in which Endres PhD was the oil/gas expert—prevailed in additional monitoring by SCG, signally SCG/PDR contamination to the area. Internal SoCalGas documents similarly show contamination by SCG surfacing gases. **SOCALGAS in their Settlement Agreement continues to deny any legal violations.**

The Torrance Municipal Code is current through Ordinance 3842, passed February 26, 2019. (Chapter 7, Oil Regulations...very comprehensive)
https://www.codepublishing.com/CA/Torrance/html/Torrance09/Torrance0907.html#97.13.1

10/15/19- Climate, Energy.. Com. Motion A-11
Grassroots Coalition submission

A WETLANDS / PLAYA VISTA SITE





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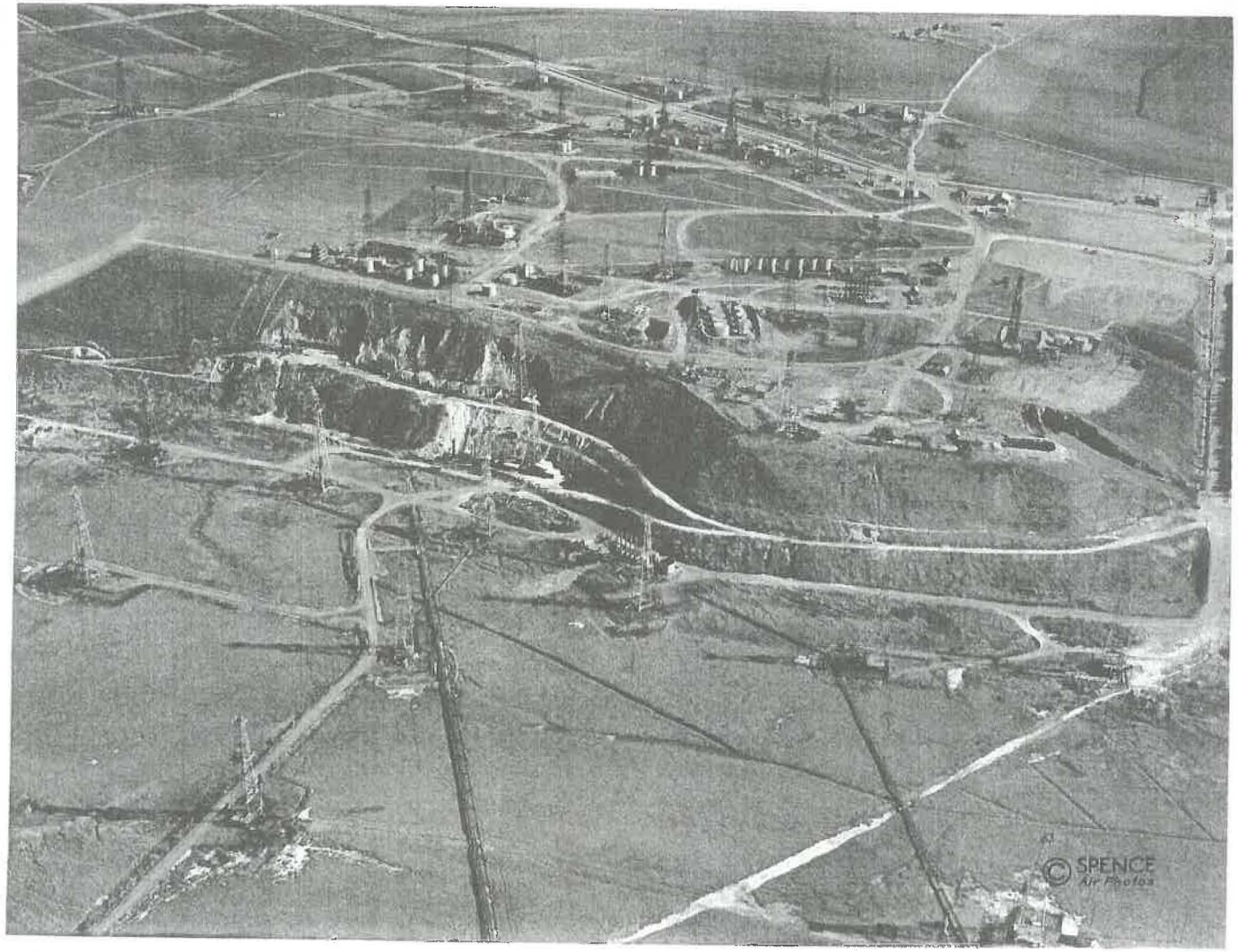

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Venice

MARINA del Rey

SANTA MONICA BAY

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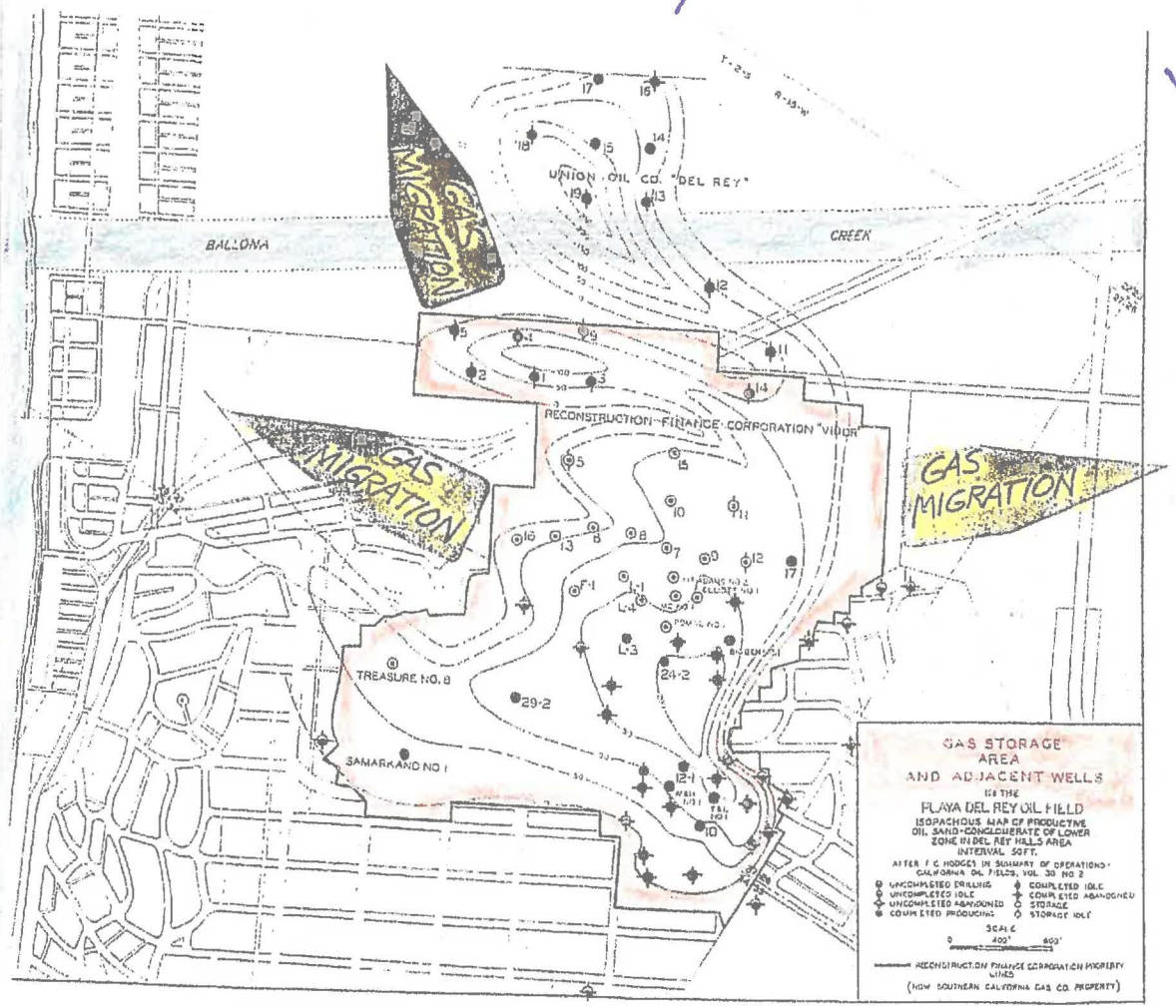

