R0497

TESORO

Tesoro Petroleum Companies, Inc.
3450 South 344th Way, Suite 201
Auburn, WA 98001-5931
253 896 8700
253 896 8887 Fax

November 24, 2004

Ms. Eva Chu
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, room 250
Alameda, California 94502

Mr. Steven Ritchie
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

RE: Ozone Sparge Well Installation Work Plan
44 Lewelling Blvd. San Lorenzo, California – Tesoro Station No. 67107

Dear Ms. Chu and Mr. Ritchie:

Tesoro Petroleum Companies, Inc., on behalf of Tesoro Refining and Marketing Company (Tesoro), submits the referenced Well Installation Wok Plan for your review and approval. Tesoro and RDM Environmental plan to install three (3) additional ozone sparge/injection wells immediately to the west of the Site in an area that appears to be a preferential flow path for groundwater migrating off-site. The three ozone sparge wells will create a reactive barrier immediately down gradient of the Site and will facilitate timely remediation of groundwater in the Site vicinity. Please contact me with any questions regarding this project at (253) 896-8708. Thank you for your continued cooperation concerning this project.

Sincerely,

Jeffrey M. Baker, P.E.
Supervisor, Environmental
Compliance & Remediation
Tesoro Petroleum Companies, Inc.

Attachment

CC: RDM – Richard Munsch (w/o attachment)
Brian Kelleher – Kelleher & Associates
File – Remediation, San Lorenzo

Bedrock Oil Company – Owner
Attn.: Susan Amiri
111 Deerwood Road, Suite 120
San Ramon, CA 94583

Environmental

1704 Via Riata, Roseville, CA 95747 Tel: (916) 771-7098, FAX :(916) 771-4584

October 29, 2004

Mr. Jeff Baker
Tesoro Petroleum Companies, Inc.
3450 S. 344th Way, Suite 100
Auburn, Washington 98001

Subject: *Ozone Sparge Well Installation Work Plan*
Tesoro Station No. 67107
(Former Beacon Station No. 3721)
44 Lewelling Boulevard
San Lorenzo, California
RDM Project No. 02-67107

Dear Mr. Baker:

RDM Environmental (RDM) has been authorized by Tesoro Environmental Resources Company (Tesoro) to submit the following subsurface investigation work plan for the above referenced site. The purpose of this work plan is to install three ozone sparge wells along the western property boundary to address the methyl-t-butyl ether (MTBE) plume related to the site. The location of the site is presented in Figure 1, and the site detail map illustrating the location of the proposed ozone sparge wells is included in Figure 2.

Ozone Sparge Well Installation

RDM proposes to install three 1-inch diameter ozone wells utilizing a truck mounted hollow stem auger rig. The soil borings will be advanced with 8-inch diameter hollow stem augers. RDM proposes advancing the soil borings to approximately 31-feet below surface grade (bsg) and completing them as ozone sparge wells. The locations of the proposed ozone sparge wells are shown on Figure 2. Field methods and procedures to be used by RDM during installation of the wells are summarized in Enclosure A.

Soil samples for classification will be sampled every 5 feet for the total depth drilled. Soil types encountered will be classified using the Unified Soil Classification System visual manual method and recorded on the soil-boring logs. Samples collected will be screened in the field for the presence of petroleum hydrocarbon vapors using a photoionization detector (PID). Due to the significant number of soil borings and historical data along the western property boundary, there may not be a need to submit additional soil samples for Laboratory analysis. However, in the event RDM encounters differing soil lithology or highly impacted soil, RDM may submit select soil samples to Kiff Analytical (Kiff) for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), total petroleum hydrocarbons (TPH) as gasoline, MTBE, diisopropyl ether (DIPE), ethyl-t-butyl ether (ETBE), tert-amyl methyl ether (TAME) and tert-butanol (TBA) using EPA Method 8260B.

Once the soil borings are complete, the ozone sparge wells OS-1, OS-2 and OS-3 will be constructed of 1-inch diameter flush threaded schedule 40 PVC casing. The ozone sparge well will be screened over

the lower most 2.5 feet with 0.020"-slotted casing, and the annular space will be filled with No. 3 Lonestar sand to approximately 2 feet above the screen section. A 2-foot thick bentonite seal will be emplaced above the filter pack and the remaining annulus will be filled with a cement/bentonite slurry to within 12-inches of surface grade. The wells will be secured with 12-inch diameter traffic rated well boxes set in concrete. Well construction details are included in Enclosure B.

