RO2881
Not on FTP

RM Associates

Environmental Consultants

April 4, 2006

Mr. Jerry Wickham
Hazard Materials Specialist
Alameda County Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

2006 APR -5 PM 2:38
Alameda County
APR 06 2006
Environmental Health

Reference: **Rotten Robbie No 64**
(Formerly East Avenue Services)
4186 East Avenue, Livermore, California
Fuel Leak Case No. RO0002881

Subject: **Work Plan for Preliminary Site Investigation**
(Installation of Groundwater Monitoring Wells

Dear Mr. Hong:

Enclosed is a copy of the subject work plan for the referenced site. The work plan was prepared and is submitted by RMA Associates, Inc, on behalf of Robinson Oil Corporation (ROC) as requested by the Alameda County Health Care Services Agency in your letter to Mr. Thomas L. Robinson, dated September 1, 2005..

We are also including, with the hardcopy report, a CD-ROM containing a copy of the report as a PDF file. The PDF file and printed report contain identical information including the signature pages. Copies of the work plan have been sent to the parties listed in the Distribution Section (page 5) of the work plan.

Should you have any questions regarding this report, please contact Thomas Robinson of Robinson Oil Corporation at (408) 257-2222, or the undersigned at (209) 295-6218.

Sincerely,

RM ASSOCIATES

Ronald W. Michelson
Principal Geologist

Cc: Tom Robinson, Robinson Oil Corporation

Enclosures:

Office: 209-295-6218 Fax: 209-295-3974
16401 Meadow Vista Drive, Suite 102 - Pioneer CA 95666
E-Mail: RMichelson@volcano.net

RO2881
W.P on FTP

TECHNICAL REPORT

WORKPLAN FOR PRELIMARY SITE INVESTIGATION (INSTALLATION OF GROUNDWATER MONITORING WELLS)

Rotten Robbie No. 64
4186 East Avenue
Livermore, California

Fuel Leak Case No. RO0002881

Submitted By:

RM Associates
16401 Meadow Vista Drive, Suite 102
Pioneer, CA 95666

RMA Project No. 101-6402

March 28, 2006

RM Associates
16401 Meadow Vista Drive, Suite 102
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TABLE OF CONTENTS

FIGURES

APPENDICES

WORKPLAN FOR PRELIMINARY SITE INVESTIGATION (INSTALALTION OF GROUNDWATER MONITORING WELLS)

Rotten Robbie 64
4186 East Avenue
Livermore, California

March 28, 2006

1.0 INTRODUCTION

This workplan, prepared by RM Associates Inc. (RMA) on behalf of Robinson Oil Corporation (ROC) is in response to the letter from Alameda County Environmental Health Services (ACEHS) to Mr. Thomas L. Robinson dated September 1, 2005. This letter directs the submission of a Workplan for additional investigation to define the lateral and vertical extent of fuel impacted soil and groundwater that had been detected at the site during a Phase II Environmental Assessment conducted by RMA in April 2005. The results of this investigation were presented in RMA's "Report of Phase II Environmental Assessment," dated May 13, 2005. Also included in this Workplan is a survey of sensitive receptors, specifically all water supply wells that are located within one-half mile of the site.

1.1 Site Location

Rotten Robbie 64
4186 East Avenue
Livermore, California
Contact: Mr. Thomas L. Robinson
408-257-2222

1.2 Site Description

The site, although not currently operating, is a retail automotive fueling and service station with five existing underground storage tanks (USTs) and two dispenser islands. The existing USTs consist of four 4,000-gallon tanks and one 6,000-gallon tank all containing gasoline. Figure A is a street map showing the general vicinity of the site. Figure 1 is a site map showing the locations of the service station building, the UST facilities, and the previous soil and groundwater sampling locations. The site is scheduled for complete renovation during the summer 2006, which will include replacement of all UST and related product piping and dispensing facilities. Figure 1 also shows the tentative locations for the monitoring well installations proposed in this Workplan. Figures 2 and 3 show the soil and groundwater analytical results that are presented the May 2005 "Phase II Environmental Assessment Report."