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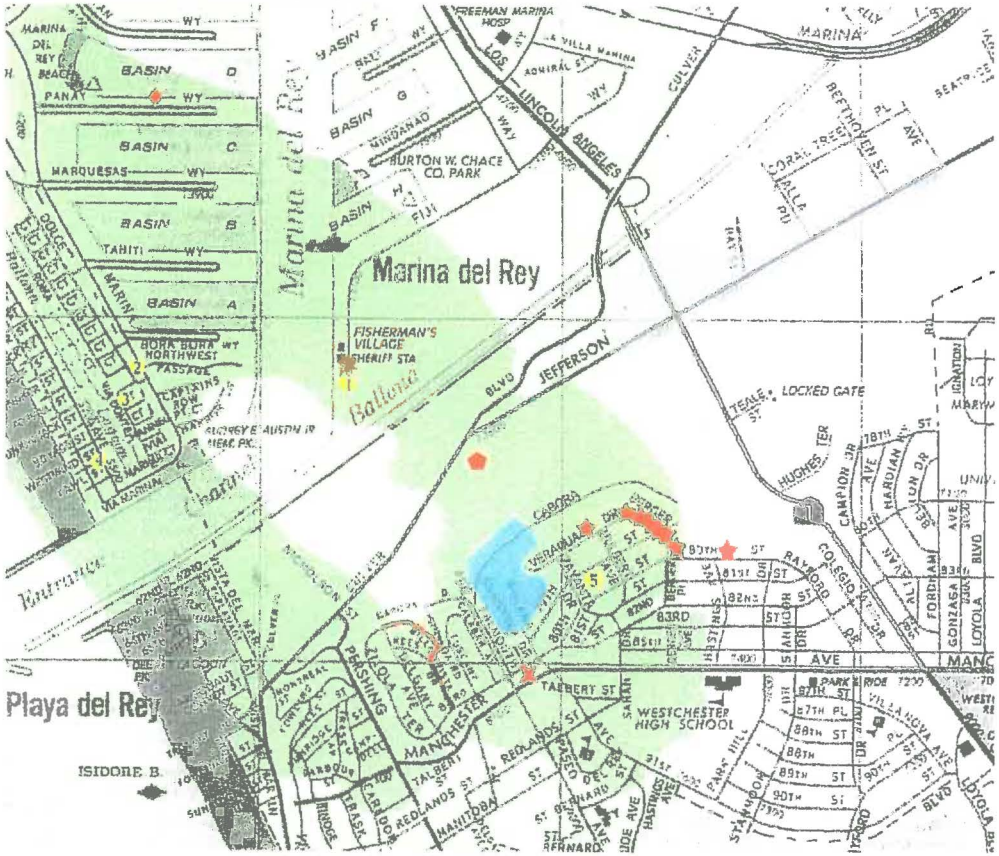
GC v SCG – CPUC Litigation

Playa del Rey 851 Application and Complaint Case
Approximate Locations of Facilities and Complaints



Legend

- SCG Facility
- Gas Storage
- Playa Vista
- Odor, health and cancer complaints as a result of emissions from the gas facility
- H_2S cloud exposure, health complaint
- Cancer, health complaints as a result of emissions from a well
- Subsidence complaint
- Odor, respiratory complaints from emissions in the wetlands
- Reported cancer cluster on Billowvista
- Problematic wells
  - 1 Playa del Rey 18
  - 2 Townsite 2
  - 3 Townsite 3
  - 4 Block 11
  - 5 Big Ben 1

1000 ft

N

SOURCE: Automobile Club of Southern California 1997 and MHA

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GR16

CANADIAN INTERNATIONAL
PETROLEUM CONFERENCE

PAPER 2002-105

ENVIRONMENTAL HAZARDS AND MITIGATION MEASURES FOR OIL AND GAS FIELD OPERATIONS LOCATED IN URBAN SETTINGS

by:

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ABSTRACT

This paper presents a methodology for evaluating the environmental hazards posed by gas migration from oil and gas reservoirs, or underground natural gas storage facilities, and into the near-surface environment. Geological faults and improperly completed or abandoned well bores (e.g., due to poor cementing practices) are described as the primary pathways by which the gas can reach the surface. Furthermore, the gas migration problem can be exacerbated by such factors as subsidence, earthquake activity and well corrosion.

Soil gas monitoring, geochemical gas fingerprinting and geological profiling are used in order to identify the magnitude and location of the environmental risks. Shallow and deep soil probes are used in order to characterize the near-surface hydrology, and to identify possible collector zones where gas concentrations can build to dangerous levels.

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Climate, Energy... Com.
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These techniques have proven to be important in the planning for and design of mitigation systems necessary to protect residential and commercial properties from the migrating gases. For example, some jurisdictions have imposed regulatory controls and design requirements regarding the installation of gas mitigation systems. Also, these methods are important in establishing safe procedures for the operation of oil and gas fields, or underground natural gas storage facilities.

A number of case histories are discussed that have been used by the authors to validate the methodology, and to illustrate the seriousness of the problem. A clear case is made for the need to perform ongoing monitoring for these conditions, especially in an urban setting.

INTRODUCTION

The major paths for vertical migration of gas are formed by natural faults and fractures in the rock formations that overlie the reservoir. Natural lithification processes and tectonic activities formed these breaks or channels. These are illustrated in Figure 1 as subtending zones I, II, and III. However, in many geological settings, these fault zones can be discontinuous, but still allow the gas to literally hopscotch from one fault to another, or to act in conjunction with leaking wellbores in the same manner.

Wellbores of operational, idle or abandoned wells often result in literally pipeline flow of large volumes of gas to the surface. This is an especially serious problem where the well, usually in the annular space between the drill hole and the casing, was not properly sealed with cement. Also, the wellbore may have been hydraulically fractured during the cementing phase of well completion. Vertical fractures may extend for tens of feet from the wellbore depending upon the characteristics of the formation and the injection pressures used for placement of the cement. The cement will fill some of the larger fractures surrounding the casing, but the cement particles cannot enter the smaller fractures away from the wellbore.