Stockpile

Soil cuttings generated during drilling and well installation will be temporarily stockpiled and stored on-site as described in Enclosure A. A composite soil sample will be collected from the stockpile and analyzed for BTEX, TPHg, MTBE, DIPE, ETBE, TAME, TBA, and total lead for profiling. Once RDM has received the analytical results and completed the soil profiling, the stockpile soil will disposed of at a Tesoro approved facility.

Schedule

Upon approval of this work plan, RDM will submit soil boring and well permit applications to install the proposed ozone sparge wells. Drilling activities will be tentatively scheduled for late November 2004. A report summarizing the results of the proposed investigation will be submitted to the appropriate agencies within 60 days following completion of the work.

Remarks/Signatures

The interpretations contained in this document represent our professional opinions, and are based in part, on information supplied by the client. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

If you have any questions regarding this project, please contact Richard D. Munsch at (916) 771-7098.

Sincerely,

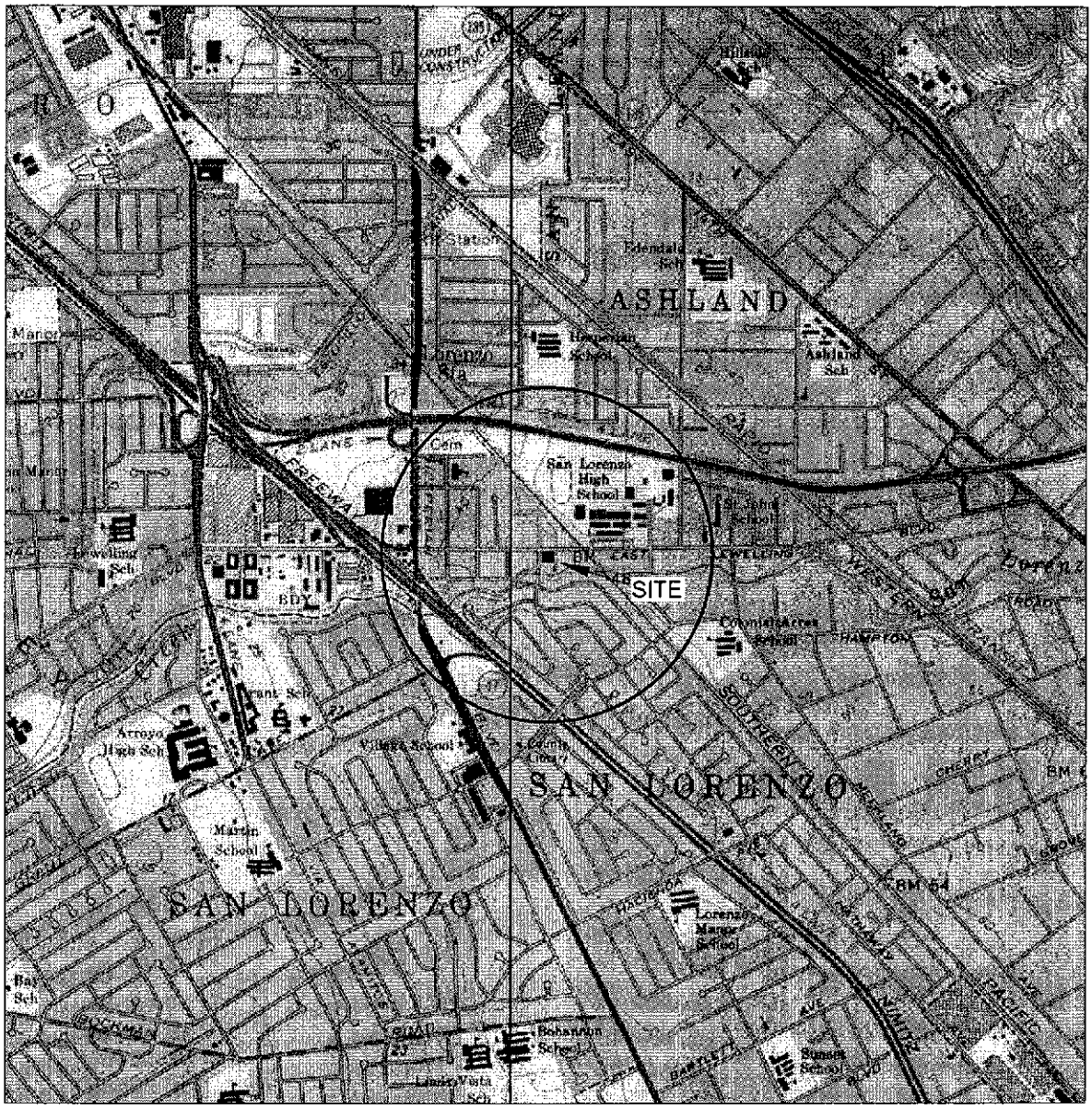
RDM ENVIRONMENTAL

Richard D. Munsch
Project Manager

Michael G. Lee, P.E
California Registered Civil Engineer No. C055795

RDM (67107 Ozone Sparge Well Installation 10-29-04.doc)
Enclosures

cc: Ms. Eva Chu – Alameda County Environmental Health
Mr. Steve Ritchie – California Regional Water Quality Control Board



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
HAYWARD, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980

QUADRANGLE LOCATION

N

0 2000 FT

SCALE 1:24,000

FIGURE 1
SITE LOCATION MAP
TESORO STATION NO. 67107
(FORMER BEACON STATION NO. 3721)
44 LEWELLING BOULEVARD
SAN LORENZO, CA.