2.0 OBJECTIVE AND SCOPE OF WORK

The primary objective of the investigation proposed herein is to further determine distribution of gasoline hydrocarbons and MTBE and to assess relevant hydrogeological characteristics at the site, particularly groundwater flow direction.

Task 1: Groundwater Monitoring Well Installations

Based upon the distribution of gasoline and MTBE concentrations and an assumption regarding the most probable groundwater flow direction based on the general topography of the area, RMA proposes to install three groundwater monitoring wells at or near the locations indicated on attached Figure 1 (also see Figure 3). The basis for selecting the well locations was first to cover the area near where the most elevated hydrocarbon concentrations had been detected at the former groundwater grab sample location, W-1. Proposed monitoring well location MW-1 covers this area. The proposed location for monitoring well MW-3 was selected to cover the area (assumed, based on local topography) to be roughly downgradient from sampling point W-1. Proposed well location MW-2 was selected to cover the area downgradient from former soil sampling location S-7, yet located sufficiently offset from the other two wells in order to provide the means for determining water flow direction and gradient. The locations of these wells may be slightly altered by the pending renovation of the site. Preliminary renovation plans were taken into account for the proposed placement of the monitoring wells.

The groundwater monitoring wells will be drilled using a truck mounted drill rig, or equivalent, equipped with hollow stem augers. The groundwater monitoring wells will be drilled to a depth of approximately 35 feet below ground surface (bgs) or at least ten feet below the elevation of the existing water table . Based on the previous 2005 investigation, the groundwater table is anticipated at a depth of approximately 20-25 feet bgs.

For lithologic determination, undisturbed soil samples will be collected from each soil boring at intervals of 5 feet beginning at a depth of approximately 10 feet bgs to the bottom of the boring. Soil samples will be obtained with a California modified split spoon sampler. During drilling a field geologist, under the direct supervision of a California Registered Geologist, will prepare a log of the subsurface soil conditions. Soil samples will be classified in accordance with the Unified Soil Classification System (USCS). At least three soil samples including one collected at the vadose zone/groundwater interface will be selected for laboratory analysis. The soil samples will be placed in an ice chest maintained at 4 degrees Celsius prior to being hand delivered to a state certified laboratory.

The groundwater monitoring wells will be completed using 2-inch diameter, Schedule-40, polyvinyl chloride (PVC) casing. The wells will be set at approximately 35 feet bgs with a 15-20 foot section of 0.020-inch slotted screen set at the bottom of the well with 15-20 feet of blank casing installed above the screen. A sand pack consisting of appropriately sized aqua sand will be placed in the annular space from the bottom of the borings to approximately 2 feet above the top of the screen. The wells will be sealed with approximately one foot of hydrated bentonite chips placed above the sand pack with a neat cement seal installed from the top of the bentonite to the surface. The wells will be secured at the surface with a flush-mounted, traffic-rated well box.

As required by the State Water Resources Control Board (SWRCB), a licensed surveyor will measure wellhead elevations to the nearest 1/100th of a foot above mean sea level and horizontal locations to within 1 meter.

Soil cuttings and decontamination water generated during the investigation will be stored in Department of Transport (DOT) approved drums and disposed of following receipt of the laboratory analytical results. The soil cuttings and decontamination water will be transported for disposal or recycling by a licensed hazardous waste hauler.

Prior to installation of the three monitoring wells, well construction permits will be obtained from the Zone 7 Water Agency.

Task 2: Groundwater Sampling

Well Development

Prior to obtaining a groundwater sample from the newly installed groundwater monitoring wells, the wells will be developed by removing at least seven well volumes of groundwater, or until the well water is nearly sediment free.

