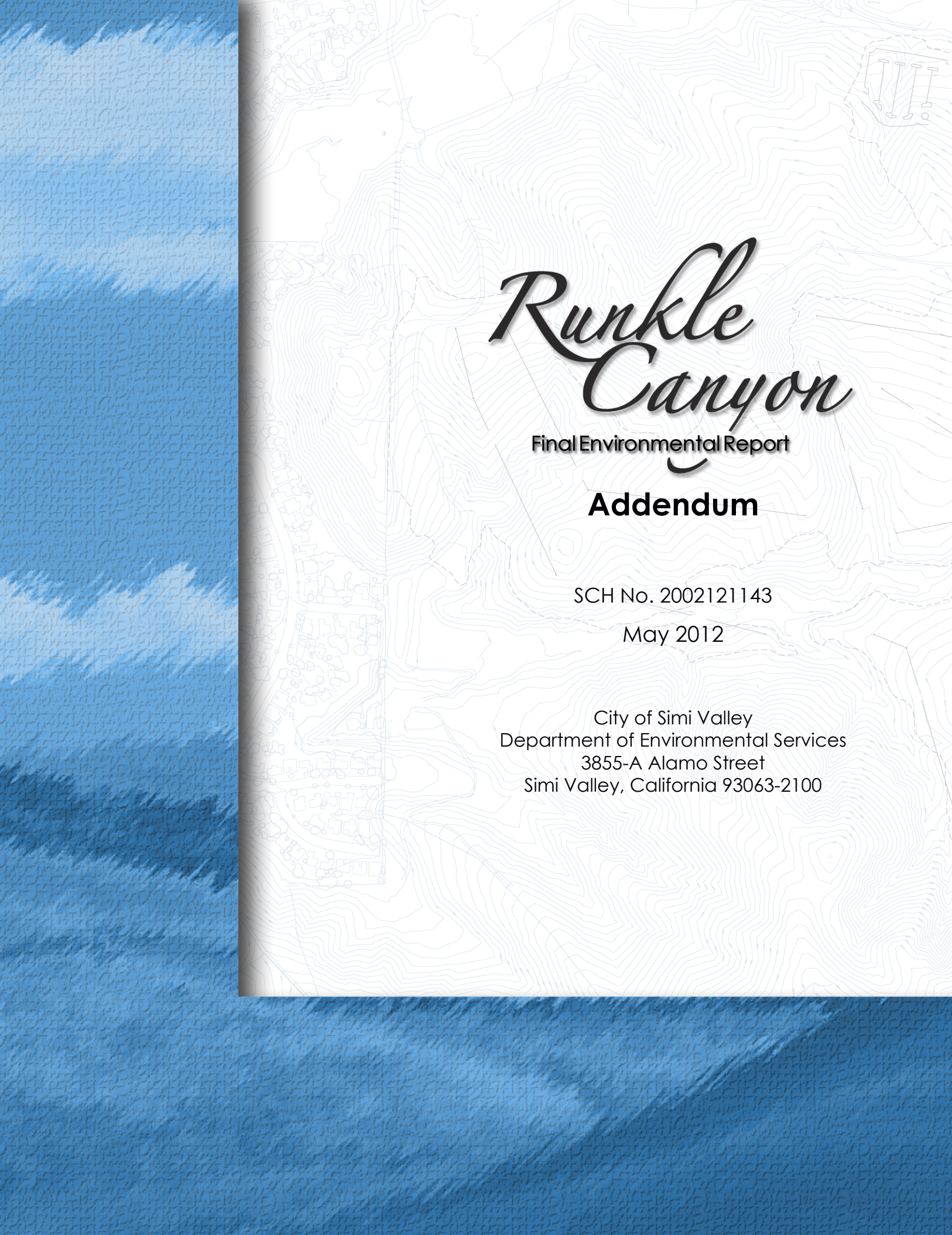




Runkle Canyon

Final Environmental Report

Addendum

SCH No. 2002121143

May 2012

City of Simi Valley
Department of Environmental Services
3855-A Alamo Street
Simi Valley, California 93063-2100

Addendum to the Runkle Canyon Specific Plan Final Environmental Impact Report

State Clearinghouse No. 2002121143

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1.0 INTRODUCTION

SUMMARY

This is the Addendum to the Final Environmental Impact Report (Final EIR) for the Runkle Canyon Specific Plan certified April 26, 2004. This introduction describes the background of the planning and environmental review process conducted by the City of Simi Valley for the Runkle Canyon Specific Plan project and the purpose and organization of this Addendum, which assesses the potential environmental effects of a proposed extension of the Runkle Canyon development agreement from June 10, 2014, to June 10, 2019, and approval of a Conditional Use Permit (CUP) for the proposed park and modifications to the approved Planned Development Permit.

PURPOSE OF AN ADDENDUM

When a Final EIR has been certified for a project, the California Environmental Quality Act (CEQA) and the *State CEQA Guidelines* define standards and the procedure for additional environmental review. Sections 15162 through 15164 of the *State CEQA Guidelines* define the standards for determining the level of additional environmental review required when an EIR has been certified for a project.

When it can be determined that neither the proposed changes to the project, changed circumstances, nor new information result in the identification of new significant impacts, or the substantial increase in the severity of significant impacts identified in the certified EIR, an Addendum to an EIR may be prepared. Public review of an Addendum is not required by CEQA. If new significant impacts or a substantial increase in the severity of significant impacts identified in the previous EIR would result, then preparation and circulation of a Subsequent or Supplemental EIR for additional public review is required.

This Addendum to the certified Runkle Canyon Specific Plan Final EIR has been prepared because:

1. no substantial changes are proposed in the project that will require major revisions of the previous EIR due to the occurrence of new significant effects or a substantial increase in the severity of previously identified significant impacts;
2. no substantial changes in circumstances under which the project is undertaken will occur that will require major revisions of the previous EIR due to the occurrence of new significant environmental effects or a substantial increase in the severity of previously identified effects; and
3. no new information of substantial importance that was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was prepared, shows any of the following:
 - a. the project will have one or more significant effects not discussed in the previous EIR;

- b. significant effects previously examined will be substantially more severe than shown in the previous EIR;
- c. mitigation measures or alternatives previously found not to be feasible would, in fact, be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or,
- d. mitigation measures or alternatives that are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

The analysis of the proposed extension of the development agreement and additional discretionary approvals for the Runkle Canyon Specific Plan contained in this Addendum supports the conclusion that changes to the circumstances under which the Runkle Canyon community will continue to develop will not result in any new significant impacts nor any substantial increase in the severity of any of the significant impacts identified in the certified Runkle Canyon Specific Plan Final EIR. Additionally, no new information of substantial importance has been identified that indicates that the extension of the development agreement, modifications to the Planned Development Permit, or approval of the CUP for the proposed park, would result in any new significant impacts any substantial increase in the severity of the significant impacts identified in the certified Runkle Canyon Specific Plan Final EIR.

This Addendum provides an update to the environmental information in the Runkle Canyon Specific Plan EIR. It includes an update to the analysis of the impacts of the proposed extension of the development agreement and the additional discretionary approvals, and presents a comparison of the environmental impacts of this proposal with the impacts identified in the certified Final EIR. The analysis of the additional discretionary approvals is limited to the modifications to the approved Planned Development Permit and the CUP for the proposed park.

This Addendum provides the following information for each environmental topic addressed in the original EIR: First, a summary of impacts identified in the certified Final EIR is provided. This is followed by an analysis of the proposed extension of the development agreement and anticipated discretionary approvals, and then these impacts are compared with the impacts identified in the certified Final EIR. This analysis includes, where applicable, discussion of the City's Draft 2030 General Plan as well as other new City, state or local rules, regulations, and ordinances.

Following this introduction, the background of the Runkle Canyon Specific Plan project is described. This background section is followed by a description of the Specific Plan and the proposed project modifications. The environmental analysis follows the project description section.

BACKGROUND

The Runkle Canyon Specific Plan project is located in and adjacent to the southern portion of the City of Simi Valley (City), which is in the northern portion of the Simi Hills. The Specific Plan Area is generally located at the southern end of Sequoia Avenue to the south of Fitzgerald Road. The project site consists of approximately 1,595 acres designated as a specific plan area in the Simi Valley General Plan.

The approved Runkle Canyon Specific Plan allows a mix of residential types, open space, a neighborhood park, a multi-use trail system, and an area for the potential future development of a golf course within the Specific Plan Area. Residential development is permitted on approximately 140 acres in the northern portion of the Specific Plan Area. A total of 461 residences are allowed, including 138 senior housing units, 62 of which would be affordable housing, 298 single-family homes, and 25 single-family estate homes.

Approximately 1,456 acres of the Specific Plan area are designated for open space and recreational uses, including a 10.1-acre neighborhood park, 1,151 acres of open space, approximately 18.2 acres for a water storage tank and an emergency helispot, and approximately 218 acres designated for the potential future development of a golf course. Recreational opportunities will be provided throughout the open space areas via public paths, sidewalks, and trails. The trails identified in the Specific Plan Area will complement the development of a coordinated multi-use trail network for equestrian, hiking, and bicycling uses throughout the City.

The primary access to the Specific Plan Area is from Sequoia Avenue, which will serve the majority of the proposed residential development. Secondary project access will be provided by the extension of Talbert Avenue into the site. Access to the portion of the estate lot homes and a small number of single-family homes is proposed through the extensions of several existing streets located along the northern portion of the Specific Plan Area, including Watson Avenue, Comet Avenue, Cobbler Hill Court, High Point Place, and Hazelnut Court.

In order to implement the proposed project, the City adopted the proposed Runkle Canyon Specific Plan (SP-S-24) and approved several other related discretionary actions necessary to implement the proposed Specific Plan.

These related actions include:

1. General Plan Amendment (GPA-58) revised the Land Use designations for the project area to be consistent with the proposed land uses, modification of the Specific Plan Criteria for Runkle Canyon; elimination of the Sequoia Avenue extension off-site to the Brandeis-Bardin property and provision

of a local street connection to this property instead, modification of the enriched parkway for Sequoia Avenue, and amendment of the Master Trails System Map.

2. Zone Change (Z-S-570), to change the zoning to be consistent with the Amendment to the Simi Valley General Plan.
3. Amendment of the City of Simi Valley Sphere of Influence Line to add approximately 1,192 acres.
4. Initiation of reorganization of the City of Simi Valley (ANX-73) of approximately 1,531 acres of the Specific Plan Area to the City of Simi Valley and removing this same area from the Ventura County Resources Conservation District and annexation to the Simi Valley Lighting District.
5. Tentative Parcel Map (TP-S-616) (Large Lot Conveyance Map) to create eight large parcels for the purpose of conveyance.
6. Tentative Tract Map (TT-5364) to create 298 detached single-family residential lots, 25 detached single-family estate lots, one lot for 138 senior units within the project area, one lot for a senior recreation facility, one lot for a neighborhood park, one lot for Homeowners Association (HOA) recreation/open space, one lot for a helispot, one lot for a water tank, open space lots, and lots for infrastructure improvements.
7. Planned Development Permit (PD-S-930) for site grading, common area improvements and infrastructure for the project site, excluding the potential future golf course to support the development of 461 future residential units.
8. An Affordable Housing Agreement for 62 units.
9. A Development Agreement (DA-04-01).

The Simi Valley City Council certified the Final EIR and approved the Runkle Canyon Specific Plan and these related actions on April 26, 2004. Subsequent to the City approving the project, the Ventura Local Agency Formation Commission approved an amendment to the City of Simi Valley Sphere of Influence to include the entire Specific Plan Area and annexation of the site to the City in September 2004.

Development of the project has not started. The development agreement would expire on June 10, 2014. This Addendum anticipates the extension of the development agreement for an additional five-year term through June 10, 2019. This Addendum also anticipates future discretionary approvals, in particular, the anticipated modifications to the Planned Development Permit (PD-S-930) and a CUP for the proposed park.

These approvals would not amend or otherwise change the Specific Plan; rather they will provide additional clarification to elements contained within the Specific Plan. The modifications to the Planned Development Permit will provide detail on the architectural features of the house structures, including the single-family and senior townhomes. The applicant will submit plot, floor, and elevation plans that

may include clarification on features such as building color and materials. However, these plans will not modify elements of the approved Specific Plan that govern density, scale, massing, orientation, setback, or height. The plans for the residences and senior recreation clubhouse will be consistent with the Specific Plan Development Standards, Design Guidelines, and the Simi Valley Municipal Code.

This Addendum also contemplates approval of a CUP for the proposed park. Similar to the modifications to the Planned Development Permit, the CUP will provide additional detail on the proposed park but will not modify the approved Specific Plan.

2.0 PROJECT DESCRIPTION

SUMMARY

The proposed extension of the development agreement and the additional discretionary approvals would not result in any change to the location or intensity of land uses permitted within the Specific Plan Area.

ADOPTED RUNKLE CANYON SPECIFIC PLAN

The Runkle Canyon Specific Plan Land Use Plan is shown in **Figure 2.0-1, Specific Plan Land Use Map**. As shown in this plan, the Specific Plan allows residential uses on portions of the Specific Plan Area and passive and active open space uses on the remainder. The location of these uses within the Specific Plan Area is defined by the planning areas established in the Specific Plan as shown in **Figure 2.0-1**.

Residential uses are permitted on approximately 140 acres in the northern portion of the Specific Plan Area. The location of residential uses adjacent to existing residential development along the northern boundary of the Specific Plan Area allows for connection with the existing street system and infrastructure such as sewer and water lines in these neighborhoods.

The residential community allowed by the approved Specific Plan consists of three different neighborhood types: (1) a small number of single-family estate lots; (2) single-family neighborhoods; and (3) a senior housing neighborhood located in the central portion of the residential community.

Primary access to the residential community will be provided from an extension of Sequoia Avenue. Secondary access to the residential community will be provided by the extension of Talbert Avenue into the site to connect to an east-west street that connects to Sequoia Avenue. Other streets branching off from Sequoia Avenue will provide access to the other portions of the residential community. Access to some of the proposed estate lots and a small number of single-family lots will be provided through the extension of several existing streets located along the northern portion of the Specific Plan Area.

Approximately 1,456 of the approximately 1,595 acres in the Specific Plan Area will remain as open space. These open space areas would include 1,151 acres of preserved open space areas, along with active recreational areas, an area containing a new water tank and other public facilities, and an area set aside for a potential future golf course. As shown in **Figure 2.0-1**, the open space areas include the southern half of the Specific Plan Area and areas to the east and west of the proposed residential neighborhoods. The Specific Plan permits the development of a potential future golf course on approximately 218 acres located in the northwestern portion of the Specific Plan Area. If no public agency wishes to construct and operate a potential future golf course on this portion of the Specific Plan Area, this area will also remain

open space. Recreational opportunities are provided throughout the open space network via public paths, sidewalks, and trails.

Planning Areas

The Specific Plan Area created 14 planning areas shown in **Figure 2.0-1, Specific Plan Land Use Map**. **Table 2.0-1, Planning Area Statistical Summary**, shows the land use designation, size, and allowed density of development. As shown in this table, Planning Areas 1 through 10 allow residential uses and the remaining four planning areas would be open space areas. The planning characteristics of the residential and open space planning areas are discussed below.

Residential Planning Areas

Estate Residential

The Specific Plan allows a total of 25 residential estate lots. Single-family residential estate lots are allowed in Planning Areas 1, 6, 7, and 10. These lots will be at least 1 acre in size and dispersed throughout the residential community, with the majority located adjacent to existing homes in the neighborhoods to the north of the Specific Plan Area.

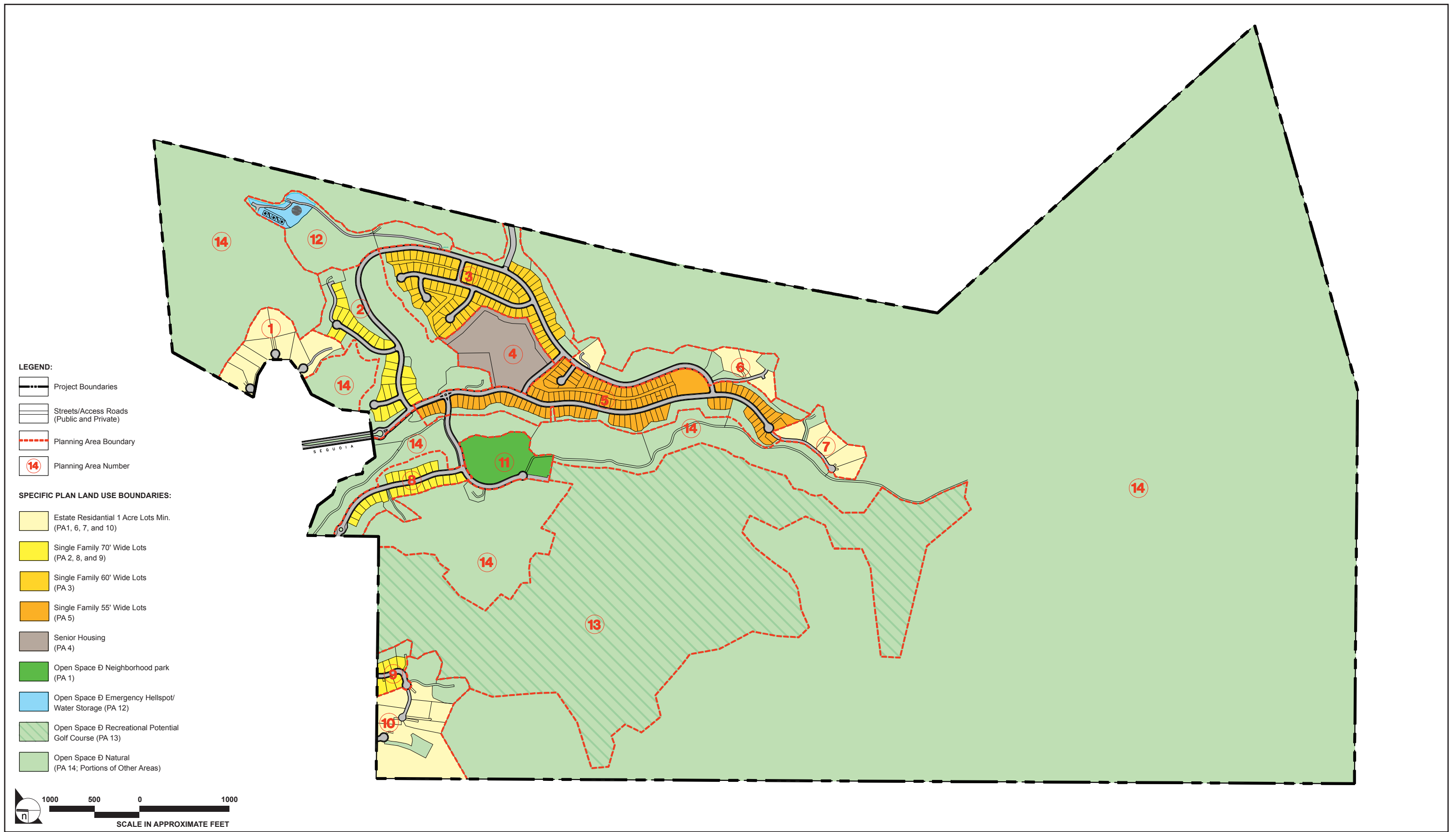
Other Residential Planning Areas

The proposed Specific Plan would also allow development of 298 single-family home lots of varying lot widths, as described below.