PROJECT NO. 00-3721	DRAWN BY M.L. 12/15/00
FILE NO. 00-3721-1A	PREPARED BY RDM
REVISION NO. 1	REVIEWED BY

R D M Environmental

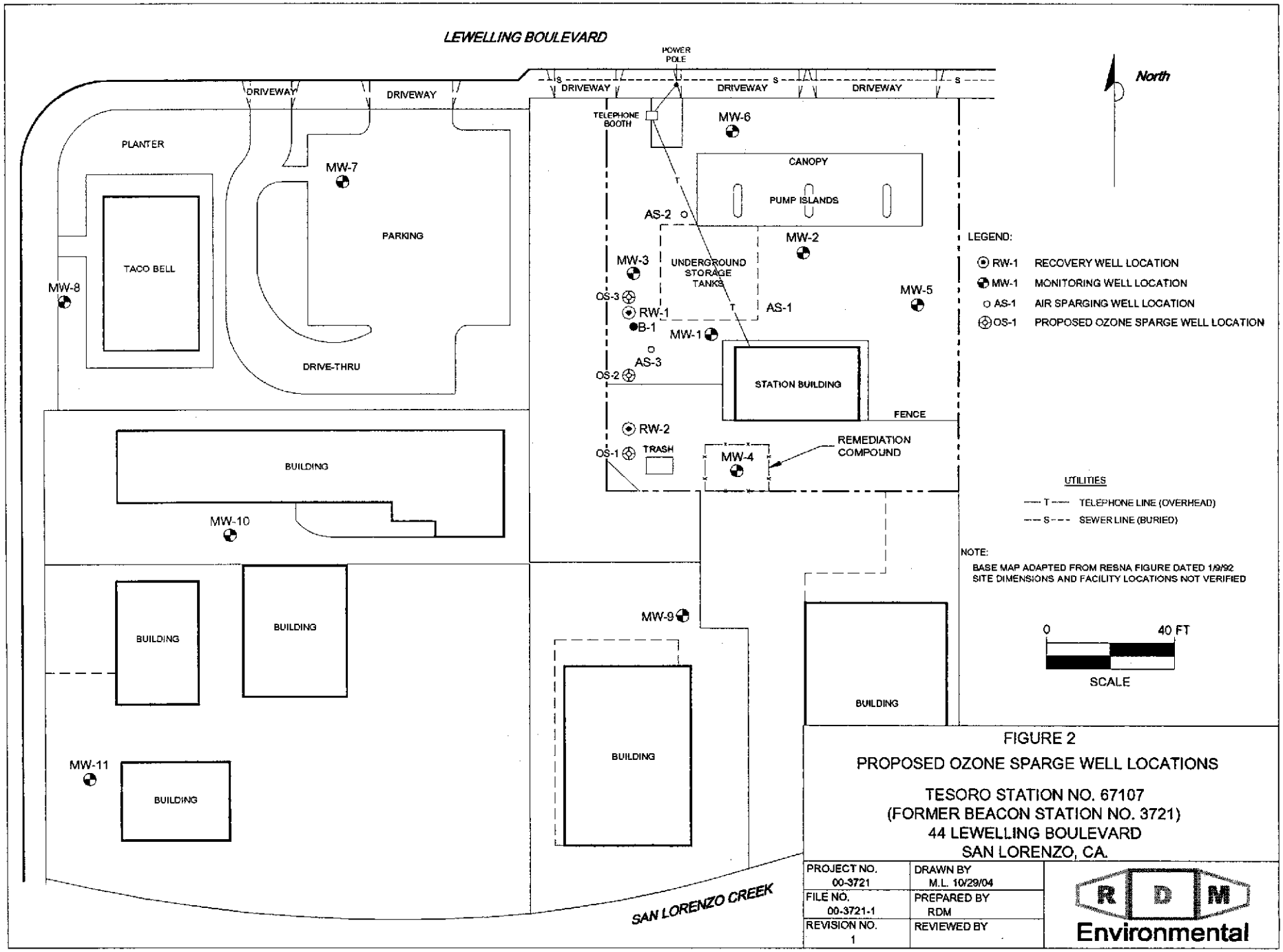


FIGURE 2

PROPOSED OZONE SPARGE WELL LOCATIONS

TESORO STATION NO. 67107
(FORMER BEACON STATION NO. 3721)
44 LEWELLING BOULEVARD
SAN LORENZO, CA.

PROJECT NO. 00-3721	DRAWN BY M.L. 10/29/04
FILE NO. 00-3721-1	PREPARED BY RDM
REVISION NO. 1	REVIEWED BY

R D M Environmental

RDM ENVIRONMENTAL

Enclosure A

Sampling Methods

Proper sampling methods must be followed to assure that samples represent actual field conditions and that samples are labeled, preserved, and transported properly to retain sample integrity. This attachment describes procedures to be followed by RDM Environmental (RDM), during collection of samples of subsurface soil and groundwater. Sampling procedures will be based on sampling guidance documents from the American Society of Testing and materials (ASTM), U.S. Environmental protection Agency (EPA), and California Department of Health Services (DHS). Actual sampling procedures to be employed will be based on field conditions and may differ from those described here.

A. EXPLORATION BORING/SOIL SAMPLING PROCEDURES

Soil borings and soil sampling will be performed under the direction of a RDM engineer/geologist. The soil borings will be advanced using drilling techniques appropriate for each project, as specified in the project work plan.

Soil samples will be collected at maximum intervals of 5 feet. Soil sampling will be done in accordance with ASTM 1586-84. Using this procedure, three 1.06- to 2-inch-diameter, 6-inch-length, brass or stainless steel tubes are placed in a California-type-split-barrel sampler, or a slide hammer with a single 6-inch by 2-inch brass or stainless tube by tapping the tube into the soil in the