SOURCES OF GAS FOR MIGRATION

During the course of oilfield production, fluid is produced from the reservoir causing a drop in pressure. This liberates the gas held in solution, and allows the gas to migrate. The free gas can migrate upward due to differences in the specific weight between the gas and the surrounding fluids (viz., upward buoyancy forces). Figure 1 illustrates the migration of gas from the reservoir to secondary collector zones, and eventually to the surface.

Initially, the gas is trapped below the caprock within the reservoir, forming a free gas zone. However, this free gas can escape through the caprock due to natural fractures in the caprock or man-induced fractures. Man-induced fractures include: wellbores penetrating the caprock during drilling, fracturing pressures occurring during oilfield operations, or by subsidence resulting from production of fluids from the reservoir.

Well completion practices rely upon squeezing cement slurry into the annular space between the drillhole and the steel casing. However, the inevitable movement of the rock formation resulting from the subsidence can destroy the intended sealing joint at the caprock interface. Once through the caprock, the gas can follow faults and fractures, as illustrated by Zone III, in Figure 1. In Zone III, secondary gas traps can often be found where layers of shale or other impervious layers slow down the upward migration of gas and permit it to gather in pockets. Figure 2 is presented to illustrate the interaction between subsidence and gas migration.

In secondary and tertiary recovery operations, water is often injected under high pressure into the reservoir to increase the production of oil. This water displaces the free gas in the reservoir, forcing the gas to migrate under this pressure influence. This free gas is then able to migrate along the paths described above, toward the surface.

The 1985 Fairfax Explosion and Fires

The phenomenon of natural gas migrating to the earth's surface from oil and gas field reservoirs via geological faults, fractures and well bores is a serious environmental problem. An explosion hazard is created if the gas collects in a confined space and reaches a five percent (5%) mixture ratio

with air (viz., the lower explosive limit for natural gas). The Ross Department Store in the Fairfax area of Los Angeles, California exploded on March 24, 1985, seriously injuring 23 people. Fires burned for days through cracks in the sidewalks and parking lots until a vent well was drilled to relieve the pressure build-up. Extensive investigations, including gas fingerprinting, confirmed that the gas had migrated to the surface along faults and poorly maintained well bores. Shallow soil gas probe holes were installed to monitor any future build-up of gas. In 1989 these gas monitoring wells indicated that large volumes of gas were again building up under the site. Fortunately, the area was evacuated immediately. It was discovered that the single vent well, that had been installed to vent the gas, had become plugged with silt at the slotted interval depth of 80 feet.

Other serious gas seeps have occurred in this area over many years. It is also the location of the famous La Brea Tar Pits where gas and oil continually migrate to the surface along the 6th Street Fault. This site has been used by the authors as a large "natural laboratory" to study and research the phenomenon of gas migration discussed in this paper. Over the past 15 years, this research has been expanded to address similar gas migration problems located in many parts of the world. This paper will provide an overview of these findings. References 1 through 5 provide a detailed treatment of these topics, including an analytical formulation of the gas migration mechanisms.

THE 2001 HUTCHINSON, KANSAS EXPLOSION AND FIRES

Research on these topics is continuing at the University of Southern California, including at the graduate student level. This is expected to contribute important new information to the understanding of the geological, geochemistry and hydrogeology principles that control gas migration. The most recent incident that is under investigation is the natural gas explosion that destroyed the downtown area of Hutchinson, Kansas on January 17, 2001. The next day, natural gas exploded under a mobile home park outside of the city, killing two people. Gas and water geysers reached heights of 30 feet. The gas leaks were traced to an underground natural gas storage field located nearly seven miles from the explosion sites. The gas had migrated through geological faults and permeable formations from leaking well bores at the storage site. Investigation has revealed that virtually no monitoring was in place in order to prevent this disaster. Worse yet, the emergency

response teams had no clue as to the cause of the disaster. For example, the fire department was unable to extinguish the flames, illustrating the lack of preparedness for such an event. In the case of the 1985 Fairfax explosion, the fire department had been called, and had responded to gas odors in the area 30 minutes before the explosion. Because of their lack of preparedness, they mistakenly believed it was sewer gas, and returned to the fire station. Shortly thereafter, the alarm was sounded to respond to the explosion and fire that devastated the area that they had just returned from.

ENVIRONMENTAL HEALTH HAZARDS OF CERTAIN OIL FIELD CHEMICALS

Additional concerns regarding the environmental hazards of oil and gas migration in urban areas are the carcinogenic, toxic and neurotoxin constituents that are contained within the oil field gases. These include the so-called BTEX chemicals comprising benzene, toluene, ethylbenzene and xylene. For example, benzene and toluene are contained on the so-called Governor's List of toxic chemicals within the State of California, and require a posting of warning signs to the public under the Proposition 65 environmental laws. Benzene is a known human carcinogen, and can cause blood disorders, including aplastic anemia and leukemia, as well as cancer. Benzene and toluene can cause birth defects. Both chemicals are highly volatile, and can easily transform from the liquid crude oil state into the natural gas state (e.g., associated gas), especially under reservoir pressure conditions.

This also becomes a serious problem in partially depleted oil fields that have been converted to underground natural gas storage operations. The storage gas is pumped into the oil field reservoir under high pressure. Frequently, 60% to 70% of the original crude oil still remains in place. When the storage gas comes in contact with the crude oil, aromatic hydrocarbons are transferred from the crude oil to the natural gas stream, enhancing the presence, particularly, of benzene and toluene. When the storage gas is retrieved to the surface for customer delivery, the gas must be processed through scrubbers and dehydration surface equipment. This provides an opportunity for these chemicals to escape into the atmosphere as fugitive emissions, or intentional releases. As a minimum, vapor recovery systems are necessary to control fugitive emissions. Billions of cubic feet of

storage gas can be withdrawn from inventory over a short period of time, increasing the health hazard risks to the surrounding community.

Furthermore, the natural gases that escape to the surface along well bores, faults and pipeline leaks will contain these health hazard chemicals. Also, workers need to be protected against these hazards, especially from long-term exposure.

HYDROGEN SULFIDE ENVIRONMENTAL HAZARDS

Another serious problem is caused by the hydrogen sulfide formation that can occur when the leaking natural gas stream interfaces with high sulfate levels in the near-surface water table. This can give rise to the perpetual generation of hydrogen sulfide through microbial alteration under anaerobic sulfate to sulfide reducing conditions. Hydrogen sulfide is not only highly corrosive, but is a neurotoxin, that must be considered a health hazard even at levels as low as 1 ppm (Kilburn, 1998; Kilburn, 1999).

The corrosive conditions of hydrogen sulfide on both steel casings and cement are well known (Craig, 1993). However, oil field operators, especially regarding the longevity of well completions and well abandonments, often ignore the long-term consequences of hydrogen sulfide, and other corrosive soil conditions. Namely, the steel casings and cement completion practices can be expected to develop gas leaks to the surface as a result of future aging. Accordingly, it would be ill advised to allow building over abandoned well bores, regardless of how carefully they were abandoned with cement seals and plugs. Also, access to the wells with oilfield drilling rigs would be necessary in order to repair leaks that could develop at any time in the future.

