ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
REBECCA GEBHART, Interim Director

DEPARTMENT OF ENVIRONMENTAL HEALTH
LOCAL OVERSIGHT PROGRAM (LOP)
For Hazardous Materials Releases
1131 HARBOR BAY PARKWAY, SUITE 250
ALAMEDA, CA 94502
(510) 567-6700
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December 22, 2016R

Ms. Susan Kirkpatrick
Greyhound Lines, Inc.
c/o FirstGroup America, Inc.
600 Vine Street, Suite 1400
Cincinnati, OH 45202
(Sent via electronic mail to: Susan.Kirkpatrick@firstgroup.com)

Subject: Conditional Pilot Testing Approval and Request for Work Plan; Fuel Leak Case No. RO0000074 and GeoTracker Global ID T0600100666, Oakland Bus Terminal, 2103 San Pablo Avenue, Oakland, CA 94608

Dear Ms. Kirkpatrick:

Alameda County Department of Environmental Health (ACDEH) staff has reviewed the case file for the subject site including the *Groundwater Monitoring Report,* dated October 7, 2016, and the *Corrective Action Plan Addendum,* dated October 25, 2016. The reports were prepared and submitted by Green Star Environmental (Green Star) on your behalf. Thank you for submitting them.

The groundwater monitoring report documented groundwater concentrations up to 15,000 micrograms per liter (µg/l) Total Petroleum Hydrocarbons TPH as gasoline (TPHg), 1,000 µg/l TPH as diesel (TPHd), 790 µg/l benzene, 180 µg/l ethylbenzene, and 40 µg/l naphthalene. In general groundwater concentrations of TPHg, TPHd, and benzene, and other constituents increased substantially during the August 2016 groundwater monitoring event compared to several previous monitoring events. Thus groundwater concentrations do not appear to be decreasing beneath the site and remaining residual mass beneath the UST excavation but above groundwater continue to migrate from soil to groundwater with sufficient infiltration. The Corrective Action Plan Addendum (CAP Addendum) proposed modifications consistent with comments contained in the previous ACDEH directive letter dated December 7, 2015, and proposed an aquifer pump test from proposed wells MP-1 and MP-2, a pilot the installation of four injection wells, an injection pilot test to verify injection effectiveness, and collection of soil samples in the 0 to 5 and 5 to 10 foot intervals, as well as deeper intervals, generally consistent with evaluation of the site under the Low Threat Closure Policy (LTCP).

In general ACDEH is in agreement with the scope of the proposed pilot test; however, at this juncture, it is also appropriate to place a hold on the scope of work in order to collect additional data at the site to determine specifically how the site fits within the LTCP. This has not been fully done at the site yet. Consequently, the technical comments below are grouped into two sections, those commenting on the remedial pilot testing, and those requesting a work plan to collect data to evaluate the site under the LTCP.

Therefore ACDEH requests that you address the following technical comments and send us the documents requested below.

TECHNICAL COMMENTS

1. **Pilot Test Work Plan Modifications –** The referenced work plan proposes a series of actions with which ACDEH is in general agreement of undertaking, and may provide further comments; however, as indicated above, ACDEH requests this scope of work be placed on hold prior to the collection of additional data for LTCP analysis of the site.

2. **Data Gap Work Plan Request –** As indicated above to adequately evaluate the site under the LTCP, additional data is required. This section of this letter addresses areas that appear to require further data collection for evaluation of the site under the LTCP, as follows:

a. LTCP Media Specific Criteria for Groundwater – To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed in the policy.

Our review of the case files indicates that insufficient data collection and analysis has been presented to support the requisite characteristics of plume stability or plume classification as follows:

i. Length of Groundwater Plume and Sensitive Receptors – At present the downgradient extent of the dissolved-phase groundwater plume has not been defined to water-quality objectives. During the most recent groundwater monitoring event, the most downgradient well, ES-8, contained 580 micrograms per liter (µg/l) TPHg, but less than 1.0 µg/l benzene and methyl tert butyl either (MTBE). Water-quality objectives were defined by the LTCP to be 100 µg/l for TPHg, and 5 µg/l benzene and MTBE. Further, the installation of additional groundwater monitoring wells appears to be limited by the presence of Interstate I-980 immediately west of well ES-8. Therefore, it appears reasonable to utilize tools contained in the LTCP to define worst-case plume lengths downgradient of ES-8.

