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FIELD SAMPLING METHODS

Former Crown Chevrolet
7544 Dublin Boulevard and 6707 Golden Gate Drive
Dublin, California

This document provides information on the field methods to be used to collect samples from the second and possibly third water-bearing zones at the Crown Chevrolet facility located in Dublin, California (the site). Proposed field and sample collection methodologies are described below.

PRE-FIELD ACTIVITIES

A project-specific health and safety plan has been developed, under which the fieldwork will be performed. The proposed boring locations will be marked and Underground Service Alert (USA North) will be notified at least 48 hours prior to drilling. In addition, a private utility locating service will be contracted to identify private underground utility lines in the vicinity of the borings. The locations covered by concrete will be cored prior to initiation of sampling activities.

FIELD METHODOLOGY

The first groundwater zone has been encountered at the site approximately 10 to 15 feet below ground surface (bgs). Boring logs from other sites in the vicinity indicate that a second water-bearing zone may be present at approximately 30-35 feet bgs, and a third water-bearing zone may be present at approximately 60-70 feet bgs. Based on the regional topography in the vicinity of the site, groundwater flow is expected to be toward the east to southeast. A state-licensed drilling company will be contracted to advance one cone penetrometer (CPT) boring to obtain lithologic data approximately 30 feet southeast of the sump at location W (Figure 3). Grab groundwater samples will then be collected from two companion Hydropunch-type borings approximately 5 to 10 feet away from the CPT boring. The grab groundwater samples will be collected from the second and third coarse-grained units identified in the CPT boring, if encountered above 75 feet bgs.

Hand Augering

The first 5 feet of each boring may be advanced using a hand auger as a precautionary measure to avoid unknown underground utility lines. The hand auger will be cleaned by washing with Alconox detergent and rinsing with tap water between each boring location.

Cone Penetrometer Technology Drilling

The CPT drill rig hydraulically pushes an instrumented cone into the ground, which continuously records the soils responses of tip resistance, friction sleeve resistance, and pore water pressure. Tip resistance and friction sleeve resistance depend primarily on soil grain size. Soil pore water pressure depends on soil saturation, hydraulic conductivity, and compressibility. The CPT data are recorded with depth, providing direct information on subsurface conditions. The CPT equipment will be operated in general accordance with the American Society of Testing and Materials (ASTM) Standard D3441. Established correlations between the CPT data and soil behavior type published by Robertson and Campanella (1986) will be used to interpret the stratigraphy at each boring. Robertson and Campanella classify nine different soil behavior types based on the CPT data. Each soil behavior type has a resulting hydraulic conductivity value based on empirical data. A combination of high tip resistance and friction ratios of two percent or less are generally indicative of coarse-grained sediments.

Groundwater Sample Collection Procedures

Depth-discrete grab groundwater samples will be collected from the second and third coarse-grained zones identified in the CPT boring within a maximum depth of 75 feet bgs.

Grab groundwater samples will be collected by advancing companion boreholes approximately 5 to 10 feet away from the CPT boring. Approximately 1.75-inch-diameter hollow push rods will be used to advance a temporary well screen fitted with an O-ring-sealed disposable tip. The temporary well screen will be advanced in a closed position to the bottom of the targeted coarse grained unit. The push rods will then be retracted approximately five feet to expose an encased 0.010-inch slotted polyvinyl chloride (PVC) well screen. A grab groundwater sample will be collected from each boring using a new, disposable, polyethylene bailer. The push rods will be decontaminated between borings using high pressure hot water.

The groundwater samples will be poured into laboratory-provided containers equipped with preservatives appropriate for the desired analyses. Samples will be labeled with unique identifiers and the sample collection time, and then stored in an ice-chilled cooler pending transport to a California Department of Public Health−certified analytical laboratory under AMEC chain-of-custody procedures.

Borehole Destruction

Upon completion of the CPT logging the CPT boring will be grouted by injecting neat cement grout into the boring as the CPT rods are removed (retraction grouting). The grab groundwater sample boreholes will be sealed using neat cement grout poured through push rods from total depth to ground surface.

SAMPLING AND ANALYTICAL METHODS

The groundwater samples will be analyzed for volatile organic compounds (VOCs) using U.S. Environmental Protection Agency (U.S. EPA) Method 8260B.

INVESTIGATION DERIVED WASTE

Decontamination water generated during the field program, if any, will be collected and temporarily stored on-site in a 55-gallon drum or 5-gallon plastic bucket pending waste characterization and appropriate off-site disposal.

REFERENCES

American Society of Testing and Materials (ASTM) Standard D3441, 2000.

American Society for Testing and Materials (ASTM) Standards, 2000, Standard Practices for Description and Identification of Soils (Visual-Manual Procedure) (ASTM D2488-00) Designation: D-2488-00, February 10.

Robertson, P.K., Campanella, R.G., Gillespie, D. & Grieg, J. (1986), "Use of piezometer cone data," Use of In-Situ Tests in Geotechnical Engineering (GSP6), ASCE, Reston, VA, 1263-1280.

Explanation

- D — Proposed soil sample location
- N — Proposed soil and grab groundwater sample location
- V — Proposed soil/soil vapor sample location
- W — Approximate location of CPT boring to 75 feet bgs, Hydropunch-type boring to approximately 40 feet bgs, and Hydropunch-type boring to 70 feet bgs
- AMEC soil and/or grab groundwater sample location (September 27 through 29, 2010)
- Ninyo & Moore soil and/or grab groundwater sample location (December 16, 2010)
- Ninyo & Moore soil vapor sample location (December 15-16, 2010)
- Basics Environmental soil and/or grab groundwate sample location (February 24-25, 2009)
- Approximate location of historical Montgomery Ward monitoring well MW-102
- Approximate location of current or historical hydraulic lift
- Approximate property boundary
- Approximate outline of feature
- Internal building wall
- Approximate sump location

Notes:

bgs = below ground surface
CPT = cone penetrometer technology

N

0 40 80 Feet

PROPOSED SAMPLE LOCATIONS
Crown Chevrolet Cadillac Isuzu
7544 Dublin Boulevard and 6707 Golden Gate Drive
Dublin, California

By: AWP	Date: 05/12/2011	Project No. OD10160070
AMEC Geomatrix	Figure 3	

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