Well Sampling

Prior to measuring groundwater levels, dissolved oxygen measurements will be obtained from each groundwater monitoring well. Groundwater levels will then be measured. Before groundwater samples are collected, the groundwater monitoring wells will be purged until stabilization of the groundwater temperature, pH, and conductivity. Approximately four well casing volumes will be purged before those parameters stabilize. Each monitoring well will be purged either by hand bailing the monitoring well with a new disposable or Teflon® bailer or by pumping with an electrically (12-volt) operated submersible pump.

After purging, each well will be allowed to recharge to at least 80% of the initial water level. Water samples will be collected with a new disposable or Teflon® bailer, and carefully poured into the appropriate sampling containers. The groundwater samples will be placed in an ice chest prior to being hand delivered to a state certified fixed base laboratory.

Purged groundwater will be stored in DOT approved drums and disposed of following receipt of the laboratory analytical results. The purged groundwater will be transported for disposal or recycling by a licensed hazardous waste hauler.

Task 3: Laboratory Analyses

Soil Samples

At least three soil samples, including one collected at the vadose zone/groundwater interface will be analyzed. Soil samples will be analyzed for total petroleum hydrocarbons as gasoline (TPHg) in accordance with EPA Test Method 8015M, and benzene, toluene, ethylbenzene and total xylenes

(BTEX) and methyl tert butyl ether (MTBE) in accordance with EPA Test Method 8020.

Groundwater Samples

A total of three groundwater samples, one from each well, will be analyzed for TPHg in accordance with EPA Test Method 8015M (or an equivalent GC/MS method), BTEX in accordance with EPA Test Method 8020 (or EPA Method 8260), and for the fuel oxygenates MTBE, ethyl tert-butyl ether (ETBE), di-isopropyl ether (DIPE), tert-amyl methyl ether (TAME), and tert-butyl alcohol (TBA), and the chlorinated compounds 1,2 DCA, and EDB in accordance with EPA Method 8260.

Task 4. Reporting

A report on the well installation activities will be prepared after all of the results are received from the analytical laboratory. The report will include: assessment procedures, a groundwater monitoring well location map, soil boring logs, a tabulated summary of analytical results, a groundwater elevation contour map, laboratory data sheets and chain of custody documentation, evaluation of the data collected, conclusions, and recommendations for additional investigation if any is indicated.

3.0 SENSITIVE RECEPTOR SURVEY

Assisted by the Zone 7 Water Agency, eight water supply wells were detected within a radius of approximately one-half mile from the site. These wells were identified and plotted on the Well Location Map, Figure 4 by the Water Agency. The status of six of the wells is either known active or is unknown and is therefore assumed to be active. In Figure 4, the six wells assumed to be active are highlighted in yellow. All of the wells are located either to the southeast or to the southwest of the site. Presently, all of the southeasterly wells are assumed to be upgradient and the southwesterly wells are assumed to be crossgradient. There are no known monitoring wells within one-half mile of the site either to the north or to the northeast, the assumed most probable downgradient direction. The known and assumed active wells are identified on Figure 4 as 3S/2E 15C1, 3S/2E 15B4, 3S/2E 15B1, 3S/2E 16A5, 3S/2E 16A3, and 3S/2E 15G2. These wells are listed in order of their proximity to the site. The two wells considered to be inactive are identified on Figure 4 as 3S/2E 16A2 and 3S/2E 15B2. Available drilling logs for these wells are presented in Appendix A.

It is highly unlikely that the level of hydrocarbon impact detected at this site represents any appreciable hazard to any of the listed water supply wells.

There are no other apparent sensitive receptors near this site. The water table depth of more than 20 feet below ground surface precludes underground utility trenches from being relevant conduits for the migration of petroleum hydrocarbons.