Single-Family Detached 70-Foot-Wide Lots - Planning Areas 2, 8, and 9 allow the development of 64 single-family home lots with a width of 70 feet measured at the required front setback line. These lots are located in the northern portion of the Specific Plan Area adjacent to the existing homes.

Single-Family Detached 60-Foot-Wide Lots - A total of 108 single-family lots with a width of 60 feet as measured at the required front setback line are allowed in Planning Area 3. These lots are located in the northeastern portion of the Specific Plan Area.

Single-Family Detached 55-Foot-Wide Lots - Planning Area 5 allows development of 126 single-family lots with a width of 55 feet as measured at the required front setback line. Lots of this kind would be located in the north and central portions of the Specific Plan Area. A small "pocket" park, planned for passive recreational uses only, is also permitted within Planning Area 5.



SOURCE: Runkle Canyon Draft Specific Plan - February 2004

FIGURE 2.0-1

Specific Plan Land Use Map

**Table 2.0-1
Planning Area Statistical Summary**

Planning Area	Land Use Specific Plan Category/ Zoning District ¹	Dwelling Units	Residential Acres ²	Residential Density (du/acre)	Open Space Acres ³	Total Acres
1	SFD Estate RE(SP)	9	12.9	0.7	0.2	13.1
2	SFD 70-Foot-Wide RM(SP)	31	12.8	2.4	23.1	35.9
3	SFD 60-Foot-Wide RM(SP)	108	27.6	3.9	7.1	34.7
4	Senior RMod(SP)	138	14.9	9.3	0.0	14.9
5	SFD 55-Foot-Wide RMod(SP)	126	30.7	4.1	8.8	39.5
6	SFD Estate RE(SP)	4	8.3	0.5	7.9	16.2
7	SFD Estate RE(SP)	5	6.3	0.8	1.0	7.3
8	SFD 70-Foot-Wide RM(SP)	26	7.2	3.6	4.6	11.8
9	SFD 70-Foot-Wide RM(SP)	7	2.7	2.6	1.1	3.8
10	SFD Estate RE(SP)	7	16.3	0.4	5.6	21.9
11	Open Space - Neighborhood Park OS(SP)	N/A	N/A	N/A	10.1	10.1
12	Open Space - Emergency Helispot/ Water Storage W(SP)	N/A	N/A	N/A	18.2	18.2
13	Open Space - Recreational (Potential Golf Course) OS(SP)	N/A	N/A	N/A	217.5	217.5
14	Open Space OS(SP)	N/A	N/A	N/A	1,150.6	1,150.6
Totals		461	139.7	3.3	1,455.8	1,595.5

¹ RE(SP) = Residential Estate; RM(SP) = Residential Medium; RMod(SP) = Residential Moderate; OS(SP) = Open Space; W(SP) = Water Storage.

² Includes residential lots and public streets/private drives.

³ Includes graded slopes, fuel modification areas, water quality basins, infrastructure/public facility access roads, and natural undisturbed open space.

Senior Housing - Planning Area 4 allows the development of a total of 138 age-restricted senior housing units on approximately 15 acres in the center of the residential community. A minimum of 62 of the senior housing units will be affordable. The senior housing neighborhood will include a senior recreation facility for use by residents. This planning area is located in the northeastern portion of the Specific Plan Area.

Open Space Planning Areas

Neighborhood Park

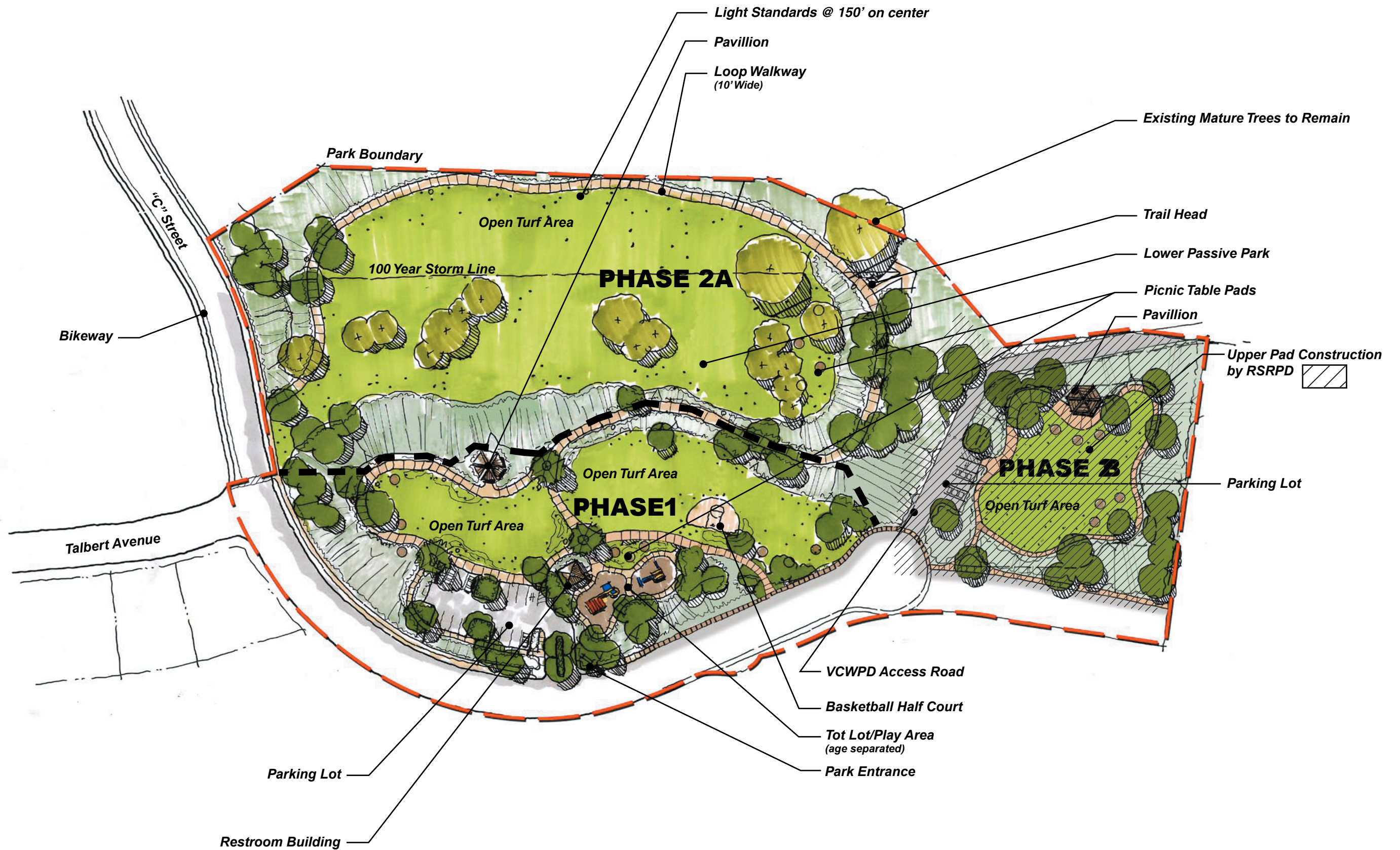
Planning Area 11 is approximately 10 gross acres in size and provides an approximately 9 net acre neighborhood park site. The conceptual neighborhood park, which would be developed in two phases, is shown in **Figure 2.0-2**. This park will be developed and operated by the Rancho Simi Recreation and Parks District. The neighborhood park site will be located near the end of the proposed extensions of Talbert and Sequoia Avenues. The neighborhood park will allow for a variety of passive recreation uses on approximately 5 acres, while the remaining approximately 4 acres would remain or be returned to a natural condition. This neighborhood park will also provide a trailhead to access the multi-use trail network.

Public Facilities

Planning Area 12 provides an approximately 18.2-acre area for the construction of a 2-million-gallon water tank in the northeastern portion of the Specific Plan Area in accordance with the Southern California Water Company Master Plan. This planning area will also provide a location for an emergency helispot for use by the Ventura County Fire Protection District (VCFPD) as well as wireless telecommunications facilities for use by public safety agencies.

Recreation

Planning Area 13 includes 218 acres available for the development of a potential future 18-hole golf course to be operated by a public agency. Currently there is no proposal from a public agency to operate the potential future golf course. The actual design of the potential future golf course would be the future responsibility of the golf course operator, and the approval of that design would be subject to review under a separate discretionary permit in the future.



SOURCE: Runkle Canyon Specific Plan D February 2004

FIGURE 2.0-2

Conceptual Neighborhood Park

Open Space

Approximately 1,151 acres of open space, exclusive of the golf course and parks, will be preserved throughout the Specific Plan Area. This includes areas of natural slopes, prominent ridgelines, sensitive habitat areas, riparian areas, and other open space features located within the Specific Plan Area. Paths, sidewalks, and multi-use trail connections will be provided to allow public access to these open space areas. Included within the open space area is Dry Lake (in the western portion of Burro Flats), a large mesa on the crest of the Simi Hills in the southern portion of the site that has been designated for preservation in the City's General Plan.

PROPOSED EXTENSION OF DEVELOPMENT AGREEMENT AND ADDITIONAL DISCRETIONARY APPROVALS

The proposed project would extend the term of the development agreement for the project for a term of five years. Currently, the development agreement is set to expire June 10, 2014. With approval of the proposed extension, the development agreement would expire June 10, 2019. No changes to any of the terms of the development agreement are being requested. In addition to the extension of the development agreement this Addendum anticipates future discretionary approvals. These approvals include modifications to the Planned Development Permit that will provide additional detail on certain architectural elements of the proposed residences such as building material and color, but would not deviate from the approved Specific Plan in terms of height, scale, massing, etc. A CUP for the proposed park will provide additional detail to the park plan while remaining consistent with the approved Specific Plan.

3.0 IMPACT ANALYSIS

SUMMARY

This analysis section includes separate subsections for each environmental topic addressed in the certified Runkle Canyon Specific Plan Final EIR. Each topical section first presents a summary of the information and conclusions of the analysis in the Final EIR. Updated information reflecting any change in the environmental setting related to each topic is presented in each subsection followed by analysis of the environmental impacts of Runkle Canyon with the extension of the development agreement and the additional discretionary approvals. For each topic a determination is also made on whether the current proposal would result in any new significant impacts or any substantial increase in the severity of the impacts identified in the Runkle Canyon Specific Plan Final EIR.

AESTHETICS

Summary of Analysis in the Certified Runkle Canyon Final EIR

The EIR provided analysis of the significance of changes to the visual character of the area that would result from implementation of the Runkle Canyon Specific Plan. The Specific Plan Area is situated in the southern portion of Simi Valley near urban and semi-rural land uses. The topography of the Specific Plan Area is characterized by a series of east-to-west and south-to-north trending ridges separated by Runkle Canyon. Elevations range from 1,000 feet above sea level in the northern portion of the Specific Plan Area to over 2,000 feet in the southern portion. The higher part of the site is visible from locations throughout Simi Valley. Specifically, motorists traveling State Route 118 (SR-118) within the City have views of the higher southern portion of the Specific Plan Area. Views from these locations are largely of the hills and prominent ridgelines within the Specific Plan Area.

Visual simulations prepared and included in the Final EIR demonstrated that the residential community and other related improvements would not be highly visible from locations in the floor of Simi Valley. This is due to the fact that the majority of the site, including the most visible higher elevations, will remain as open space, while the proposed residential units are located in areas that do not affect prominent ridgelines and are developed to blend in with the natural setting of the project site.

The design of the Specific Plan utilizes the topographic features of the site to reduce visual impacts on the surrounding neighborhoods. As a result, the Final EIR determined that the vast majority of the residential community and the potential future golf course would not be visible from neighborhoods adjacent to the project area. The limited portions of the residential community that would be visible from the surrounding neighborhoods would be designed to visually blend into the existing residential

neighborhoods in order to reduce visual impacts by the greatest extent possible. The EIR also evaluated potential light and glare impacts. While new sources of light and glare will be introduced into the Specific Plan Area as a result of implementation of the Specific Plan, the levels of light and glare will be similar to those associated with existing neighborhoods to the north. No significant aesthetic impacts were identified in the Final EIR.

The Final EIR identified mitigation measures that would preserve and replace natural vegetation (Venturan Coastal Sage Scrub, Valley Oak Woodland, Mulefat Scrub, Northern Mixed Chaparral, etc.) that is disturbed by development activities. Such mitigation would also serve to mitigate impacts on aesthetic resources.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

The proposed project would extend the development agreement that implements the Runkle Canyon Specific Plan by five years, to 2019. The proposed project also includes additional discretionary approvals. Modifications to the Planned Development Permit, will provide additional detail on certain architectural design elements such as color and building materials but will not change the basic element of the approved Specific Plan including height, setback, and building orientation. A CUP for the proposed park is also included as part of the proposed project. No additional changes to the amount or type of allowed land uses, or any other aspects of the approved Specific Plan are proposed. This includes aspects of the project that may affect aesthetics such as, siting, size, height, and massing. While the modifications to the Planned Development Permit will have an effect on the aesthetic design of the proposed project, the overall architectural style of the buildings will remain consistent with the design guidelines and standards in the approved Specific Plan.

The proposed extension of the term of the approved development agreement would not have any effect on scenic views as the scale and character of the development allowed by the adopted Specific Plan would not change. The Planned Development Permit modifications will provide additional detail on the design of the buildings permitted by the Specific Plan, but the design of these buildings will be consistent with the approved Specific Plan in that the site would continue to utilize existing natural features to preserve existing views. Further, the limited residential development that will be visible from surrounding neighborhoods would continue to blend with existing residential neighborhoods. As the proposed project would not change the amount or type of allowed land uses or any other aspects of the approved Specific Plan; no new or substantially greater impacts would occur as a result of the extension of the development agreement and approval of the additional discretionary actions.

AIR QUALITY

Summary of Analysis in the Runkle Canyon Final EIR

The EIR provided analysis of the air quality impacts that would result from implementation of the Runkle Canyon Specific Plan. The Specific Plan Area is situated in the southern portion of Simi Valley near urban and semi-rural land uses. The United States Environmental Protection Agency (US EPA) and the California Air Resources Board (CARB) establish federal and state ambient air quality standards for criteria air pollutants. These standards were established to protect sensitive populations with a margin of safety from adverse health impacts due to exposure to air pollution. The County of Ventura is designated as a nonattainment area for the National Ambient Air Quality Standards (NAAQS) for ozone and the California Ambient Air Quality Standards (CAAQS) ozone, respirable particulate matter (PM₁₀), and fine particulate matter (PM_{2.5}).

Implementation of the Specific Plan would result in criteria air pollutant emissions from construction and operation of the proposed land uses. An air quality analysis and emissions modeling was prepared and included in the Final EIR in accordance with methodologies prescribed by the Ventura County Air Pollution Control District (VCAPCD) and the City of Simi Valley. The analysis demonstrated that construction of the residential community would result in emissions of reactive organic compounds (ROCs) and nitrogen oxides (NO_x) that would exceed the thresholds of significance. The analysis also demonstrated that construction of the potential future golf course would result in emissions of NO_x that would exceed the thresholds of significance. The Final EIR concluded that the project's construction-related fugitive dust emissions could result in San Joaquin Valley Fever impacts. The Final EIR concluded that diesel exhaust emissions would not result in potentially significant adverse air quality or human health impacts. The Final EIR identified mitigation measures that would reduce construction-related ROC and NO_x emissions. Fugitive dust control mitigation measures were also included, in accordance with VCAPCD recommendations, including measures specifically related to reducing Valley Fever impacts. Even with mitigation, the project's construction-related emissions would be considered potentially significant and unavoidable.

The air quality analysis demonstrated that operation of the residential community would result in emissions of ROCs and NO_x that would exceed the thresholds of significance. The analysis also demonstrated that operation of the potential future golf course would not by itself result in emissions that would exceed the thresholds of significance. However, when combined with the emissions from the residential community, the operational ROC and NO_x emissions would increase by less than 1 percent and 8 percent, respectively. The Final EIR concluded that the project is consistent with the population forecasts and growth projections in the Air Quality Management Plan (AQMP) and that the project is

consistent with applicable transportation and energy conservation measures in the AQMP. The Final EIR also noted that the existing General Plan designations for the project area at the time of the analysis permitted up to 750 residential units (compared to the 461 residential units in the Runkle Canyon Specific Plan) and a population increase greater than the project. The Final EIR also concluded that because the project would exceed the project-level thresholds of significance for ROCs and NO_x, it would also result in a cumulatively considerable contribution to criteria air pollutant emissions and would result in significant cumulative air quality impacts. The Final EIR identified mitigation measures that would reduce operational-related ROC and NO_x emissions. Even with mitigation, the project's operational-related emissions would remain significant and unavoidable.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

The proposed project would extend the development agreement that implements the Runkle Canyon Specific Plan by five years to 2019. Additional discretionary approvals will also be considered. A CUP for the proposed park and modifications to the Planned Development Permit, which will provide additional details on the architectural design of the homes permitted by the approved Specific Plan. No additional changes to the amount or type of allowed land uses or any other aspects of the approved Specific Plan are proposed.

