



010059.04
Task 2

August 19, 2019

Mr. Cody Walker
California Regional Water Quality Control Board
North Coast Region
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

**SUBJECT: WORK PLAN FOR ADDITIONAL MONITORING-WELL INSTALLATION,
FORMER CHEVRON STATION #9-6012, 414 MAIN STREET, ETNA,
CALIFORNIA (CASE No. 1TSI025)**

INTRODUCTION

This letter is submitted on behalf of our Clients, Mr. and Mrs. Michael Hall, and is a work plan for installing four additional groundwater monitoring wells offsite of the former Chevron Station #9-6012, 414 Main Street, Etna, California (**FIGURE 1**). This work plan was requested by the California Regional Water Quality Control Board, North Coast Region (NCRWQCB) in an email, dated February 15, 2019 (**ATTACHMENT A**).

The purpose of this work plan is to describe the scope of work necessary to delineate the lateral extent of the hydrocarbon plume in the shallow aquifer cross and downgradient of the existing monitoring-well network.

PROPOSED SCOPE OF WORK FOR ADDITIONAL SITE INVESTIGATION

UNDERGROUND SERVICE ALERT

At a minimum of 48-hours prior to conducting any digging or drilling activities, the Consultant and/or Contractors will outline the work areas in white paint and contact USA North 811 to request an underground utility locate.

CITY OF ETNA ENCROACHMENT PERMIT

An encroachment permit will be obtained from the City of Etna for the installation of monitoring well MW-9 (**FIGURE 2**).

SISKIYOU COUNTY PERMITS

The Consultant will obtain on the owner's behalf, monitoring well permits from Siskiyou County Environmental Health Department (SCEHD) prior to the commencement of field activities.

MONITORING –WELL INSTALLATION

Four additional monitoring wells, MW-9 through MW-12, will be placed in the locations shown on **FIGURE 2**. The proposed well borings will be drilled using a CME-55 drill rig and 7-5/8-inch diameter hollow-stem augers. All drilling personnel entering the site will have completed a 40-hour hazardous-materials safety course (29 CFR 1910.120), and have a current hazardous-materials safety-training certificate. The well borings will be completed as shown in **FIGURE 3**.

LOGGING AND SOIL-SAMPLING METHOD

The well borings will be logged under the direct supervision of a California Professional Geologist using the Unified Soil Classification System (USCS) based on cuttings removed during the drilling process.

Soil samples will be collected for analysis at five-foot intervals above groundwater using a split-spoon sampler driven by a 140-pound hammer and the blow counts recorded. The samples will be retained in stainless steel sample sleeves capped with Teflon tape and plastic end caps. Soil samples will be stored at 4° C, and delivered under chain-of-custody to a California-certified environmental testing laboratory.

DECONTAMINATION

The drilling and sampling equipment will be decontaminated using an Alconox soap solution, a tap-water rinse, and a distilled water rinse after each use. All decontamination water will be retained in a DOT-approved drum with a locking lid to be stored onsite. The water will be removed by a licensed recycler.

DRILL CUTTINGS

Drill cuttings generated during the installation of the new wells will be encapsulated in plastic sheeting and stored onsite. A composite soil sample will be collected from the stockpile for characterization. Depending on the analytical results, the soil will be disposed onsite or removed to a licensed petroleum-soil treatment/disposal facility for proper disposal.

DEVELOPMENT

L&A will develop the wells by alternately surge-blocking and bailing until a well's development water is free of sand and silt. Development water will be placed in 55-gallon steel drums with locking lids. The project engineer will arrange for the water to be removed from the site by a waste-oil recycling company within 90 days.

SURVEYING

The project engineer will survey the top of each well casing to within 0.01 feet relative to the NAD83 datum (horizontal) and NAVD88 datum (vertical) as required by California electronic data filing requirements for underground storage tank sites.