4.0 SCHEDULE

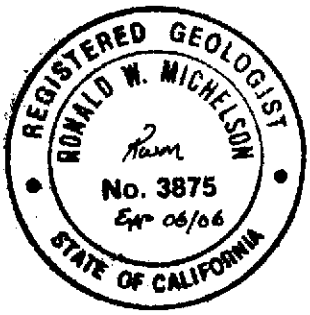
The Alameda County Environmental Health Services has approved the implementation of this Work Plan to coincide with the renovation project at the site which is now scheduled for late summer 2006.

5.0 CERTIFICATION

We certify that, to the best of our knowledge, all statements above are true and correct. This Work Plan has been reviewed and approved by ROC. ROC's approval letter is presented in Appendix C.

RM ASSOCIATES

Ronald W. Michelson
Principal Geologist



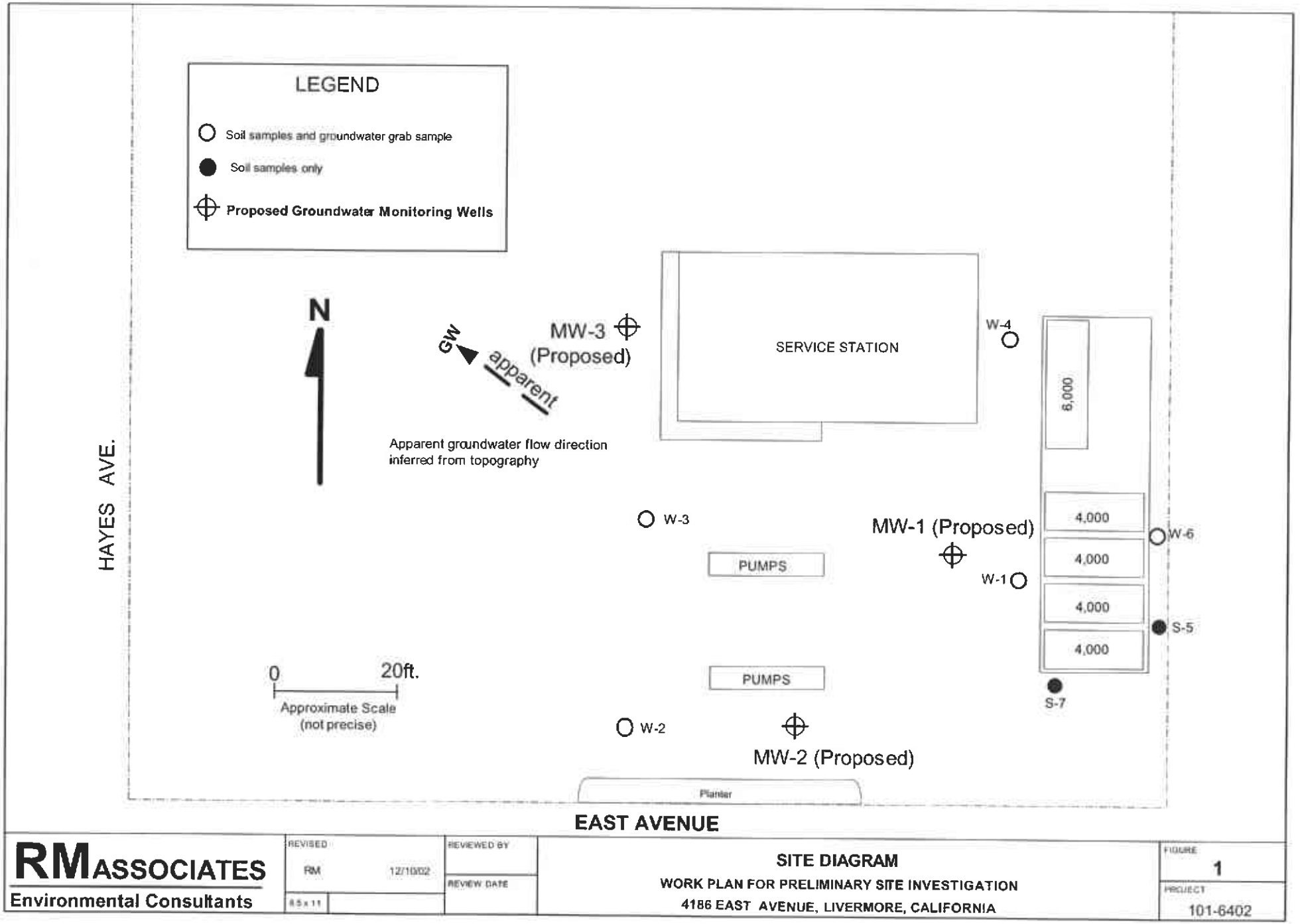
6.0 DISTRIBUTION

Mr. Tom Robinson
Robinson Oil Corporation
4250 Williams Road
San Jose, CA 95129

Mr. Jerry Wickham
Alameda County
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6700