As the proposed project would not result in changes to the location, type, or intensity of land uses permitted by the approved Specific Plan or any other aspects of the approved Specific Plan; no new air quality impacts would occur. The emissions modeling provided in the Final EIR assumed that construction would begin in 2004. However, construction of the project has not yet begun. Construction emissions occurring in future years will decline as more stringent emissions standards come into effect, such as CARB's In-Use Off-Road Diesel Vehicle Regulation that will reduce diesel particulate matter and NO_x emissions from in-use off-road heavy-duty diesel vehicles in California, and as older equipment is retired and replaced with newer, less polluting equipment. This is evidenced by reviewing construction equipment emission factors in the California Emissions Estimator Model (CalEEMod), which is a VCAPCD-approved air pollutant emissions model. As shown in Appendix D of the *User's Guide*, emission factors for construction equipment decline in future years compared to year 2000 and year 2005 factors.¹ Similarly, operational emissions occurring in future years would decline as more stringent emissions standards come into effect, particularly for motor vehicles — such as the increase in fuel economy standards to an average of 35.5 miles per gallon for combined automobiles and light trucks by

¹ South Coast Air Quality Management District, *California Emissions Estimator Model User's Guide*, Version 2011.1, Appendix D, Table 3.4, (2011).

2016. As a result, the analysis presented in the Final EIR is likely a conservative analysis, which also supports the finding that no new impacts would occur related to air quality.

At the time the Final EIR was certified by the City of Simi Valley, analysis of greenhouse gas (GHG) emissions and associated global climate change impacts was not recommended in EIRs. In addition, GHGs were not identified as air pollutants under the federal Clean Air Act and the California Clean Air Act. In September 2006, the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) was signed into law. AB 32 represents the first enforceable statewide program to limit GHG emissions from all major industries with penalties for noncompliance. Pursuant to AB 32, the state is required to reduce GHG emissions to 1990 levels by 2020. In order to determine the amount of reductions necessary to achieve the mandate of AB 32, CARB approved the 1990 GHG emissions inventory at 427 million metric tons of carbon dioxide equivalents (MMTCO₂e). CARB then projected emissions out to 2020 under “business-as-usual” conditions – that is, conditions that existed at the time without consideration of any future policies and regulations that would reduce GHG emissions. Using 2002 through 2004 conditions and data, CARB projected that the state would emit approximately 596 MMTCO₂e. Thus, the state would need to reduce 2020 emissions by 169 MMTCO₂e or 28.4 percent to meet the 1990 levels.

AB 32 also required CARB to adopt a scoping plan indicating how reductions in significant GHG sources will be achieved through regulations, market mechanisms, and other actions. The CARB Governing Board approved the *Climate Change Scoping Plan* in December 2008. The *Climate Change Scoping Plan* identifies 18 recommended strategies the state should implement to achieve AB 32. CARB has identified ongoing programs and has adopted regulations for a number of individual measures to reduce GHG emissions in accordance with the *Climate Change Scoping Plan* strategies. Key elements of the *Climate Change Scoping Plan* include the following recommendations:

- A GHG reduction goal for local governments of 15 percent below today’s (2005) levels by 2020 to ensure that their municipal and community-wide emissions match the state’s reduction target;
- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing state laws and policies, including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and

- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

In June 2008, the Governor's Office of Planning and Research (OPR) issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents.² The advisory indicated that a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities, should be identified and estimated. The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures that are necessary to reduce GHG emissions to a less than significant level. The advisory did not recommend a specific threshold of significance. Instead, OPR requested that CARB recommend a method for setting thresholds that lead agencies may adopt.³ Neither CARB nor the VCAPCD have formally adopted significance thresholds for GHG emissions. While no numerical threshold of significance for GHG emissions have been formally adopted by CARB, the VCAPCD, or the City of Simi Valley, the direct and indirect GHG emissions from implementation of the Runkle Canyon Specific Plan are presented below. The analysis below further discusses whether implementation of the Runkle Canyon Specific Plan would impede or conflict with the state's ability to achieve its GHG reduction goals pursuant to AB 32. As previously discussed, the proposed project would not result in changes to the amount or type of allowed land uses or any other aspects of the approved Specific Plan. Therefore, the proposed project, which is the focus of this Addendum, would not result in new or additional GHG emissions compared to the approved Specific Plan.

Implementation of the Runkle Canyon Specific Plan would result in direct and indirect construction and operational GHG emissions. These emissions would consist of carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). The other GHGs defined by state law (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) are typically associated with specific industrial sources and processes and would not be emitted in substantial quantities during construction and operation of the Runkle Canyon Specific Plan Area. The CalEEMod⁴ program was used to analyze the GHG emissions during construction and operation. CalEEMod is a program that calculates emissions from land use sources and incorporates CARB's EMFAC2007 model for on-road vehicle emissions and the OFFROAD2007 model for off-road vehicle emissions. CalEEMod also utilizes data from the California Climate Action Registry (CCAR), California Energy Commission (CEC), Intergovernmental Panel on Climate Change (IPCC), CARB,

² Governor's Office of Planning and Research, *Technical Advisory – CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*, (2008).

³ *Addressing Climate Change through California Environmental Quality Act (CEQA) Review*, (2008), 4.

⁴ ENVIRON, "CalEEMod, Version 2011.1.1," <http://www.caleemod.com/>.

US EPA, and the California Air Pollution Control Officers Association (CAPCOA).⁵ The model was run using assumptions that were contained in the Final EIR, such as construction equipment, acreages, trip generation rates, population estimates, water consumption rates, and solid waste generation rates. As noted above, the emissions modeling provided in the Final EIR assumed that construction would begin in 2004. Because construction has not yet commenced, for the purposes of this calculation, the construction schedule was shifted ahead by eight years with a starting date of 2012. Refer to **Appendix 1.0** for detailed emissions modeling printouts.

The estimated construction-related GHG emissions from the residential community and potential future golf course are provided in **Table 3.0-1, Estimated Unmitigated Construction GHG Emissions**. Construction GHG emissions would result from the combustion of fossil fuels from heavy-duty construction equipment and from construction worker vehicles and would occur only when construction activities are underway. However, it is common practice to amortize construction-related GHG emissions over the project's lifetime in order to include these emissions as part of a project's amortized lifetime total emissions so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. A 30-year project lifetime is typically used. Therefore, the construction GHG emissions have been amortized over a 30-year period and included in the operational GHG emissions.

Table 3.0-1
Estimated Unmitigated Construction GHG Emissions

Construction	GHG Emissions (Metric Tons CO ₂ e)		Total
	Residential Community	Potential Future Golf Course	
Total GHG Emissions	14,784	3,349	18,133
Amortized GHG Emissions ¹	493	112	605

Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix 1.0**.

¹ Amortized GHG emissions are calculated by dividing the total construction GHG emissions over a recommended project lifetime of 30 years.

At full buildout, implementation of the Specific Plan would result in ongoing annual GHG emissions. The estimated operational-related GHG emissions from the residential community and potential future golf course are provided in **Table 3.0-2, Estimated Unmitigated Operational GHG Emissions**. The direct emissions, primarily CO₂, CH₄, and N₂O, are the result of fossil fuel combustion from area sources

⁵ California Air Pollution Control Officers Association, Quantifying Greenhouse Gas Mitigation Measures, (2010). The document may be downloaded from the following website: <http://www.capcoa.org/>.

(e.g., building heating systems, landscaping equipment) and motor vehicles. The indirect emissions are the result of electricity and water demand and wastewater and solid waste generation. The emission factor for CO₂ due to electrical demand from Southern California Edison, the electrical utility that serves the Specific Plan Area, was selected in the CalEEMod model. Emission factors for CO₂ are based on CARB's Local Government Operations Protocol.⁶ Emission factors for CH₄ and N₂O are based on US EPA E-Grid values.⁷ The emission factors take into account the current mix of energy sources used to generate electricity and the relative carbon intensities of these sources, and includes natural gas, coal, nuclear, large hydroelectric, and other renewable sources of energy. Electricity consumption was based on default CalEEMod data for the proposed land uses. The GHG emissions from water consumption are due to the electricity needed to convey, treat, and distribute water. The annual electrical demand factors for potable water were obtained from the CEC.⁸ The GHG emissions from wastewater and solid waste are due to the electricity needed to treat wastewater as well as off-gassing emissions from the treatment process and off-gassing from solid waste decomposition.

Table 3.0-2
Estimated Unmitigated Operational GHG Emissions

Emissions Source	GHG Emissions (Metric Tons CO ₂ e/year)		
	Residential Community	Potential Future Golf Course	Total
Amortized Construction ¹	493	112	605
Area Sources	273	0	273
Energy (Electricity and Natural Gas) ²	2,120	0	2,120
Mobile Sources	4,318	679	4,997
Wastewater and Solid Waste	187	10	197
Water	552	309	861
Total	7,943	1,110	9,053

Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix 1.0**.

¹ Amortized GHG emissions are calculated by dividing the total construction GHG emissions over a recommended project lifetime of 30 years.

² Due to a known calculation error in CalEEMod, the energy GHG emissions from the Senior and Estate dwelling units are divided by a factor of 1,000.

⁶ California Air Resources Board, *Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories*, Version 1.1, (2010) 208.

⁷ US Environmental Protection Agency, "E-Grid," <http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>. nd.

⁸ California Energy Commission, *Refining Estimates of Water-Related Energy Use in California*, PIER Final Project Report (CEC-500-2006-118), (2006) 22. Prepared by Navigant Consulting, Inc.

Implementation of the Specific Plan would require that developments comply with City of Simi Valley ordinances. The City of Simi Valley has adopted a green building ordinance. Section 8-15.02 of the Code of Ordinances requires new low-rise residential buildings to exceed the minimum performance or prescriptive standard design required by the California Energy Code currently in effect by 10 percent. In addition, the project's design would incorporate features that would reduce mobile source emissions. Project design features that would have a quantifiable reduction in GHG emissions include providing a density of approximately 3.3 dwelling units per acre, providing 62 affordable dwelling units, and improving the pedestrian network on the project site and providing for pedestrian connections to off-site areas. Furthermore, the Final EIR requires the project to implement mitigation measures that would have co-benefits of reducing GHG emissions. For example, mitigation measure 4.2-10 in the Final EIR would require the use of built-in energy-efficient appliances. Mitigation measure 4.2-12 would require the project to contribute to an off-site Transportation Demand Management (TDM) fund as recommended by the VCAPCD. The TDM fund is used to develop regional programs to offset air pollutant emissions. Specific programs that could be undertaken using the TDM fund include, but are not limited to, enhanced public transit service, vanpool programs/subsidies, rideshare assistance programs, clean fuel programs, improved pedestrian and bicycle facilities, and park-and-ride facilities. The contribution to the TDM fund outlined in the Final EIR would be roughly equivalent to reducing GHG emissions from mobile sources by a minimum of about 12 percent.⁹ The reduction in GHG emissions due to the above features and mitigation measures are provided in **Table 3.0-3, Estimated Mitigated Operational GHG Emissions**.

The emissions shown in **Table 3.0-3** would be generated from implementation of the approved Runkle Canyon Specific Plan. The proposed extension of the development agreement, approval of the proposed CUP for the proposed park, and modifications to the Planned Development Permit evaluated in this Addendum would not generate any new emissions or any new impacts. Nonetheless, implementation of the Runkle Canyon Specific Plan would not impede or conflict with the state's ability to achieve its GHG reduction goals pursuant to AB 32. As previously noted, at the time the Final EIR was certified, the General Plan designation for the project area permitted up to 750 residential units compared to the 461 residential units currently included in the Runkle Canyon Specific Plan. When CARB projected the state's 2020 GHG emissions under "business-as-usual" conditions, the agency did so using 2002 through 2004 conditions and data. Therefore, the General Plan designations for the project area that existed at the time of the analysis in the Final EIR, which permitted up to 750 residential units, would constitute the appropriate baseline for the "business-as-usual" conditions. The Runkle Canyon Specific Plan, with 461

⁹ Ventura County Air Pollution Control District, *Ventura County Air Quality Assessment Guidelines*, (2003) 7-15 through 7-17. Percentage estimate of GHG reduction is based on January 2011 Consumer Price Index values and assumes GHG emission reduction would be similar to criteria pollutant emission reductions.

residential units, is approximately 38.5 percent fewer residential units compared to the General Plan designations for the project area that existed at the time of the analysis in the Final EIR. Assuming a similar mix of residential units and similar vehicle trips per residential unit type, the Runkle Canyon Specific Plan would reduce GHG emissions compared to the existing General Plan, which permitted up to 750 residential units. Given that the Runkle Canyon Specific Plan incorporates project design features and mitigation measures that would reduce GHG emissions, and given that the Specific Plan would develop fewer units than what was previously permitted under the General Plan that existed at the time of the analysis in the Final EIR (and at the time that CARB conducted its AB 32 projections), the Runkle Canyon Specific Plan would not impede or conflict with the state's ability to achieve its GHG reduction goals pursuant to AB 32 and does not constitute a new significant air quality impact for this reason.

Table 3.0-3
Estimated Mitigated Operational GHG Emissions

Emissions Source	GHG Emissions (Metric Tons CO ₂ e/year)		Total
	Residential Community	Potential Future Golf Course	
Amortized Construction ¹	493	112	605
Area Sources	273	0	273
Energy (Electricity and Natural Gas) ²	1,989	0	1,989
Mobile Sources	3,638	679	4,317
Wastewater and Solid Waste	187	10	197
Water	552	309	861
Total	7,132	1,110	8,242

Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix 1.0**.

¹ Amortized GHG emissions are calculated by dividing the total construction GHG emissions over a recommended project lifetime of 30 years.

² Due to a known calculation error in CalEEMod, the energy GHG emissions from the Senior and Estate dwelling units are divided by a factor of 1,000.

BIOLOGICAL RESOURCES

Summary of Analysis in the Runkle Canyon Final EIR

Ten plant communities/vegetation associations were identified within the Specific Plan Area including:

- Approximately 525 acres of non-native grasslands (Upland mustards, wild oats and red brome grasslands Semi-natural Stands), located primarily in the northeastern section of the project site;

- Approximately 277 acres of Venturan coastal sage scrub (California sagebrush scrub and California sagebrush – California buckwheat scrub Alliances) located in the central and eastern portions of the site on north- and west-facing slopes;
- Approximately 169 acres of coastal sage-chaparral scrub habitat (California sagebrush – black sage scrub and California sagebrush – California buckwheat Alliances), a final successional stage before northern mixed chaparral habitat;
- Approximately 486.0 acres of northern mixed chaparral (Chamise chaparral and Scrub oak – chamise chaparral Alliances) throughout the southern portion of the property;
- Approximately 1.7 acres of valley oak woodland (*Quercus lobata* Alliance), found on well-drained alluvial soils in valley bottoms in the western portion of the project site;
- Approximately 18.3 acres of coast live oak woodland (*Quercus agrifolia* Alliance) within the central and southern portions of the site;
- Approximately 1.1 acres of California walnut woodland (*Juglans californica* Alliance) in the northwestern portion of the site;
- Approximately 11 acres of southern willow scrub (black willow, red willow and arroyo willow thickets) within three of the on-site drainages;
- Approximately 29 acres of mulefat scrub (*Baccharis salicifolia* Alliance) along stream channels;
- Approximately 77 acres of disturbed habitat found within the Runkle Dam and Reservoir area and near the central portion of the Specific Plan Area;
- An approximately 0.8-acre vernal pool (Baltic rush marsh Alliance) on the flat mesa in the southern portion of the property, south of the area proposed for development; and
- Approximately 0.5 acre of rocky outcrops located southwest of Runkle Dam and Reservoir.

The Specific Plan Area also contains over 1,400 mature trees.

The plant communities present within the Specific Plan Area provide habitat for a variety of wildlife species. Fourteen butterfly species were observed on the site including monarch (*Danaus plexippus*). Two common amphibian species were observed: Pacific treefrog (*Pseudacris regilla*, formerly *Hyla regilla*) and western toad (*Anaxyrus boreas*, formerly *Bufo boreas*). Western spadefoot (*Spea hammondi*), an amphibian species of special concern, was also observed. Four lizard species were observed within the Specific Plan Area, including Great Basin fence lizard (*Sceloporus occidentalis longipes*), western side-blotched lizard (*Uta stansburiana elegans*), coastal (western) whiptail (*Aspidoscelis tigris stejnegeri*, formerly *Cnemidophorus tigris multiscutatus*), and Blainville's (San Diego) horned lizard (*Phrynosoma blainvillei*, formerly *P. coronatum*), a species of special concern. The coastal whiptail was previously listed as a special-status species but has been downgraded to a Special Animal. Two snake species, San Diego gopher snake (*Pituophis catenifer annectens*) and southern Pacific rattlesnake (*Crotalus oreganus helleri*), were observed within the Specific Plan Area. Nearly 70 bird species were observed within the Specific Plan area including the special-status

Cooper's hawk (Watch List), white-tailed kite (Fully Protected Species), and northern harrier (species of special concern). Desert cottontail, dusky-footed woodrat, California vole, California (Beechey) ground squirrel, Botta's pocket gopher, raccoon, mule deer, and coyote were mammal species observed within the Specific Plan Area and rodents such as deer mouse and California mouse are to be expected in the area.

The only special status plant species observed during the focused surveys within the Specific Plan Area were Plummer's mariposa lily (*Calochortus plummerae*) and California black walnut trees (*Juglans californica*) although focused plant surveys were conducted annually between 2000 and 2003. Special-status wildlife species observed within the Specific Plan Area were limited to the Cooper's hawk, Blainville's (San Diego) horned lizard, western spadefoot, white-tailed kite, and coastal (western) whiptail, formerly a species of special concern. Focused surveys for least Bell's vireo, coastal California gnatcatcher, and Riverside fairy shrimp were conducted but the presence of these species within the Specific Plan Area was not detected.

Plant communities considered to be of special-status typically include those that support special-status plant or wildlife species and/or that are otherwise considered to be declining in range and number by the California Department of Fish and Game (CDFG) and are a priority for preservation. Venturan coastal sage scrub, southern willow scrub, California walnut woodland, and coast live oak woodland, in addition to the vernal pool, are all considered to be special-status plant communities by CDFG.

