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RECEIVED
4:24 pm, Nov 01, 2012
Alameda County
Environmental Health

October 30, 2012

Alameda County Environmental Health Department
Attention: Jerry Wickham
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Byron Power Company, 4901 Bruns Rd., Byron CA

Dear Mr. Wickham:

Attached please find a proposed workplan, entitled Workplan for Additional Site Investigation dated October 26, 2012, prepared for Byron Power Company by Quest GeoSystems. As a legal authorized representative of Byron Power, I declare under penalty of perjury that, on information and belief, the information and/or recommendations contained in the attached documents and/or reports are true and correct to the best of my knowledge.

Very truly yours,

William F. Murphy

Encl.

GSM

QUEST GEOSYSTEMS MANAGEMENT

October 26, 2012 Project: G09212012-01

Mr. Jerry Wickham
Alameda County Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

SITE: SLIC CASE RO0003079; GEOTRACKER GLOBAL ID T10000003401
BYRON POWER COMPANY
4901 BRUNS ROAD
BYRON, CALIFORNIA 94514

RE: WORKPLAN FOR ADDITIONAL SITE INVESTIGATION

Dear Mr. Wickham;

Quest GeoSystems Management, Inc. (Quest) has prepared the enclosed workplan was prepared in response to a letter from your office dated September 4, 2012. The enclosed workplan was prepared in order to further investigate potential soil and groundwater impacts at the above referenced Site in Byron, California (Figure 1). The scope of work presented in the enclosed workplan will be performed consistent with State and local guidelines, and with generally accepted environmental consulting principles and practices that are within the limitations described in the enclosed workplan.

Quest appreciates the opportunity to be of service to you on this project. If you have any questions regarding this report, please contact our Rancho Cordova, California office at (925) 756-1210.

Respectfully Submitted,

Quest GeoSystems Management, Inc.

Eric W. Garcia, CEG, CHG
Principal Geologist
PG 7007, CEG 2230, CHG 765

Enclosures: Workplan for Additional Site Investigation

cc: Daniel V. Gulino, Byron Power Partners, L.P.
William F. Murphy, Dillingham & Murphy, LLP
File

WORKPLAN FOR ADDITIONAL SITE INVESTIGATION
BYRON POWER COMPANY
4901 BRUNS ROAD
BYRON, CALIFORNIA

Prepared for:
Byron Power Partners, L.P.
14 Philips Parkway
Montvale, NJ 07645

Prepared by:
Quest GeoSystems Management, Inc.
11275 Sunrise Gold Circle, Suite R
Rancho Cordova, CA 95742

October 26, 2012

Quest GSM # G09212012-01

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LIMITATIONS

The proposed work is intended to be an interactive process. Additional work may be required to more fully assess the extent of Constituent of Concern (COC's) in soil and groundwater. The purpose of a geological/hydrogeologic study is to reasonably characterize existing site conditions based on the geology/hydrogeology of the area. In performing such a study, it is understood that a balance must be struck between a reasonable inquiry into the site conditions and an exhaustive analysis of each conceivable environmental characteristic.

No investigation is thorough enough to describe all geologic/hydrogeologic conditions of interest at a given site. Conditions not identified during the study should not be construed as a guarantee of the absence of such conditions at the site, but rather a limitation of the scope of services performed within the scope, limitations, and cost of the work authorized by the client.

Geologic/hydrogeologic conditions may exist at the site that cannot be identified solely by visual observation. Where subsurface exploratory work is performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

Opinions and recommendations contained in this work plan apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this work plan.

This work plan has been prepared by Quest GeoSystems Management for the exclusive use of Byron Power Partners, L.P. (Byron Power) as it pertains to the Site located at 4901 Bruns Road, Byron, California. Our professional services will be performed using the degree of care and skill ordinarily exercised under similar circumstances by other geologists and engineers practicing in this field. No warranty, expressed or implied, is made as to professional advice in this report. Any reliance on this report by a third party is at party's sole risk.

Eric W. Garcia
Principal Geologist
PG 7007, CEG 2230, CHG 765

10/26/2012
Date

Quest GeoSystems Management Project #G09212012-01

1 INTRODUCTION

Quest GeoSystems Management (Quest) has prepared the following workscope in order to establish the presence of soil and groundwater impacts related to petroleum hydrocarbons (PHC's) other Constituents of Concern (COC's) at the above referenced Site in Alameda County, California (Figure 1). The workscope presented below has been prepared consistent with the requirements of the Alameda County Environmental Health (ACEH) as indicated in their letter dated September 4, 2012.

1.1 SCOPE OF WORK

The objective of this proposed site assessment will be to collect soil samples in order to assess the presence of PHC and other COC impacts to soil and groundwater beneath the Site. The following summarize the proposed work scope presented in Section 2.0, which is designed to achieve the above-referenced objective:

- The installation of approximately four (4) groundwater monitoring wells by hollow-stem auger and the collection of soil samples;
- The collection of representative groundwater samples from within the installed;
- The collection of soil/sludge samples from within the onsite surface impoundment and scale material stockpile;
- The chemical analysis of selected soil, sludge, and groundwater samples at a State-certified analytical laboratory; and
- Review and evaluate the results of the site assessment activities for their inclusion in the final report of findings.

1.2 BACKGROUND

A description of the Site, the geologic and hydrologic conditions, and the project history are summarized in the following subsections.

1.2.1 Site Setting

The Site was operated by Byron Power Partners, L.P. dba Byron Power Company (Byron Power), and is located at 4901 Bruns Road, Alameda County, California and is at an approximate elevation of 104 feet above mean sea level (MSL). Figure 1 is a site location map depicting the regional location of the site.

The rectangle shaped Site is situated in the middle of a larger parcel (County Assessor's Parcel Number 99B-7050-001-10) owned by Mr. Steve Shin-Der and Mrs. Puang J. Lee and encompasses an area of approximately 1.43 acres. The remainder of the property is approximately 158 acres consisting of undeveloped land used for cattle grazing.

1.2.2 Site History

The facility was an electric and thermal energy cogeneration facility, which was in operation from 1991 through 2008. Byron Power operated the facility from 1995 through its closure in 2008.

In May through July of 2008 Quest conducted a Phase I Environmental Assessment of the Site (*Phase I Environmental Assessment Report, APN: 99B-7050-001-10, 4901 Bruns Road, Alameda County, California*). On May 20, 2008, Quest personnel complete the site reconnaissance of the facility. As part of the field reconnaissance, Quest reviewed the facilities HMBP, which contained chemical descriptions of hazardous materials maintained at the facility. The following Hazardous Materials Inventory – Chemical Description pages were reviewed and were reported to have been located onsite:

- Ethylene Glycol - antifreeze;
- Petroleum Lubrication Oil - waste oil;
- Mobil Pegasos 805 - motor oil;
- Brominating Tablets;
- Mineral Spirits;
- Meras 2324 – corrosion inhibiter (Polymaleic acid, Hydroxyethylidene diphosphonic acid);
- Chemisis 6190 - corrosion inhibitor (polyethylene, sodium nitrite);
- Chemisis 4965 - corrosion inhibitor (unknown); and
- Chemisis 5520 – defoamer (unknown).
- Watercare 2381 – defoamer (unknown);
- Watercare 2323 – water treatment (potassium hydroxide).

In the course of conducting a Phase I Environmental Site Assessment of the Site, Quest personnel identified several areas of surface staining, which appeared to be impacted with petroleum hydrocarbons, and areas of wet soil or standing water.

Quest was retained by Byron Power to conduct a limited subsurface soil investigation in relation to observations/recommendations as identified in Section 6.3.8 of Quest's report titled *Phase I Environmental Assessment Report, APN: 99B-7050-001-10, 4901 Bruns Road, Alameda County, California* (Phase I), dated September 30, 2008.

On July 8, 2011, a Quest representative arrived at the Site to collect representative soil samples from areas of soil staining as identified in the Phase I (Figures 3 and Photographs 1 through 11). Upon arriving at the Site, Quest personnel observed additional areas of stained soils not originally noted in the Phase I report (Figure 3 and Photographs 12 through 15). Based on the field observations, additional soil sampling locations were completed. The samples were collected by hand augering a hole to the sample depths (12 and 24 inches below ground surface [bgs]). A total of six (6) sampling locations (S.01 through S.06) were selected and soil samples were collected at 12 and 24 inches bgs at locations S.01 through S.05, and at 12 inches bgs at location S.06. Initial scraping away of the gravel top cover at the Site revealed soil that appeared to be impacted with PHC's. Notable "green" stained coarse-grained (coarse sand) soil appeared prominent from ground surface to approximately 6 inched bgs. This soil was underlain by a moderately plastic fine-grained soil (silt/clay). Visual impacts to this fine-grained soil appeared to extend to at least 1 foot bgs. A "brown" fine-grained (silt/clay) soil was noted toward the base of each borehole. A total of eleven (11) soil samples were collected and

analyzed for Total Petroleum Hydrocarbons as gasoline (TPH-G), diesel (TPH-D), and motor oil (TPH-MO) by US EPA Method 8015B, Petroleum Oil & Grease (POG) by US EPA Method SM5520E/F, Volatile Organic Compounds (VOC's) by US EPA Method 8260B; Semi-Volatile Organic Compounds (SVOC's) by US EPA Method 8270C, PCB's by US EPA Method 8082, and LUFT 5 Metals by US EPA Method SW6010B. Soil samples collected for chemical characterization were transported to McCampbell Analytical, Inc., a State-certified analytical laboratory (ELAP #1644) of Pittsburg, California.

On July 29, 2011 Quest prepared the report *Soil Sampling and Analysis Report* for Byron Power summarizing the results of the limited soil investigation. Based on a review of the analytical data, PHC impacts to soil appeared limited to within 2 feet of the surface in the areas of surficial staining. Excavation and off-site disposal of the upper 2 feet of this soil to an appropriate landfill was recommended as the most feasible remedial method at the Site. Following excavation of the soils it was proposed that an appropriate number of confirmation soil samples should be collected and chemically analyzed to confirm the removal of impacted soils.

On February 23, 2012, ACEH requested the submission of a workplan to evaluate potential soil and groundwater impacts at the Site.

On April 10, 2011, Quest submitted a report titled *Site Assessment Work Plan*, which proposed a subsurface investigation to assess the vertical and lateral extent of soil impacts at the site. The Workplan was subsequently approved by the ACEH in a letter dated May 1, 2012.