Although this research has been devoted to evaluating the environmental hazards of gas migration, these same topics are important regarding near-surface exploration for oil and gas. In fact, the research methodology – especially soil probe studies – evolved originally from this exploration technology point of view. Namely, near-surface exploration for petroleum is based on the detection and interpretation of a great variety of natural phenomena occurring at or near the land surface or sea floor and attributed, directly or indirectly, to hydrocarbons migrating upward from leaky reservoirs at depth. Development of surface exploration methods began in the early 1930's with chemical analysis of gaseous hydrocarbons in

soil air. It has since expanded to include a wide range of geochemical, geophysical, mineralogic, microbiological and other types of anomalies (Toth, 1996).

MITIGATION SYSTEMS OVERVIEW

Mitigation systems, both passive and active, have been developed in recent years in an attempt to cope with the gas migration hazards discussed in this paper. Many of these remain unproven. For example, the most common procedure is to install a geomembrane or plastic liner under the footprint of the structure being built in order to capture the upward migrating gases. Perforated pipes are installed in a gravel blanket located under the membrane in order to vent the gases that are collecting below the structure. These systems have demonstrated a high failure rate. The membranes can become punctured during installation, and/or develop leaks around the multiple penetrations that must accommodate utility and electrical lines, elevator shafts and pilings used for foundations. Gas detectors, used in conjunction with the membranes, require ongoing maintenance and calibration.

These mitigation systems have typically not been designed to deal with the health hazards of the migrating gas, but only to prevent a catastrophic explosion. This is a serious oversight, since the most dangerous chemical constituents of the leaking gas are heavier than air. For example, benzene, toluene and hydrogen sulfide are all heavier than air, and will tend to concentrate at ground level, and lower elevations, creating an inhalation hazard to those living and working in the area.

In summary, ongoing monitoring for the prevention of explosions and fires is essential, along with monitoring for health hazard conditions. The latter requires, at least, an order of magnitude lower threshold detection limits to protect against an inhalation health hazard.

NATURAL GAS STORAGE FIELDS

It has become common practice to utilize depleted oilfields for the purpose of storing large volumes of natural gas underground. It is more economical to store gas in underground reservoirs than construct large

delivery lines, typically from out-of-state sources, that would be capable of satisfying peak demands. Gas is purchased and delivered to the storage field during non-peak demand periods, and retrieved from the storage field during high demand periods, such as during cold spells.

Underground gas storage facilities utilizing old, depleted oil and gas fields are subject to the same gas migration hazards as discussed above, but are often times more serious. The existing wellbores and well completions were not designed to withstand the high pressures that most gas storage facilities are operated at, nor the cyclical variations in pressure experienced by the seasonal high and low operating pressures. For example, during inventory draw-down the cement seals at the bottom of the casing can fail, causing shoe leaks and other seal damage.

Abandoned wells associated with the prior oil or gas field usage, are difficult, if not impossible to reenter and seal in order to prevent gas leakage. Also, since these wells do not allow direct monitoring, gas seepage can be detected only at the surface. However, the leaking gas can spread out and migrate along fault planes, and/or experience lateral migration within the shallow water table, before ever reaching the surface. This can act to conceal the true dangers of the leaking wells. These problems require the placement of deep soil probes, positioned immediately adjacent to the well bores. Also, gas levels within the near-surface water table require monitoring. Field experience has demonstrated that the near-surface water table can serve as a temporary barrier for the upward migration of gas. Often, the gas will collect below the water tale, and spread out laterally before eventually reaching the surface.

For these reasons, it is important to perform a detailed characterization of the near-surface hydrology, including gas concentrations, free gas volumes and water movement directions. The individual gas constituents (e.g., methane, ethane, propane, etc.) have different solubility levels, and must be accounted for when attempting to characterize the origin of the leaking gases.

Gas fingerprinting studies must account for a number of near-surface gas alterations in order to properly interpret the source of the leaking gas. The primary adjustment factor is to account for the mixing between the native oilfield gas and the gas storage gas during migration using a so-called

mixing line. Also, near-surface mixing with biogenic gas can alter the characterization of the gas.

Underground gas storage facilities are frequently located in urban areas where gas, migrating to the surface can cause serious environmental problems. Examples include the following:

(1) MONTEBELLO GAS STORAGE FIELD, CALIFORNIA

The Montebello Oilfield, located in Southern California, was utilized by a gas company to store large volumes of natural gas in a partially depleted oilfield. Prior to converting the Montebello field to a gas storage facility, many oil wells had been abandoned using standards that were based on 1930's vintage technology. The old oilfield also contains several fault planes that are potential paths for gas migration.

The gas company began storing gas in a portion of the Montebello Oilfield in the early 1960's. By the early 1980's, significant gas seepages were discovered at the surface within a residential housing area. The gas seepages endangered homes, requiring evacuation of families. Some of the homes had to be torn down in order to provide access to leaking wells, that were attempted to be reabandoned. Monitoring of the near-surface water table for gas concentrations was undertaken on an emergency basis. Also, gas was found leaking up under the City Hall front lawn.

Because of the endangerment to the homes, and the huge economic losses suffered by the gas company from the lost gas, this storage facility has been closed.

(2) PLAYA DEL REY GAS STORAGE PROJECT

The Playa del Rey Oilfield was converted into a gas storage field in 1942. Shortly thereafter, storage gas was discovered migrating into the adjoining Venice Oilfield at the reservoir level of approximately 6,000 feet. Gas began migrating when the differential pressure reached approximately 300 psi. The storage field has been operated continuously to the present time, with storage gas pressures reaching approximately 1700 psi. A study, performed by the gas company in 1953, estimated that 25% of the injected gas was migrating to the adjoining Venice Oilfield. The operational procedure is based on capturing as much of the leaking gas as possible, and returning it to the primary storage field on an ongoing basis. This requires

numerous old oil wells to be used as recapture gas wells, in order to return the leaking gas.

Over 200 abandoned oil wells are in the area, which used 1930's era technology for the well completions. High-density housing has been built throughout the area, with many homes constructed directly over the old abandoned wells. Virtually no mitigation measures have been provided to deal with the gas migration hazards.

Recent soil gas studies have revealed gas concentrations as high as 90%, within the near-surface soil conditions. Soil probes and vent wells that have been drilled into the near-surface aquifer have measured gas flow rates as high as 25 to 30 liters per minute. One soil gas measuring expert has characterized the area as having the largest gas seep to be found anywhere in the world.

The City of Los Angeles has only recently begun to require mitigation systems to be installed in new construction, but only in the extremely high gas zones. The lessons learned from the Fairfax gas explosion, and the more recent Hutchinson, Kansas gas explosions have been largely ignored.

CONCLUSIONS

If future disasters are to be averted, careful attention must be given to the monitoring for oilfield gas migration hazards. Furthermore, addressing the health hazards posed by certain chemical constituents such as benzene, toluene and hydrogen sulfide requires much lower detection thresholds to be used for monitoring purposes: within the 1 ppm range. Mitigation systems have not proven to be capable of dealing with these extreme hazards.