Mr. Wyman Hong
Zone 7 Water District
100 N. Canyon Parkway
Livermore, CA 94551

FIGURE A - VICINITY MAP

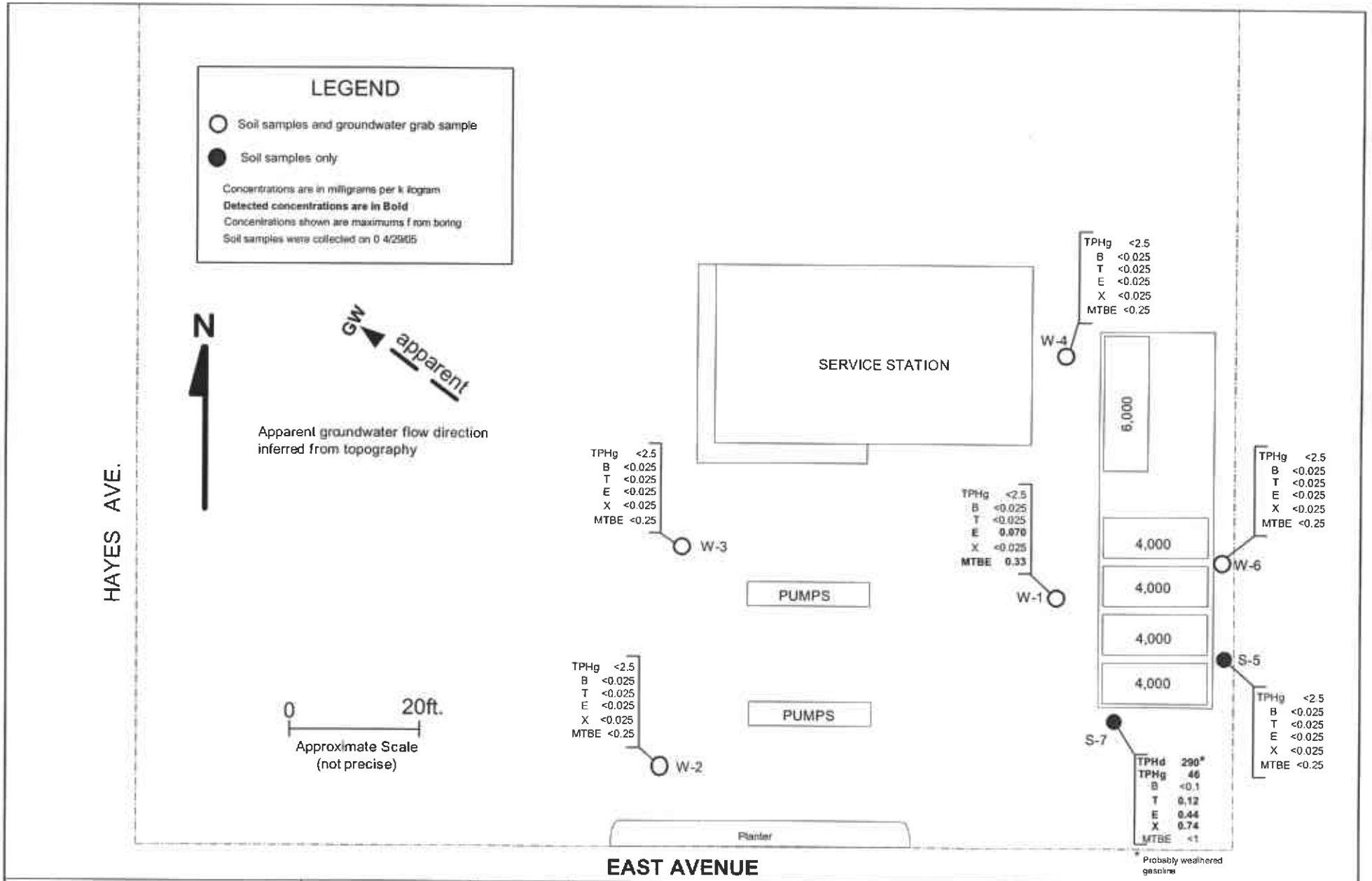