On July 2, 2102, Quest conducted subsurface investigation at the Site. The investigation consisted of the completion of six (6) direct push soil borings (SP.01 through SP.06) from which sixteen (16) soil samples and two (2) groundwater samples (SP.01W and SP.03W) were collected and analyzed for key chemical constituents of concern. Soil samples collected from soil probes SP.01 through SP.05 were found to exceed the environmental screening level (ESL) for Phenol for soil above groundwater, which is a current or potential source of drinking water for residential or commercial/industrial land use. However, no soil samples were found to exceed the ESL for groundwater that is not considered or is a potential source of drinking water for residential land use. Groundwater samples from soil probe SP.01 were found to exceed the ESL's for TPH-D, TPHMO, and TBA for groundwater, which is a current or potential source of drinking water for residential or commercial/industrial land uses. No groundwater was encountered during a subsequent resample attempt adjacent to soil probe SP.01 (SP.07) completed on July 2, 2102. On August 6, 2012, Quest submitted a Report summarizing the findings of the investigation at the Site and made recommendations for interim remedial measures.

1.3 GEOLOGIC AND HYDROLOGIC CHARACTERISTICS

1.3.1 Regional and Local Physiographic Setting

The Site lies within the Coast Ranges Geomorphic Province, which extends approximately 550 miles in a northwest to southeast direction along the coast of California. The Coast Ranges

comprises a series of northwest to southeast-trending ridges and narrow valleys, whose orientations are controlled by the fault-dominated geologic structure of the region.

1.3.2 Surface Topographic and Hydrology

Regionally, the general topographic slope of the area is to the north-northeast, ranging from approximately 261 feet above msl in the south to approximately 61 feet above msl to the north of the Site. In the vicinity of the Site, the topography appears relatively level with an elevation of approximately 104 feet above msl (USGS, 1978; EDR, 2008(a)). Surface topography in the vicinity of the Site slopes moderately downward to the north and increases gently to the west. Nearby surface waters include Bethany Reservoir located approximately 0.90 miles southwest of the Site, the California Aqueduct is located approximately 1.20 miles west of the Site and the Delta Mendota Canal located approximately 0.70 miles east of the Site. The Site is not identified as being located within the 100-year zone or 500-year zone as defined by the Federal Emergency Management Agency (FEMA).

1.3.3 Geologic Review

The Site is underlain by soil referred to as the San Ysidro Series loam. The local vicinity surrounding the site is underlain by Altamont Series clay to the south and east, Linne Series clay loam to the northwest and southwest, and Rincon Series clay loam to the southwest, and San Ysidro loam to the north. The State Soil Geogrpahic Database (STATSGO) describes San Ysidro Series loam as moderately well drained soil with high corrosion potential. According to STATSGO database, the hydrologic group is categorized as Class D which are described as clayey, and having a high water or shallow to an impervious layer. In profile, the soil layers include loam from the ground surface to 16 inches below ground surface (bgs). The subsoil is clay from 16 to 33 inches bgs and silty clay loam from 33 inches to 59 inches. Permeability of the subsoil is very slow.

1.3.4 Hydrogeologic Review

The regional groundwater gradient is unknown. Information on the groundwater in the immediate vicinity of the Site is also not readily available. Review of State records (GeoTracker) did not indicate any groundwater monitoring wells near the Site to determine groundwater elevation. However, Quest reviewed boring logs dated May 23, 2006 for the Chevron Holey-Byron Road facility located approximately 2.7 miles north of the Site. According to the boring logs, depth to groundwater ranged from 2 ft to 5 ft bgs.

2 PROPOSED SITE ACTIVITIES

Quest has proposed the following scope of work to meet the objectives of the investigation and to satisfy ACEH requirements. Three specific work scopes have been identified, which are designed to assess the condition of soil and groundwater at the site. This work will consist of a field investigation, a laboratory-testing program, and the preparation of a technical report. This workplan and the activities summarized below are intended to be consistent with the requirements of the ACEH and the San Francisco Bay Regional Water Quality Control Board (RWQCB). Standard operating procedures (SOP's), relevant to the field and laboratory activities, are described in Appendix A. Figure 3 is a site plan illustrating the proposed sampling and monitoring well installation locations. The final soil sampling point locations and termination depths may be adjusted in the field, based on results of field screening, due to underground utilities, or other site improvements or obstructions.

2.1 FIELD INVESTIGATION

2.1.1 Groundwater Monitoring Well Installation

The field investigation workscope will consist of the installation of four (4) groundwater monitoring wells (MW.01 through MW.04) using a hollow-stem auger rig. Quest's geologist will examine soil cuttings and discrete soil samples produced during probing operations in order to prepare individual subsurface lithologic logs using the Unified Soil Classification System (USCS). The monitoring wells MW.01 through MW.04 will be completed to approximately 25 feet bgs, or to approximately 5 feet below the first occurrence of groundwater. Figure 3 depicts the typical monitoring well construction details. Actual locations and total depths may be changed in the field based on field conditions. In the event petroleum hydrocarbons are observed in individual soil probes, the individual soil borings will be advanced until there are no field indications of potential hydrocarbon impacts.

Quest will collect discrete soil samples, and representative groundwater samples to provide a quantitative evaluation of the subsurface PHC or COC impacts to soil and groundwater. The field activities will be completed by a licensed C-57 well drilling contractor under the supervision of a Quest geologist. It is anticipated that a total of eight (8) soil and four (4) groundwater samples will be collected in the field. This phase of the project is anticipated to take approximately five (5) field days to complete.

2.1.1.1 Wellhead Completion

All groundwater monitoring wells at the Site will be above-grade well completions. The well casing will extend to 1 to 2 feet above the ground surface with a locking watertight cap placed at the top of the casing. The above-ground section of each of the casings will be protected by a steel protective pipe with a locking cap, which will set at least 1-feet deep into a concrete surface seal. A concrete pad will be constructed around the protective steel pipe that will be sloped slightly away from the well. Figure 3 depicts the typical monitoring well construction details.

2.1.1.2 Soil Sampling

Soil samples will be collected during the construction of the monitoring wells. Soil samples collected at approximately 4 feet, and 8 feet bgs, or as deemed appropriate in the field. At least two (2) samples will be selected from each boring and submitted for chemical analysis. Discrete soil samples will be logged in the field using the USCS soil classification system. Soil samples will be screened for organic vapors using a PID and sealed on both ends with Teflon sheets and rubber end caps. Field screening procedures include the observation of the soil for lithologic data, odor, and unusual stains, and headspace analysis using a PID to detect the presence of organic vapors. Soil samples will be preserved in the field for laboratory analysis consistent with Quest's SOP's (Attachment A). Selected soil samples will be labeled and submitted to a State-certified laboratory under chain-of-custody protocol for chemical analysis. The backfill will consist of a Portland cement mixture, which will be emplaced through the use of a tremie pipe from the base of the borehole to site grade.

2.1.1.3 Groundwater Sampling

Once the groundwater monitoring wells have been installed and appropriately developed, Quest will collect one (1) groundwater sample from each of the four (4) groundwater monitoring wells. Static water level in each monitoring well will be measured prior to groundwater sampling. Groundwater samples will be collected using a bailer or 1/4" polyethylene tubing and a peristaltic pump. New clean tubing will be used at each location to collect groundwater samples. Groundwater samples will be preserved in the field and placed in laboratory supplied containers, labeled and delivered immediately to the on-site mobile laboratory under chain-of-custody protocol for chemical analysis consistent with Quest's SOP's (Attachment A). The groundwater samples will be collected into appropriate sampling containers, labeled, kept chilled at approximately 4ºC, and transported under chain-of-custody documentation to a state-certified laboratory for chemical analysis. The samples will be analyzed as indicated in Task 2.2 below.

2.1.1.4 Monitoring Well Elevation Survey

Following the installation of the groundwater monitoring wells the Site will be surveyed to determine ground surface/wellhead elevations and locations. The survey will be completed consistent with State Water Resources Control Board (SWRCB) and ACEH guidelines. The survey data collected during this phase will be referenced to a United States Geological Survey (USGS) benchmark or to a City or State available benchmark. The vertical and horizontal survey will be conducted to an accuracy of 0.01 foot. The survey data will be used to calculate groundwater gradient and flow direction consistent with Quest's SOPs.

2.1.1.5 Soil Cuttings, Decontamination Rinseate, and Purge-water Disposition

If in the course of field operations soil cuttings from the soil probes and rinseate from the decontamination of probe tools are generated, they will be containerized in United States Department of Transportation (DOT) approved containers, labeled and stored in a secure area at the Site. The disposition of the soil cuttings and rinseate will be determined based on the soil sample analytical results. The report for this site characterization will include a recommended method and time frame for disposal of the soil cuttings, and rinseate. Disposal of the soil

cuttings and rinseate will be the responsibility of the client. Quest will assist the client to arrange proper recycling/disposal.

2.1.2 Surface Impoundment and Scale Stockpile Sampling

In order to characterize the sludge at the base of the surface impoundment and the stockpiled scale debris, Quest will collect and analyzes samples of the material. The sludge will be sampled by collecting two (2) four-part composite samples from the sludge within the impoundment area. The scale debris will be sampled by collecting one discrete sample from the existing stockpile. The samples will be collected into appropriate sampling containers, labeled, kept chilled at approximately 4ºC, and transported under chain-of-custody documentation a state-certified laboratory for chemical analysis. The samples will be analyzed as indicated in Task 2.2 below.

2.2 ANALYTICAL TESTING PROGRAM

Soil, sludge, and groundwater samples will be collected and preserved in the field for transport to an analytical laboratory. The sample containers will be labeled, and stored at a temperature of less then 4 degrees centigrade (<4^{o}C), and transported to McCampbell Analytical of Pittsburg, California, a State-certified analytical laboratory, along with appropriate chain-of-custody documentation. Soil, scale, and groundwater samples collected will be analyzed for the following analytes:

ANALYTE	MEDIA	US EPA METHOD
TPH-MR	Soil, GW, Sludge, & Scale	8015M
VOC's	Soil, GW, Sludge, & Scale	8260B
Phenol & PAH/PNA's	Soil, GW, Sludge, & Scale	8270B+SIM
pH	GW	Field-Based Meter
Specifc Conductance	GW	Field-Based Meter
Temperature	GW	Field-Based Meter
CAM17	Sludge & Scale	200.8/6020A
% Moisture	Sludge	ASTM D2216-05
RCI (Reactivity, Corrosivity, Ignitability)	Scale	---
Asbestos	Scale	PLM

2.2.1 Quality Assurance/Quality Control (QA/QC) Program

The QA/QC program will consist of an analytical chemistry validation element. The analytical chemistry QA/QC element will consist of a transport validation. Transport validation will consist of a trip blank, of which one (1) will accompany each transport cooler to the analytical laboratory. This sample will be used to evaluate lab analytical and sample cross-contamination protocols. The laboratory trip blank will be analyzed for TPH-G, MTBE, and BTEX. Analytical labs used for this investigation will implement a QA/QC program which meet California Department of Health Services (DHS) and US EPA laboratory QA/QC protocols.