GROUNDWATER SAMPLING

The project engineer will measure the depth to groundwater in each well prior to collecting a groundwater sample. A polyethylene bailer or peristaltic pump with disposable tubing then will be used to purge and sample each well. A groundwater

sample will be collected from a well only after the field parameters of temperature, pH, electrical conductivity, dissolved oxygen, and oxygen reduction potential have stabilized in water discharged from the well. Each groundwater sample will be collected in four 40-ml VOA bottles. The samples will be placed on ice, in a cooler, with a chain-of-custody form, and shipped or delivered to a State-certified laboratory for analysis.

Purge water will be placed in 55-gallon steel drums with locking lids. The project engineer will arrange for the water to be removed from the site by a waste-oil recycling company within 90 days.

LABORATORY ANALYSIS

Soil and groundwater samples will be analyzed for total petroleum hydrocarbons as gasoline (TPH-gasoline); benzene, toluene, ethylbenzene, and xylenes (BTEX); and the gasoline oxygenates methyl tert-butyl ether (MTBE), tert-butyl alcohol (TBA), diisopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), and tert-amyl methyl ether (TAME). Proper chain-of-custody procedures will be observed in storing and transporting samples.

REPORTING

A report will be prepared based on findings obtained from the laboratory analyses of soil and groundwater samples. The report will contain a site map; tabularized analytical data; boring logs and well-construction diagrams; interpretations and conclusions regarding the extent of contamination; and recommendations for additional investigation and/or remediation methods, if needed. The report will be stamped by a California registered geologist or civil engineer.

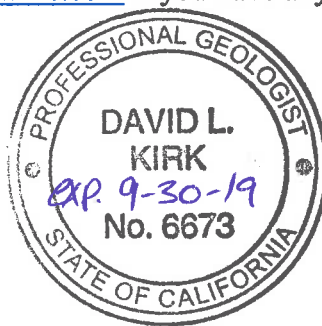
SCHEDULING

It is anticipated to take no longer than 6 weeks to complete the scope of work outlined in this work plan once NCRWQCB approval has been received.

Please contact me at (530) 275-4800 or at dkirk@lwrnc.com if you have any questions regarding this work plan.