The main conclusions to be drawn from this paper can be summarized as follows:

1) The primary force controlling the migration of gas to the surface is the difference between the specific weight of water and that of gas (viz., the buoyancy force).

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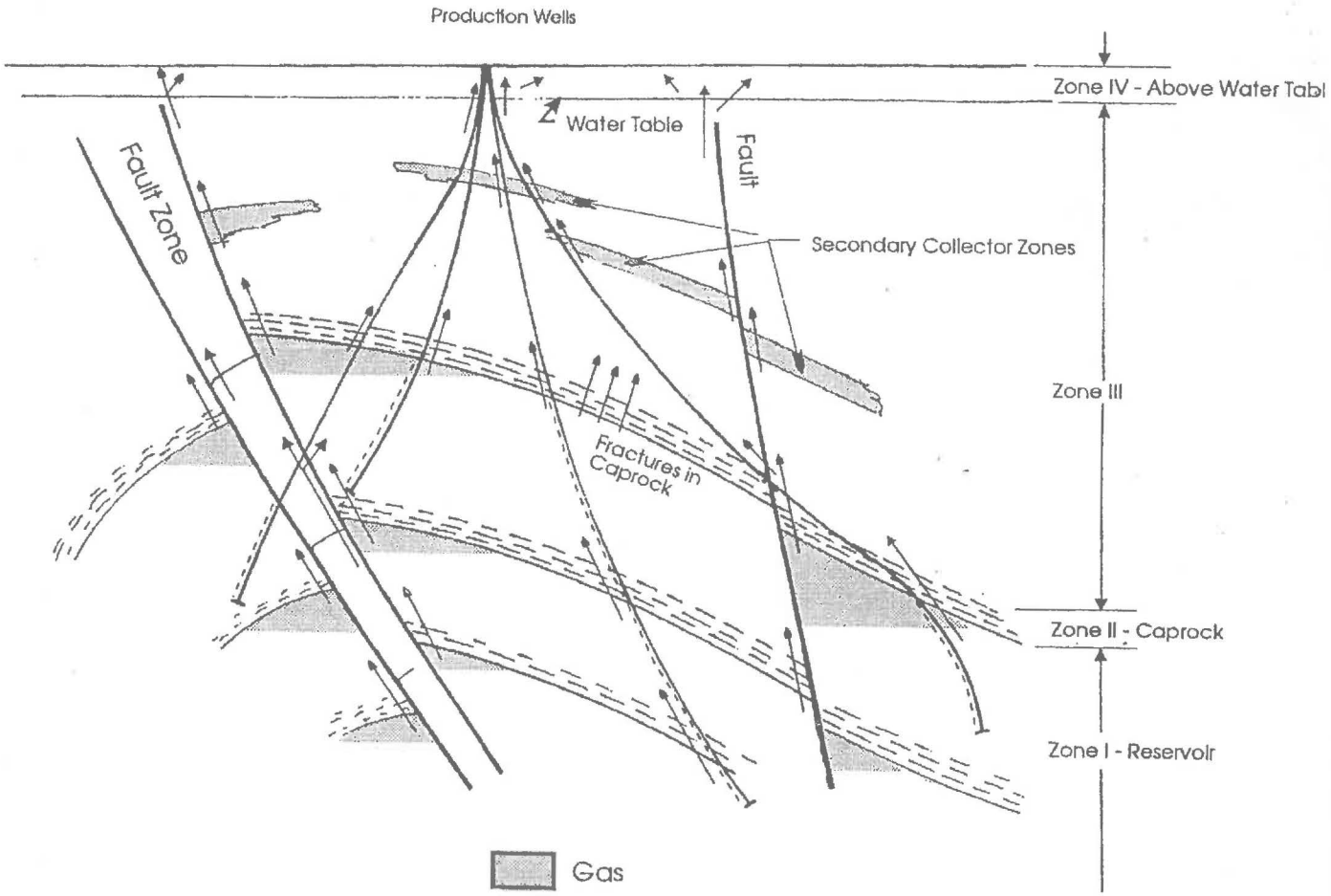


POTENTIAL PATHS OF GAS MIGRATION

FIGURE 1.

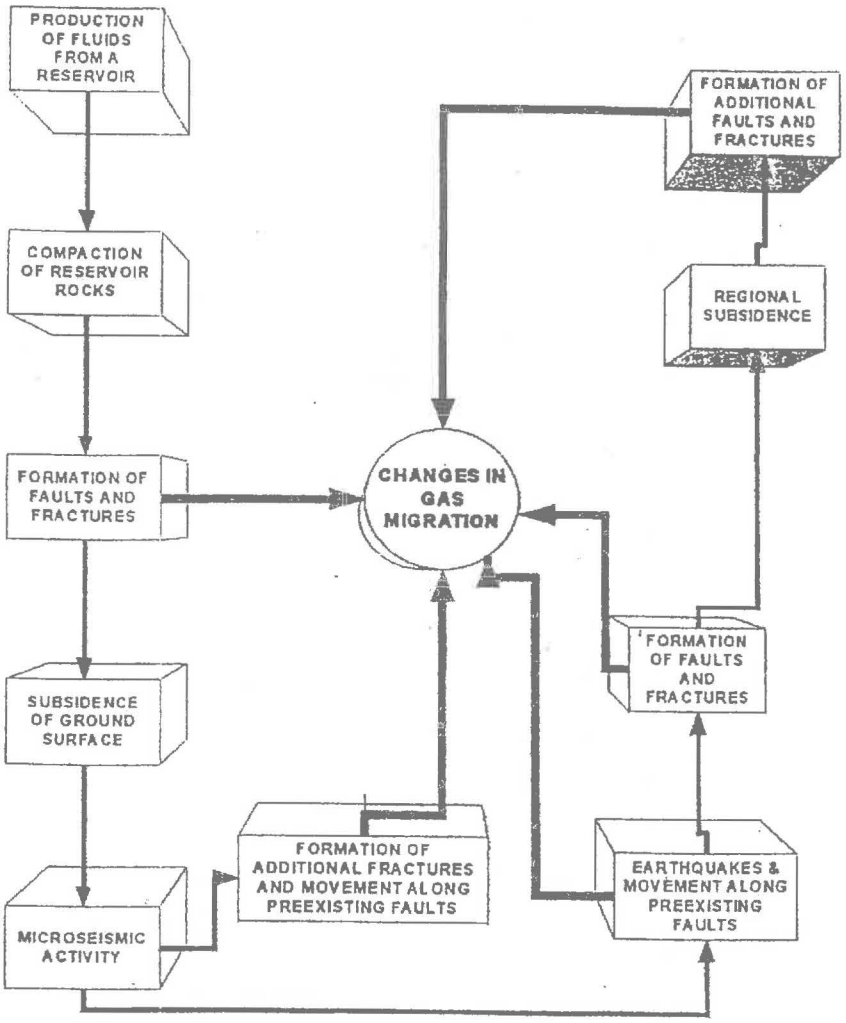


FIGURE 2. Schematic diagram of system relationships among the production of fluids, compaction, subsidence, and seismic activity.