2.3 TECHNICAL REPORT

Upon completion of field and laboratory activities and receipt of the soil and groundwater analytical results, a technical report will be prepared summarizing the results and findings of the investigation and to provide recommendations. The report will include:

- An Introduction, purpose and objectives of the investigation;
- Site map showing monitoring well installation and sampling locations;
- Presentation of soil and groundwater analytical results (Tables and Figures);
- Soil boring logs;
- Field notes
- Tabular analytical summary;
- Certified laboratory analytical reports and chain-of-custody records; and
- Conclusions and recommendations for future well installation, if appropriate.

The investigation and the report preparation will be conducted under the direct supervision of and will be signed by a California Professional Geologist (P.G.) or Professional Engineer (P.E.). A draft report will be submitted to Byron Power for their review and comment. After receiving comments back from Byron Power a final report will be completed and delivered to Byron Power and the ACEH.

3 PROJECT QA/QC

This section describes the field and laboratory QA/QC procedures that will be implemented as part of this work plan.

3.1 FIELD PROCEDURES

The following records will be used to document the implementation of field activities conducted during the site investigation:

- Field data sheets;
- Photo-documentation record;
- Sample labels; and
- Chain-of-Custody form.

3.2 FIELD DATA SHEETS

Field data sheets will be completed during the site investigation to document field activities. The data sheets will include: daily field reports, air monitoring records, and geologic boring logs.

3.3 PHOTO-DOCUMENTATION RECORD

Photographs will be used to document the field activities and will be included as figure in the technical report of the investigation.

3.4 SAMPLE LABELS

Sample labels will be completed in waterproof ink, at the time of sample collection, and before the samples are delivered to the analytical laboratory. The following information will be included on the sample label: sample number, date and time, sample location and client, analysis and laboratory, preservative, samplers` initials, and project number.

3.5 CHAIN OF CUSTODY

A chain-of-custody record will be completed on-site as soil and groundwater samples are collected. The chain-of-custody will then be delivered with the samples to the laboratory. Information on the chain-of-custody record will include: sample date and time, sample ID and location, matrix, number of containers, required analyses, preservative, project manager's name, project number, project name and location, client and laboratory names, and sampler signatures.

4 SITE SPECIFIC HEALTH AND SAFETY PLAN (HASP)

The HASP for Quest personnel is presented in Appendix C. A copy of the HASP will be available on-site throughout the course of field activities. Quest's HASP is not intended, nor should it be used to cover other contractor's personnel assigned or involved with this project.

5 REFERENCES

EDR, 2008, EDR Radius Map with GeoCheck®: Consultants Report, Environmental Data Resources, Inc., Milford, Connecticut, April 23, 2008, 63 p.

Quest GSM, 2012a, Subsurface Site Characterization Report: Consultants Report, Quest GeoSystems Management, Rancho Cordova, California, August 6, 2012, 95 p.

Quest GSM, 2012b, Site Investigation Workplan: Consultants Report, Quest GeoSystems Management, Rancho Cordova, California, April 10, 2012, 59 p.

Quest GSM, 2011, Soil Sampling and Analysis Report: Consultants Report, Quest GeoSystems Management, Antioch, California, July 29, 2011, 55 p.

Quest GSM, 2008, Phase I Environmental Site Assessment Report, APN: 99B-7050-001-10, 4901 Bruns Road, Alameda County, California: Consultants Report, Quest GeoSystems Management, Antioch, California, July 30, 2008, 176 p.

FIGURES

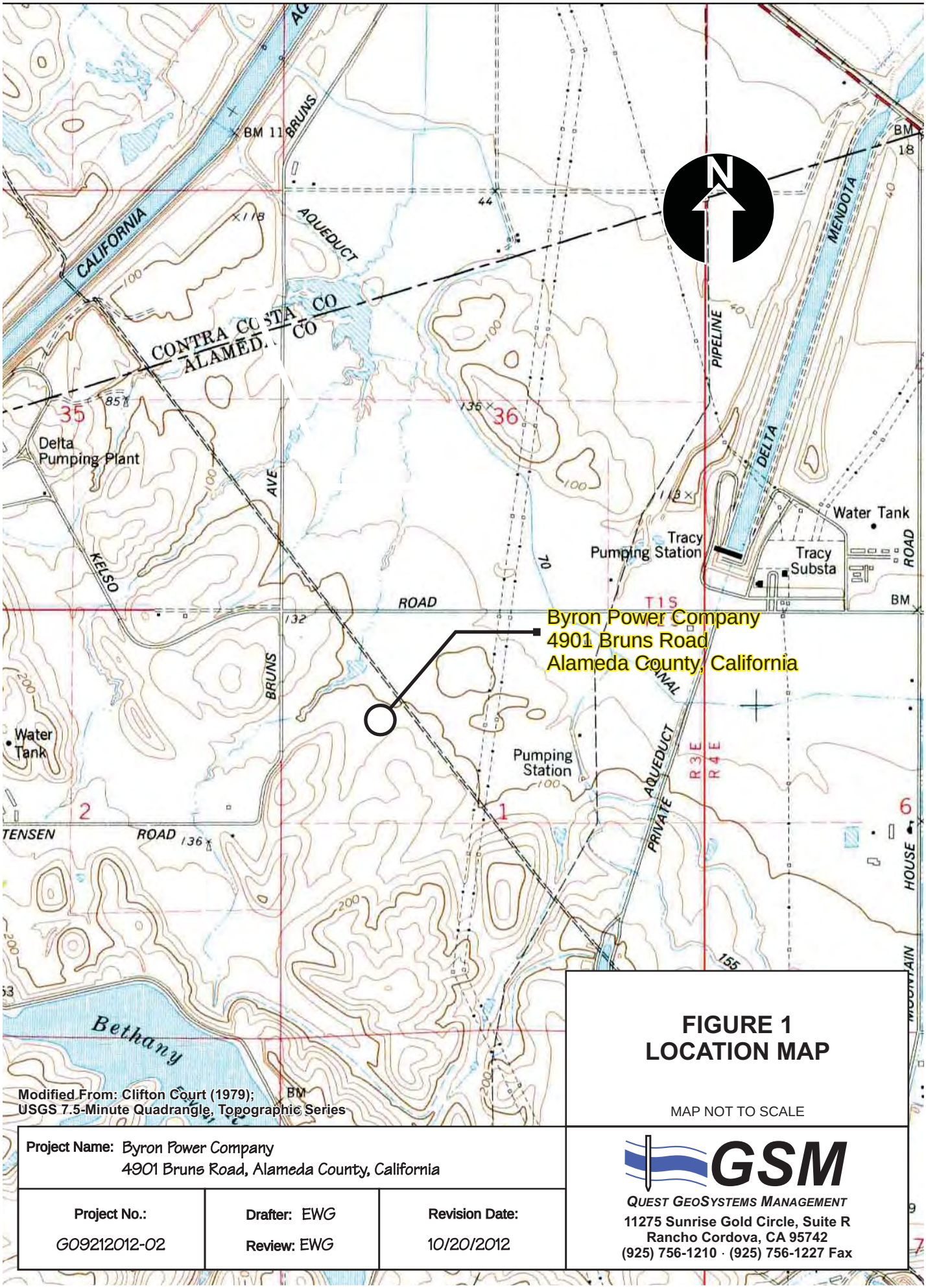

FIGURE 1
LOCATION MAP

MAP NOT TO SCALE

Project Name: Byron Power Company 4901 Bruns Road, Alameda County, California		
Project No.: G09212012-02	**Drafter:** EWG **Review:** EWG	**Revision Date:** 10/20/2012

GSM
QUEST GEOSYSTEMS MANAGEMENT
11275 Sunrise Gold Circle, Suite R
Rancho Cordova, CA 95742
(925) 756-1210 · (925) 756-1227 Fax

EXPLANATION

- SP.01 — Soil Probe Locations (06/04/2012 & 07/02/2012)
- MW.01 — Proposed Monitoring Well Locations
- SI.01 — Proposed Sludge & Scale Sample Locations
- Areas of Observed Soil Staining (05/20/2008)
- Areas of Observed Wet Soil (05/20/2008)
- Areas of Observed Soil Staining (07/08/2011)