Sincerely,

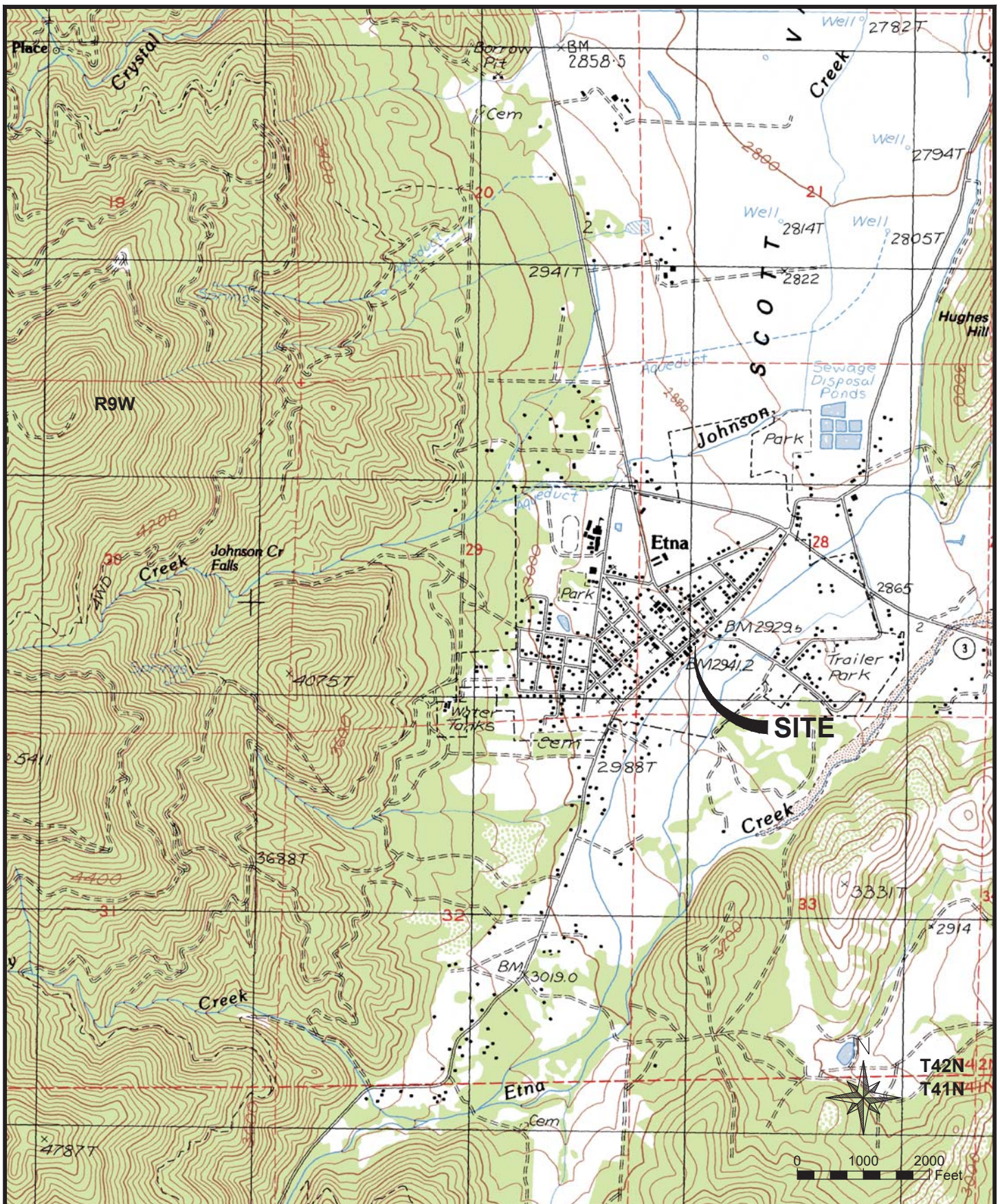
David L. Kirk
Senior Geologist PG 6673



enc.: **Figure 1.** Site-Location Map
Figure 2. Proposed Monitoring Well Location Map
Figure 3. Typical Construction Detail for Groundwater Monitoring Wells MW-9 through MW-12

Attachment A: NCRWQCB letter dated February 15, 2019

cc: Mr. & Mrs. Michael Hall, Fort Jones, CA
Mr. Rick Dean, Siskiyou County Environmental Health (electronic copy)



SITE LOCATION MAP ADAPTED FROM USGS 7.5-MINUTE TOPOGRAPHIC QUADRANGLE: ETNA, CALIFORNIA

PROJECT NAME:
ETNA CHEVRON
CLIENT:
MR. & MRS. HALL
SCALE:
1" = 2000'