Grassroots Coalition 10/15/19
Climate, Energy; Com. Motion 19-11-24

THE ENVIRONMENTAL AND HEALTH HAZARDS POSED TO THE RESIDENTS OF PLAYA DEL REY, MARINA DEL REY AND PLAYA VISTA BY THE UNDERGROUND GAS STORAGE AND OILFIELD OPERATIONS OF SOUTHERN CALIFORNIA GAS COMPANY

[TESTIMONY BEFORE THE CALIFORNIA PUBLIC UTILITIES COMMISSION]

BY: BERNARD ENDRES, Ph.D.

DATE: APRIL 21, 2003

ADMINISTRATIVE LAW JUDGE: CAROL A. BROWN

LOCATION: LOS ANGELES OFFICE OF THE CALIFORNIA PUBLIC UTILITIES COMMISSION
320 W. 4TH STREET, SUITE 500
LOS ANGELES, CA 90013

The underground gas storage facility operated by Southern California Gas company (SOCALGAS) at Playa del Rey was placed into operation in 1942 (hereinafter "Gas Storage Facility"). Natural gas is transported into the facility by pipeline from both out-of-state and in-state suppliers. The gas is compressed under high pressure and injected into the partially depleted Playa del Rey oilfield.

The Playa del Rey oilfield, and the adjoining Venice Oilfield, were extensively explored and produced, beginning in the 1930's, with over two hundred (200) wells drilled into the underlying rock formation (see Exhibit A). In 1942, the Federal Government decreed that the Playa del Rey oilfield would be converted into an underground gas storage facility to serve the energy requirements of the nearby aircraft industries during World War II. The Federal decree specified the exact boundaries within the oilfield where the gas was to be stored. However, upon initial injection of the gas, and upon reaching a reservoir pressure of approximately 700 pounds per square inch, the storage gas began migrating into an adjoining oilfield area, then operated by Union Oil Company. This adjoining area is often described as the "Gas Cap" area within the historical records that document this serious gas migration problem.

During the time period that Union Oil Company continued to operate the "Gas Cap" area wells, there was an agreement between SOCALGAS and Union Oil Company that all of the gas produced by Union Oil Company from their wells would be transported by pipeline back to the primary gas storage facility. An allocation was made that specified the percentage of gas that was "native gas" and the percentage that was "storage gas." Eventually, SOCALGAS acquired all of the mineral rights, and all of the ownership rights over the "Gas Cap" area wells from Union Oil Company. These wells continue to be operated as gas retrieval wells, to this day, by SOCALGAS.

In the 1970's, SOCALGAS discovered that many of the old wells in the "Gas Cap" area were leaking gas to the surface. Noise logs and surface casing pressures revealed this leakage problem to be widespread. From an environmental and health hazard perspective, this gas leakage over the years has created very serious soil gas saturation in the overlying areas.

Many of the old leaking wells, especially in the "Gas Cap" area, are interconnected with a highly permeable gravel zone near the surface, known as the "50-Foot Gravel." This gravel zone was laid down by the flow of the old Los Angeles riverbed, which extends eastward along the approximate alignment of the current Ballona flood control channel. Also, this gravel

zone has an updip geological formation, which facilitates gas migration to the east. Furthermore, tidal forces exerted within the gravel zone contribute to the lateral spread of the leaking oilfield gases.

Soil gas probes that have been extended into the "50-Foot Gravel" have measured flow rates of oilfield gases between 20 and 30 liters per minute. The presence of helium within the gas has confirmed that, at least, a component of the leaking gas is from the gas storage field. Unquestionably, the enormous levels of gas that have been discovered in the "50-Foot Gravel" are coming from the underlying oilfield, as confirmed by isotopic gas fingerprinting studies.

The sound log studies performed by SOCALGAS confirm that the old wellbores are the primary pathway by which the oilfield gas is reaching the surface. The chemical compounds found in the seeping gases exactly match the chemicals contained within the crude oil and the storage gas. This includes benzene, toluene, ethyl benzene, zylenes and hexane. All of these chemicals are listed by the Federal Government as "Hazardous Air Pollutants" (HAPS) under Title 42 United States Code Section 7412(b). Benzene is a known human carcinogen in which exposure to even small amounts can cause serious health problems.

Both benzene and toluene are on the Governor's list of Toxic Chemicals as set forth in Health and Safety Code Section 25249.6. Also, Health and Safety Code Section 39655(a) defines a "Toxic Air Contaminant" to be inclusive of "Hazardous Air Pollutants" under Federal Law. Accordingly, the Gas Storage Facility is subject to the reporting and public disclosure requirements of the Air Toxic Hot Spots Information and Assessment Act as codified in Health and Safety Code Sections 44300 et seq., which will be discussed more fully herein. This discussion will also address the release of large quantities of Toxic Air Contaminants (Hazardous Air Pollutants under Federal Law) at the locations of the compressor station and at the tank farm area.

In order to highlight this discussion, an incident that occurred on April 2, 2003 will be discussed regarding the release of toxic air contaminants from the compressor station area of the Gas Storage Facility. On April 2, 2003 beginning at approximately 6:10 a.m., and lasting for approximately 25 minutes, high pressure gas along with oilfield condensate "mist" was sprayed into the air in the residential neighborhood surrounding the compressor station. SOCALGAS estimated that 4 barrels of condensate and 2 million cubic feet of gas were released to the atmosphere, causing oily

residues to collect on cars and homes in the residential neighborhood southeast of the compressor station.

The aftermath has revealed that SOCALGAS failed to comply with various State and Federal laws regarding these chemical releases. For example, Title 42 United States Code Section 7412, Subpart(r) titled "Prevention of Accidental Releases" sets forth the applicable requirements. This is made clear by Subpart(r)(1), which states in relevant part:

> "It shall be the objective of the regulations and programs authorized under this subsection to prevent the accidental release and to minimize the consequences of any such release of any substance listed pursuant to paragraph (3) or any other extremely hazardous substance." (emphasis added)

Paragraph (3) refers to the list of "Hazardous air Pollutants" that includes benzene, toluene, ethyl benzene, zylenes, hexanes, plus others.

Subpart(r)(1) of the Federal Code continues by stating:

> "The owners and operators of stationary sources producing, processing, handling or storing such substances have a general duty in the same manner and to the same extent as Section 654 of Title 29, to identify hazards which may result from such releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to **prevent releases**, and to minimize the consequences of accidental releases which do occur. (emphasis added)

This is especially important as it relates to the condensate releases at the Playa del Rey facility.

The term "condensate," as used in the petroleum industry, refers to oilfield chemicals that are in the vapor state while under the high-pressure conditions of the reservoir. However, when these chemicals are brought to the surface, and the pressure is reduced, they liquefy (viz., explaining the term condensate or condense). Liquid condensates contain a high proportion of aromatic hydrocarbons that include benzene, toluene, ethyl benzene and zylenes. Accordingly, a release of condensates from the vent stacks in the

form or mist creates a very serious health risk to the surrounding community.