50 0 50

SCALE: 1 inch = 50 Feet

FIGURE 2
SITE MAP DEPICTING PROPOSED SAMPLE AND MONITORING WELL LOCATIONS

Project Name: Byron Power Company
4901 Bruns Road, Alameda County, California

Project No.:	Drafter: EWG	Revision Date:
G09212012-02	Review: EWG	10/20/2012

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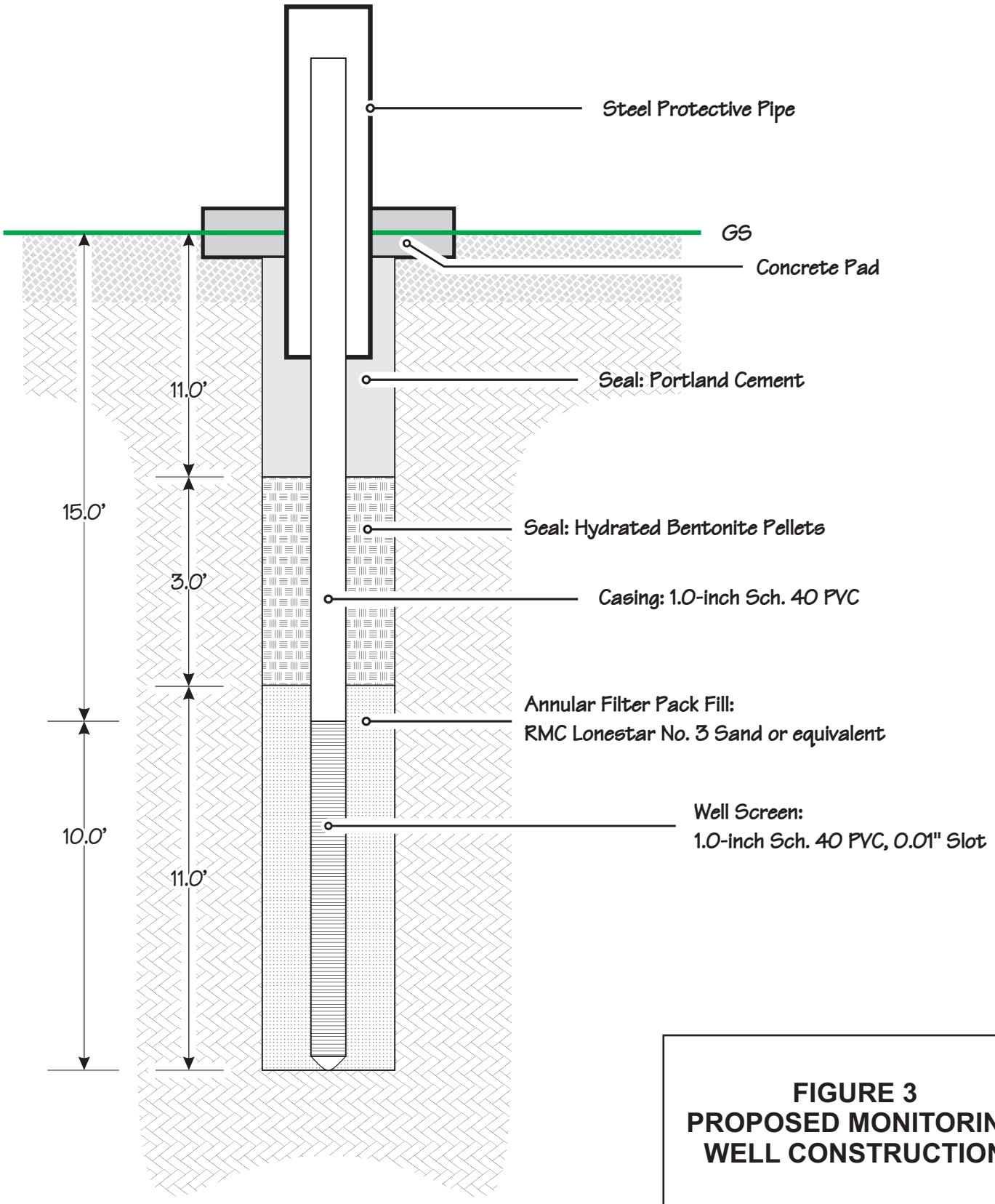

FIGURE 3
PROPOSED MONITORING WELL CONSTRUCTION

Project Name: Byron Power Company
4901 Bruns Road, Alameda County, California

Project No.:	Drafter: EWG	Revision Date:
G09212012-02	Review: EWG	10/20/2012

GSM
QUEST GEOSYSTEMS MANAGEMENT, INC.
11275 Sunrise Gold Circle, Suite R
Rancho Cordova, CA 95742
(925) 756-1210 - (925) 756-1227 Fax

Driving directions to Kaiser Permanente Medical Center
4501 Sand Creek Road, Antioch, CA
Distance: **19.97 miles** — Time: **29 mins**

A **4901 Bruns Rd, Byron, CA 94514-1914**

1. Head toward **Kelso Rd** on **Bruns Ave.**	Go for 0.2 mi.
2. Turn R onto **Kelso Rd.**	Go for 1.5 mi.
3. Turn L onto **Mountain House Rd.**	Go for 1.2 mi.
4. Turn L onto **Byron Hwy.**	Go for 5.2 mi.
5. Turn L onto **Camino Diablo.**	Go for 1.6 mi.
6. Turn R onto **Vasco Rd.**	Go for 3.4 mi.
7. Continue on **CA-4-BYP.**	Go for 2.5 mi.
8. Turn L onto **Balfour Rd.**	Go for 2.5 mi.
9. Turn R onto **Deer Valley Rd.**	Go for 1.8 mi.
10. Turn R onto **Sand Creek Rd.**	Go for 0.2 mi.

Your destination on **Sand Creek Rd** is on the **left. The trip takes 20.0 mi and 29 mins.**

B **4501 Sand Creek Rd, Antioch, CA 94531-8687**

FIGURE B-11.1A EMERGENCY FACILITY LOCATION MAP (PRIMARY)

Project Name: Byron Power Company 4901 Bruns Road, Alameda County, California		
Project No.: G09212012-02	**Drafter:** EWG **Review:** EWG	**Revision Date:** 10/20/2012

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QUEST GEOSYSTEMS MANAGEMENT, INC.
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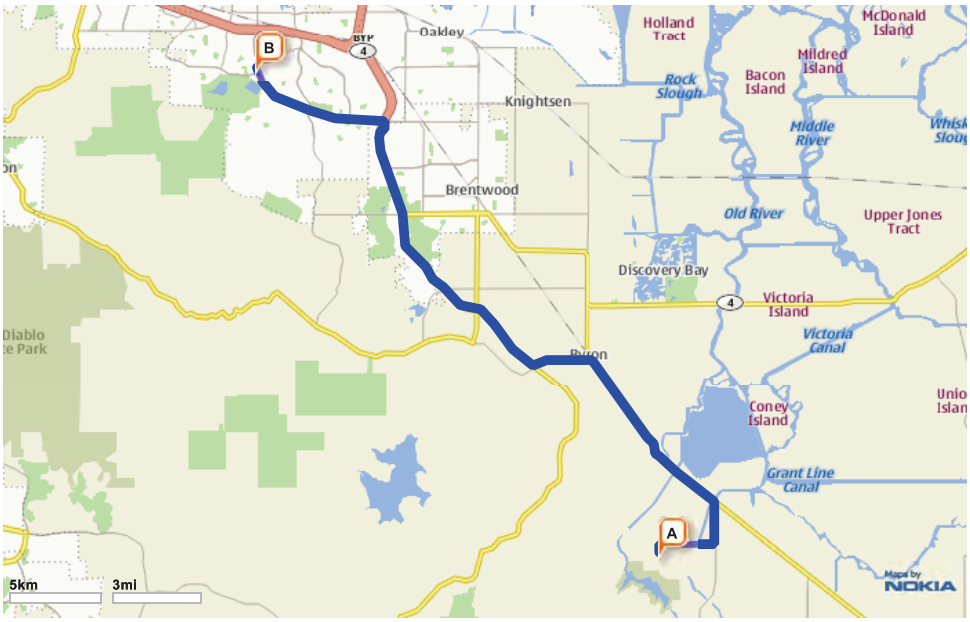
Driving directions to Sutter - Delta Medical Center
3901 Lone Tree Way, Antioch, CA, Antioch, CA

Distance: **22.26 miles** — Time: **33 mins**



A **4901 Bruns Rd, Byron, CA 94514-1914**

1. Head toward **Kelso Rd** on **Bruns Ave**.	Go for 0.2 mi.
2. Turn R onto **Kelso Rd**.	Go for 1.5 mi.
3. Turn L onto **Mountain House Rd**.	Go for 1.2 mi.
4. Turn L onto **Byron Hwy**.	Go for 5.2 mi.
5. Turn L onto **Camino Diablo**.	Go for 1.6 mi.
6. Turn R onto **Vasco Rd**.	Go for 3.4 mi.
7. Continue on **CA-4-BYP**.	Go for 2.5 mi.
8. Continue **straight**.	Go for 2.2 mi.
9. Take exit **#33/Lone Tree Way**.	Go for 0.3 mi.
10. Turn L onto **Jeffery Way**.	Go for 0.3 mi.
11. Turn L onto **Lone Tree Way**.	Go for 3.1 mi.
12. Continue on **Lone Tree Way**.	Go for 0.9 mi.

13. Your destination on **Lone Tree Way** is on the **right**. **The trip takes 22.3 mi and 33 mins.**

B **3901 Lone Tree Way, Antioch, CA 94509**

FIGURE B-11.1B EMERGENCY FACILITY LOCATION MAP (ALTERNATE)

Project Name: Byron Power Company
4901 Bruns Road, Alameda County, California

Project No.:	Drafter: EWG	Revision Date:
G09212012-02	Review: EWG	10/20/2012

GSM
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Rancho Cordova, CA 95742
(925) 756-1210 · (925) 756-1227 Fax

APPENDIX A
STANDARD OPERATING PROCEDURES
(SOP'S)

A-1. SOP'S FOR DRILLING, PROBING AND SOIL SAMPLING

Subsurface assessment and/or well construction permits are filed with the appropriate government agency before conducting field operations. Underground Service Alert (USA) is notified at least 48 hours prior to initiation of field activities. Quest GeoSystems Management, Inc. (Quest) uses only State-licensed C-57 well drilling contractors to perform subsurface drilling work. The soil borings are drilled under the direct supervision of a Quest California professional geologist or professional engineer.

A-1.1 GEOPROBE SCREEN POINT SAMPLERS

Please see attached Geoprobe Screen Point 15 and Screen Point 16 Groundwater Samplers SOP for the Standard Operating Procedures for this device.

A-1.2 BOREHOLE/SOIL PROBE COMPLETION

The soil boring/probe may be completed as groundwater monitoring wells, or abandoned by grouting with Portland cement. Abandonment procedures depend upon the boring depth, depth to groundwater, project objectives, and regulatory requirements. For boring greater than 15 feet deep, grout is emplaced through hollow-stem augers or probe stem, which will extend to within 15 feet of the bottom of the boring. If required by the local regulatory agency, grout is emplaced by pumping through tremie pipe, which will typically extend to within 15 feet of the bottom of the boring. The tremie pipe or augers are withdrawn from the boring in 5-foot increments as the boring is filled with grout.

A-1.3 SOIL CUTTING CONTAINMENT AND DISPOSITION

Soil cuttings generated during drilling are containerized in United States Department of Transportation (DOT) approved drums, or placed on and covered with plastic sheeting, and stored on-site in an area inaccessible to the general public. Typically, the stockpiled soil is characterized by collecting and analyzing composite samples from the stockpile. Quest can recommend an appropriate method for disposition of the cuttings based on the analytical results. Disposal will be the responsibility of the client.

A-2. SOP'S FOR GROUNDWATER SAMPLING

A-2.1 GROUNDWATER SAMPLING

Please see attached Geoprobe Screen Point 15 and Screen Point 16 Groundwater Samplers SOP for the specific groundwater sampling SOP for this device. In addition to the device specific procedure, the following will also be completed:

- The water is poured gently from the bailer or other sampling device into the sample containers. For zero-head space samples, the sample containers will be overfilled to form a convex meniscus. The caps will be carefully screwed on, the bottle inverted and gently tapped to check for the presence of air ("head space"). If an air bubble is present, the bottle will be opened emptied and the procedure repeated. If a bubble appears twice in succession, the bottle will be discarded and a new sample will be prepared;
- Samples will be tightly capped, labeled, sealed in separate plastic bags, and immediately placed on ice in a clean cooler; and
- One (1) duplicate sample will be collected for every ten (10) wells sampled. These samples will be analyzed for the same analytes required for the primary sample.