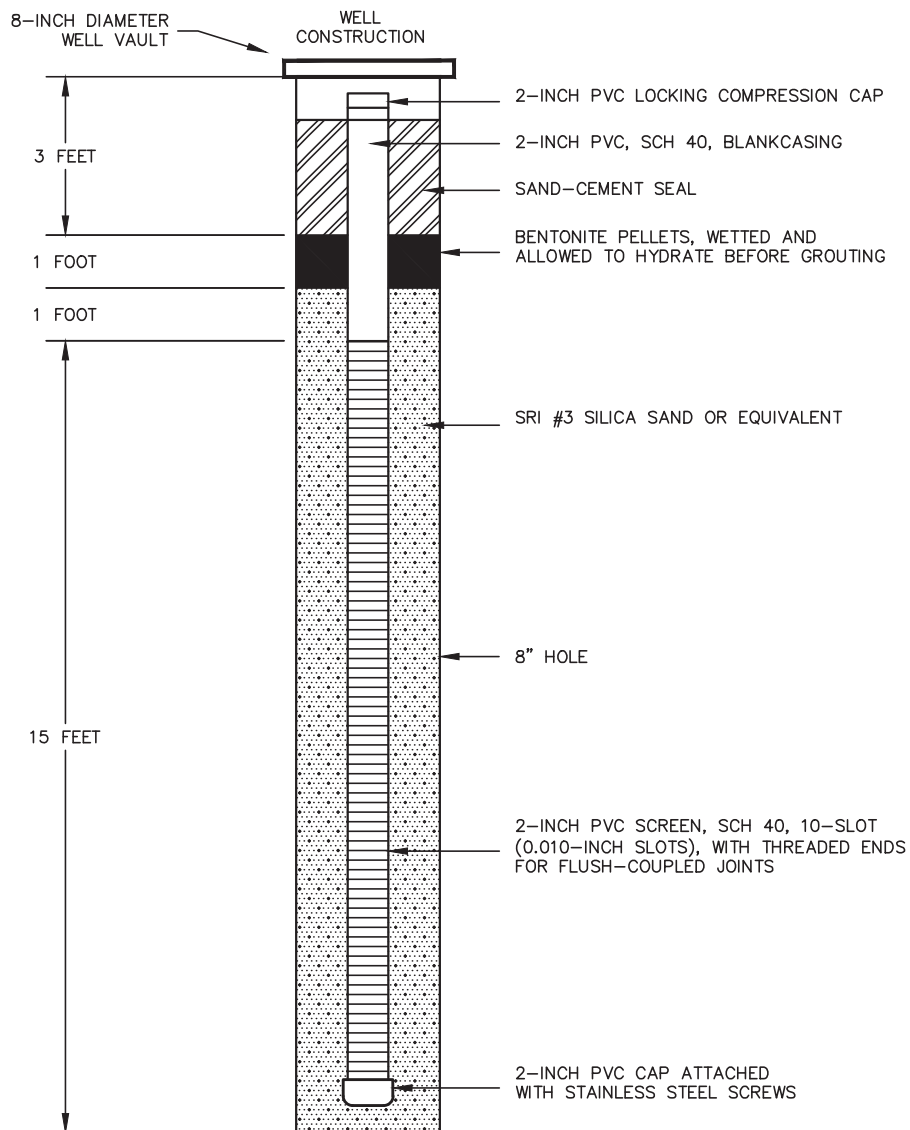
PROJECT NO:
010059.04
DRAWN BY:
J. BEERS
CHECKED BY:
D. KIRK

DATE:
8/16/2019

FIGURE 1



 LAWRENCE & ASSOCIATES ENGINEERS & GEOLOGISTS	PROPOSED MONITORING WELL LOCATIONS SITE MAP	ADDITIONAL SITE INVESTIGATION WORK PLAN		PROJECT NO: 010059.04	SCALE: 1" = 20'
		MR. & MRS. HALL ETNA CHEVRON		DRAWN BY: J. BEERS	DATE: 8/16/2019
				CHECKED BY: D. KIRK	FIGURE 2



ATTACHMENT A
NCRWQCB EMAIL DATED FEBRUARY 15, 2019

David Kirk

From: Walker, Cody@Waterboards <Cody.Walker@waterboards.ca.gov>
Sent: Friday, February 15, 2019 11:46 AM
To: David Kirk
Cc: Dan Breit
Subject: Former Chevron #9-6012, Etna, Case No. 1TSI025

Dave,

Thank you for submittal of the January 31, 2019, report for the offsite investigation for the subject site. Results of the investigation identified petroleum contamination has migrated offsite, including groundwater with total purgeable petroleum hydrocarbons as gasoline up to 5,000 micrograms per liter (ug/L) and benzene up to 180 ug/L. The extent of the contamination still has not been defined.

The January 31 report includes recommendations for additional investigation. I concur with this recommendation, and suggest more than one monitoring well be installed to define the extent of contamination. Additionally, submittal of a corrective action plan (CAP) was recommended. Although the extent of contamination has not been defined, there is enough onsite information available to move forward with a plan to cleanup up the residual source area contamination. I concur with preparation and submittal of a CAP. Please submit the CAP and work plan for additional subsurface investigation by April 30, 2019.

Additionally, the soil and groundwater laboratory EDF data needs to be uploaded to Geotracker for the December 2019 sampling.

Best regards,

Cody Walker
Engineering Geologist
North Coast Regional Water Quality Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403
Phone: (707) 576-2642