Table 1 of the *Technical Justification for Groundwater Media-Specific Criteria* (SWRCB, April 24, 2012) provides the Average, 90th Percentile, and Maximum Plume lengths for TPHg, benzene, and methyl tert butyl either (MTBE). ACDEH requests the generation of a figure depicting the average, 90th percentile, and maximum plume lengths for TPHg in the downgradient groundwater flow direction(s), and subsequently, consistent with the LTCP, a search for sensitive receptors within 1,000 feet of the areas defined by those anticipated plume lengths. This is requested to include older privately owned water supply wells that are not known to the State, but are well documented in west Oakland (see attached Figure 5 from the *Groundwater Study and Water Supply History of the East Bay Plain, Alameda and Contra Costa Counties, CA*, The Friends of the San Francisco Bay Estuary, Norfleet Consultants, June 15, 1998). This was requested of the environmental case three blocks to the south of the subject site (Chevron #9-4800; RO0000342, and Global Id T0600102076) and one well was identified to the northwest of that site in a cross-gradient position that may be downgradient of the subject site.

This may require a door to door survey or the mailing of a public survey flyer to addresses within the area defined by the potential LTCP plume areas, plus potential receptors within 1,000 feet of the predicted plume lengths. Should the later approach be considered, please request examples from ACDEH and submit a draft copy of the flyer to ACDEH for comment and distribution on ACDEH letterhead.

It is anticipated that the identification of sensitive receptors will assist in determining the need for corrective actions and the level of protectiveness required for them during implementation.

Alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Groundwater in the focused SCM described in Technical Comment 2d below.

b. LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air – The LTCP describes conditions, including bioattenuation zones, which if met will assure that exposure to petroleum vapors in indoor air will not pose unacceptable health risks to human occupants of existing or future site buildings, and adjacent parcels. Appendices 1 through 4 of the LTCP criteria illustrate four potential exposure scenarios and describe characteristics and criteria associated with each scenario.

Our review of the case files indicates that the site data collection and analysis fail to support the requisite characteristics of one of the four scenarios. Specifically, soil vapor sampling protocols have not been described and do not appear to have conformed with appropriate

Department of Toxic Substances Control (DTSC) protocols as indicated in work plans or as previously requested by ACDEH. The use of tracer gas, shrouds, shroud ports, shroud atmosphere test results, shut in tests, etc. remains undocumented. Additionally, during the October 2010 soil vapor sampling event samples were not collected from three of the four vapor borings due to low flow conditions, and the sample which was collected was not collected at a depth of five feet below the building foundation to meet the LTCP data sampling requirements. For example if the building is a slab on grade, with an 18-inch perimeter footing, the vapor wells must be at a depth of approximately 6.5 feet bgs. Please investigate the depth of the foundation of the existing building in order to propose an appropriate vapor sampling depth in the requested work plan.

Please present a strategy in the Data Gap Investigation Work Plan described in Technical Comment 2d below to collect additional soil gas data potentially using low flow techniques described in DTSC documents.

Alternatively, please provide justification of why the site meets the requisite bioattenuation zone characteristics discussed in the LTCP in areas adjacent to the site building to satisfy the Media-Specific Criteria for Vapor Intrusion to Indoor Air in a focused SCM that assures that exposure to petroleum vapors in indoor air will not pose unacceptable health risks to occupants of onsite buildings.