Approximately 252 acres of the plant communities would be impacted by the residential development, and 218 acres would be disturbed with development of the potential future golf course. Impacts to the coastal sage scrub, coast live oak woodland, southern willow scrub and mulefat scrub habitats are considered significant due to the biological value of these communities. The loss of approximately 177 mature trees would also be considered a significant impact, including a total of 74 coast live oak trees and 38 California black walnut trees. Impacts to special-status wildlife species Cooper's hawk, Blainville's horned lizard, and western spadefoot are considered to be significant. Approximately 1.78 acre of US Army Corps of Engineers (USACE) jurisdictional drainages (waters of the US) would be impacted from project implementation. A total of 11.47 acres of CDFG jurisdictional regulated riparian resources would be impacted by the Specific Plan. The impacts of the project on regional wildlife movement would not be significant as the southern portion of the Specific Plan Area will be preserved and undeveloped. Indirect impacts resulting from induced light and glare are considered potentially significant as nighttime lighting could disturb resting and foraging behavior and can potentially alter breeding cycles and nesting behavior. Impacts on native biological resources as a result of increased non-native plant species potentially grown in the landscape are considered a potentially significant impact. Also, the increase in human and domestic animal presence as a result of the project is considered a potentially significant impact.

Mitigation measures were included to reduce project direct impacts for the following biological resources: Venturan coastal sage scrub, coast live oak woodland, southern willow scrub/mulefat scrub, mature trees, western spadefoot, Blainville's (San Diego) horned lizard, migratory nesting birds (both common and special-status), USACE Waters of the US and CDFG streambeds. In addition, mitigation measures were incorporated into the project to reduce indirect impacts from non-native plant species, light and glare, and human and non-native animal species (such as domestic pets).

These mitigation measures would restore native vegetation on graded slopes and replace trees, reduce impacts to the Blainville's (San Diego) horned lizard and Western spadefoot, mitigate impacts to nesting bird species, and mitigate most impacts on biological resources to a level that is less than significant. Mitigation is also designed to minimize lighting spillage or glare on to the natural and open space on the project site.

No significant cumulative impacts to biological resources located in the Simi Hills would occur because few development projects are proposed along the southern edge of the City and in the Simi Hills as a result of the Simi Valley CURB and the substantial amount of protected open space in the area.

Implementation of the measures described above will reduce the potential impacts on Venturan coastal sage scrub, coast live oak woodland, southern willow scrub/mule fat scrub, western spadefoot, Blainville's (San Diego) horned lizard, and nesting birds (including Cooper's hawks) to a less than significant level.

While the planting and relocation of trees can offset the impacts of the loss of mature trees, it will often take many years, typically decades, for most planted trees to reach the maturity, ecological function, and habitat value of those that were removed. Consequently, the net loss of mature trees is considered, at least in the short term, an unavoidable adverse impact. Over the long-term, i.e., once the planted trees reach maturity, it is expected that the overall habitat value of these trees will replace the value of those trees that were removed.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

The proposed project would extend the development agreement that implements the Runkle Canyon Specific Plan by five years to 2019. Additional discretionary approvals are also being considered at this time; a CUP for the proposed park and modifications to the Planned Development Permit, which will provide additional details on the architectural design of the homes permitted by the approved Specific Plan. No additional changes to the amount or type of allowed land uses or any other aspects of the approved Specific Plan are proposed; therefore, the overall analysis of impacts to biological resources would not change from those disclosed in the certified Final EIR.

The biological resources present within the Specific Plan Area have not changed substantially since certification of the Final EIR. There have been no substantial changes to, or alteration of, the vegetation communities since 2004 and no new special status plant communities have been identified. A site visit in January 2012 confirmed that the vegetation communities previously mapped in the certified Final EIR depict the current plant community condition of the project site.

The Final EIR accounted for 11 special-status plant species with some potential to occur within the Specific Plan Area. Focused surveys detected Plummer's mariposa lily (*Calochortus plummerae*) as the only herbaceous special-status plant species observed within the Specific Plan Area. California black walnut was also observed within the Specific Plan Area. No other sensitive plant species were observed during field surveys conducted within the Specific Plan Area. Subsequent to the Final EIR was certified, the California Natural Diversity Database has added slender mariposa lily (*Calochortus clavatus* var. *gracilis*), late-flowered mariposa lily (*C. fimbriatus*), dune larkspur (*Delphinium parryi* ssp. *blochmaniae*), Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*), mesa horkelia (*Horkelia cuneata* ssp. *puberula*), chaparral nolina (*Nolina cismontana*) and white rabbit-tobacco (*Pseudognaphalium leucocephalum*) to the list of special-status plant species with the potential to occur within the geographic area of the Specific Plan (see **Table 3.0-4, Special-status plant species reported from the project region but not considered in Final EIR**). Suitable habitat is not present for dune larkspur, Blochman's dudleya, or late-lowered mariposa lily. None of these species have been previously detected on the project site and are not expected to occur.

The Final EIR accounted for 15 special-status wildlife species with some potential to occur within the Specific Plan Area. A number of these were considered to potentially occur on the site. Special-status wildlife species observed within the Specific Plan Area were limited to the San Diego horned lizard, western spadefoot toad, and a pair of Cooper's hawks. Subsequent to the Final EIR being certified, the California Natural Diversity Database has added Gertsch's socialchemmis spider (*Socalchemmis gertschi*), Santa Monica grasshopper (*Trimerotropis occidentiloides*), arroyo chub (*Gila orcuttii*), arroyo toad (*Anaxyrus californicus*), California red-legged frog (*Rana draytonii*), silvery legless lizard (*Anniella pulchra pulchra*), tricolored blackbird (*Agelaius tricolor*), golden eagle (*Aquila chrysaetos*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), California leaf-nosed bat (*Macrotus californicus*), and western small-footed myotis (*Myotis ciliolabrum*) to the special-status wildlife species with the potential to occur within the geographic area of the Specific Plan (see **Table 3.0-5, Special-status animal species reported from the project region but not considered in Final EIR**). Suitable habitat is not present for arroyo chub, arroyo toad, California red-legged frog, or tricolored blackbird. The project site is outside the recorded range of Gertsch's socialchemmis spider and Santa Monica grasshopper. While none of these species have been previously detected on the project site, silvery legless lizard, pallid bat, and western small-footed myotis have a low probability of occurrence and primarily outside of the project development envelope. Consequently, no greater impact to special-status species is expected to occur with Specific Plan buildout.

Table 3.0-4
Special-status plant species reported from the project region but not considered in Final EIR

Common name <i>Scientific name</i>	Federal status	State status	California Rare Plant Rank	Habitat	Growth form Blooming period*	Potential to occur on site
Dicots						
Dune larkspur <i>Delphinium parryi</i> ssp. <i>blochmaniae</i>	—	—	1B.2	Maritime chaparral and coastal dunes between 0 and 200 m asl.	Perennial herb April–May	None —suitable near-shore coastal habitat is not present on site.
Blochman's dudleya <i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>	—	—	1B.1	Rocky, clay or serpentinite substrates in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland communities between 5 and 450 m asl.	Perennial herb April–June	None —this species is known only from volcanic outcrops, often with direct coastal influence, which are not present on site.
Mesa horkelia <i>Horkelia cuneata</i> ssp. <i>puberula</i>	—	—	1B.1	Sandy or gravelly sites in chaparral, cismontane woodland, and coastal scrub communities between 70 and 810 m asl.	Perennial herb February–July (September)	Presumed absent —suitable habitat is present but the species was not observed during multiple years of surveys conducted at the appropriate period for its detection. Michael Brandman Associates has conducted subsequent biological site visits but this species has not been detected.
White rabbit-tobacco <i>Pseudognaphalium leucocephalum</i> ¹⁰	—	—	2.2	Sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats between 0 and 2,100 m asl.	Perennial herb (July) August–November (December)	Presumed absent —although suitable habitat is present, this species was not observed during multiple years of surveys conducted at the appropriate time for its detection. Most records of this species are from alluvial landforms, which are either not present on site or else are highly disturbed (e.g., fallow agricultural fields). Michael Brandman Associates has conducted subsequent biological site visits but this species has not been detected.
Monocots						
Slender mariposa lily <i>Calochortus clavatus</i> var. <i>gracilis</i>	—	—	1B.2	Shaded foothill canyons, often on grassy slopes within chaparral and coastal scrub communities between 360 and 1,000 m asl.	Bulbiferous herb March–June	Presumed absent —suitable habitat is present but the species was not observed during multiple years of surveys conducted at the appropriate period for its detection. Michael Brandman Associates has conducted subsequent biological site visits but this species has not been detected. The species is reported extensively within the Newhall Ranch area within the Santa Clara River watershed, northeast of the project site.

¹⁰ Treated in the 1993 edition of *The Jepson Manual* as *Gnaphalium leucocephalum*.

Common name <i>Scientific name</i>	Federal status	State status	California Rare Plant Rank	Habitat	Growth form Blooming period*	Potential to occur on site
Late-flowered mariposa lily <i>Calochortus fimbriatus</i>	—	—	1B.2	Often on serpentinite substrates in chaparral, cismontane woodland, and riparian woodland communities between 275 and 1905 m asl.	Bulbiferous herb June–August	Not expected —serpentinite substrate is not present and the site is at the lowest known elevational range of the species.
Chaparral nolina <i>Nolina cismontana</i>	—	—	1B.2	Sandstone, shale, and gabbro substrates in chaparral and coastal scrub communities between 140 and 1,275 m asl.	Evergreen shrub May–July	None —the species is known from the Simi Hills, primarily to the south and southwest. This species is a moderately large shrub and is highly conspicuous when present, and the species was not observed during multiple years of surveys.

* – Months given in parentheses indicate dates on which unusually early or late flowering records have been reported

m = meters; asl = above sea level

Status abbreviations

Federal

FE: federally listed as Endangered

FT: federally listed as Threatened

FC: federal Candidate for listing as Endangered or Threatened

State

SE: state listed as Endangered

ST: state listed as Threatened

SC: state Candidate for listing as Endangered or Threatened

California Rare Plant Ranks

1A: presumed extinct in California

1B: rare, threatened, or endangered in California and elsewhere

2: rare, threatened, or endangered in California, but more common elsewhere

3: more information needed to determine rarity

4: limited distribution

CNPS threat ranks

0.1: seriously threatened in California

0.2: fairly threatened in California

0.3: not very threatened in California

Table 3.0-5
Special-status animal species reported from the project region but not considered in Final EIR

Common name Scientific name	Federal status	State status	Other lists	Habitat	Potential to occur on site
Arachnids					
Gertsch's socialchemmis spider <i>Socalchemmis gertschi</i>	—	—	CDFG Special Animals List	Known only from Brentwood and Topanga Canyon.	None —the site is outside the known range of the species in the Santa Monica Mountains, and chaparral communities similar to those where the species is found are not present on site.
Insects					
Santa Monica grasshopper <i>Trimerotropis occidentiloides</i>	—	—	CDFG Special Animals List	Known only from the Santa Monica Mountains Found on bare hillsides and along dirt trails in chaparral.	None —the site is outside the known range of the species, which is limited to the coastal slope of the Santa Monica Mountains.
Fish					
Arroyo chub <i>Gila orcuttii</i>	FSS	SSC	—	Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	None —aquatic habitats are not present on the project site.
Amphibians					
Arroyo toad <i>Anaxyrus californicus</i>	FE	SSC	—	Rivers, washes or intermittent streams with sandy banks, willows, cottonwoods and sycamores within valley-foothill, desert riparian and desert wash communities in semi-arid regions; loose gravelly areas of streams in drier parts of range.	None —suitable aquatic habitats are not present on the project site to support this species. The only location recorded in the project vicinity is in Chatsworth Creek below Chatsworth Reservoir in the San Fernando Valley.
California red-legged frog <i>Rana draytonii</i>	FT	SSC	—	Requires 11 to 20 weeks of permanent water for larval development; must have access to aestivation habitat. Occurs in lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation.	None —aquatic habitats are not present on the project site to support this species. The species is known from south of the project site in Las Virgenes Canyon.

Common name Scientific name	Federal status	State status	Other lists	Habitat	Potential to occur on site
Reptiles					
Silvery legless lizard <i>Anniella pulchra pulchra</i>	FSS	SSC	—	Leaf litter associates with sandy or loose loamy soil of high moisture content under sparse vegetation.	Low —suitable habitat is present associated with oak tree duff and litter accumulations, however, high moisture content leaf litter is uncommon within the project site.
Birds					
Tricolored blackbird (nesting colony) <i>Agelaius tricolor</i>	BCC, BLMS	SSC	USBC, AWL, ABC	Highly colonial species, requiring open water, protected nesting substrate and foraging areas with insect prey within a few km of the colony.	None —extensive wetland habitat for nesting is not present on or near the project site. The only record of this species in the project vicinity is Chatsworth Reservoir in the San Fernando Valley.
Golden eagle (nesting and wintering) <i>Aquila chrysaetos</i>	BCC, BLMS	CDFG Watch List, CDFG Fully Protected, CDF	—	Open terrain in deserts, mountains, slopes, and valleys. Nest mainly on cliffs, also in large trees (such as oaks), and rarely on artificial structures or the ground.	None —foraging habitat is present, but nesting would not occur on site, and no impacts to nesting are anticipated.
Mammals					
Pallid bat <i>Antrozous pallidus</i>	FSS, BLMS	SSC	WBWG High	Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings. Night roosts may be in more open sites, such as porches and open buildings.	Low —no suitable roosting and foraging habitat is present as the site is disturbed from contaminated soil remediation activities that discourage use of the site by this species.
Western mastiff bat <i>Eumops perotis californicus</i>	BLMS	SSC	WBWG High	Roosts in crevices in cliff faces, high buildings, trees and tunnels within many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.	None —foraging habitat is present but roosting would not occur on site.
California leaf-nosed bat <i>Macrotus californicus</i>	FSS	SSC	WBWG High	Roosts in rocky, rugged terrain with mines or caves in riparian, wash, succulent scrub, alkali scrub and palm oasis habitats of deserts.	None —foraging and roosting habitat is not present.

Common name Scientific name	Federal status	State status	Other lists	Habitat	Potential to occur on site
Western small-footed myotis <i>Myotis ciliolabrum</i>	BLMS	—	WBWG Medium	A common bat of arid uplands in California. Coastal California from Contra Costa County to the Mexican border, and west and east sides of the Sierra Nevada, and Great Basin and desert habitats from Modoc to Kern and San Bernardino Counties It occurs in a wide variety of habitats, primarily in relatively arid wooded and brushy uplands near water from sea level to 8,900 feet. Often seen foraging among trees and over water. Seeks cover in caves, buildings, mines, crevices, and occasionally under bridges and under bark. Separate night roosts may be used, and have been found in buildings and caves. Maternity colonies of females and young are found in buildings, caves, and mines. Requires water. Humid roost sites are preferred.	Low —foraging is present but suitable and roosting habitat is not present. Much of the site is disturbed from contaminated soil remediation activities that discourage use of the site by this species.

Status abbreviations

Federal

FE: Federally listed as Endangered

FT: Federally listed as Threatened

FPE: Federally proposed for listing as Endangered

FPT: Federally proposed for listing as Threatened

FPD: Federally proposed for delisting

FC: Federal Candidate species

SC: National Marine Fisheries Service Species of Concern

BLMS: Bureau of Land Management Sensitive Species

FSS: USDA Forest Service Sensitive Species

BCC: Fish and Wildlife Service Birds of Conservation Concern

State

SE: State-listed as Endangered

ST: State-listed as Threatened

SCE: State candidate for listing as Endangered

SCT: State candidate for listing as Threatened

SCD: State candidate for delisting

CDF: California Department of Forestry and Fire Protection

Sensitive Species

SSC: CDFG Species of Special Concern

Other

AFS: American Fisheries Society categories of risk: vulnerable, threatened, or endangered

AWL: Audubon Watchlist

ABC: American Bird Conservancy Green List

LAA: Los Angeles Audubon list of Los Angeles County's

Sensitive Bird Species

USBC: United States Bird Conservation Watch List

WBWG: Western Bat Working Group: High, Medium and Low

priority

Xerces: Xerces Society Red List of Pollinators

The proposed project would not have a significant impact on special-status plant or wildlife species not previously identified in the certified Final EIR. As the proposed project would not change the amount or type of allowed land uses or any other aspects of the approved Specific Plan, no new or significantly greater impacts would occur to biological resources as a result of the extension of the development agreement and approval of the additional discretionary actions.

Application of Final EIR mitigation measures 4.3-1 through 4.3-8 potential impacts to special-status plant communities, nesting birds, jurisdictional drainages, mature trees and indirect impacts of the project to a less than significant level.

CULTURAL RESOURCES

Summary of Analysis in the Runkle Canyon Final EIR

Phase I, II and limited III archeological investigations and reports, as well as a Phase I paleontological report were prepared for the site and included in the Final EIR. As a result of the Phase I evaluation of the project site, the presence of three previously recorded prehistoric archeological sites were confirmed. Phase II and limited Phase III archaeological test excavations were conducted to determine the size and significance of these prehistoric archaeological sites. The results of Phase II and III investigations of sites CA-VEN-682 (a scatter of artifacts located on the west side of Runkle Canyon) and CA-VEN-1017 (located on the east side of Runkle Canyon) indicated that these sites do not contain substantial amounts of subsurface deposits. Therefore, these sites were determined not to be significant under CEQA. Phase III investigations at CA-VEN-683 (a lithic scatter located on a ridge that forms the west side of Runkle Canyon) indicate that additional cultural deposits are likely situated at this location. However, the archaeological reports prepared for the site concluded that adequate amounts of cultural deposit were removed from the site for future study. Consequently, no additional archaeological excavations were recommended at CA-VEN-683. Because the sites have been tested and excavated following *State CEQA Guidelines*, no further mitigation within the site boundaries of these sites is technically required. However, construction on archaeological sites often uncovers items that are rare or unanticipated, such as burials. Therefore mitigation measures were identified in the Final EIR.

The Phase I paleontological site assessment found that although only minor vertebrate fossils were observed during the field study, the geologic units underlying the project site are known elsewhere as sources of significant marine and terrestrial vertebrate fossils. Mitigation measures were identified in the Final EIR in order to protect any fossils present under the earth surface in the Runkle Canyon Specific Plan Area.