A-3. SOP'S FOR EQUIPMENT DECONTAMINATION

Proper decontamination procedures reduce the potential for: cross-contamination among sample locations; and introduction of contamination from outside sources. Before, during, and following drilling operations, drilling equipment is thoroughly cleaned using a high-pressure hot water (steam) washer. Well casing, screen, end caps, and centralizers will also be cleaned using the steam washer. Steam cleaning condensate will be containerized for later disposal. Generally, disposal will be the client's responsibility. Sampling equipment and any tools, measuring devices, or other equipment, which will contact soil, groundwater, or any media being assessed, will be washed in a low-phosphate soap and water solution, and rinsed in clean water before each use. The type of soap used will depend upon project requirements.

A-4. SOP'S FOR SAMPLE HANDLING AND CHAIN-OF-CUSTODY

Records are developed for samples which include: sampling date, sample type, location, job number, name of sampling personnel, and method of preservation. Each sample container is labeled immediately following collection. Chain-of-custody protocol, as described in United States Environmental Protection Agency, 1986, Test Methods for Evaluating Solid Waste, SW-846, Third Edition, is followed. Samples will be maintained at approximately 4^{o}C. Upon arrival at the laboratory, the samples will be preserved for analysis as appropriate. The Quest representative in charge of the field work transport or direct the transportation of the samples and custody forms to the laboratory, where the samples are transferred to the sample control department. A receiving clerk, or an authorized analyst signs the custody forms, then presents a duplicate copy to the Quest representative, and transfers the samples to a laboratory analyst. The laboratory manager retains possession of the custody forms during analyses of the samples. The laboratory manager's responsibilities include monitoring the sample integrity within the laboratory. This involves assigning each sample a laboratory number and maintaining cross-reference between the sample's field and laboratory identifications. The analysts' responsibility includes maintaining accurate records of the samples analyzed along with the analytical data produced. This involves labeling chromatograms and maintaining the laboratory numbers on sub-samples taken from the submitted samples, labeling glassware used in the analyses, and properly labeling sample extract containers with each sample's laboratory number. Following analyses, the samples are transferred to a limited-access storage room. Chain-of-custody forms, chromatograms, and other pertinent information are filed for future reference. Splits of samples analyzed are kept for 30 days. Samples containing hazardous concentrations will be returned to the client for disposal.

A-5. SOP'S FOR USING PHOTOIONIZATION DETECTOR (PID) AND/OR SENSIDYNE (OR EQUIVALENT) TUBES

The PID is calibrated in accordance with the manufacture's recommendations prior to use in the field. Upon arrival at the project site, the PID is used to monitor background concentrations of organic vapors in the atmosphere at the site. The background concentrations are measured in a location upwind and removed as possible from sources of organic vapors on the site. When background concentrations of organic vapors register as "0.0" on the PID, subsequent readings of "0.0" registered from samples tested in the field are recorded as "ND" (not detected). When background concentrations of organic vapors register at some quantity above "0.0", subsequent readings registered from samples tested in the field at or below this value are recorded as "B/G" (background). The Sensidyne tubes used are consistent with the type of analyte, which is suspected as being present on the project site (i.e. for gasoline product use the benzene tube, for diesel product use the petrol-hydrocarbon tube, etc.). Prior to use, the tubes are examined to insure the shelf life expiration date has not expired and the tubes have not been opened or damaged. Tubes are only used for one test. The Sensidyne Gas Detector Pump is used with Sensidyne tubes to insure accuracy. Prior to use, the pump is examined to insure it is in proper operating condition. The tube is opened and inserted into the pump just prior to use. The pump is stroked the number of times required by the specific tube in use (i.e. 2 strokes for the petrol-hydrocarbon tube). After each stroke, the pump is allowed to open to the full extent of the arrestor chain (10 to 20 seconds). If the analyte is present in the sample, the material within the tube will discolor. The extent of the discolored material corresponds to the concentration of the analyte present. Readings from the tube are recorded based upon the amount of discolored material read from the calibrated markings on the tube. In the event the discoloration should extend beyond one marking, but not to the next, this is recorded as "greater than (>)" the lower value. (i.e. if the discoloration extends beyond 300 ppm but does not reach 500 ppm, this would be recorded as >300 ppm). The exception to this is when the discoloration reads less than the lowest value, this is recorded as "less than (<)" the lowest value on the tube. After use, tubes are disposed of as hazardous material because the contents are corrosive and the broken glass tip is a cut hazard.

A-6. DECONTAMINATION RINSATE, MONITORING WELL PURGE WATER, AND SOIL CUTTINGS DISPOSAL

The soil cuttings generated by drilling operations are retained on-site, and either covered by plastic sheeting or containerized in United States DOT-approved drums. The drilling equipment decontamination rinseate is also stored in drums. Water purged from monitoring wells is containerized in drums, if contamination is known or suspected. Drums containing soil, rinseate, and purged water are sealed and temporarily stored on-site at a location remote to the public. Each drum is labeled to identify its contents. Disposal of these wastes will be the responsibility of the client. The client will be informed that the wastes must be disposed in accordance with applicable Federal, State, and local regulations.

A-7. SOP'S FOR PERFORMING HEAD SPACE ANALYSIS

Headspace analysis is performed using a PID or a Sensidyne (or equivalent) tube. A soil sample is placed in a sealed glass container or plastic bag, agitated, and placed in a warm atmosphere. After approximately 15 minutes, which is generally sufficient for some of the volatiles to escape from the soil, the PID probe or tip of the Sensidyne (or equivalent) tube is inserted into the container and the gas is sampled. The highest concentration of organic vapors recorded by the PID or the Sensidyne (or equivalent) tube reading will be recorded.

APPENDIX B
SITE SPECIFIC HEALTH AND SAFETY PLAN (HASP)

B-1.0 INTRODUCTION

This Site Specific Health and Safety Plan (HASP) describes the health and safety procedures for the work activities planned at the Byron Power facility located at 4901 Bruns Road, in Alameda County, California. Quest personnel will abide by this HASP. It is intended that all project work will comply with applicable codes and regulations of the California and the United States Occupational Safety and Health Administration (CalOSHA/OSHA). Each field team member working on this project will have the general responsibility to identify and correct any health and safety hazard and strive to keep the work place safe.

B-1.1 PROJECT DESCRIPTION

The proposed work performed by Quest will involve the installation of four (4) groundwater monitoring wells, the collection of soil and groundwater samples, and the subsequent chemical analysis of the samples off-site. Encountered soils and groundwater may contain petroleum hydrocarbon constituents.

B-1.2 KEY PERSONNEL AND RESPONSIBILITIES

The following personnel who will have the overall responsibility for the safe operation of this investigation are:

- Project Director: Eric W. Garcia
- Project Safety Officer: Eric W. Garcia
- Task Safety Leader: Eric W. Garcia

It is the responsibility of the above-designated personnel to:

- Implement the site safety training program for project field team members as described in this document;
- Assure that field personnel have read, understand and acknowledge in writing this HASP;
- Establish effective traffic and pedestrian control around the drill or excavation site;
- Insure the adequate drilling or excavation site security is maintained;
- Perform workplace surveillance for flammable/explosive conditions and insure that there is a portable fire extinguisher located on-site;
- Provide nitrogen gas for the down-hole flushing of vapors if conditions are deemed to be appropriate;
- Observe activities to insure the proper use of personal protective equipment such as hard hats, protective eye-wear, coveralls (Tyvek, etc.), respirators, gloves, and steel-toe boots, etc.;
- Inspect safety equipment for use by all field personnel to insure that it has been maintained and is in a usable condition;
- Shut down or modify field work activity based on the criteria presented in Section B-8.0 and B-11.0;

- Initiate outside emergency phone calls when an emergency or accident requires medical attention; and
- Insure that all field personnel meet or exceed the minimum requirements for health and safety training, medical monitoring, and respiratory fit testing as required by OSHA 29 CFR 910.120.

All field personnel will have a responsibility to:

- Read, understand, and follow this plan;
- Perform work safely;
- Report any unsafe conditions to the immediate supervisor;
- Be aware and alert for signs and symptoms of potential exposure to site contaminants and health concerns;
- Attend the Site safety training program meeting;
- Insure drilling equipment and other machines are properly inspected and maintained and in compliance with applicable sections of the CalOSHA/OSHA Health and Safety Codes; and
- Maintain safety related equipment such as hard hats, Tyvek coveralls (or equivalent), gloves, safety eye-ware, respirators, etc., as specified in this plan.

B-2.0 HAZARD EVALUATION

This HASP addresses specific on-site work activities related to the drilling, excavation and the collection of samples and data from the project site. While the basic Work Plans and HASPS are by now very familiar to Quest field crews, work on certain sites, particularly in Category A, B, and C protective equipment, involve exposure potentials to various contaminants and possibly to contaminants at unpredictable levels.

Based on the historical and technical data available, this HASP covers anticipated activities and hazards, and makes provision for modification or amendment as health-related data is obtained during this investigation. This HASP will be amended with site-specific hazard(s) identified as posing potential health hazards for workers. For select sites, the Project Safety Officer will conduct a preliminary survey involving air and bulk soil sample analysis, and amend the HASP as needed.

As analytical data become available, the Health and Safety Task Leader will evaluate the information. The Project Safety Officer or the Task Safety Leader will initiate appropriate action in the form of Work/Health and Safety Plan Modifications.

The anticipated activities of this investigation will include:

- The advancement of four (4) soil boring locations using hollow-stem auger;
- Installation of four (4) groundwater monitoring wells;
- Direct reading hydrocarbon monitoring by Photo Ionization Detector (PID) of ambient conditions during drilling and excavation activities;
- Collection of eight (8) soil and four (4) groundwater samples for chemical analysis;
- Sample preparation packaging and shipment of samples for chemical analysis; and
- Analysis of selected samples by subcontracted laboratories (not covered under this HASP).

The general categories of hazards associated with this investigation are:

- Physical hazards: cuts, contusions, slips, trips, falls, being struck by moving objects, being caught by rotating objects; also muscular injury potentially caused by overexertion or improper movement (e.g. back injury due to improper lifting), etc.;
- Electrical hazards: possible excavation of buried cables, exposure to overhead power lines, wet electrical cords, removal of power equipment, etc.;
- Chemical hazards: exposure to chemicals/contaminants listed in Section B-4.0 of this HASP and exposure to extraction solvents, etc.;
- Fire hazards: possible excavation of buried utilities, flammable petroleum hydrocarbons, equipment fires, etc.;
- Thermal (heat stress) hazards: exposure to outside temperature extremes, and/or increased body temperatures while wearing protective clothing/equipment, etc.;
- Acoustical hazards: exposure to excessive noise created by drilling operations and/or related to the site-specific operations, etc.; and

- Routine job related hazards in the subcontractors' laboratory. This HASP covers neither these hazards nor any activities performed in the subcontractors' laboratory.