Please note, that if direct measurement of soil gas is proposed, ensure that your strategy is consistent with the field sampling protocols described in the DTSCs *Final Vapor Intrusion Guidance* (October 2011) and *Active Soil Gas Advisory* (April 2012). Consistent with the guidance, ACDEH requires installation of permanent vapor wells to assess temporal and seasonal variations in soil gas concentrations, or use of low flow techniques as described in DTSC documents. These vapor concentrations will additionally provide baseline vapor concentrations prior to implementation of any appropriate corrective actions.

c. LTCP Media Specific Criteria for Direct Contact and Outdoor Air Criteria – The LTCP describes conditions where direct contact with contaminated soil or inhalation of contaminants volatized to outdoor air poses a low threat to human health. According to the policy, release sites where human exposure may occur satisfy the media-specific criteria for direct contact and outdoor air exposure and shall be considered low-threat if the maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 for the specified depth bgs. Alternatively, the policy allows for a site specific risk assessment that demonstrates that maximum concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health, or controlling exposure through the use of mitigation measures, or institutional or engineering controls.

Our review of the case files indicates that insufficient data collection and analysis has been presented to satisfy the media-specific criteria for direct contact and outdoor air exposure. Specifically, no shallow analytical data (0 to 5 foot interval) is available in proximity to the bus terminal, and limited soil analytical data is available in the 5 to 10 foot depth interval within the source area at the site. Additionally, the lateral extent of soil contamination in the 0 to 5 and the 5 to 10 foot depth intervals outside the UST excavation, or beneath potential sources at the former dispensers has not been defined or determined.

While one intent of the proposed extraction wells and injection wells was to collect this data, it appears reasonable to collect the data prior to the installation the proposed wells in order to determine the need for corrective actions within the context of the LTCP.

Therefore, please present a strategy in the Data Gap Work Plan requested in Technical Comment 2d below to collect sufficient data to satisfy the direct contact and outdoor air exposure criteria in the areas of likely dispenser locations. Sample and analyze soil within the five and ten foot intervals, and determine the vertical extent of the soil contamination, at the groundwater interface, lithologic changes, and at areas of obvious impact. Additionally,

collect a groundwater sample from each boring and propose the requisite analysis including naphthalene and polycyclic aromatic hydrocarbons (PAH) analysis.

Alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Direct Contact and Outdoor Air Exposure in the focused SCM described in Technical Comment 2d below that assures that exposure to petroleum constituents in soil will have no significant risk of adversely affecting human health.

d. Data Gap Investigation Work Plan and Focused Site Conceptual Model – Please prepare Data Gap Investigation Work Plan to address the technical comments listed above. Please support the scope of work in the Data Gap Investigation Work Plan with a focused SCM and Data Quality Objectives (DQOs) that relate the data collection to each LTCP criteria. For example please clarify which scenario within each Media-Specific Criteria a sampling strategy is intended to apply to.

In order to expedite review, ACDEH requests the focused SCM be presented in a tabular format that highlights the major SCM elements and associated data gaps, which need to be addressed to progress the site to case closure under the LTCP. Please see the Attachment A "Site Conceptual Model Requisite Elements". Please sequence activities in the proposed revised data gap investigation scope of work to enable efficient data collection in the fewest mobilizations possible.

3. Groundwater Monitoring - Please continue to conduct semi-annual groundwater monitoring at the site. Please continue to conduct the semi-annual sampling in the months of February and August of a year, in order to capture periods of high and low groundwater levels that may elucidate the range of groundwater contaminant concentrations. Please submit the semi-annual reports by the dates identified below.

SUBMITTAL ACKNOWLEDGEMENT STATEMENT

Please note that ACDEH has updated Attachment 1 with regard to report submittals to ACDEH. ACDEH will now be requiring a Submittal Acknowledgement Statement, replacing the Perjury Statement, as a cover letter signed by the Responsible Party (RP). The language for the Submittal Acknowledgement Statement is as follows:

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's Geotracker Website.