RM ASSOCIATES
Environmental Consultants

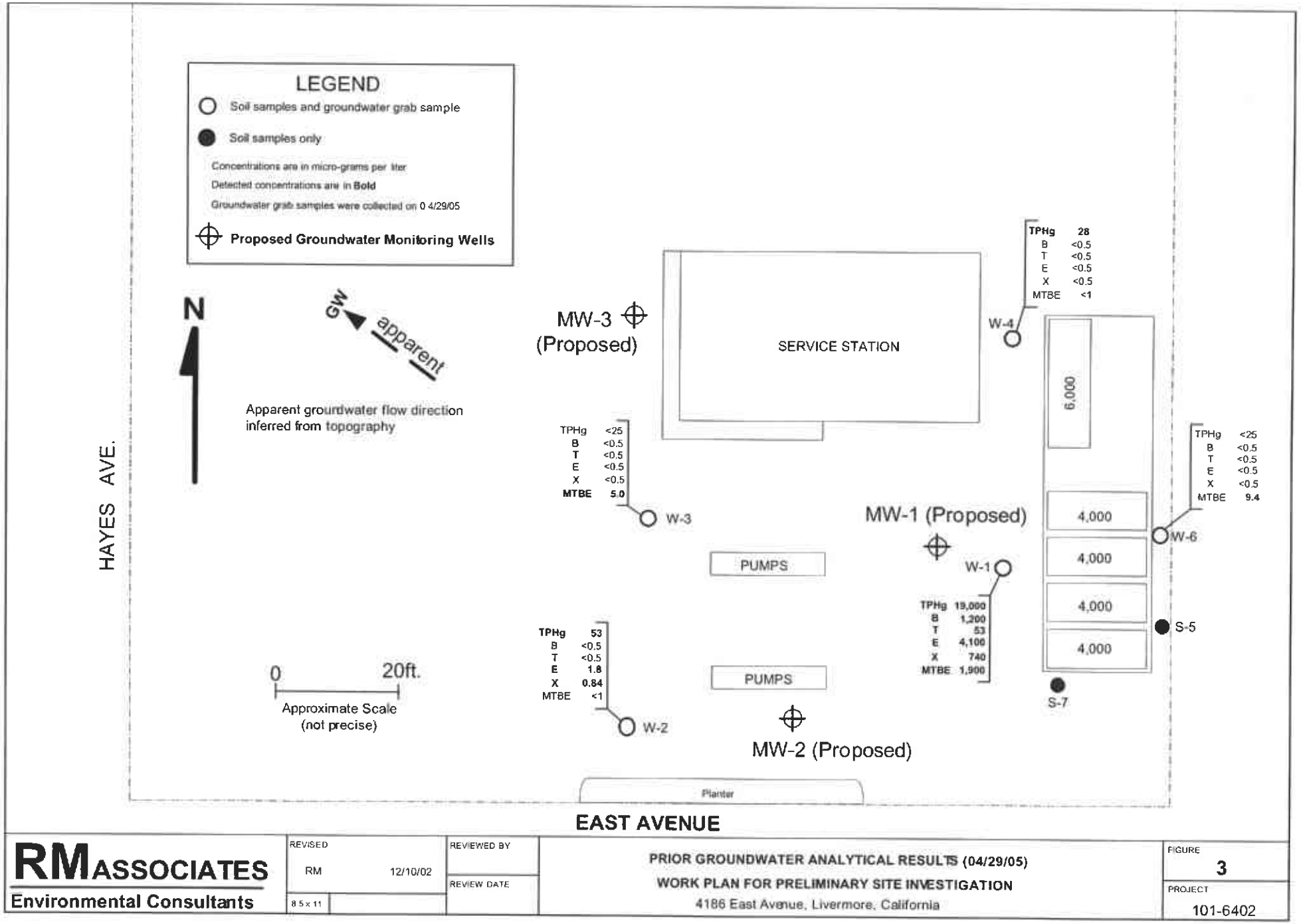
REVISED	REVIEWED BY
RM 12/10/02	
8.5 x 11	REVIEW DATE