Job hazard analyses associated with most major work activities are presented in the following sections.

B-2.1 SOIL PROBING AND HOLLOW-STEM AUGER DRILLING

Hollow-stem auger drilling activities will potentially expose field personnel to the following hazards.

5.1.1 B-2.1.1 Chemical hazards

Potential exposures to chemical hazards associated with hollow-stem augering include the following:

- Exposure to various chemical substances, including, but not limited to, petroleum hydrocarbon liquids and vapors, caustic and acidic mists, and petroleum contaminated soils, sledges, or liquids. Certain precautions may be necessary to properly control the potential fire/explosion/health hazards associated with these chemicals.

5.1.2 B-2.1.2 Physical hazards

Potential exposures to physical hazards associated with hollow-stem augering include the following:

- Snapping cables;
- Brush, equipment, gas-main, or hydrocarbon fires;
- Being hit by equipment;
- Becoming entwined in rotating tools;
- Falling objects;
- Exposure to excessive noise;
- Exposure to outside temperature extremes;
- Exposure to the potential for heat exhaustion due to protective clothing;
- Slip, trips, and falls;
- Buried cables and underground utilities;
- Overhead utility hazards; and
- Not using the proper tool for the job.

5.1.3 B-2.1.3 Heat Stress/Stroke and Noise

During day-to-day fieldwork, the on-site engineer/geologist and/or Project Safety Officer will be alert for the signs and symptoms of heat stress. Potentially hazardous situations exist when individuals are required to work in warm or hot temperatures while wearing protective clothing. When the ambient air temperature exceeds 85^{o}F, heat stress may become a problem. For an un-acclimated person, this temperature may be less. If these conditions are encountered, the following precautions will be taken:

- The on-site engineer/geologist or safety officer will regularly monitor the ambient air temperature; and
- Field team members will be observed for the following signs and symptoms of heat stress:
- Profuse sweating;
- Skin color change;
- Increased heart rate;
- Vision problems; and
- Body temperatures in excess of 100^{o}F as measured by fever detectors (forehead strips may also be used).

Any team member who exhibits any of these signs or symptoms will be removed immediately from field work and be requested to remove impervious clothing, and consume electrolyte fluid or cool water while resting in a shaded area. The individual will be instructed to rest until the symptoms are no longer recognizable. If the symptoms appear critical, persist, or get worse, immediate medical attention will be sought.

While working around drilling equipment, the potential exists for exposure to excessive noise. If noise levels are known/believed to exceed 85 dBA-8 hours per day, all individuals will be instructed to use adequate hearing protectors (ear plugs). All field team members will be given background and annual evaluations. All field team members have been/will be trained in noise hazards and how to wear protective equipment.

B-2.4 SAMPLING FOR CHEMICAL ANALYSIS

Soil samples will be collected for the purpose of observation, soil logging, and chemical analysis. Some of these samples may contain high levels of hazardous materials creating the potential for chemical inhalation exposure, skin contact, and possibly even ingestion. These activities may pose one of the greatest risks of chemical exposure for the site assessment work plan. Appropriate worker training, protective measures, and medical monitoring will be enforced to control this health hazard potential.

B-2.5 PACKAGING AND SHIPMENT OF SAMPLES

After the samples have been collected in sample containers, they will be promptly packaged to protect shipping personnel. The hazards associated with shipping samples are minimal, provided care is taken to prevent the containers from leaking or breaking. Additionally, sample containers will be plainly marked in case of exposure.

B-2.6 SAMPLE PREPARATION AND ANALYSIS

The preparation of samples for analysis may expose the technician to routine hazard associated with laboratory work. Standard laboratory safety procedures should be used to prepare and analyze these samples. The samples should be treated carefully and handled inside a properly operating fume hood due to their potentially volatile and hazardous nature. In the event of a mishap, the laboratory supervisor should be notified immediately.

B-3.0 SAFE WORK PRACTICES & LEVEL OF PERSONAL PROTECTION

The following sections present procedures on how to adequately address the primary potential hazards encountered in the different tasks of this project. The standard level of personal protection is also defined.

Based on the work to be performed and the type of chemical hazards that may be encountered, EPA Level D personal protection has been determined to be adequately protective and suitable for most of the tasks in this project. Certain tasks may require a higher level of protection, such as air-purifying or air-supplied respirators. These determinations will be made by the Project Safety Officer or Task Safety Leader and will be specified as amendments to this section of the HASP.

B-3.1 POTENTIAL FIRE/EXPLOSION HAZARD

Due to the flammable nature of the hydrocarbons, the Quest task leader will carefully monitor explosive vapor conditions. The lower explosive limit (LEL) for gasoline hydrocarbons is approximately 1.4% in air. Using a 10-fold safety factor, a working criterion of 1,400 parts per million (ppm) (10% LEL) as measured by a PID is established for explosion hazards. This criterion is based on the LEL of gasoline. Should total hydrocarbon levels of 1,400 ppm or above be detected near the perimeter of the excavation, work will be stopped until hydrocarbon concentrations diminish below the set criteria. Additionally, if measurements obtained near the boreholes reveal this concentration, nitrogen gas will be injected into the well to reduce the possibility of explosion. Additionally, the field crew will be instructed to stay upwind until these conditions diminish. Gasoline range hydrocarbons may also be present in soil encountered during this investigation.

B-3.2 POTENTIAL HEALTH HAZARDS

Depending on the conditions encountered, the Task Safety Leader in coordination with the Project Safety Officer may increase or decrease the level of personal protection required for all field team members. Such decisions will be made based on the initial and periodic measurement of the breathing zone concentrations of petroleum constituents by PID and on other data collected as work is conducted at the site.

Generally speaking, EPA Level D Personal Protection will be in accordance with the following guidelines:

- Hard hat;
- Safety glasses;
- Ear plugs (as required); and
- Steel-toe boots.

Some guidelines representing EPA Level C personal protection that may be used are:

- Tyvek coveralls (or equivalent), neoprene boots and rubber gloves (to be worn by any personnel who handle contaminated drilling equipment;

- Individuals at drilling or excavation sites not directly exposed to contaminated soils or liquids may not need to wear Tyvek coveralls due to the increased hazards of heat stress when wearing this type of clothing;
- Latex or PVC disposable gloves should be worn under butyl rubber or nitrile gloves to provide an extra measure of hand protection when handling heavily contaminated soils and water samples;
- Chemical splash goggles will be worn when increased splash hazards exist, such as steam cleaning activities, or during the handling of contaminated liquid samples; and
- Respiratory protection will be worn during drilling and excavation activities that expose workers to hazardous levels of airborne contaminants. Direct reading personal breathing zone monitoring will be performed. The criteria established for the use of respiratory protection are discussed in Section B-4.0.

B-3.3 POTENTIAL HEAT STRESS HAZARDS

During conditions when the temperature, humidity, and/or radiant heat are high and air movement is low, the following procedures will be followed to prevent heat stress hazards for workers wearing protective clothing/equipment:

- Work activity will be limited to reduce the amount of heat naturally produced by the body. Alternating work and rest periods will be used in high potential conditions. For example, in moderate conditions, 5-minute rest breaks in the shade with 60-minute work periods in the sun may be desirable. Under severe conditions, the duration of rest periods will be increased as necessary;
- Heavy work will be performed during the cooler periods of the day when feasible;
- Under heat stress conditions, special attention will be given toward assuring workers replace lost body fluids. Each company will provide adequate supplies of cool drinking water or electrolyte solution for their own employee's use. Workers will be instructed in the need to replace fluids throughout the working day; and
- Special care and attention will be paid to field crewmembers that may not be acclimated to the area.

B-3.4 POTENTIAL NOISE HAZARDS

Issuance and use of hearing protection as instructed by the Task Safety Leader or Project Safety Officer will control exposure to excessive noise.

B-4.0 HYDROCARBON VAPOR HAZARD CRITERIA

Exposure to elevated levels of hydrocarbon vapors present potential health risks that must be addressed. Work practices and methods will be used to limit exposures. Where elevated exposures persist, respiratory protection will be used to protect personnel from inhalation of hydrocarbon vapors. The hydrocarbon vapors expected to be encountered during the field portion of the work plan are composed of a variety of volatile refined petroleum constituents. Most of these chemicals have limited toxicity thus requiring minimal controls at the concentrations that are anticipated to be encountered. There are certain components, such as benzene vapors, that present significant toxicological hazard and must be properly controlled. Water, soil, and vapor samples collected near the point of release commonly contain benzene at 1% of the total hydrocarbon constituents. Criteria for the use of respiratory protection are based on limiting potential exposure to benzene.

A limit of 100-ppm total hydrocarbon is proposed as the maximum acceptable level of exposure without respiratory protection. A PID will be used to measure real-time breathing zone concentrations for comparison with the 100-ppm limit. When a persistent level of 100 ppm is noted to exist, field team members will don an appropriate respirator. In a typical situation, 1% of the hydrocarbon vapor being benzene, a 100-ppm concentration of total hydrocarbon would result in a breathing zone level of less that 1-ppm benzene. This level is one tenth of the Permissible Exposure Limit (PEL) for an 8-hour occupational exposure to benzene.

To assure benzene exposures are below a 1-ppm limit, Sensidyne (or equivalent) benzene detector tubes will be used if PID measurements indicate persistent hydrocarbon levels above 30 ppm. These detector tubes are not compound specific and may respond to other less petroleum hydrocarbons such as toluene, xylene, and ethylbenzene. In the event that benzene detector tube measurements indicate that benzene levels exceed 1 ppm, respirators will be required.

If benzene concentrations exceed 10 ppm, work will cease. The field crew will be instructed to stay upwind of the borehole/excavation until the concentrations subside. This is considered a conservative approach since the Sensidine detector tubes may respond to several hydrocarbons other than benzene.

Tables B-4.1 summarizes the various hydrocarbon vapor concentrations and appropriate responses to prevent exposure to these potential vapor hazards.