Please make this change to your submittals to ACDEH.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACDEH ftp site (Attention: Mark Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with the specified file naming convention below, according to the following schedule:

- **March 3, 2017** – Data Gap Investigation Plan and Focused Site Conceptual Model
  (File to be named: RO74_WP_SCM_R_yyyy-mm-dd)
- **April 21, 2017 –** Semi-Annual Groundwater Monitoring
  File to be named: RO74_GWM_R_yyyy-mm-dd
- **October 20, 2017 –** Semi-Annual Groundwater Monitoring
  File to be named: RO74_GWM_R_yyyy-mm-dd

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible

party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm. If your email address is not listed on the first page of this letter, ACDEH is requesting your email address to help expedite communications and to help lower overall costs. Please provide that information in your next submittal.

Thank you for your cooperation. Should you have any questions or concerns regarding this correspondence or your case, please call me at (510) 567-6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,

Digitally signed by Mark Detterman
DN: cn=Mark Detterman, o=ACEH, ou=ACEH, email=mark.detterman@acgov.org, c=US
Date: 2016.12.29 14:56:44 -08'00'

Mark Detterman
Senior Hazardous Materials Specialist

Enclosures: Attachment 1 - Responsible Party(ies) Legal Requirements/Obligations & ACDEH Electronic Report Upload (ftp) Instructions

Attachment A – Site Conceptual Model Requisite Elements

Figure 5 *Groundwater Study and Water Supply History of the East Bay Plain, Alameda and Contra Costa Counties, CA*, The Friends of the San Francisco Bay Estuary, Norfleet Consultants, June 15, 1998

cc: Leonard Albright, Green Star Environmental, 354 McDonnell Street, Suite 9, Lewisville, TX 75057 (Sent via electronic mail to: LCAlbright@greenstarenvironmental.com)

Terrance Harriman, Green Star Environmental, 354 McDonnell Street, Suite 9, Lewisville, TX 75057 (Sent via electronic mail to: TAHarriman@greenstarenvironmental.com)

Brian Millman, Advanced GeoEnvironmental, Inc, 837 Shaw Road, Stockton, CA 95215 (Sent via electronic mail to BMillman@advgeoenv.com)

Dilan Roe, ACDEH, (Sent via electronic mail to: dilan.roe@acgov.org)
Paresh Khatri, ACDEH; (Sent via electronic mail to: paresh.khatri@acgov.org)
Mark Detterman, ACDEH, (Sent via electronic mail to: mark.detterman@acgov.org)
Electronic File; GeoTracker

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

Alameda County Department of Environmental Health's (ACDEH) Environmental Cleanup Oversight Programs, Local Oversight Program (LOP) and Site Cleanup Program (SCP) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program File Transfer Protocol (FTP) site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to SCP sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website (http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/) for more information on these requirements.

ACKNOWLEDGEMENT STATEMENT

All work plans, technical reports, or technical documents submitted to ACDEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's GeoTracker website." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6731, 6735, and 7835) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately licensed or certified professional. For your submittal to be considered a valid technical report, you are to present site-specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this case meet this requirement. Additional information is available on the Board of Professional Engineers, Land Surveyors, and Geologists website at: http://www.bpelsg.ca.gov/laws/index.shtml.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, late reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

Alameda County Environmental Cleanup Oversight Programs (LOP and SCP)	**REVISION DATE:** December 1, 2016
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010; May 15, 2014, November 29, 2016
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SCP) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**.
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to deh.loptoxic@acgov.org.
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Open File Explorer using the Windows  key + E keyboard shortcut.
      i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) On the address bar, type in ftp://alcoftp1.acgov.org.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive)
   d) Click Log On.
   e) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   f) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