Measures were identified to mitigate all potential impacts to archeological and paleontological resources to a less than significant level. These measures include archeological/paleontological monitoring and development of a treatment plan with provisions for the recovery and subsequent treatment of any archeological or historical remains and associated data uncovered during development of the Specific Plan Area.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

The certified Final EIR evaluated all archeological and paleontological sites for their significance. As described above, further investigation of the three sites listed above determined that the sites were either not substantial enough or enough data had been obtained from the sites that their loss would not be significant. The mitigation measures included in the Final EIR require the applicant to have plans in place in the event that additional sites are discovered during site grading and excavation. Additional measures require archeological and paleontological monitoring during earthmoving activities, compliance with State Office of Historic Preservation requirements, and documentation of the archeological history and features of the site. These measures remain applicable to the development of the Specific Plan Area with the extension of the development agreement, as well as with the consideration of the CUP for the proposed project and modifications to the Planned Development Permit. Therefore, no new impacts would occur as a result of the proposed extension of the term of the approved development agreement and approval of the additional discretionary actions.

GEOLOGY

Summary of Analysis in the Runkle Canyon Final EIR

The Final EIR for the project evaluated potential impacts related to the soils and geologic conditions on the site. Geology studies completed identified a variety of topographic and soils conditions, some due to past use on the site. Conditions identified include potential impacts associated with building on artificial fill, areas with liquefaction potential, expansive or weak soils, hydro-consolidation, landslides, slope failures, surficial failures, debris flow hazards, and ground water. No active faults are known to traverse the site; therefore, ground rupture due to faulting is considered remote. Five landslide areas are present within the Specific Plan area; however, three are proposed for removal and two are located in areas where no development is proposed. In addition, these two areas are designated as areas of restricted use. Restricted use areas are included so that development is set back from the toes of the two remaining on-site landslide areas so that development will not be impacted by any slippage that may occur on those landslide areas.

Measures were identified in the Final EIR for site preparation, grading, slope construction, soil expansiveness, settlement, foundation design, setback restrictions, bridge design, footings on or near slopes, pavement, and site design to reduce potential geotechnical impacts. Implementation of these measures as part of the approved Specific Plan will reduce the potential of geologic and geotechnical impacts on the project to a less than significant level.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

To date, no site preparation activities such as grading or excavation have occurred on the site. The Final EIR includes mitigation measures applicable to site preparation, removal of existing on-site materials and fill, and debris. Additional measures included in the project are related to the design of the residential area, these are measures related to building setbacks and restricted use areas, drainage, and landscaping. All of these measures will remain applicable to the project and will be incorporated as construction activities begin. The extension of the development agreement would not affect the use of materials on the site, or the orientation of the buildings (for example, construction of residences in restricted areas). Further, the modifications to the Planned Development Permit will remain consistent with the Specific Plan, while providing additional detail to elements contained in the Specific Plan. In particular, these include design elements such as building color and style. Similarly, the proposed CUP for proposed park will not modify aspects of the approved Specific Plan. As all project features would remain the same, and no new project components will be introduced that could expose people or structures to geologic hazards, no new impacts would occur as a result of the proposed extension and approval of the additional discretionary actions.

HAZARDS

Summary of Analysis in the Runkle Canyon Final EIR

A Phase I Environmental Site Assessment (ESA) was prepared to determine the presence of any hazardous materials or environmental conditions within the Specific Plan Area. The purpose of a Phase I ESA is to address the environmental conditions associated with past and present operations conducted on the property. Phase I ESAs are conducted utilizing generally accepted industry standard in accordance with the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments. The scope of a Phase I ESA includes review of the subject property history, physical characteristics, current conditions, regulatory database review, and review of activities conducted at the property and at adjacent properties with regard to release of regulated substances to the environment.

A Phase I ESA also provides recommendations for Phase II studies to further assess any area of potential concern. Phase II studies involve sampling and testing of soils and ground water as warranted.

Phase I ESA for the 350 Acre Western Portion of the Specific Plan Area

The 350-acre western portion of the Specific Plan Area borders a residential neighborhood to the north, and open space on the west, east, and south. According to a 1965 agreement, the Terminal Construction Company leased this portion of the site to collect wastewater; mine and produce rock, sand, gravel and other earthen materials on site; and conduct operations including manufacture of paving materials. A review of topographical maps and aerial photographs indicate that this portion of the site was never used for these purposes.

The Phase I ESA for this portion of the site concluded there was no evidence of past or present hazardous substance use, storage, disposal, or that environmental condition of adjacent sites would affect the Specific Plan Area. No further analysis to determine the presence of hazardous and non-hazardous substances on this portion of the Specific Plan Area was recommended.

Phase I and II ESA, 550-Acre Eastern Portion of Runkle Canyon

The eastern portion of the Specific Plan Area contains a high voltage power line. A gas high-pressure pipeline owned and operated by the Tosco Refining Company is located in the southern portion of the site. The site of a closed gravel and sand mine is located in the central portion of Runkle Canyon. This mine was in operation until about 1985. The features associated with the mine included a roofless brick building, a conveyor system (removed), and asphalt roadways. In 1985 the County of Ventura designated the mine as closed and reclaimed.

To the southeast and adjacent to the Specific Plan Area is the Boeing Santa Susana Field Laboratory (SSFL) facility, commonly referred to as the “Rocketdyne” facility. The SSFL facility is located at a higher topographic elevation than the Specific Plan Area and a steep ridgeline separates the Specific Plan Area and the SSFL. The SSFL is jointly owned by Boeing and the National Aeronautics and Space Administration (NASA) and is operated by Boeing. The primary activities at the SSFL since 1948 have included research, development, and testing of liquid-propelled rocket engines and associated components; and research, testing, and development of nuclear reactors and components. Site characterization for perchlorate has been conducted at the SSFL for soil, sediment, and ground water since 1997 and for surface water since 1998. These investigations have included samples collected from within the SSFL and in off-site areas surrounding the SSFL. During these programs, over 1,600 samples have been collected and analyzed for the presence of perchlorate at and near the SSFL. Perchlorate has been detected in about 300 of these samples. Detectable amounts of perchlorate occur in isolated areas

throughout the SSFL. Reviews of reports related to the SSFL indicate that groundwater to the southeast associated with the SSFL facility has been degraded by chlorinated hydrocarbons.

The Phase I ESA determined that the eastern portion of the Specific Plan Area is not identified within any hazardous waste database. It also indicated that there are no public water supply wells near the site. No hazardous or non-hazardous substances or evidence of their storage were observed and no storage tanks were found. Nineteen 55-gallon drums were found on site and were removed as part of Phase II of the assessment. Ten pole-mounted electrical transformers were found on this portion of the Specific Plan Area. These transformers were removed and properly disposed of by Southern California Edison in 2002.

The Phase II assessment included drilling sample borings to establish the thickness of sand and gravel mine tailings present at the mine site and collect samples for lab analysis. Seven soil borings were analyzed at a depth of 15 to 66.5 feet below ground surface (bgs). Ground water was encountered in three of the borings. Based on the historical use of the site, these soil samples were analyzed for the following compounds: Total Petroleum Hydrocarbons (TPH); Volatile Organic Compounds (VOC); and Title 22 metals, Semi-Volatile Organic Compounds (SVOC).

No concentrations of VOCs or SVOCs were detected in any of the samples. Low concentrations of petroleum hydrocarbons were detected in two samples. The concentrations detected were all below the EPA Preliminary Remediation Goals (PRG) for residential soil and, therefore, do not pose a significant risk to human health. The concentrations detected: 14 milligrams per kilogram (mg/kg) and 54 mg/kg, are well below the 100 mg/kg considered acceptable for soils in urban and residential areas.

As part of the Phase II assessment, the 19 on-site 55-gallon drums were analyzed for their contents and removed from the site for recycling/disposal. No hazardous wastes were found in these storage containers. Soil samples were taken at the location of these drums and tested. No TPH, VOC, or SVOC were detected. Some metals were detected, but at levels below EPA PRGs for these metals.

Perchlorate was detected in ground water/silt samples collected from depths exceeding 35 feet below ground surface in two borings drilled during the mine tailing investigations. Perchlorate (ClO_4^-) is a naturally occurring anion that forms salts in conjunction with cations such as magnesium and potassium. Perchlorate may be found naturally in the environment or as a manufactured product. It can be used to make solid fuel propellants for rockets, missiles, and fireworks. The perchlorate part of these salts is quite soluble in water and the resultant anion is very mobile in water. The solubility of perchlorate in water has led to contamination of water supplies throughout California and Nevada. Perchlorate has been found in samples from the SSFL facility, which is located southeast of the Specific Plan Project Area. Perchlorate was not detected in ground water/silt samples collected. These borings (HS-25 and HS-26, samples

HS-25-56 and HS-26-37) were located in the southern portion of the residential community. Perchlorate was not detected in the ground water samples collected at the site, only in damp silty soil. Therefore, the laboratory was not able to screen for perchlorate using drinking water standards, including the new Public Health Goal of 6 parts per billion (ppb), because they are not applicable to silty soil. Therefore, laboratory data reported perchlorate in units of mass of perchlorate per mass of soil (i.e., mg/kg). The concentrations detected were at 0.06 mg/kg and 0.05 mg/kg, respectively. These levels range from 130 to 156 times below the EPA PRG for perchlorate in residential soil of 7.8 mg/kg. PRGs are chemical concentrations in soil that are deemed to be “safe” for lifetime exposure through inhalation, ingestion, and dermal contact. The levels detected in ground water samples were below the EPA PRG for perchlorate and, therefore, do not pose a significant risk to human health. No other concentrations of perchlorate were found in any surface water, groundwater, or soil samples collected from the site. No concentrations of TPH or VOC were detected the ground water samples.

Additional Hazardous Materials Investigations

Due to the presence of a closed sand and gravel mine on the site and the presence of the SSFL facility to the southeast to the Specific Plan Area, further analysis was performed on asphalt material found at the sand and gravel mine site for perchlorate, and for two other potentially hazardous materials known to be associated with the historic testing operations conducted at the SSFL, strontium-90 and tritium.

The potential impacts of hazardous and non-hazardous materials including perchlorate, strontium-90, and tritium, from the SSFL facility adjacent to the Specific Plan Area, were analyzed and determined to be less than significant. The Final EIR includes mitigation measures related to groundwater sampling for VOCs, SVOCs, pesticides, PCBs, and other miscellaneous constituents (including perchlorate).

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

Since certification of the Final EIR in 2004, the applicant has voluntarily conducted additional testing and remediation on site. A summary of these actions is provided below. The reports discussed in this section are provided in **Appendix 2.0**.

Approval to abandon wells. In April of 2007, the California Regional Water Quality Control Board granted permission to abandon groundwater-sampling wells that had been on site since 2004.¹¹ The wells were installed to evaluate groundwater primarily for perchlorate, which was not detected in any of the

¹¹ California Regional Water Quality Control Board. *Approval to Abandon Wells – Greenpark Runkle Canyon Development*, letter April 5, 2007.

groundwater samples above trace concentrations, and is well below established maximum contaminant levels. The letter indicated that perchlorate was not considered a potential risk to human health to groundwater resources in Runkle Canyon.

Further Actions. In 2008 the applicant (Runkle Canyon, LLC) entered into a voluntary agreement with the Department of Toxic Substances Control (DTSC).¹² DTSC reviewed the previous documents that had been prepared for the project and requested the following actions:

- Further testing that no health risk exists from strontium-90 (Sr-90) and cesium-137 (Cs-137) at Runkle Canyon.
- Further testing of a white crystalline material leaching out of the mined stockpiles.
- Disposal of tar materials at the site that poses a potential threat to human health because benzo(a)anthracene concentrations exceed acceptable levels.

The applicant prepared a Response Plan to address DTSC's concerns. The Response Plan detailed the applicant's plans to conduct the additional soil sampling and remove the tar materials. The applicant provided DTSC with access to the site to conduct independent testing. The applicant implemented the soil-sampling plan under direct observation of DTSC in the field.¹³

The first issue addressed in the Response Plan provided an explanation for why there was a decrease in residual Sr-90 soil activity from 1998 to 2007. The Response Plan indicated the reason is partially due to radioactive decay as the first survey occurred in December 1998 and the most recent in October 2007. Sr-90 has a half-life of 29.1 years. Over nine years the activity would be expected to decrease by approximately 20 percent. However, this does not account for the very low levels detected in the 2007 survey. The apparent decrease in result is likely due to analytical or counting errors in the earlier sample analysis. However, the applicant has not extensively evaluated laboratory protocols and data. The Response Plan indicates that the result from the 2007 sampling is likely more representative of the true level of Sr-90 in the soil at Runkle Canyon because of the consistency among the results from the three laboratories (the contacted laboratory, the State of California laboratory, and the independent laboratory used by the City of Simi Valley).

The second issue addressed in the Response Plan dealt with the health risks associated with Sr-90 and earlier statements by the applicant that no further testing was necessary. An earlier report prepared by Dade Moeller & Associates, Radiological Health Risks from Strontium-90 in the Runkle Canyon Development in Simi Valley, California, indicated that the potential annual risk to a highly exposed

¹² Department of Toxic Substances Control letter dated October 17, 2008.

¹³ Dade Moeller & Associates, *Runkle Canyon Response Plan*. December 4, 2008.

resident would be about one in 1 million. The newer soil sampling data from 2007 showed a factor of 10 reduction in average concentrations of Sr-90 in soil and the risk would be reduced in direct proportion. This would be below the recommended suburban and no-food suburban exposure scenarios recommended by the National Council on Radiation Protection. In response, the applicant indicated that additional soil sampling would occur, including soil sampling in those nonresidential areas of Runkle Canyon closest to the SSFL. The applicant proposed to sample at 14 randomly selected locations.

The third issue addressed in the Response Plan includes an explanation of why Cs-137 soil radioactivity was not present when Sr-90 was identified. The Response Plan indicates that Cs-137, as a gamma-emitting radionuclide, is much easier to detect than Sr-90. Therefore, it is likely the discrepancy is not due to error in detection but rather due to limitations in the detection of Sr-90 in the earlier laboratory analysis. Although none of the previous samples showed any indication of Cs-137, the applicant agreed to take additional tests of the soil at Runkle Canyon and analyze samples for Cs-137.

A fourth issue addressed in the Response Plan dealt with the white crystalline material that appeared to be leaching out of the mining stockpiles. DTSC requested that the material on the site be collected and analyzed for metal concentrations and mineral composition. DTSC also stated they would independently collect and test the materials. The results of DTSCs testing were included in the Response Plan. None of the samples contained elevated chromium concentrations; however, because the laboratory analysis showed arsenic levels above the California human health screening level and the total threshold limit concentrations, DTSC had the material further analyzed to determine if the materials were naturally occurring. The DTSC reported that the minerals were all naturally occurring minerals very similar to Epsom salt. Therefore, no additional testing was required.

The fifth issue related to the tar material encountered at the site. DTSC indicated the tar materials should be removed and either properly recycled or disposed of. The Response Plan indicated that the applicant would remove the tar material.

A revision to the Response Plan was prepared in July 2010 to include additional actions. The July 2010 revisions to the Response Plan revised the soil-sampling plan to include collection of 22 additional samples and 10 percent replicate samples, with DTSC maintaining custody of all samples. The plan also included three trenches placed in the fill material at the base of the former quarry area for independent testing and analysis. The applicant also put plans in place to contact the Ventura County Watershed Protection District prior to excavation of the tar material to obtain an encroachment permit. Finally, following removal of the tar material, additional testing would be conducted to verify that the material

has been removed.¹⁴ In September 2010, tar removal was conducted by GEOCON with DTSC, also at this time additional samples were collected from the excavation area. Based on the results of the soil samples, the material was found to not have an impact on human health.¹⁵

In July 2010, sampling for the presence of Sr-90 and Cs-137 was conducted and the results were summarized in the December 2010 report prepared by Dade Moeller & Associates. Thirty-nine surface soil samples were collected by an independent environmental services company from 35 sample locations in Runkle Canyon; the samples were analyzed by an independent, DTSC-approved, analytical laboratory. A set of 14 sample locations were established using a MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual) based sampling plan to evaluate the possible presence of these radionuclides in the proposed eastern and southeastern open space areas of Runkle Canyon nearest to the SSFL. A second set of 21 sample locations were selected by DTSC to evaluate the potential transfer of radionuclides from the SSFL site into Runkle Canyon and also to provide follow up analysis of earlier samples where the highest levels of SR-90 had been detected previously. Two duplicate samples were also collected for each of the sample sets at randomly selected locations. In addition, six soil samples were collected from three sampling trenches dug in an area of fill associated with the aggregate quarry. The levels of Sr-90 and Cs-137 present at Runkle Canyon were determined to not represent a significant health risk to future residents of the property.¹⁶ A human health risk assessment was performed comparing surface soil concentrations of Sr-90 and Cs-137 to the default PRG for a residential soil scenario for samples in recreation areas. The total risk from Sr-90 and Cs-137 was shown to be less than one in 1 million for residential users and less than one in 10 million for open space users.¹⁷ The applicant submitted all findings and reports to DTSC and received a letter indicating that no further action was necessary in December 2010.¹⁸

The proposed project includes an extension of the development agreement associated with the Runkle Canyon Specific Plan. Approval of the proposed project would extend the terms of the development agreement through 2019. Additional discretionary approvals will also be considered; these include a CUP for the proposed park and modifications to the Planned Development Permit, which will provide additional detail to elements included in the approved Specific Plan. However, no changes to the land

¹⁴ Dade Moeller & Associates, *Runkle Canyon Response Plan*. July 22, 2010.

¹⁵ GEOCON West Inc. *Runkle Canyon Simi Valley, California Results of Tar Removal Confirmation Sample*, letter September 29, 2010.

¹⁶ Dade Moeller & Associate., *Evaluation and Health Risk Assessment of Soil Sample Result for Runkle Canyon Pursuant to the Revised Response Plan*, December 17, 2010.

¹⁷ Dade Moeller & Associate., *Evaluation and Health Risk Assessment of Soil Sample Result for Runkle Canyon Pursuant to the Revised Response Plan*, December 17, 2010

¹⁸ Department of Toxic Substances Control. *Approval of Documents Related to the Evaluation and Cleanup of Runkle Canyon Pursuant to the July 22, 2010 Response Plan*, letter December 17, 2010.

uses associated with the Specific Plan would occur and the CUP and modifications to the Planned Development Permit would be consistent with the elements of the approved Specific Plan. As discussed above, previous contamination has been identified on the site and was disclosed in the Final EIR. The proposed extension of the development agreement and additional discretionary approvals would not place people or structures within areas not previously analyzed for potential hazards in the Final EIR. In addition, no new types of land uses are proposed by the project. Due to the extensive testing and remediation that has occurred on site, the likelihood of encountering additional contaminated materials, such as oil wells remains small. Further, the mitigation measures identified in the Final EIR remain applicable to the project and would be applied if dewatering is required. No new or substantially more severe hazardous material impacts would occur as a result of the proposed extension of the term of the approved development agreement and approval of the additional discretionary actions.