TABLE B-4.1 - HYDROCARBON VAPOR CRITERIA AND RESPONSES

HYDROCARBON CONCENTRATIONS		RESPONSE
<30 ppm TVH General Work Areas		❑ Limited hazard, no special action.
30 - 100 ppm TVH General Work Areas		❑ Benzene detector tube measurements taken every 30 minutes.
100 - 1,400 ppm TVH General Work Areas		❑ Half-mask organic vapor respirators worn by all in work area. ❑ Benzene detector tube measurements taken every 30 minutes.
>600 ppm TVH Well Head Emissions		❑ Flush down hole with nitrogen gas.
>1,400 ppm TVH General Work Areas		❑ Half-mask organic vapor respirators worn by all in work area. ❑ Benzene detector tube measurements taken every 15 minutes until levels are well below 1 ppm.
>10 ppm Benzene General Work Areas		❑ Work stops; procedures taken to subdue excessive vapor levels. ❑ Benzene detector tube measurements taken every 15 minutes until levels are well below 1 ppm.

Notes:

TVH = Total Volatile Hydrocarbons
ppm = Parts per million

B-5.0 PERSONAL PROTECTIVE CLOTHING/EQUIPMENT REQUIREMENTS

This section specifies personal protective clothing/equipment required for the various tasks to be performed during this investigation. Table B-5.1 summarizes these requirements.

B-5.1 PROBING, DRILLING AND EXCAVATION OPERATIONS

- Respiratory Protection: All field personnel will be required to have available for use a properly fit tested half-mask air purifying respirator with organic vapor cartridges and particulate pre-filters. These will be required to be worn based on the criteria listed in Section B-4.0;
- Protective Clothing: All field personnel who handle contaminated soils, liquid, or equipment will wear semi-permeable (white) Tyvek coveralls (or equivalent). Company issued safety helmets will be worn by all personnel during the field work;
- Hand Protection: All personnel handling auger flights and contaminated soils will wear Butyl rubber or nitrile gloves. Wearing disposable latex or PVC gloves under the butyl gloves will provide added protection and aid in a more effective decontamination process;
- Ear Protection: Based on anticipated on-site noise measurements, field personnel may be required by the Task Safety Leader or Project Safety Officer to wear hearing protection devices (ear plugs) during drilling operations;
- Eye Protection: Each field team member will wear a minimum of impact-resistant safety glasses with attached side shield. Where splashes of potential hazardous liquid or flying particles are likely, chemical safety goggles will be required in place of safety glasses; and
- Foot Protection: Field personnel will wear neoprene rubber boots with steel toes and shanks. Under non-liquid exposure conditions, leather boots with steel toes and shanks are permissible. The boots will be taped to the leg of Tyvek suits. Rubber gloves, Tyvek coveralls, and neoprene boots may not be required if soil or water is not obviously contaminated, or if PID measurements of the soil samples collected during the investigation are below 500 ppm.

B-5.2 SAMPLE COLLECTION

Personnel who may be exposed to contaminated samples and/or liquid splashes will be required to wear the following equipment:

- Respiratory Protection: All field personnel will be required to have available for use a properly fit tested half-mask air purifying respirator with organic vapor cartridges and particulate pre-filters. These will be required to be worn based on the criteria listed in Section B-4.0; and
- Protective Clothing: All sampling personnel will wear semi-permeable (white) Tyvek coveralls (or equivalent) when contact with contaminated soil or liquids are likely to occur. Company issued safety helmets will be worn by all personnel during the field work.

TABLE B-5.1 - PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

MANDATORY ITEMS		AVAILABLE ITEMS
Drilling and Excavation Operations		
5.1.3.1 Drilling/Excavation Crew		
Tyvek Coveralls*		Respirator
Chemically Resistant Gloves*		Splash Goggles
Neoprene Safety Boots*		Ear Plugs
Safety Helmet		Safety Glasses
Geologists/Engineers		
Neoprene Safety Boots*		Respirator
Safety Helmet		Splash Goggles
Safety Glasses		Ear Plugs
		Tyvek Coveralls
		Chemically Resistant Gloves
Surveyors/Safety Personnel		
Neoprene Safety Boots*		Respirator
Safety Helmet		Splash Goggles
Safety Glasses		Ear Plugs
		Tyvek Coveralls
		Chemically Resistant Gloves
Packaging and Shipping Samples		
Sample Controller		
Safety Glasses		Respirator
		Chemically Resistant Gloves
Packaging and Shipping Samples		
Analyst		
Safety Glasses		Respirator
		Chemically Resistant Gloves

Notes:

* = Not required if soil or water not visibly contaminated, or if PID measurements of the soil samples are below 500 ppm

Hand Protection: Butyl rubber or nitrile gloves will be worn over disposable latex or PVC gloves;

- Eye Protection: Each field team member will wear a minimum of impact resistant safety glasses with attached side shield. Where splashes of potential hazardous liquid or flying particles are likely, chemical safety goggles will be required in place of safety glasses; and
- Foot Protection: Field personnel will wear neoprene rubber boots with steel toes and shanks. Under non-liquid exposure conditions, leather boots with steel toes and shanks are permissible. The boots will be taped to the leg of Tyvek suits.

B-5.3 PACKAGING AND SHIPMENT OF SAMPLES

- Hand Protection: Butyl rubber or nitrile gloves will be worn over disposable latex or PVC gloves;
- Eye Protection: Impact-resistant safety glasses with attached side shield will be worn while packaging samples for shipment; and
- Packaging and Shipping Requirements: All samples will be shipped strictly to a State-certified analytical laboratory. Shipping must comply with U.S. DOT regulations. The following instructions will be followed to comply with DOT regulations:
  - Seal all lids with tape;
  - Wrap the primary container with absorbent brown paper (wading);
  - Place the primary container in a plastic bags (zip-lock or equivalent);
  - Place into an “ice chest” with synthetic ice or equivalent;
  - Tape or secure the “ice chest” lid and secure with a chain-of-custody seal (if applicable); and
  - Classify the containers according to the DOT regulations.

In the event that samples are to be personally transported to the State-certified laboratory, some of the above packaging and shipping requirements may not apply. Any questions should be referred to the Project Manager.

B-5.4 SAMPLE PREPARATION AND ANALYSIS OF SAMPLES

All laboratory safety practices should be accomplished in accordance with the specific laboratory’s’ policy. Quest, its owners, clients, employees, and representatives are not responsible for safety on laboratory premises. Therefore, both shall be held harmless in the event of any mishap, accident, or long-term adverse health effects occurring or originating at the subcontractor laboratory.

B-6.0 WORK ZONE ACCESS

During drilling or excavation operations, a work zone shall be established and roped off. This zone should include all drilling equipment and/or other necessary equipment and its immediate vicinity. Only authorized personnel will be permitted to enter this work zone. Authorized personnel will include those who have duties requiring their presence in the work zone; have received appropriate health and safety training, and whose background medical records may be obtained to verify that the health of that individual is not at extreme risk by his/her presence.

B-7.0 DECONTAMINATION PROCEDURES

The Work Plan specifies initial drilling, excavation and sampling at areas where petroleum hydrocarbon contaminated soils, sledges, liquids, and/or vapors are anticipated. Due to the volatile nature of the petroleum hydrocarbons that may be encountered during the initial drilling, excavation and sampling operations, decontamination of equipment and vehicles will be of minimal importance since the volatile hydrocarbons will rapidly vaporize. However, contaminated sampling equipment and any obvious contaminant accumulations will not leave the project site. Field team members will also abide by the following guidelines to insure that contaminants will not remain in contact with their body:

- All personnel involved in the field portion of the work plan will be instructed to wash their hands, face, neck, and arms at the end of the workday. Quest will assure the presence of soap, water, and towels at the drilling site for this purpose. All crews will be instructed to shower at their home or lodging at the end of the workday;
- No eating, drinking, smoking, or chewing of gum or tobacco will be permitted in the work zone; and
- During the fieldwork, the nature of materials handled and the extent of contamination may require formal decontamination procedure and delineated work/clean zones. At the discretion of the Task Safety Leader, the work zones, described below, and decontamination procedures will be used to minimize the transfer of hazardous substances from the site so as to protect the environment and public health.

B-7.1 WORK ZONES

The field team shall prevent the uncontrolled movement of waste materials or hazardous substances from the drilling/excavation site. The team will prevent migration of site contaminants by using the following work zones and equipment/personnel decontamination procedures:

- Exclusion Zone: A 30-foot circle around any given bore hole or excavation will be defined before drilling or excavation starts. In most cases, the zone will be “roped off” with an applicable barricade tape. This designated area will constitute the “Exclusion Zone.” This zone is where potentially hazardous surface contaminants as a result of the fieldwork and physical hazards to the workers will be contained. Personal protection equipment will be required in this area according to the discretion of the Task Safety Leader and/or in accordance with the guidelines contained in this HASP. The size of the Exclusion Zone may be changed to accommodate site conditions and to ensure contaminant containment at the discretion of the Project Manager, Project Safety Officer, or Task Safety Leader. No personnel will be permitted into the Contamination Reduction Zone or the Exclusion Zone unless they are in full compliance with the existing HASP. All personnel must maintain the buddy system while in this zone. Intrinsically safe communications will be maintained with all personnel in this area;

- Contamination Reduction Zone: An area surrounding the Exclusion Zone will be defined. All personal decontamination activities will occur in this area. A waste container may be placed in this area so that contaminated disposal equipment can be placed inside and covered. Surface/soil contamination in this area may be controlled by use of some form of plastic sheeting; and
- Support Zone: A Support Zone must be defined for each field activity. Support personnel and/or equipment is located in this uncontaminated (clean) area. Normal Quest field uniforms are appropriate within this zone. The location of this zone depends on factors such as accessibility, wind direction, nearby roads, utilities, traffic patterns, shelter, etc.

B-7.2 DECONTAMINATION PROTOCOL

Decontamination of personnel and equipment will be important to ensure that contamination does not spread to others. Personal decontamination mainly involves the removal of some outerwear and good personal hygiene habits. Contamination should never be in contact with skin. All field team members must follow this plan to ensure that contamination does not remain on equipment, sample containers, or their body.

All field team members should remove their personal protective clothing in a certain sequence to avoid contaminating their inner clothing or themselves. When removing personal protective equipment, the following steps should be observed:

- Remove all equipment, sample containers, and notes and non-essential items while in the Contamination Reduction Zone. Decontamination solutions and/or a steam cleaner will be used to decontaminate all tools and sampling equipment;
- Remove outer gloves and boot covers and place them inside a garbage bag or drum;
- Remove tape from boots and gloves and remove the Tyvek Coverall (if used). Tyvek coverall removal should be accomplished by rolling the outside of the coverall inside itself so that only the inside of it is exposed. Boots, inner gloves, and respirator should still be worn; and
- Remove the inner gloves and respirator when in the Support Zone.