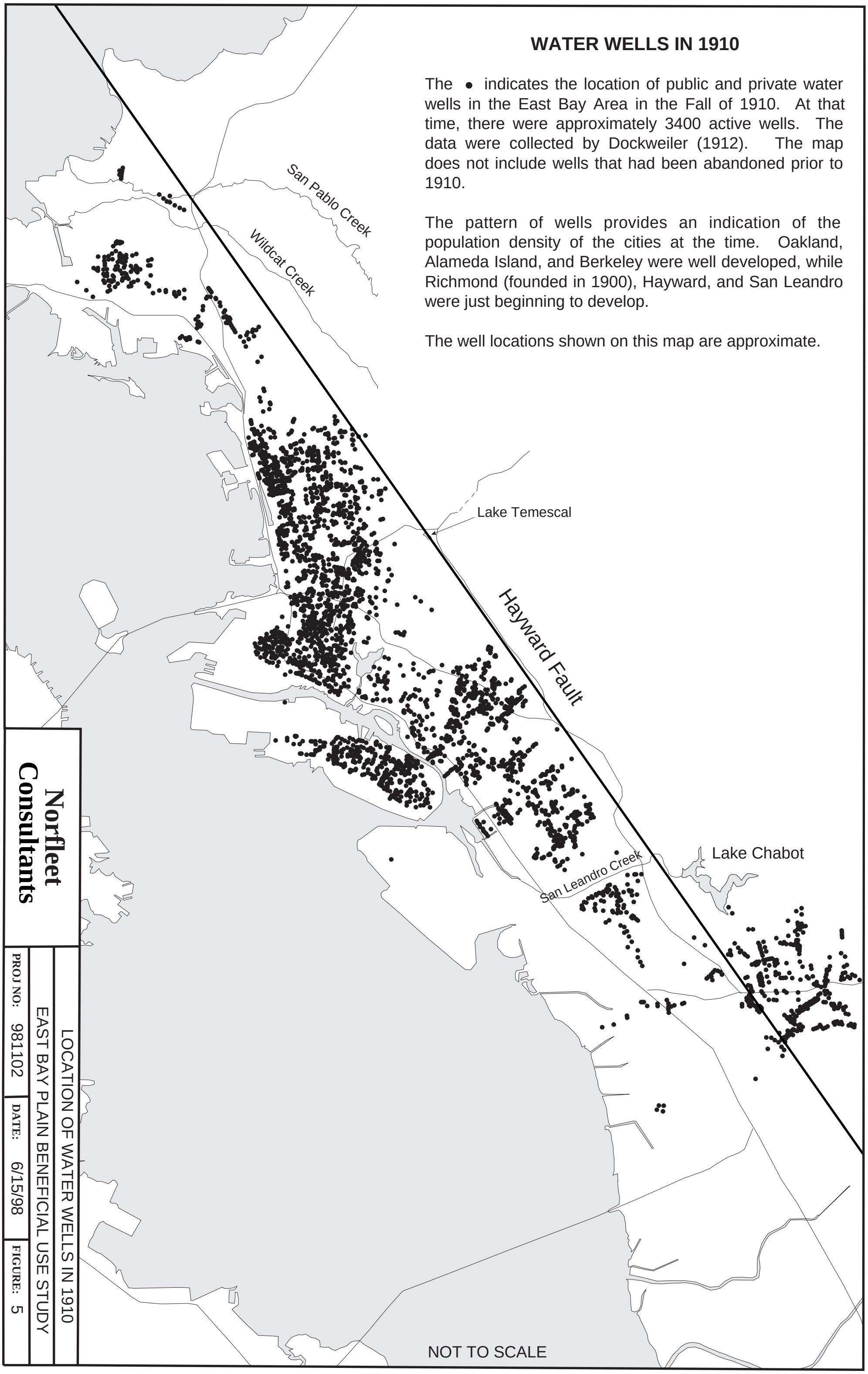
3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

WATER WELLS IN 1910

The • indicates the location of public and private water wells in the East Bay Area in the Fall of 1910. At that time, there were approximately 3400 active wells. The data were collected by Dockweiler (1912). The map does not include wells that had been abandoned prior to 1910.

The pattern of wells provides an indication of the population density of the cities at the time. Oakland, Alameda Island, and Berkeley were well developed, while Richmond (founded in 1900), Hayward, and San Leandro were just beginning to develop.

The well locations shown on this map are approximate.



Norfleet Consultants

LOCATION OF WATER WELLS IN 1910

EAST BAY PLAIN BENEFICIAL USE STUDY

PROJ NO:	DATE:	FIGURE:
981102	6/15/98	5