HYDROLOGY

Summary of Analysis in the Runkle Canyon Final EIR

Portions of the existing residential community adjacent to the northern and northwestern corner of the Specific Plan Boundary, and adjacent to Runkle Channel, are within a Flood Hazard Area and Regulatory Floodway as defined by the Federal Emergency Management Agency (FEMA). Stormwater runoff within the residential neighborhood adjacent to the Specific Plan Area located along Comet, Talbert, and Watson Avenues currently exceeds drainage capacity and is subject to flooding in the event of a 100-year storm. Other existing storm drain lines adjacent to the Specific Plan Area have sufficient capacity.

The Specific Plan is designed to maintain or reduce existing drainage flows, limiting developed site runoff downstream of the Runkle Canyon Dam and Reservoir to pre-development or better levels. The City requires that any proposed development Q for a 100-year storm shall be reduced to that of a 10-year Q. In order to comply with Ventura County Watershed Protection District (VCWPD) and City standards, the project includes 11 debris basins and two detention basins. To comply with the National Pollutant Discharge Elimination System (NPDES) Permit requirements, a series of basins and water clarifiers are planned within the community. The debris/desilting basins prevent debris caused by erosion from blocking the storm drain system. The main function of water quality basins is to remove trash and impurities from the site runoff prior to exiting the Specific Plan Area. The majority of the runoff from the site will be treated for pollutant removal. Areas that connect directly to enclosed drain systems will be treated by water clarifiers. **Figure 3.0-1, Drainage Areas Overlying Proposed Development Area** shows the Runkle Canyon drainage areas.

The Conceptual Storm Drain and Basins Plan contain two detention basins. Detention basins are temporary storage areas for peak runoff that release excess water from the basin gradually to downstream storm drain facilities. In order to comply with the City's 10-year frequency storm standard, the central detention basin (Basin A) has been designed at the center of residential development. The location of Basin A will contribute to accommodating a greater in-flow than required. The majority of the Specific Plan Area drains to Basin A. Basin K is the second detention basin located at the northwest corner of the proposed project. Proposed Basin K, along with the existing on-site detention basin (Runkle Dam), contribute to reducing the total project Q to less than the required 10-year Q.

Debris basins would be incorporated into the proposed detention basins. Below is a general description of the improvement in the drainage areas. **Table 3.0-4, Drainage Area Flow Reductions**, summarizes the flow reductions for all drainage areas.

Table 3.0-4
Drainage Area Flow Reductions

Drainage Area	Q10 Developed (cfs)	Q100 Developed (cfs)	Required Flow Reduction (cfs)	Q100 Developed with Detention (cfs)	Design Flow Reduction (cfs)
1A-31A	807	1290	None (off site)	1290	0
32A	68	120	52	120	0
54A	80	139	59	139	0
33D-44D	302	515	213	70	445
57E-60E	289	501	212	102	399
66E	44	117	73	254	0
73F-76F	287	363	76	363	0
Total			685 (cfs)		884 (cfs)

Source: Hydrology & Hydraulics for Runkle Canyon, Crosby Mead Benton & Associates, January 31, 2003.

The Specific Plan includes a drainage master plan consisting of a central detention basin, a structure to reduce the velocity of runoff, debris basins, and water quality treatment basins. After development, runoff volume and velocity into on- and off-site facilities would be equal to or below pre-development levels. As a result, there is no potential for increased runoff velocities, which could cause scouring, or erosion of the beds of drainage channel beds and downstream drainage conditions will not be significantly impacted. The Final EIR determined that the filtration basins would ensure that the project meet the requirements of the NPDES, which would mitigate potential water quality impacts.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

Since the Final EIR was certified in 2004, additional regulations related to hydrology and drainage have been adopted. Specifically, the Los Angeles Regional Water Quality Control Board adopted Order No. 09-0057, a new Ventura Countywide Municipal Separate Storm Sewer NPDES Permit (Permit), for Waste Discharge Requirements for Stormwater Discharges for Municipal Separate Storm Sewer System (MS4) for the County of Ventura. However, the Order allows that projects that include adopted specific plans or approved development agreements continue to comply with the performance criteria set forth in the 2002 Order 00-108. Therefore, the Runkle Canyon Specific Plan will continue to comply with the 2002 Order. The 2002 Order is the criteria under which the Specific Plan was evaluated. As discussed above, the project is designed to reduce stormwater pollution through detention and debris basin. These filtration basins would ensure that the project meet the requirements of the NPDES.

The proposed project would extend the development agreement that implement the Runkle Canyon Specific Plan by five years to 2019. Additional discretionary approvals will also be considered, these include a CUP for the proposed park and modifications to the Planned Development Permit, which will provide additional detail to elements included in the approved Specific Plan. No changes to the amount or type of approved land uses that would be included in the Runkle Canyon project would occur. The Final EIR evaluated the potential for impacts related to hydrology and drainage and determined that mitigation measures and project features would ensure that project runoff rates would not exceed current rates. Therefore, no new or substantially greater impacts would occur as a result of the proposed extension of the term of the approved development agreement and approval of the additional discretionary actions.

LAND USE

Summary of Analysis in the Runkle Canyon Final EIR

The consistency of the Runkle Canyon Specific Plan with applicable land use plans and policies, and the compatibility of the project with surrounding land uses were analyzed in the Runkle Canyon Specific Plan EIR. This evaluation addressed the consistency of the project with the City's General Plan, Hillside Performance Standards and the City Urban Restriction Boundary, and the Local Agency Formation Commission (LAFCO) policies. Approximately 1,531 acres of the Specific Plan annexed to the City of Simi Valley as part of the Specific Plan.

Annexation of the project site to the City and development of the entire Specific Plan with the proposed uses was found to be consistent with the City's land use plans and policies. The Runkle Canyon Specific

Plan was also found to be consistent with LAFCO policies. In addition, the Specific Plan defined a pattern of development determined to be compatible with the surrounding residential and open space uses located near the project site. No significant impacts related to inconsistencies with applicable land use plans and policies were identified in the Final EIR.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

The Simi Valley City Council certified the Final EIR and approved the Runkle Canyon Specific Plan and related actions on April 26, 2004. Subsequent to the City approving the project, the Ventura Local Agency Formation Commission approved an amendment to the City of Simi Valley Sphere of Influence to include the entire Specific Plan Area and annexation of the site to the City in September 2004.

In 2007, the City began the process of updating its General Plan to project growth through the year 2030. The City conducted visioning workshops to help in crafting a set of principles that guided the formation of the General Plan. As part of the General Plan Update process the City also developed a comprehensive land use plan that identified areas of the City where land uses will be preserved and areas where new development will be targeted. In areas where new development is targeted, the land use plan specifies what types of land uses are appropriate, including the density and character within those areas. Of the 14 areas of change described in the Draft Simi Valley General Plan, only one, Covington Avenue/Rudolph Drive area, is located within 1 mile of the Specific Plan area. The Covington Avenue area is designated as open space under the existing General Plan; however, a portion would be changed to Residential/Mixed Use. This change would not be affected by the proposed project.

The Draft General Plan includes policies and goals that would mitigate the effects of development that will occur over the next 20 years. Although the Runkle Canyon Specific Plan was approved under the existing General Plan, the policies in the Draft General Plan also provide an important framework for the discussion of potential land use impacts. In particular, the Draft General Plan utilizes the most current Southern California Association of Governments (SCAG) population estimates to determine buildout and General Plan capacity. Policy LU1.1 states “Accommodate the densities and intensities of land use development in accordance with the designations and standards of the Simi Valley Municipal Code. Development shall not exceed 58,438 housing units, 8,764,000 square feet of retail, 7,642,000 square feet of office uses, 5,743,000 square feet of business park uses, and 12,134,000 square feet of industrial uses.” The EIR for the General Plan further states that these number represent the maximum development capacity analyzed in the General Plan EIR and that development that exceeds these limits may be subject to additional environmental analysis.

The Draft Simi Valley General Plan recognizes the adopted Runkle Canyon Specific Plan and its components. The Simi Valley General Plan assumes 461 dwelling units including 323 single-family units and 138 senior units will be developed on the Runkle Canyon project site. The extension of the approved development agreement, the CUP for the park and the modifications to the Planned Development Permit would not introduce any new land uses within the Specific Plan Area or change the basic character of the surrounding area. Although the modifications to the Planned Development Permit will provide additional detail for the architectural elements of the project, the basic character of the site, as described in the approved Specific Plan will remain the same. The proposed project would continue to be consistent with the land uses in the existing General Plan and those proposed in the Draft Simi Valley General Plan. Therefore, no new significant or substantially greater impacts would occur as a result of the extension of the development agreement and approval of the additional discretionary actions.

NOISE

Summary of Analysis in the Runkle Canyon Final EIR

Analysis of the potential for roadway and stationary source noise to impact the proposed residential uses, as well as the potential construction noise impacts was assessed in the Final EIR. Project construction activities will primarily include grading of the ground surface and the building of proposed uses. These activities typically involve the temporary use of heavy equipment, such as tractors, loaders, concrete mixers, and cranes. Construction activities would occasionally and intermittently expose the existing residential uses to the north to noise levels greater than 10.0 decibels (dB) over ambient conditions during various phases of construction. Mitigation measures such as limiting site demolition and construction activities to between 7:00 AM and 7:00 PM, use of construction equipment with noise muffling, and the use of hydraulic rather than pneumatic equipment were identified in the Final EIR to mitigate construction related noise to less than significant levels.

Traffic generated by the Specific Plan would cause increases in noise levels along roadways within the City of Simi Valley between 0.0 and 2.5 A-weighted decibels (dB(A)) day-night average sound level (Ldn). The greatest increases in noise would occur along Sequoia Avenue—2.5 dB(A)—near the Specific Plan Area. Overall, these increases in noise would not be readily noticeable and were determined to be less than significant. The Final EIR did not identify any significant noise impacts.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

Noise from the Specific Plan would result from increased activity in the area and traffic generated by the residences and other uses. The certified Final EIR determined the residential uses and the potential future

golf course would generate a total of approximately 4,350 daily trips, with approximately 315 trips occurring during the AM peak hour and approximately 419 trips occurring during the PM peak hour. As no changes to the amount or type of allowed land uses or any other aspects of the approved Specific Plan would occur under the proposed project, a similar number of vehicle trips would be generated. It takes a doubling of traffic to cause an audible increase in noise levels. Therefore, the projects contribution to traffic noise would remain unchanged from the analysis in the certified Final EIR, which determined that noise level increases resulting from Specific Plan would not exceed 2.5 dB(A). An increase of 3.0 dB(A) is barely audible, and therefore the project contribution to roadway noise levels would be less than significant.

Other noise sources that would result from operation of the Specific Plan would include noise generated by future residents within the Specific Plan Area. These could include point source noise that such as people talking, doors slamming, lawn care equipment operation, stereos, domestic animals, etc. Suburban residential areas typically have ambient noise environments of between 52.0 and 61.0 dB(A) Equivalent Continuous Noise Level (Leq),¹⁹ which are composites of all noise levels (i.e., traffic and other noise sources) and typically do not exceed City noise standards; therefore, they are not considered significant. These noise levels also contribute to the ambient noise levels that are experienced in all residential areas. As no changes to the amount or type of allowed land uses or any other aspects of the Specific Plan would occur under the proposed project, no new or substantially greater impacts resulting from operational noise would occur.

No change in construction activities or the noise associated with construction would result from the proposed extension of the development agreement, the CUP for the proposed park or the modifications to the Planned Development Permit. No changes to the amount or type of allowed land uses or any other aspects of the approved Specific Plan are proposed. Therefore, construction noise resulting from the proposed project would not be different from the construction noise analyzed in the Certified Final EIR. The Certified Final EIR determined that the noise resulting from construction activities may be a short-term nuisance, but is not considered to be a significant impact. Mitigation measures identified as part of the Specific Plan to further reduce construction noise impacts would remain applicable. Therefore, no new or substantially greater impacts would occur as a result of the proposed extension of the development agreement and approval of the additional discretionary actions.

¹⁹ US Environmental Protection Agency, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March 1974.

PUBLIC SERVICES

Police

Summary of Analysis in the Runkle Canyon Final EIR

Police services in the City of Simi Valley are provided by the Simi Valley Police Department (Police Department). The police station is located at 3901 Alamo Street near Tapo Canyon Road, approximately 3 miles north of the Specific Plan Area. Demands for police services would increase above current levels with development of the residential uses. Based on an average household size of 2.99, the Specific Plan would result in an increase in population of 1,378. As part of the adopted Specific Plan, police protection services will be provided as needed. The City will use available funds generated by the Specific Plan and other projects within the City as necessary to maintain adequate police protection services.

One additional impact related to adequate radio communication was found in the certified Final EIR. A radio communications study conducted indicated a clear radio signal cannot be maintained within the residential community development area. To mitigate this impact, the installation of a bi-directional amplifier to augment the signal within the Specific Plan Area has been included as part of the project.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

The Police Department anticipates that an increase in staffing (sworn and civilian), with the necessary supporting equipment, will be necessary to serve population and employment growth over the next 20 years. Continued emphasis on the minimization of crime through environmental design (i.e., lighting and points of access) throughout the City's development process will aid in this task. The Draft General Plan includes numerous goals and policies related to police protection. These include crime prevention and protection, technology upgrades, improved communication, and review of development projects. The Draft General Plan EIR found these policies would mitigate potential impacts related to police protection services.

The proposed extension of the development agreement and the additional discretionary approvals anticipated as part of the proposed project would not result in a change to the number of residents anticipated on site. Therefore, extension of the proposed project would not place additional demand on police protection services as compared to the analysis contained in the certified Final EIR. Further, payment of development fees would mitigate any potential impacts. Therefore, no new or more substantial impacts would occur with approval of the development agreement and approval of the additional discretionary actions.

Fire

Summary of Analysis in the Runkle Canyon Final EIR

The Ventura County Fire Department (VCFD) provides fire prevention, fire suppression, and life safety services in Simi Valley. Within the County, there are five battalions organized geographically with 31 fire stations staffed 24 hours per day, 365 days per year. In addition to protecting the unincorporated areas of the County, these battalions serve the cities of Camarillo, Moorpark, Ojai, Port Hueneme, Simi Valley, and Thousand Oaks. The City of Simi Valley is located within Division 23. Division 23 is comprised of two battalions, Battalion 3 and Battalion 4, serving the cities of Moorpark, Simi Valley, and Thousand Oaks, as well as the unincorporated areas of the County that are covered by the geographical boundaries of the Fire District. Fire protection service to the Specific Plan Area is provided by Battalion 4. Battalion 4 is comprised of seven fire stations. Five stations are located in Simi Valley and the remaining two are located in Moorpark. In order to continue to provide fire protection services to the community as new projects are initiated, the VCFD assesses facility fees on all new projects in conjunction with the issuance of building permits. These fees are intended to provide capital improvement funds to ensure that the Department will be able to provide adequate fire protection services to accommodate future growth within the VCFD service area. In addition to maintaining the mandatory fire flow and acceptable response times, the developer will be required to comply with all fire safety regulations outlined in the Uniform Fire Code.

The Specific Plan Area is located in the southern portion of Simi Valley on the northern side of the Simi Hills. The Specific Plan Area is currently undeveloped. Currently, the most likely type of fire in the Specific Plan Area is wildfire. Wildfire potential depends upon several factors, including topography, the composition of on-site vegetation, and climate. In terms of vegetation, the Specific Plan Area is comprised primarily of non-native grassland, coastal sage scrub, and northern mixed chaparral. Both coastal sage scrub and chaparral have adapted to arid conditions and some of the plant species found here contain high amounts of natural oils that aid in spreading fire. The presence of these fire-adapted plants results in this plant community being classified as a high wildfire hazard. A fuel modification plan has been prepared as part of the Specific Plan Area in accordance with applicable VCFD standards. In addition, development of the on-site road network would improve access to the site, thus improving the ability to respond to wildfires on site or in the site vicinity. All on-site roads would be designed and constructed to VCFD standards for roadway widths, grades, turning radii, and drainage structures.

Analysis of Proposed Extension of Development Agreement and Discretionary Approvals

The proposed extension of the development agreement and additional discretionary approvals would not result in a change to the number of residents anticipated on site. No changes to the amount or type of allowed land uses or any other aspects of the approved Specific Plan are proposed. In addition, the City of Simi Valley has adopted the California Building Code requirements for proposed developments within High Fire Hazard areas as part of its municipal code. These regulations specify roof, exterior wall covering, and underfloor space requirements, as well as specific requirements for the location and design of roof overhangs, ventilation openings, and decks. The modifications of the Planned Development Permit will provide additional detail regarding the building materials and architectural style, but will remain consistent with the approved Specific Plan. Further, the developer would be required to incorporate applicable Fire Code requirements into final site and building plans and to pay applicable VCFD facility fees. Therefore, extension of the development agreement and the additional discretionary approvals would not place additional demand on fire protection services as compared to the analysis contained in the certified Final EIR. Further, payment of development fees would mitigate any potential impacts. Therefore, no new or more substantial impacts would occur as a result of the extension of the development agreement and approval of the additional discretionary actions.

Emergency Service

Summary of Analysis in the Runkle Canyon Final EIR

Local vehicular access will be provided by extensions of Sequoia and Talbert Avenues, located directly north of the Specific Plan Area. Both access points will be available during project construction. When extensions of existing truncated streets, including Hazelnut Court, High Point Place, and Cobbler Hill Court result in overall cul-de-sac lengths that exceed 800 feet, those cul-de-sac bulbs would be designed and constructed to accommodate emergency vehicle turnaround, consistent with VCFD and City standards. Access to the new water tank and emergency helispot for Planning Area 12 in the northeastern portion of the Specific Plan is via an asphaltic concrete 20-foot-wide drive.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

The VCFD installed a new communications system in November of 2006. The new system consists of computers in all of the structure engines, ladder trucks, and command vehicles. In addition, a global positioning system (GPS) can identify the closest unit for dispatch to an incident. Tactical and premise information specific to the incident location that was previously carried in many different books can now

be accessed on the computer screen, allowing for more accurate and efficient fire prevention and emergency services. Further, policies contained in the Draft Simi Valley General Plan require that adequate infrastructure be provided as new development occurs.