SITE DIAGRAM
WORK PLAN FOR PRELIMINARY SITE INVESTIGATION
4186 EAST AVENUE, LIVERMORE, CALIFORNIA

FIGURE 1
PROJECT 101-6402



RM ASSOCIATES Environmental Consultants	REVISED RM 12/10/02	REVIEWED BY	PRIOR SOIL ANALYTICAL RESULTS (04/29/05)	FIGURE 2
	8.5 x 11	REVIEW DATE	WORK PLAN FOR PRELIMINARY STE INVESTIGATION	PROJECT 101-6402
			4186 EAST AVENUE, LIVERMORE, CALIFORNIA	



RM ASSOCIATES Environmental Consultants	REVISED RM 12/10/02	REVIEWED BY	PRIOR GROUNDWATER ANALYTICAL RESULTS (04/29/05)
	8.5 x 11	REVIEW DATE	WORK PLAN FOR PRELIMINARY SITE INVESTIGATION
			4186 East Avenue, Livermore, California
			FIGURE 3
			PROJECT 101-6402

FIGURE 4	**ZONE 7 WATER AGENCY** 100 NORTH CANYONS PARKWAY LIVERMORE, CA 94551	**WELL LOCATION MAP**	SCALE 600 ft DATE: 1/17/06 4186 East Ave H:\FLOOD\REFERALLS\REFERALLS.WOR