backhoe bucket with a hammer. The sampler is driven into the soil by a 140-pound weight falling 30 inches or with a slide hammer on hand auger samples. After an initial set of 6 inches, the number of blows required to drive the sampler an additional 12 inches is known as penetration resistance, or the □N□ value. The □N□ value is used as an empirical measure of the relative density of cohesion-less soils and the consistency of cohesive soils. When collecting a soil sample from a tank excavation or line excavation, the soil sample will be collected by tapping a brass stainless steel tube into the soil in the backhoe bucket.

Upon recovery of the split-barrel sampler or slide hammer sampler, the brass or stainless steel tubes containing the soil will be removed. One tube will be sealed at the ends with plastic end caps. The end caps will be secured to the ends of the tube to prevent loss of volatile constituents. The sample will be labeled with an identification number, time, date, location, and requested laboratory analysis. The sample will then be placed in a plastic bag and stored at approximately 4 degrees Celsius in an ice chest for transport to the laboratory. Sample custody procedures outlined in Section D of this attachment will be followed. This will be performed for each sample collected.

Soil in one of the brass or stainless steel tubes from the split-barrel sampler will be extracted upon recovery, placed in a plastic bag, and sealed for later screening for organic vapors using a photo ionization detector (PID) or a flame ionization detector (FID). The remaining portion of the soil sample will be examined and a complete log of soil conditions will be recorded on a soil boring log using the Unified Soil Classification System. The soil will be examined for grain size, color, and moisture content.