B-7.3 PERSONAL HYGIENE REQUIREMENTS

The following procedures should always be observed in the Support Zone:

- All personnel must wash their hands, face, neck, and forearms before consuming any foods or liquids, smoking, or using the restroom; and
- All personnel must take a shower at the end of each workday. Particular attention should be given to areas of the body that are typically overlooked.

B-8.0 MONITORING PROGRAM

Personal exposure to ambient levels of airborne hazards and noise should be monitored or observed to insure that personnel exposures do not exceed acceptable limits and for the selection of protective equipment. Airborne contamination, down-hole, and excavation hydrocarbon vapor concentrations will be measured primarily by the use of a direct reading instrument such as a PID. If measured concentrations approach established levels, Sensidyne detector tubes will be used to determine the presence and concentration of benzene. Site visits/inspections may be conducted by the Project Safety Officer to insure compliance with this HASP.

B-8.1 PHOTOIONIZATION DETECTOR (PID)

During the site activities, the ambient air, drilling returns, boreholes, excavation, excavated soils, and soil samples will be screened with a calibrated portable PID. The PID is a direct reading real-time analyzer that is capable of detecting most of the volatile hydrocarbon constituents present in a vapor phase. The PID to be used for this investigation will use a 10.2 electron volt lamp and will be calibrated using an isobutylene calibration gas. Isobutylene is a relatively safe calibration gas similar to the ionization potential of benzene (the carcinogen of primary concern present in petroleum products).

B-8.2 Sensidyne Detector Tubes (or Equivalent)

Sensidyne detector tubes will be used to determine airborne concentrations of benzene in the breathing zone during the site activities. A member of the field team will take detector tube readings if high PID measurements warrant. Readings will be taken in the area where the field team members are working. Sensidyne #121 benzene detector tubes will be used (measurement range 5-60 ppm). The detector tube pump will be inspected for proper operation prior to field operations.

B-9.0 SAFETY AND HEALTH TRAINING

All field personnel will be trained in methods of safely conducting field activities. This HASP is intended to provide additional site-specific information to accomplish this goal. It will be the responsibility of the Project Directors, Project Safety Officer, and Task Safety Leader to ensure the field team has access to, read, and understands this plan. It will be the individuals' responsibility to bring to the attention of the Project Director or Project Safety Officer any portion of this plan and related training they do not fully understand. Prior to the commencement of the field portion of this investigation, the field team will meet to discuss the contents of this plan and make sure all members understand it.

At the site meeting, all field team members will be instructed regarding the health and safety hazards. Especially:

- Physical safety hazards;
- Emergency procedures;
- The hazardous materials that may be encountered and their potential routes of exposure;
- Personal hygiene practices;
- The types, proper use, inspection, limitations, maintenance, and storage of protective clothing and equipment (as applicable); and
- In the event that the ambient air temperature exceeds 85^{o}F, a review of heat stress symptom recognition/corrective procedures will be conducted. For an unacclimatzed person, this value may be less. Special emphasis will concern the use and limitations of respiratory protection. Half-mask respirators (or equivalent) equipped with air purifying organic cartridges will be used. Full-face respirators will be used if eye irritation or skin contact exposure potential exists.

Medical/physical fitness requirements to wear respiratory protection will be established by a physician; and individuals will be trained in the use, limitations, and maintenance of half-mask and full-face respirators including qualitative fit testing, routine inspection, replacement of parts, cleaning, disaffection, and storage requirements.

Copies of this entire HASP will be provided for each field team member at the project site, or prior to arrival.

B-10.0 MEDICAL MONITORING PROGRAM

The field activities at this site are expected to involve active physical work and potential exposure to petroleum hydrocarbons, and possibly other related hazardous substances. Exposure to heat stress, noise, and physical safety hazards may also be encountered. The work will require people of good health with normal vision and hearing. An industrial physician is periodically asked to provide documentation of employee medical fitness to perform the required work by Quest in the form of a signed document. This documentation should also indicate the employee' ability to perform the required work while wearing a respirator.

B-11.0 EMERGENCY RESPONSE PLAN

The emergency procedures described in this HASP are designed to give the field team guidance in handling medical emergencies, fires, explosions, and excessive emissions. These emergency procedures will be carefully explained to the field team during the on-site health and safety meeting.

B-11.1 INJURIES

Medical problems must be quickly dealt with; a road map to the nearest emergency medical facilities (Figures B-11.1A & B) is kept in an envelope on the dash of each Quest field vehicle. The local emergency contact numbers are listed in Table B-11.1.

The field team is to seek immediate professional medical attention for all serious injuries. A first aid kit will be present at the work site for use in case of minor injuries. If any field team member receives a splash or particle in the eye, the eye is to be flushed for 15 minutes. Clean water or portable eyewash will be available for this purpose. Instruction will also be provided to wash any skin areas with soap and water if direct contact with contaminants has occurred.

During normal field activities, work clothes may become wet. If field team member's clothing becomes saturated with an obviously contaminated liquid/sludge, the possibility for dermal exposure to contaminants may exist. Under these circumstances, the field team member will change out of the contaminated clothing into clean clothing of the proper level of protection.

B-11.2 FIRE AND EXPLOSION HAZARDS

Fires will be of particular concern during this investigation due to the possibility of encountering flammable petroleum hydrocarbon liquids or vapors. An adequate multi-purpose (A, B, C) fire extinguisher will be located on-site at all times.

The local fire department will be notified by a Quest representative of the location and anticipated activities in order to provide a more timely response in the event of an emergency. In the remote chance that a fire does occur, the local fire department will be notified immediately. Additional calls to the main office of Quest will be made. The Project Director would then notify the client.

B-11.3 OPERATIONS SHUTDOWN

Under certain extremely hazardous situations, the Project Director, Project Safety Officer, or Task Safety Officer may request that field operations be temporarily suspended while the underlying hazard is corrected or controlled.

During any sampling, drilling, or excavation activity, breathing zone PID measurements for petroleum hydrocarbons will be performed. If these levels exceed 30 ppm, detector tubes will be used to further quantify the benzene vapors present. If the level of benzene is detected above 1 ppmv or PID measurements are consistently in excess of 100 ppm, respirators will be required. If benzene is detected above 10 ppm in breathing zone detector tube samples, all activity will cease until these concentrations diminish. If PID measurements above 1,400 ppm occur, a

potential fire hazard may exist. Under these circumstances, activities will be stopped until these levels are brought down. This may be accomplished by containerizing contaminated soils or liquids, covering contaminated soil with foam, visclean, or with clean soil to isolate the source.

B-11.4 COMMUNITY PROTECTION

To assure the community is not affected by the site work, upwind and downwind monitoring with the PID will be performed if the level of petroleum hydrocarbons in the general work area exceed 100 ppm. If site downwind monitoring indicates persistent levels above 300 ppm at the perimeter of the work area, work will be shut down until PID readings drop below 30 ppm. Alternatively, the exclusion zone may be extended to provide additional community protection.

TABLE B-11.1 - EMERGENCY CONTACTS

EMERGENCY FACILITY		TELEPHONE NUMBER
Police:		911
Fire:		911
Paramedics:		911
Hospital #1: Kaiser Permanente Medical Center (Dear Valley Road & Sand Creek Road) 4501 Sand Creek Road, Antioch, CA		(925) 813-6500
Hospital #2 (alternate): Sutter Delta Medical Center (Lone Tree Way & James Donlon Blvd) 3901 Lone Tree Way, Antioch, CA 94509		(925) 779-7200
ENVIRONMENTAL HEALTH SERVICES ENVIRONMENTAL PROTECTION 1131 Harbor Bay Parkway, Suite 250 Alameda, CA 94502-6577		(510) 567-6700
California Department of Toxic Substance Control (Berkeley Office)		(510) 540-3800

B-12.0 RECORD KEEPING REQUIREMENT

The following record keeping requirements will be maintained in the health and safety or program file indefinitely:

- Copy of this Health and Safety Plan;
- Health and Safety training certification forms;
- Respirator training certification;
- Any accident/illness report forms; and
- Documentation of the employees' medical ability to perform work and wear respirators.

B-13.0 HEALTH AND SAFETY PLAN SUMMARY

The purpose of this summary is for quick field reference for the commonly referred to items covered in the Site Specific Health and Safety Plan (HASP). It is not the intent of this summary to replace or supersede the information referred to in the HASP.

ANTICIPATED CLOTHING/EQUIPMENT			
	Hard Hat		No Respirator
	Ear Plugs		Half-face Air Purifying Respirator
	Gloves (Work /Nitrile)		Full-Face Air Purifying Respirator
	White Tyvek Coveralls		Supplied Air Respirator
	Yellow Tyvek Coveralls		Steel Toe/Shank Boots (Work/Rubber)
	Safety Glasses		
	Safety Goggles		

Emergency Contacts

EMERGENCY FACILITY		TELEPHONE NUMBER
Police:		911
Fire:		911
Paramedics:		911
Hospital #1: Kaiser Permanente Medical Center (Dear Valley Road & Sand Creek Road) 4501 Sand Creek Road, Antioch, CA		(925) 813-6500
Hospital #2 (alternate): Sutter Delta Medical Center (Lone Tree Way & James Donlon Blvd) 3901 Lone Tree Way, Antioch, CA 94509		(925) 779-7200
ENVIRONMENTAL HEALTH SERVICES ENVIRONMENTAL PROTECTION 1131 Harbor Bay Parkway, Suite 250 Alameda, CA 94502-6577		(510) 567-6700
California Department of Toxic Substance Control (Berkeley Office)		(510) 540-3800

NOTE: For additional information regarding this project site, please refer to the Site Specific Health and Safety Plan for this fieldwork.

B-14.0 HEALTH AND SAETY PLAN FIELD PERSONNEL RELEASE FORM

I, {UNDERSIGNED}, do hereby confirm that I have read and understand the Site Specific Health and Safety Plan for the Byron Power facility located at 4901 Bruns Road in Byron, Alameda County, California as prepared by Quest GeoSystems Management (Project Number G09212012-01). I do agree to follow this plan and to make every effort to make the work place safe. I will report any health or safety hazard that I observe to the Safety Task Leader, Project Safety Officer, or Project Director.

I do agree to defend, indemnify, and hold harmless Quest its owners, employees, representatives, clients, and the property owner for any accidents, sickness, or injuries resulting from the violation, alleged violation, or non-compliance of Site Specific Health and Safety Plan.

Name/Title	Company	Signature	Date
Name/Title	Company	Signature	Date
Name/Title	Company	Signature	Date
Name/Title	Company	Signature	Date
Name/Title	Company	Signature	Date
Name/Title	Company	Signature	Date
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