The proposed extension of the development agreement and the additional discretionary approvals would not result in a change to the number of residents anticipated on site. Further, no changes to the street layout or any other aspects of the approved Specific Plan are proposed. Therefore, extension of the proposed project would not change the proposed street emergency access as compared to the analysis contained in the certified Final EIR. Therefore, no new or more substantial impacts would occur as a result of the proposed extension of the development agreement and approval of the additional discretionary actions.

TRAFFIC

Summary of Analysis in the Runkle Canyon Final EIR

The traffic impact analysis in the Final EIR studied 13 intersections in the project vicinity. These intersections are: Sycamore Drive and State Route 118 (SR-118) Westbound Ramps; Sycamore Drive and SR-118 Eastbound Ramps; Sycamore Drive and Cochran Street; Sycamore Drive and Los Angeles Avenue; Sycamore Drive and Royal Avenue; Sequoia Avenue and Cochran Street; Sequoia Avenue and Los Angeles Avenue; Sequoia Avenue and Royal Avenue; Tapo Canyon Road and SR-118 Westbound Ramps; Tapo Canyon Road and SR-118 Eastbound Ramps; Tapo Canyon Road and Cochran Street; Tapo Canyon Road and Los Angeles Avenue; and Tapo Canyon Road and Royal Avenue.

The operation of intersections is categorized based on the Level of Service (LOS) system that describes the quality of traffic flow with a rating of A through F. LOS A represents free flow traffic movement and LOS F represents congested forced traffic flows. The City's General Plan Circulation Element has targeted LOS C or better as the maximum operating conditions for the City's intersections.

The residential uses and the potential future golf course would generate a total of approximately 4,350 daily trips, with approximately 315 trips occurring during the AM peak hour and approximately 419 trips occurring during the PM peak hour.

With the addition of traffic from the project, all 13 intersections were projected to operate at LOS C or better during both peak hours. The majority of these intersections, 11 of 13, were projected to operate at LOS A or B during both peak hours. Because the project would not generate significant traffic impacts at the study intersections, no traffic mitigation measures are recommended. No unavoidable significant project or cumulative traffic impacts within the project study area would occur with project

implementation. The project is required to pay the City's Traffic Impact Fee, which the City has adopted to provide funds needed to provide the traffic improvements needed to support the development of the uses allowed by the City's General Plan.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

The City is in the process of preparing a comprehensive Draft General Plan update. As part of the Draft General Plan, 10 of the 13 intersections in the Runkle Canyon Specific Plan EIR were evaluated. These intersections are: Sycamore Drive and State Route 118 (SR-118) Westbound Ramps; Sycamore Drive and SR-118 Eastbound Ramps; Sycamore Drive and Cochran Street; Sycamore Drive and Los Angeles Avenue; Sycamore Drive and Royal Avenue; Tapo Canyon Road and SR-118 Westbound Ramps; Tapo Canyon Road and SR-118 Eastbound Ramps; Tapo Canyon Road and Cochran Street; Tapo Canyon Road and Los Angeles Avenue; and Tapo Canyon Road and Royal Avenue.

The Draft General Plan EIR evaluated several different scenarios for future year buildout. These included buildout of the existing General Plan, buildout of the General Plan Update with SCAG projections, and buildout of the General Plan Update with the preferred land uses. The majority of the intersections listed above would continue to operate at LOS A or B during both the AM and PM peak hours under the General Plan with preferred land use scenario. One intersection would operate at an unacceptable LOS; the intersection of Sycamore Drive and Los Angeles Avenue would operate at LOS D in both the AM and PM peak hours under the preferred land use scenario. The Draft General Plan EIR identifies restriping of the westbound through/right turn lane to a through lane and adding a westbound right turn lane as feasible mitigation for this intersection.

Rather than incorporate this specific improvement into the General Plan, the City provides a method for dealing with mitigation of traffic impacts that addresses future changes in land use. The City will regularly revise and refine the City traffic model in response to new development, monitoring of actual traffic volumes, and revision to anticipate ultimate development demands on the system. Traffic impact fees provide for the improvements required and are supplemented by available highway funds from other sources. The Draft General Plan EIR also includes policies that would ensure that intersection and street improvements are provided as needed.

The proposed extension of the development agreement and additional discretionary approvals would not result in a change to the number of residents anticipated on site and would not generate additional traffic beyond levels evaluated in the Final EIR. No changes to the street layout or any other aspects of the approved Specific Plan are proposed. Further, the City will continue to monitor traffic volumes and

provide improvements as necessary. Therefore, the extension of the development agreement and approvals of the additional discretionary actions would not change the traffic analysis as compared to the analysis contained in the certified Final EIR. Therefore, no new or more substantial impacts would occur as a result of the extension of the development agreement and approval of the additional discretionary actions.

UTILITIES

Water

Summary of Analysis in the Runkle Canyon Final EIR

The City of Simi Valley receives water from both local groundwater sources and imported sources from Northern California. The vast majority of the City's water supply is imported via the State Water Project (SWP) California Aqueduct system. The Metropolitan Water District of Southern California (MWD) is the primary wholesale water provider for the region, serving 26 member agencies, including 14 cities, 11 municipal water districts, and one county authority. The MWD's member agencies in turn serve customers in more than 145 cities and 94 unincorporated communities. The Calleguas Municipal Water District (Calleguas MWD) formed to provide a reliable supply of water to an approximately 350-square-mile area in southern Ventura County, purchases SWP water from the MWD and sells it to local purveyors, including the Southern California Water Company. The SWP supply is treated at Joseph Jensen Water Filtration Plant before its delivery to Calleguas.

The Final EIR provides an evaluation of the adequacy of existing water supplies and the water distribution system to serve the Runkle Canyon Specific Plan. A Water Supply Assessment (WSA) was prepared by Southern California Water Company to determine the adequacy of water supplies. Based on the information and findings documented in the WSA, there will be sufficient water supplies to meet the demands of the Specific Plan and other planned growth. With the construction of the water tank and other improvements in the Specific Plan, adequate water service can be provided.

The Specific Plan includes a number of water supply related improvements within the Specific Plan Area and surrounding areas. First, a new 12-inch water line will be constructed within Sequoia Avenue as the main water line to the site. Second, a 2-million-gallon water tank will be on the northeastern portion of the project site and will be connected to project site and surrounding uses through 8-inch and 12-inch water lines. The water tank, which would be filled by a booster pump station located within the Specific Plan Area, would serve the project site and 110 homes adjacent to the site that are currently served by the Pineview Booster Pump Station (BPS). The development of the water tank will improve the reliability of the water service to the adjacent homes, especially in the event of a power failure at the Pineview PBS.

Third, residences that are off of Hazelnut Court, High Point Place, and Copper Hill Court will utilize water lines that currently serve residences on each respective street. Fourth, water lines will be used to connect residences on Comet and Watson Avenues to existing lines that currently serve residences on these streets. The water tank and water supply lines have also been sized to provide service to the potential future golf course.

Table 3.0-6 identifies projected supply and demand for the SCWC Simi Valley System. The Specific Plan is anticipated to use 657,537 gallons per day or 737 acre-feet per year once the project has reached the maximum buildout.

Table 3.0-6
Projected Supply vs. Demand for the City in Acre-Feet Per Year

Year	Projected Water Supply	Projected Water Demand	Water Surplus
2005	11,300	10,707	+ 593
2010	13,300	12,917	+ 383
2015	14,300	14,134	+ 166
2020	16,300	15,815	+ 485
2025	18,000	17,039	+ 961
2030	19,700	18,600	+1,100

The Specific Plan has incorporated a Master Landscape Concept Plan that will utilize drought tolerant and native vegetation in areas that will be disturbed by development. Water conservation measures, as required by the State of California and the City of Simi Valley at the time building permits are issued, will be incorporated into the project

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

MWD has engaged in significant water supply projection and planning efforts since certification of the Final Runkle Canyon EIR in 2004. Those efforts have included the water demands of the Department of Water and Power service area in their projections. In its 2010 Regional Urban Water Management Plan (RUWMP), MWD has consistently found that its existing water supplies, when managed according to its water resource plans, are and will be 100 percent reliable through 2035. Although water supply conditions are always subject to uncertainties, MWD has maintained its supply reliability in the face of such uncertainties in the past, and is actively managing its supplies to ensure the same 100 percent reliability in the future.

The future capacity of the Jensen Treatment Plant to accommodate growth in its service area has been considered in the MWD's 2010 RUWMP. In that document, MWD forecasts demand for water through 2035 and plans infrastructure expansion to align with expected demand. The recent capacity increases at the Jensen Treatment Plant were made in response to these forecasts, which include growth envisioned by SCAG's regional projections (which are, in turn, based on individual city General Plan growth envelopes, including Simi Valley).

The proposed extension of the development agreement and approval of the additional discretionary actions does not include changes to the land uses in the approved Specific Plan and therefore, it not anticipated to result in a change in the amount of water that is required by the project. As described above, Simi Valley's anticipated future water supply and demand was considered in the Draft General Plan EIR and in MWDs future projections and it was determined adequate supplies would be available from MWD. As the proposed project would not change any of the basic features of the approved Specific Plan and would comply with the most recent water conservation measures, no new or substantially increased impacts would occur as a result of the extension of the development agreement and approval of the additional discretionary actions.

Wastewater

Summary of Analysis in the Runkle Canyon Final EIR

The Sanitation Services Division of the City of Simi Valley Department of Public Works operates the City's sanitary sewer system and water quality control plant (WQCP). The WQCP, located at 600 West Los Angeles Avenue, treats all wastewater in Simi Valley. After treatment, the wastewater is discharged into the Arroyo Simi and allowed to percolate into the streambed. During wet periods, any water that does not percolate into the streambed is conveyed to the ocean via Calleguas Creek.

On average, the WQCP currently treats approximately 10 million gallons per day (mgd) of wastewater and is rated to accept up to 12.5 mgd of wastewater; it is thus operating at approximately 80 percent of its current capacity. Treatment at the WQCP consists of aerated grit removal, primary sedimentation, flow equalization, activated sludge biological treatment, secondary sedimentation, dual media filtration, chlorination, and dechlorination. In 2005, the City completed a major process addition to the WQCP: adding nitrification-denitrification (biological nutrient removal) process components, while upgrading and updating many associated facility components.

The residential community and potential future golf course will generate a combined total of approximately 204,000 gallons of wastewater per day. Wastewater would be transported to the Simi Valley Water Treatment Facility. The existing City sewer system has capacity for wastewater that would

be generated. In addition, the wastewater treatment plant has sufficient capacity to treat and dispose of this amount of wastewater. No impact with regard to wastewater conveyance, treatment, or disposal will occur.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

The proposed project would extend the development agreement that implements the Runkle Canyon Specific Plan by five years to 2019. Additional discretionary approvals will also be considered; these include a CUP for the proposed park and modifications to the Planned Development Permit, which will provide additional detail to elements included in the approved Specific Plan. No changes to the amount or type of allowed land uses or any other aspects of the approved Specific Plan are proposed. The certified Final EIR estimated that total wastewater generation resulting from build out of the project would be 204,000 gallons per day (gpd). Considering that the proposed project would not change the amount or type of allowed land uses, no increase in wastewater generation would occur.

As described above additional water conservation measures were not required at the time the Final EIR was certified, and as a result, actual water demands would be less than previously estimated due to implementation of water conservation measures required by the City of Simi Valley. Further, the City's Draft General Plan EIR evaluated the potential for impacts to occur as a result of development (including the Runkle Canyon Specific Plan) through 2030. Based on the Draft General Plan EIR, impacts related to wastewater treatment and conveyance infrastructure were determined to be less than significant. As the Runkle Canyon Specific Plan is an accepted land use within the Draft General Plan, the Specific Plan and the proposed project would be consistent with this finding. Therefore, no new or substantially greater impacts would occur as a result of the extension of the development agreement and approval of additional discretionary actions.

Solid Waste

Summary of Analysis in the Runkle Canyon Final EIR

The Simi Valley Landfill & Recycling Center (SVLRC), operated by Waste Management, currently provides approximately 60 percent of Ventura County's daily refuse disposal needs and 100 percent of City of Simi Valley's daily refuse disposal needs. Approximately 75 percent of all waste accepted at the SVLRC originates in Ventura County.

The SVLRC permitted site area is 298 acres with a permitted disposal area of 186 acres. The SVLRC is permitted to accept up to 3,000 tons per day (tpd) of refuse and can accept 6,250 tons of recyclable

materials.²⁰ The SVLRC recycles approximately 25 percent of all waste accepted. The average daily disposal for 2007 was 2,177 tpd, or approximately 73 of its permitted daily capacity. The total permitted capacity of SVLRC is 43,500,000 cubic yards, and the estimated remaining permitted capacity is 23,201,173 cubic yards.²¹ In 2011, the Ventura County Board of Supervisors approved Waste Management's request to expand the capacity of the facility. The expansion will add 186 acres to the site and will double the maximum amount of daily trash that can be accepted there, from 3,000 tons to 6,000. With the approved expansion, the facility is expected to remain in operation through 2057.

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

The proposed project would extend the development agreement that implements the Runkle Canyon Specific Plan by five years to 2019. Additional discretionary approvals will also be considered; these include a CUP for the proposed park and modifications to the Planned Development Permit, which will provide additional detail to elements included in the approved Specific Plan. No changes to the amount or type of allowed land uses or any other aspects of the approved Specific Plan are proposed. The proposed uses allowed by the Specific Plan would generate approximately 1.31 tons of solid waste per day after recyclable materials are diverted from the waste stream. While solid waste generated by the project would incrementally shorten the lifespan of the Simi Valley Landfill, sufficient landfill capacity would be available with the approved expansion of the facility. Expansion of the Simi Valley Landfill, development of alternative waste to energy technologies, and compliance with diversion goals under AB 939 would all reduce solid waste disposal rates locally and regionally. Therefore no new or substantially greater impacts would occur as a result of the extension of the development agreement and approval of the additional discretionary actions.

Cumulative Effects

Summary of Analysis in the Runkle Canyon Final EIR

The cumulative impact analysis considered related projects based on the City of Simi Valley's summaries of residential, commercial, and industrial developments at the time the Final EIR was certified. Based on the City's list of related projects, it was found that there were no commercial or industrial projects proposed or under construction near the Runkle Canyon Specific Plan Area. With regard to other residential projects, one other residential project was proposed to be located along the southern edge of

²⁰ Cal Recycle Active Landfill Profile for Simi Valley Landfill and Recycle Center. <http://www.calrecycle.ca.gov/Profiles/Facility/Landfill/Default.asp>

²¹ Cal Recycle Active Landfill Profile for Simi Valley Landfill and Recycle Center

the City in proximity to the Runkle Canyon Specific Plan Area. An application had been filed requesting approval of 58 residential lots on approximately 50 acres, approximately 1 mile west of the Runkle Canyon Specific Plan Area. This project was proposed west of the northern edge of the Runkle Canyon Specific Plan Area. The Final EIR considered the potential cumulative effects of this project in combination with related projects. Each topic area within the Final EIR included an evaluation of the potential for the project to contribute to a cumulative impact and found that no significant cumulative impacts would occur, with the exception of air quality (described above).

Analysis of Proposed Extension of Development Agreement and Subsequent Approval Actions

The proposed project would extend the development agreement that implements the Runkle Canyon Specific Plan by five years to 2019. Additional discretionary approvals will also be considered. These include a CUP for the proposed park and modifications to the Planned Development Permit, which will provide additional detail to elements included in the approved Specific Plan. No changes to the amount or type of allowed land uses or any other aspects of the approved Specific Plan are proposed. The Runkle Canyon Specific Plan is included in the City's General Plan, which considers the cumulative effects of the Specific Plan combined with other project within the City. As the proposed project does not include any changes to the amount or type of land uses included in the Runkle Canyon Specific Plan and the project has been included and planned for by the City since its approval in 2004, no change to the cumulative effects of the project would occur as a result of the proposed project modifications. Therefore, no new or substantially greater impacts would occur as a result of the extension of the development agreement and approval of the additional discretionary actions

APPENDIX 1.0

Air Quality Emissions Modeling

Runkle Canyon GHG Emissions
Ventura County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
City Park	9.2	Acre
Retirement Community	138	Dwelling Unit
Single Family Housing	298	Dwelling Unit
User Defined Residential	25	Dwelling Unit

1.2 Other Project Characteristics

Urbanization Urban

Wind Speed (m/s) 2.6

Utility Company Southern California Edison

Climate Zone 8

Precipitation Freq (Days) 31

1.3 User Entered Comments

Project Characteristics -

Land Use - 298 Single Family DU; 25 Estate Lots (User Defined Residential); 138 Senior DU; Approx 9 acre Neighborhood Park. Estimated population of 1,378.

Construction Phase - 1-4,8,11,12,14: Grad 9/1/12-5/31/13; Build 6/1/13-9/30/14; Pav 11/1-30/14; Coat 10/1-11/30/14.
5-7,14: Grad 8/1-12/15/15; Build 12/16/15-7/31/16; Pav 3/1-31/16; Coat 2/1-29/16.
9,10: Grad 2/1-29/16; Build 3/1-5/31/16; Pav 5/16-31/16; Coat 5/1-15/16.

Off-road Equipment - PA 1-4,8,11,12,14 Building: 10 concrete/industrial saws, 20 other equipment, 10 rough terrain forklifts.

Off-road Equipment - PA 5-7,14 Building: 6 concrete/industrial saws, 11 other equipment, 6 rough terrain forklifts.

Off-road Equipment - PA 9,10 Building:

Off-road Equipment - PA 1-4,8,11,12,14 Coating: Air Compressor

Off-road Equipment - PA 5-7,14 Coating: air compressor.

Off-road Equipment - PA 9,10 Coating: air compressor.

Off-road Equipment - No Demolition Phase.

Off-road Equipment - PA 1-4,8,11,12,14 Grading: 2 crawler tractors, 2 graders, 3 off-highway trucks, 2 rollers, 20 scrapers, 4 tractors/loaders/backhoes.

Off-road Equipment - PA 5-7,14 Grading: 2 crawler tractors, 2 graders, 3 off-highway trucks, 2 rollers, 20 scrapers, 4 tractors/loaders/backhoes.