The split-barrel sampler or slide hammer sampler will be cleaned to prevent contamination across sampling intervals using procedures described in Section B. Soil generated from the soil borings will be stored in 55-gallon drums (unless otherwise directed by agencies or the client) labeled with the corresponding boring number, date, and address of the facility.

B. DECONTAMINATION AND DISPOSAL PROCEDURES

All equipment that comes into contact with potentially contaminated soil, drilling fluid, air or water will be decontaminated before each use. Decontamination will consist of steam cleaning, a high-pressure, hot water rinse, or trisodium phosphate (TSP) wash and freshwater rinse, as appropriate. Drilling and sampling equipment will be decontaminated as follows:

1. Drill rig augers, drill rods, and drill bits will be steam-cleaned prior to use and between borings. Visible soil, grease, and other impurities will be removed.

2. Soil sampling equipment will be steam-cleaned prior to use and between each boring. Prior to individual sample collection, any sampling device will also be cleaned in a TSP solution and rinsed twice in clean water. Any visible soil residue will be removed.

3. It is anticipated that disposable equipment will be used to collect water samples. If disposable equipment is not used, water sampling equipment will be decontaminated using methods described in item 2 above for soil sampling equipment.

4. Water sampling containers will be cleaned and prepared by the respective analytical laboratories.

5. Stainless steel or brass soil sampling tubes will be steam-cleaned or washed in TSP solution and rinsed with clean water.

6. Field monitoring equipment (pH, conductivity, or temperature probes) will be rinsed with clean water prior to use and between samples.

C. FIELD MEASUREMENTS

Field data will be collected during various sampling and monitoring activities; this section describes routine procedures to be followed by personnel performing field measurements. The methods presented below are intended to ensure that field measurements are consistent and reproducible when performed by various personnel.

C.1 Buried Utility Locations

Prior to commencement of work on site, RDM will contact underground service alert and appropriate utility companies to have underground utility lines located. RDM will also visually survey the site to estimate the locations of potentially unmarked underground utilities. All work associated with the borings will be preceded by hand augering to a minimum depth of 5 feet below grade to avoid damaging underground utilities.

C.2 Lithologic Logging

A log of soil conditions encountered during the drilling and sample collection will be maintained using the Unified Soil Classification System by a RDM engineer/geologist. All boring logs will be reviewed by a California registered engineer/geologist.

The collected soil samples will be examined and the following information recorded: boring location, sample interval and depth, blow counts, color, soil type, moisture content (qualitative), and depth at which ground water (if present) is first encountered. Also recorded on the soil boring logs will be the field screening results derived from the use of a portable PID or FID.

C.3 Disposal Procedures

Soils and fluids that are produced and/or used during the installation and sampling of borings, and that are known or suspected to contain potentially hazardous materials, will be contained during the above operations. These substances will be retained on site until chemical testing has been completed to determine the proper means of disposal. Handling and disposal of substances known or suspected to contain potentially hazardous materials will comply with all applicable regulations including those of DHS and the California Department of Water Resources. Soils and fluids produced and/or used during the above-described operations that are shown to contain potentially hazardous materials will be disposed of appropriately.

Residual substances generated during cleaning procedures that are known or suspected to pose a threat to human health or the environment will be placed in appropriate containers until chemical testing has been completed to determine the proper means for their disposal.

C.4 Conductivity, Temperature, and pH

Specific conductance, water temperature, and pH measurements will be made when a water sample is collected. Regardless of the sample collection method, a representative water sample will be placed in a transfer bottle used solely for field parameter determinations. A conventional pH meter with a combination electrode or equivalent will be used for field-specific conductance measurements. Temperature measurements will be performed using standard thermometers or equivalent temperature meters. Combination instruments capable of measuring two or all three of the parameters may also be used.

All instruments will be calibrated in accordance with manufacturer's recommendations. The values for conductivity standards and pH buffers used in calibration will be recorded in a field notebook. All probes will be thoroughly cleaned and rinsed with fresh water prior to any measurements, in accordance with Section C.1

D. SAMPLE CUSTODY

This section describes standard operating procedures for sample custody and custody documentation. Sample custody procedures will be followed through sample collection, transfer, analysis, and ultimate disposal. The purpose of these procedures is to assure that (1) the integrity of samples is maintained during their collection, transportation, and storage prior to analysis and (2) post-analysis sample material is properly disposed of. Sample custody is divided into field procedures and laboratory procedures, as described below.