Condensates forming within the pipelines that interconnect the tank farm with the compressor station have been a problem for many years at the Playa del Rey facility. The April 2, 2003 incident regarding the release of condensate mist to the atmosphere has not been an isolated incident. In fact, the intentional venting of large quantities of storage gas to the atmosphere — carried out for many years — frequently contained condensate "mist" of the same type released during the above described April 2 incident.

SOCALGAS failed to investigate the hazardous nature of these releases, and has continued to deny that there has been a health and safety problem. Their typical response has been that these gases rise harmlessly into the air, choosing to ignore that the Hazardous Air Pollutants are all heavier than air. A video was produced by SOCALGAS and presented at a PUC tour of the gas storage facility, several years ago. This video was titled, "Ready When You Are." This video was intended to perpetrate the "myth" that gases being released from the gas storage facility are harmless.

Title 42 United States Code Section 7412, Subpart(r)(7)(A)(ii) provides in relevant part that:

> "The regulations under this subparagraph shall require the owner or operator of stationary sources at which a regulated substance is present in more than a threshold quantity to prepare and implement a risk management plan to detect and prevent or minimize accidental releases of such substances from the stationary source, and to provide a prompt emergency response to any such releases in order to protect human health and the environment." (emphasis added)

The crude oil within the Playa del Rey oilfield contains a significant percentage of aromatic hydrocarbons. When high-pressure storage gas is injected into the oilfield these aromatic components volatize into the gas stream. Accordingly, when the gas is removed from storage, it is enriched, especially in benzene and toluene. Furthermore, in the withdrawal of gas from storage, condensates are carried to the surface and liquefy within the surface pipelines. As previously mentioned, these condensates are especially enriched, especially in benzene and toluene.

These condensates have also created serious problems within the lateral pipelines that interconnect the gas storage wells with the compressor station and the tank farm. These pipelines have experienced many leaks over the years, and frequently go undiscovered until a citizen complaint is made. The combination of the condensates, and the frequent occurrence of hydrogen sulfide within the pipelines, creates a highly corrosive environment leading to a prevalence of leaks. These pipelines pass under the streets throughout the residential area of Playa del Rey, and have frequently required tearing up the streets for repairs. One woman claimed that the driveways could not be constructed of concrete because of the need to provide access to the pipelines. Some residents have complained of gas leaking into their homes from these pipelines. Later repairs made by SOCALGAS confirmed the presence of the leaks.

Another major health risk from the Gas Storage Facility has been the air toxic emissions from the compressor engines. These engines burn millions of cubic feet per year of storage gas during the compression phase of the gas injection into the oilfield reservoir. The combustion products include significant quantities of benzene, toluene and formaldehyde, plus other air toxics that are inclusive of polycyclic aromatic hydrocarbons, and particulate matter. These are vented into the air from the compressor station in the immediate vicinity of the residential homes in the bluffs area of Playa del Rey.

The emission of organic vapors from the compressor station is large enough to "trigger" the requirements imposed by Health and Safety Code Section 44300 et seq., which requires:

1) An Air Toxics Emissions Inventory prepared pursuant to Health and Safety Code Section 44340(a).
2) A Health Risk Assessment pursuant to Health and Safety Code Section 44361, including public participation.
3) A Risk Reduction Plan pursuant to Health and Safety Code Section 44363, that would address the cancer and non-cancer health risks to the surrounding community.

It is important to note that these requirements closely parallel the previously discussed Federal requirements. This is especially true regarding the health risk assessment and risk reduction that is intended to reduce the health and safety risks posed to the surrounding community. State Law is allowed to be more restrictive than Federal Law regarding the control of Toxic Air Contaminants. The State Legislature in Health and Safety Code Section

44301(d) has succinctly stated the primary concern with the Gas Storage Facility:

> ". . . emissions from specific sources may expose individuals and population groups to elevated risks of adverse health effects, including, but not limited to, cancer and contribute to the cumulative health risks of emissions from other sources in the area." (emphasis added)

The Gas Storage Facility has contributed cumulative health risks in its own manner of operation. For example, residents living in the Bluffs Area of Playa del Rey are subjected to health risks posed by the following sources:

1) Intentional Venting of Toxics: Intentional venting of storage gas from the blowdown stacks and pressure release valves, including condensate mist blown into the air.
2) Accidental Venting of Toxics: Accidental venting of condensate mist and storage gas as a result of equipment failures and unreliable safety back-up measures.
3) Combustion Products Venting of Toxics: Compressor station generation and release of toxic air contaminants through the vent stacks.
4) Fugitive Emissions: Toxic air contaminants released from the large number of storage tanks, scrubbers, oil and gas separators, and brine water handling facilities.
5) Lateral Line Leaks: Pipeline leaks from the myriad of lateral lines that pass through under the residential streets and interconnect the storage wells with the compressor station and the tank farm.
6) Surface Casing Gas Venting: Gas that leaks from the reservoir along well bores and into the surface casing of individual wells is routinely blown to the atmosphere next to residential structures. This gas has been shown to contain enhanced concentrations of benzene and toluene. The gas within the surface casing regularly builds to substantial pressures, necessitating its release to the atmosphere.
7) Leaks to the Surface Along Well Bores: Many of the old, abandoned wells have experienced serious leakage problems of "native" and "storage" gas to the surface. This has entered the shallow water

aquifers, and saturated the soil with an array of oilfield chemicals. The near surface waters contain high levels of sulfate, which has nurtured the generation of hydrogen sulfide, by sulfate reducing bacteria. The hydrogen sulfide is not only a serious health hazard, but has contributed to a serious corrosion problem with the steel piping and concrete used to contain the high-pressure storage gas. The leaking gas follows the path of least resistance, allowing the gas to move along underground utility lines and into homes.

These cumulative health risks are evident in the high incidence of cancer, non-cancer and birth defects experienced by those who are, or were, long-term residents of the Playa del Rey area. Namely, those who resided over the gas storage field, and near the compressor station and tank farm. In some instances, there have been multiple cancers within the same household. Frequently, these illnesses have been diagnosed as being related to blood disorders (e.g., low blood platelet counts) that are directly attributable to exposure to benzene, toluene and other oilfield chemicals.

Residents of the area have made many complaints to SOCALGAS regarding the noxious odors emanating from the Gas Storage Facility. The South Coast Air Quality Management District (AQMD) has issued many citations to SOCALGAS for violation of permitting requirements associated with air toxic releases from the tank farm and compressor engines. In some instances, the same piece of equipment was repeatedly cited for violations of air toxic releases, demonstrating a disregard by SOCALGAS of the health risks posed to the surrounding community.

The corporate culture of SOCALGAS has been to deny the existence of a health and safety problem with the gas storage field. For many years, they have proclaimed that there is no vertical gas migration from the gas storage field. This is patently false!

Inventory studies have revealed that the gas storage field is leaking approximately 100 million cubic feet of gas per year. During the time that the gas storage field has been in operation (viz., over 60 years) this equates to over 6 billion cubic feet of gas lost from the reservoir. A considerable portion of this gas has leaked into the adjoining Venice oilfield, and is now endangering those homes built over the old wells. This is especially dangerous since the leaking gas has created both an explosion and a health hazard. Construction was undertaken over these old wells without installing even the most basic mitigation measures, such as gas detectors, gas venting

systems, or spark resistant electrical wiring (viz., as required by the National Electrical Code).