APPENDIX A

BORING LOGS FOR WATER SUPPLY WELLS

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

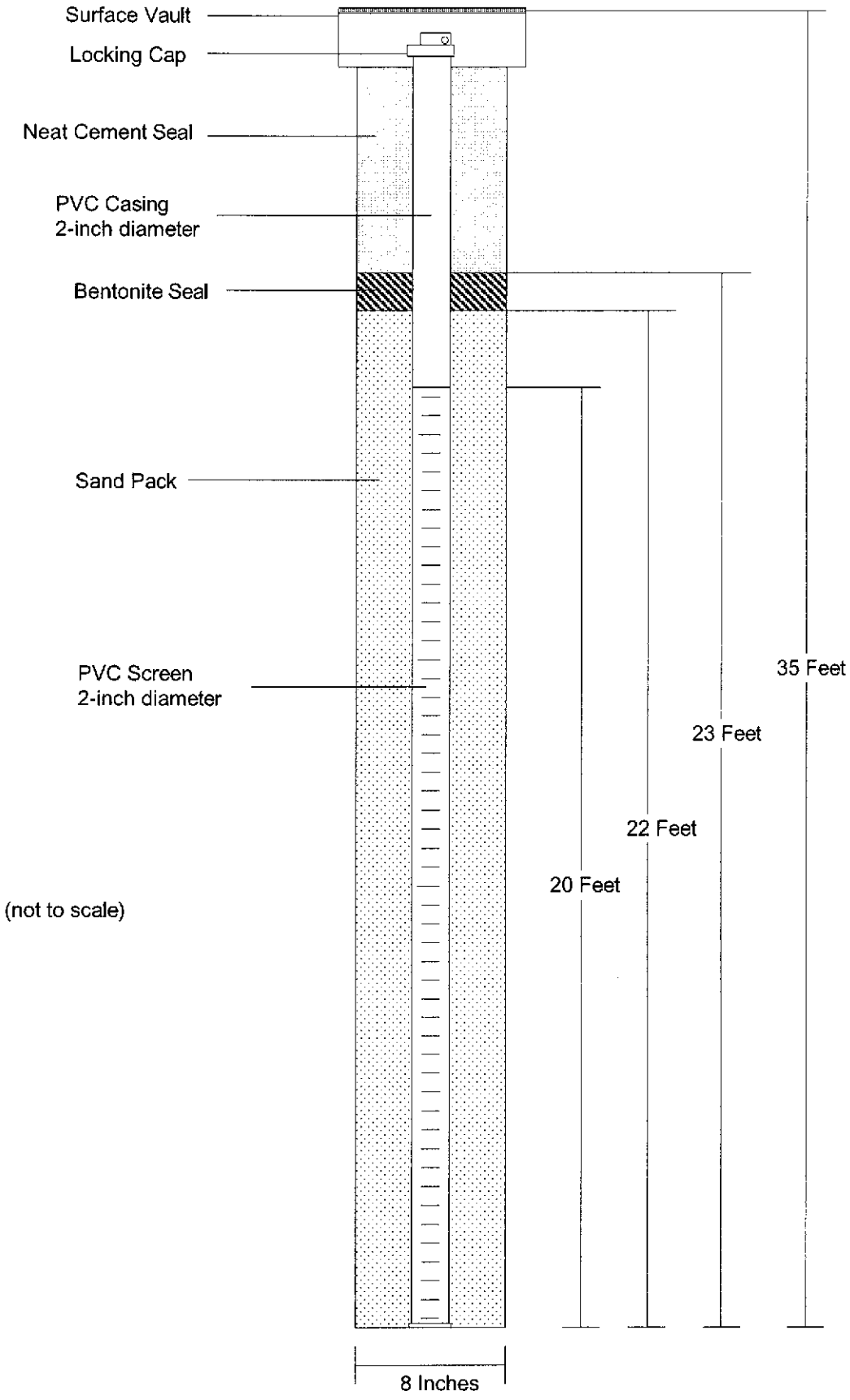
REMOVED

APPENDIX B

TYPLIFIED WELL CONSTRUCTION DIAGRAM

Appendix B -- Monitoring Well Construction Diagram

4186 East Avenue, Livermore, California



APPENDIX C

TRANSMITTAL LETTER

ROBINSON OIL CORPORATION

AN INDEPENDENT FRANCHISEE OF PACIFIC PRIDE THE COMMERCIAL FUELING SYSTEM

4250 WILLIAMS ROAD • SAN JOSE, CA 95129-3344
(408) 257-2222 • FAX (408) 252-6591

Rotten Robbie

April 3, 2006

Mr. Ronald W. Michelson
RM Associates
16401 Meadow Vista Drive, Suite 102
Pioneer, CA 95666
FAX (209) 295-3974

Site Location: Rotten Robbie #64
4186 East Avenue
Livermore, CA

Report Title: Workplan for Preliminary Site Investigati

Report Date: March 28, 2006

Dear Mr. Michelson:

I have reviewed and approved the above referenced report. Please submit it to the regulatory agencies listed in the distribution section of the report. Should any of the listed regulatory agencies require it, I am prepared to declare, under penalty of perjury, that to the best of my knowledge the information in the above referenced report is true and correct.

Sincerely,

Thomas L. Robinson