D.1 Field Custody Procedures

Sample quantities, types, and locations will be determined before the actual fieldwork commences. As few personnel as possible will handle samples. The field sampler is personally responsible for the care and custody of the collected samples until they are properly transferred.

D.1.1 Field Documentation

Each sample will be labeled and sealed properly immediately after collection. Sample identification documents will be carefully prepared so that identification and chain-of-custody records can be maintained and sample disposition can be controlled. Forms will be filled out with waterproof ink. The following sample identification documents will be utilized:

- Sample labels
- Field notebook
- Chain-of-custody forms

D.1.2 Sample Labels

Sample labels provide identification of samples. Preprinted sample labels will be provided. Where necessary, the label will be protected from water and solvents with clear label-protection tape. Each label

will contain the following information:

- Name of collector
- Date and time of collection
- Place of collection
- RDM project number
- Sample number
- Preservative (if any)

D.1.3 Sample Labels Field Data Sheet

Information pertinent to a field survey, measurements, and/or sampling must be recorded on field data sheets. Entries on data sheets should include the following:

- Name and title of author, date and time of entry, and physical/environmental conditions during field activity.
- Location of sampling or measurement activity.
- Name(s) and title(s) of field crew.
- Type of sampled media (e.g., soil, groundwater, air, etc.).
- Sample collection or measurement method(s).
- Number and volume of sample(s) collected.
- Description of sampling point(s).
- Description of measuring reference point(s).
- Date and time of collection or measurement.
- Sample identification number(s).
- Sample preservative (if any).
- Sample distribution (e.g., laboratory).
- Field observations/comments.
- Field measurement data (pH, etc.).

D.1.4 Chain-of-custody Record

A chain-of-custody record will be completed out for and will accompany every sample and every shipment of samples to the analytical laboratories in order to establish the documentation necessary to trace sample possession from the time of collection to disposal. The record will contain the following information:

- Station number and sample I.D.
- Signature of collector, sampler, or recorder.
- Date and time of collection.
- Place of collection.
- Sample type.
- Signatures of persons involved in the chain of possession.
- Inclusive dates of possession.

The laboratory portion of the form should be completed by laboratory personnel and will contain the

following information:

- Name of person receiving the sample.
- Laboratory sample number.
- Date and time of sample receipt.
- Analyses requested.
- Sample condition and temperature.

D.1.5 Sample Transfer and Shipment

A chain-of-custody record will always accompany samples. When transferring samples, the individuals relinquishing and receiving the samples will sign, date, and note the time on the chain-of-custody record.

Samples will be packaged properly for shipment and dispatched to the appropriate laboratory for analysis. The chain-of-custody record will accompany each shipment. The method of shipment, courier name(s), and other pertinent information will be entered in the chain-of-custody record.

D.2 Laboratory Custody Procedures

A designated sample custodian will accept custody of the shipped samples and verify that the information on the sample label matches that on the chain-of-custody record. Information regarding method of delivery and sample conditions will also be checked on the chain-of-custody record. The custodian will then enter the appropriate data into the laboratory sample tracking system. The laboratory custodian may use the sample number on the sample label or may assign a unique laboratory number to each sample. The custodian will then transfer the sample to the proper analyst or store the sample in the appropriate secure area.

Laboratory personnel are responsible for the care and custody of samples from the time they are received until the sample is exhausted. Once at the laboratory, the samples will be handled in accordance with U.S. Environmental Protection Agency SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods, Third Edition, for the intended analyses. All data sheets, chromatographs, and laboratory records will be filed as part of the permanent documentation.