Many of the lots were sold by SOCALGAS with a provision in the contract that all future liability for the old oil/gas wells was being assumed by the purchaser, including an indemnification and hold harmless clause drafted to protect SOCALGAS from any future liability for the well. Where an activity involving possible danger to the public is carried out by a public utility, it cannot delegate this responsibility to another. See Snyder vs. Southern California Edison Company 44 Cal.2d 793, 285 P2d 912 in which the California Supreme Court held that Southern California Edison Company could not delegate responsibility to an independent contractor to put or maintain structures, including poles, in a reasonably safe condition. By analogy, SOCALGAS cannot delegate responsibility for the monitoring and maintenance of the old wellbores to the purchasers of the proposed lot sales, nor the prior lot sales that were not approved by the PUC.

The conduct of selling lots containing abandoned oil and gas wells is also a violation of Public Utility Code Section 451 which provides in pertinent part that:

> "Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities . . . as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public." (emphasis added)

SOCALGAS has proclaimed that the abandoned wells are monitored for leaks on a semi-annual basis. This claim cannot be supported since the contract of sale for the lots does not provide for a right of reentry to the property, nor does it provide for a surface easement to regain access to the abandoned wells to repair well leaks.

Clearly, this responsibility has been delegated to the lot purchaser, with the consequence that any house built on the lot will have to be torn down to repair any well leaks. The consequences of ongoing deterioration of the well seals from corrosion, seismic activity, and repressurization of the underlying reservoir have not been disclosed to the purchaser. Also, the purchaser has not been told that the oilfield gases migrating up under his property contain benzene, toluene and other hazardous chemicals known to the State of California to cause cancer, birth defects, reproductive harm and other health hazards.

CONCLUSIONS

It is imperative and urgent that the following steps be taken in order to protect the public health and safety of the residents of Playa del Rey, Marina del Rey and Playa Vista:

1) The installation of a gas-monitoring well system and a shallow gas collection system — fashioned after that used at Montebello — must be implemented now.

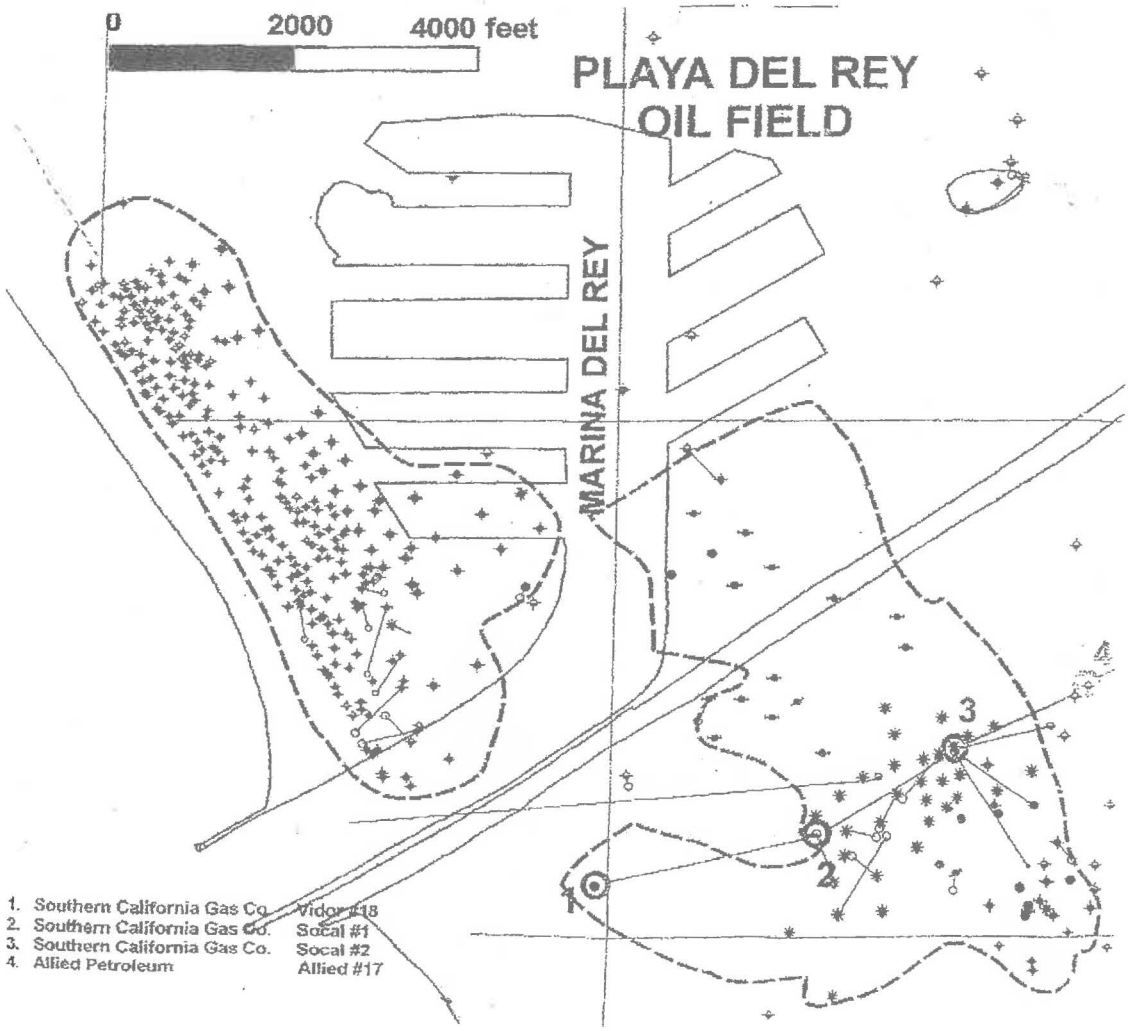
2) An independent team must be assembled to evaluate the well leakage problems, identify what wells are leaking now, and install appropriate monitoring equipment to protect against leaks in the future. This will require a complete disclosure of well records, and related information by SOCALGAS.

3) Perform a risk assessment and inventory accounting of all hazardous air pollutants being released from the gas storage facility, including emissions from compressor station, tank farms, lateral pipelines, wellheads, and leaking gases into the soil and groundwater. This must include public participation as required by Federal and State laws.

4) Determine what remedial action is necessary to protect the residents who were sold lots without PUC approval, and are now faced with a serious risk of explosive and toxic gases migrating up the old wellbores and endangering their homes. Installation of continuous gas monitoring equipment in the location of the wellheads should be a minimum requirement.

5) There must be disclosure to the community of those who are at the greatest risk of suffering health consequences from the release of toxics from he gas storage facility, including those living very close to the compressor station, the tank farm, and the individual wells where surface casing gas is released to the air.

EXHIBIT A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OIL FIELD
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2. Southern California Gas Co. Socal #1
3. Southern California Gas Co. Socal #2
4. Allied Petroleum Allied #17

TOTAL P.12