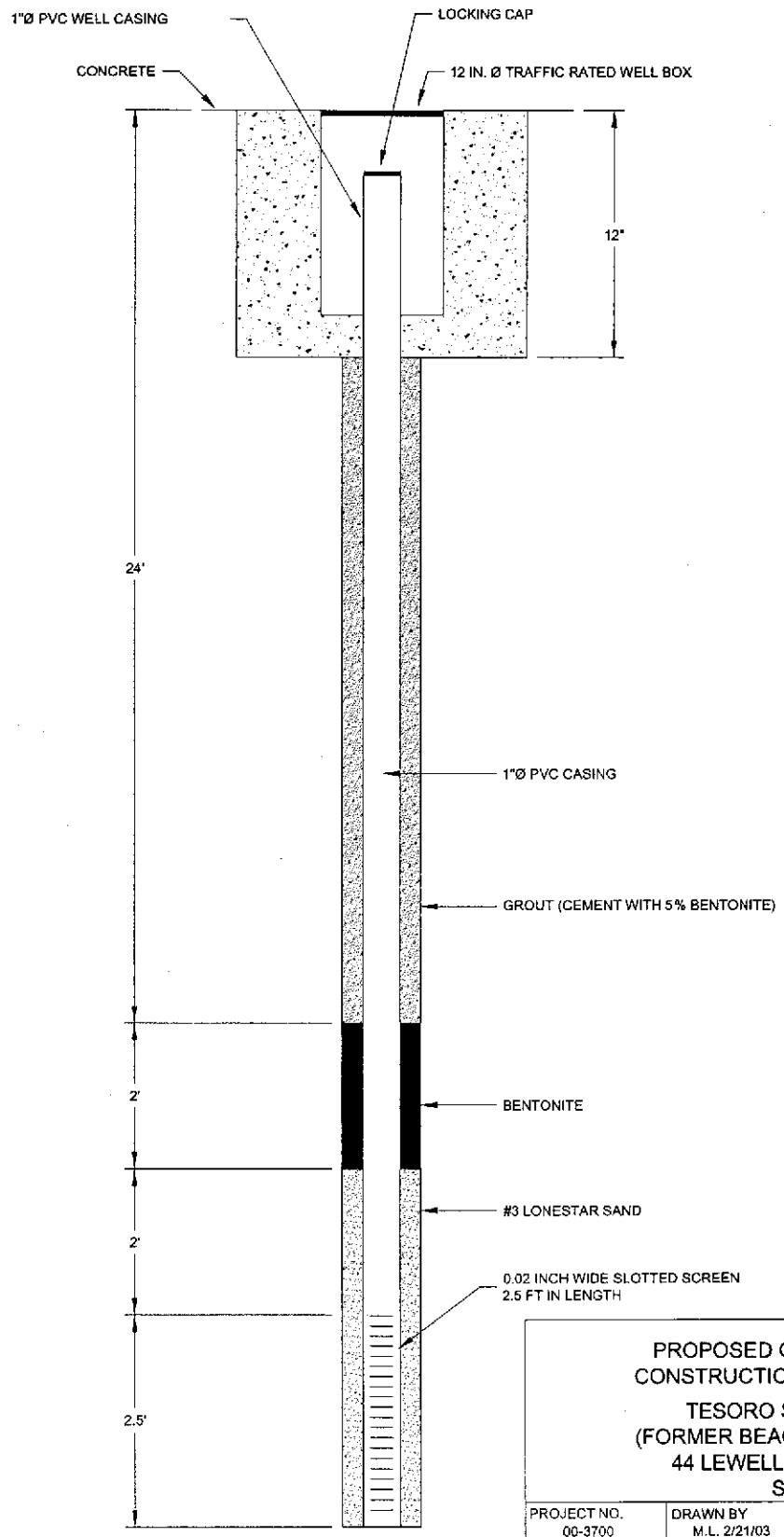
D.3 Corrections to Documentation

Original data recorded in field notebooks, chain-of-custody records, sampling information sheets, and other forms should be written in ink. These documents should not be altered, destroyed, or discarded even if they are illegible or contain inaccuracies that require a replacement document.

If an error is made or found on a document, the individual making the corrections will do so by crossing a single line through the error, entering the correct information, and initialing and dating the change. The erroneous information will be obliterated. Any subsequent error(s) discovered on a document will be corrected. All corrections will be initialed and dated.

D.4 Sample Storage and Disposal

The analytical laboratory should retain samples and extracts for 60 days after the laboratory issues a written report. Unless notified by the program manager, excess or unused samples should be disposed of by the laboratory in an appropriate manner consistent with applicable government regulations.



PROPOSED OZONE SPARGE WELL
CONSTRUCTION DETAIL (WELL OSP-1)

TESORO STATION NO. 67107
(FORMER BEACON STATION NO. 3721
44 LEWELLING BOULEVARD
SAN LORENZO, CA.

PROJECT NO. 00-3700	DRAWN BY M.L. 2/21/03
FILE NO. Well Detail	PREPARED BY RDM
REVISION NO. 1	REVIEWED BY

R D M Environmental