Off-road Equipment - PA 9,10 Grading: 1 off-highway trucks, 1 roller, 1 scraper, 1 tractor/loader/backhoe

Off-road Equipment - PA 1-4,8,11,12,14 Paving: 1 grader, 1 off-highway truck, 1 paver, 1 paving equipment, 2 rollers.

Off-road Equipment - PA 5-7,14 Paving: 1 grader, 1 paver, 1 roller.

Off-road Equipment - PA 9,10 Paving:

Off-road Equipment - No Site Preparation Phase.

Grading - PA 1-4,8,11,12,14: 103.7 acres; PA 5-7,14: 45.3 acres; PA 9,10: 19 acres.

Vehicle Trips - SF: 9.50 trips/DU; Estate: 12.00 trips/DU; Senior Housing: 4 trips/DU.

Woodstoves - Natural gas fireplaces assumed (2 hrs/day, 90 days/yr).

Energy Use - SF and Senior Housing: Default factors; Estate: 2.77 times SF factors (assumed 5,000 sqft units); Estate and Senior Housing: Emissions MUST be divided by 1,000 to correct calculation error.

Water And Wastewater - Park: 0.16 mgd (58.4 mgy); SF and Retirement Community: CalEEMod default water usage; Estate: 25.3 mgy (indoor), 15.96 mgy (outdoor). Total water usage is 0.4 mgd (146 mgy).

Solid Waste - Park: 0.9 tpy; SF: 304.0 tpy; Estate: 25.5 tpy; Senior Housing: 80.7 tpy; Includes 50% waste diversion rate.

Construction Off-road Equipment Mitigation - Mitigation: Water unpaved roads/exposed areas 2 times (55% fugitive dust reduction); Limit vehicle speeds to 15 mph.

Mobile Land Use Mitigation - Density: 3.3 DU per acre; Affordable units: 62; Improve Pedestrian Network on Project Site and Connecting Off-Site.

Area Mitigation - Only Natural Gas Hearths.

Energy Mitigation - Simi Valley Ordinance 8-15.02: Low-Rise Residential Exceed Title 24 by 10%; Energy efficient appliances mitigation measure.

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012											0.00	2,506.63	2,506.63	0.24	0.00	2,511.63
2013											0.00	5,216.80	5,216.80	0.52	0.00	5,227.66
2014											0.00	2,675.14	2,675.14	0.28	0.00	2,681.06
2015											0.00	2,924.37	2,924.37	0.24	0.00	2,929.32
2016											0.00	1,431.79	1,431.79	0.12	0.00	1,434.23
Total											0.00	14,754.73	14,754.73	1.40	0.00	14,783.90

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012											0.00	2,506.63	2,506.63	0.24	0.00	2,511.63
2013											0.00	5,216.80	5,216.80	0.52	0.00	5,227.66
2014											0.00	2,675.14	2,675.14	0.28	0.00	2,681.06
2015											0.00	2,924.37	2,924.37	0.24	0.00	2,929.32
2016											0.00	1,431.79	1,431.79	0.12	0.00	1,434.23
Total											0.00	14,754.73	14,754.73	1.40	0.00	14,783.90

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	271.34	271.34	0.01	0.00	273.08
Energy											0.00	876,554.53	876,554.53	27.36	15.59	881,962.64
Mobile											0.00	4,314.50	4,314.50	0.18	0.00	4,318.33
Waste											83.45	0.00	83.45	4.93	0.00	187.02
Water											0.00	502.28	502.28	1.66	0.05	552.47
Total											83.45	881,642.65	881,726.10	34.14	15.64	887,293.54

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	271.34	271.34	0.01	0.00	273.08
Energy											0.00	827,005.59	827,005.59	26.18	14.69	832,110.54
Mobile											0.00	4,130.26	4,130.26	0.18	0.00	4,133.95
Waste											83.45	0.00	83.45	4.93	0.00	187.02
Water											0.00	502.28	502.28	1.66	0.05	552.47
Total											83.45	831,909.47	831,992.92	32.96	14.74	837,257.06

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.4 Grading (PA 1-4,8,11,12,14) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2,475.77	2,475.77	0.24	0.00	2,480.73
Total											0.00	2,475.77	2,475.77	0.24	0.00	2,480.73

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	30.86	30.86	0.00	0.00	30.90
Total											0.00	30.86	30.86	0.00	0.00	30.90

3.4 Grading (PA 1-4,8,11,12,14) - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2,475.77	2,475.77	0.24	0.00	2,480.73
Total											0.00	2,475.77	2,475.77	0.24	0.00	2,480.73

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	30.86	30.86	0.00	0.00	30.90
Total											0.00	30.86	30.86	0.00	0.00	30.90

3.4 Grading (PA 1-4,8,11,12,14) - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	3,137.89	3,137.89	0.28	0.00	3,143.82
Total											0.00	3,137.89	3,137.89	0.28	0.00	3,143.82

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	38.27	38.27	0.00	0.00	38.32
Total											0.00	38.27	38.27	0.00	0.00	38.32

3.4 Grading (PA 1-4,8,11,12,14) - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	3,137.89	3,137.89	0.28	0.00	3,143.82
Total											0.00	3,137.89	3,137.89	0.28	0.00	3,143.82

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	38.27	38.27	0.00	0.00	38.32
Total											0.00	38.27	38.27	0.00	0.00	38.32

3.5 Building Construction (PA 1-4,8,11,12,14) - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	1,807.92	1,807.92	0.22	0.00	1,812.59
Total											0.00	1,807.92	1,807.92	0.22	0.00	1,812.59

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	88.04	88.04	0.00	0.00	88.09
Worker											0.00	144.68	144.68	0.01	0.00	144.85
Total											0.00	232.72	232.72	0.01	0.00	232.94

3.5 Building Construction (PA 1-4,8,11,12,14) - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	1,807.92	1,807.92	0.22	0.00	1,812.59
Total											0.00	1,807.92	1,807.92	0.22	0.00	1,812.59

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	88.04	88.04	0.00	0.00	88.09
Worker											0.00	144.68	144.68	0.01	0.00	144.85
Total											0.00	232.72	232.72	0.01	0.00	232.94

3.5 Building Construction (PA 1-4,8,11,12,14) - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	2,319.37	2,319.37	0.26	0.00	2,324.89
Total											0.00	2,319.37	2,319.37	0.26	0.00	2,324.89

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	113.36	113.36	0.00	0.00	113.42
Worker											0.00	181.48	181.48	0.01	0.00	181.69
Total											0.00	294.84	294.84	0.01	0.00	295.11

3.5 Building Construction (PA 1-4,8,11,12,14) - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	2,319.37	2,319.37	0.26	0.00	2,324.89
Total											0.00	2,319.37	2,319.37	0.26	0.00	2,324.89

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	113.36	113.36	0.00	0.00	113.42
Worker											0.00	181.48	181.48	0.01	0.00	181.69
Total											0.00	294.84	294.84	0.01	0.00	295.11

3.6 Coating (PA 1-4,8,11,12,14) - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	5.48	5.48	0.00	0.00	5.50
Total											0.00	5.48	5.48	0.00	0.00	5.50

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	8.00	8.00	0.00	0.00	8.01
Total											0.00	8.00	8.00	0.00	0.00	8.01

3.6 Coating (PA 1-4,8,11,12,14) - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	5.48	5.48	0.00	0.00	5.50
Total											0.00	5.48	5.48	0.00	0.00	5.50

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	8.00	8.00	0.00	0.00	8.01
Total											0.00	8.00	8.00	0.00	0.00	8.01

3.7 Paving (PA 1-4,8,11,12,14) - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	46.20	46.20	0.00	0.00	46.30
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	46.20	46.20	0.00	0.00	46.30

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.24	1.24	0.00	0.00	1.24
Total											0.00	1.24	1.24	0.00	0.00	1.24

3.7 Paving (PA 1-4,8,11,12,14) - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	46.20	46.20	0.00	0.00	46.30
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	46.20	46.20	0.00	0.00	46.30

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.24	1.24	0.00	0.00	1.24
Total											0.00	1.24	1.24	0.00	0.00	1.24

3.8 Grading (PA 5-7,14) - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2,792.43	2,792.43	0.23	0.00	2,797.16
Total											0.00	2,792.43	2,792.43	0.23	0.00	2,797.16

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	32.55	32.55	0.00	0.00	32.58
Total											0.00	32.55	32.55	0.00	0.00	32.58

3.8 Grading (PA 5-7,14) - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2,792.43	2,792.43	0.23	0.00	2,797.16
Total											0.00	2,792.43	2,792.43	0.23	0.00	2,797.16

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	32.55	32.55	0.00	0.00	32.58
Total											0.00	32.55	32.55	0.00	0.00	32.58

3.9 Building Construction (PA 5-7,14) - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	81.47	81.47	0.01	0.00	81.65
Total											0.00	81.47	81.47	0.01	0.00	81.65

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	7.00	7.00	0.00	0.00	7.01
Worker											0.00	10.91	10.91	0.00	0.00	10.93
Total											0.00	17.91	17.91	0.00	0.00	17.94

3.9 Building Construction (PA 5-7,14) - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	81.47	81.47	0.01	0.00	81.65
Total											0.00	81.47	81.47	0.01	0.00	81.65

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	7.00	7.00	0.00	0.00	7.01
Worker											0.00	10.91	10.91	0.00	0.00	10.93
Total											0.00	17.91	17.91	0.00	0.00	17.94

3.9 Building Construction (PA 5-7,14) - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	1,025.16	1,025.16	0.10	0.00	1,027.21
Total											0.00	1,025.16	1,025.16	0.10	0.00	1,027.21

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	88.64	88.64	0.00	0.00	88.68
Worker											0.00	134.73	134.73	0.01	0.00	134.87
Total											0.00	223.37	223.37	0.01	0.00	223.55

3.9 Building Construction (PA 5-7,14) - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	1,025.16	1,025.16	0.10	0.00	1,027.21
Total											0.00	1,025.16	1,025.16	0.10	0.00	1,027.21

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	88.64	88.64	0.00	0.00	88.68
Worker											0.00	134.73	134.73	0.01	0.00	134.87
Total											0.00	223.37	223.37	0.01	0.00	223.55

3.10 Grading (PA 9,10) - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	53.57	53.57	0.00	0.00	53.66
Total											0.00	53.57	53.57	0.00	0.00	53.66

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.83	0.83	0.00	0.00	0.83
Total											0.00	0.83	0.83	0.00	0.00	0.83

3.10 Grading (PA 9,10) - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	53.57	53.57	0.00	0.00	53.66
Total											0.00	53.57	53.57	0.00	0.00	53.66

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.83	0.83	0.00	0.00	0.83
Total											0.00	0.83	0.83	0.00	0.00	0.83

3.11 Coating (PA 5-7,14) - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2.68	2.68	0.00	0.00	2.68
Total											0.00	2.68	2.68	0.00	0.00	2.68

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	3.75	3.75	0.00	0.00	3.75
Total											0.00	3.75	3.75	0.00	0.00	3.75

3.11 Coating (PA 5-7,14) - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2.68	2.68	0.00	0.00	2.68
Total											0.00	2.68	2.68	0.00	0.00	2.68

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	3.75	3.75	0.00	0.00	3.75
Total											0.00	3.75	3.75	0.00	0.00	3.75

3.12 Building Construction (PA 9,10) - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	38.74	38.74	0.00	0.00	38.76
Worker											0.00	58.89	58.89	0.00	0.00	58.95
Total											0.00	97.63	97.63	0.00	0.00	97.71

3.12 Building Construction (PA 9,10) - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	38.74	38.74	0.00	0.00	38.76
Worker											0.00	58.89	58.89	0.00	0.00	58.95
Total											0.00	97.63	97.63	0.00	0.00	97.71

3.13 Paving (PA 5-7,14) - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	21.00	21.00	0.00	0.00	21.05
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	21.00	21.00	0.00	0.00	21.05

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.73	0.73	0.00	0.00	0.73
Total											0.00	0.73	0.73	0.00	0.00	0.73

3.13 Paving (PA 5-7,14) - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	21.00	21.00	0.00	0.00	21.05
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	21.00	21.00	0.00	0.00	21.05

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.73	0.73	0.00	0.00	0.73
Total											0.00	0.73	0.73	0.00	0.00	0.73

3.14 Coating (PA 9,10) - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	1.28	1.28	0.00	0.00	1.28
Total											0.00	1.28	1.28	0.00	0.00	1.28

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.78	1.78	0.00	0.00	1.79
Total											0.00	1.78	1.78	0.00	0.00	1.79

3.14 Coating (PA 9,10) - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	1.28	1.28	0.00	0.00	1.28
Total											0.00	1.28	1.28	0.00	0.00	1.28

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.78	1.78	0.00	0.00	1.79
Total											0.00	1.78	1.78	0.00	0.00	1.79

3.15 Paving (PA 9,10) - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	0.00	0.00	0.00	0.00	0.00
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

3.15 Paving (PA 9,10) - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	0.00	0.00	0.00	0.00	0.00
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Increase Density

Integrate Below Market Rate Housing

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	4,130.26	4,130.26	0.18	0.00	4,133.95
Unmitigated											0.00	4,314.50	4,314.50	0.18	0.00	4,318.33
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Retirement Community	552.00	552.00	552.00	1,525,216	1,458,220
Single Family Housing	2,831.00	2,831.00	2831.00	7,822,258	7,478,662
User Defined Residential	300.00	300.00	300.00	828,922	792,511
Total	3,683.00	3,683.00	3,683.00	10,176,396	9,729,393

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
City Park	9.50	7.30	7.30	33.00	48.00	19.00
Retirement Community	10.80	7.30	7.50	32.90	18.00	49.10
Single Family Housing	10.80	7.30	7.50	32.90	18.00	49.10
User Defined Residential	10.80	7.30	7.50	32.90	18.00	49.10

5.0 Energy Detail

5.1 Mitigation Measures Energy

Exceed Title 24

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.00	396,272.55	396,272.55	17.92	6.80	398,756.13
Electricity Unmitigated											0.00	405,138.11	405,138.11	18.32	6.95	407,677.25
NaturalGas Mitigated											0.00	430,733.04	430,733.04	8.26	7.90	433,354.41
NaturalGas Unmitigated											0.00	471,416.43	471,416.43	9.04	8.64	474,285.39
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
City Park	0											0.00	0.00	0.00	0.00	0.00	0.00
Retirement Community	3.53574e+009											0.00	188,680.37	188,680.37	3.62	3.46	189,828.65
Single Family Housing	1.2601e+007											0.00	672.44	672.44	0.01	0.01	676.53
User Defined Residential	5.28567e+009											0.00	282,063.61	282,063.61	5.41	5.17	283,780.21
Total												0.00	471,416.42	471,416.42	9.04	8.64	474,285.39

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
City Park	0											0.00	0.00	0.00	0.00	0.00	0.00
Retirement Community	3.22886e+009											0.00	172,304.23	172,304.23	3.30	3.16	173,352.85
Single Family Housing	1.15177e+007											0.00	614.63	614.63	0.01	0.01	618.37
User Defined Residential	4.83126e+009											0.00	257,814.18	257,814.18	4.94	4.73	259,383.19
Total												0.00	430,733.04	430,733.04	8.25	7.90	433,354.41

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
City Park	0					0.00	0.00	0.00	0.00
Retirement Community	5.84252e+008					169,941.75	7.69	2.92	171,006.83
Single Family Housing	1.9231e+006					559.37	0.03	0.01	562.88
User Defined Residential	8.06671e+008					234,636.99	10.61	4.02	236,107.54
Total						405,138.11	18.33	6.95	407,677.25

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
City Park	0					0.00	0.00	0.00	0.00
Retirement Community	5.60085e+008					162,912.25	7.37	2.79	163,933.27
Single Family Housing	1.84408e+006					536.39	0.02	0.01	539.75
User Defined Residential	8.00438e+008					232,823.92	10.53	3.99	234,283.10
Total						396,272.56	17.92	6.79	398,756.12

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	271.34	271.34	0.01	0.00	273.08
Unmitigated											0.00	271.34	271.34	0.01	0.00	273.08
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Hearth											0.00	265.69	265.69	0.01	0.00	267.30
Landscaping											0.00	5.65	5.65	0.01	0.00	5.78
Total											0.00	271.34	271.34	0.02	0.00	273.08

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Hearth											0.00	265.69	265.69	0.01	0.00	267.30
Landscaping											0.00	5.65	5.65	0.01	0.00	5.78
Total											0.00	271.34	271.34	0.02	0.00	273.08

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					502.28	1.66	0.05	552.47
Unmitigated					502.28	1.66	0.05	552.47
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
City Park	0 / 58.4					188.72	0.01	0.00	189.91
Retirement Community	8.99126 / 5.6684					52.47	0.28	0.01	60.67
Single Family Housing	19.4159 / 12.2405					113.31	0.60	0.02	131.02
User Defined Residential	25.3209 / 15.9631					147.77	0.78	0.02	170.87
Total						502.27	1.67	0.05	552.47

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
City Park	0 / 58.4					188.72	0.01	0.00	189.91
Retirement Community	8.99126 / 5.6684					52.47	0.28	0.01	60.67
Single Family Housing	19.4159 / 12.2405					113.31	0.60	0.02	131.02
User Defined Residential	25.3209 / 15.9631					147.77	0.78	0.02	170.87
Total						502.27	1.67	0.05	552.47

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					83.45	4.93	0.00	187.02
Unmitigated					83.45	4.93	0.00	187.02
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
City Park	0.9					0.18	0.01	0.00	0.41
Retirement Community	80.7					16.38	0.97	0.00	36.71
Single Family Housing	304					61.71	3.65	0.00	138.29
User Defined Residential	25.5					5.18	0.31	0.00	11.60
Total						83.45	4.94	0.00	187.01

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
City Park	0.9					0.18	0.01	0.00	0.41
Retirement Community	80.7					16.38	0.97	0.00	36.71
Single Family Housing	304					61.71	3.65	0.00	138.29
User Defined Residential	25.5					5.18	0.31	0.00	11.60
Total						83.45	4.94	0.00	187.01

9.0 Vegetation

Runkle Canyon - Golf Course - GHG Emissions
Ventura County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Golf Course	18	Hole

1.2 Other Project Characteristics

Urbanization Urban

Wind Speed (m/s) 2.6

Utility Company Southern California Edison

Climate Zone 8

Precipitation Freq (Days) 31

1.3 User Entered Comments

Project Characteristics -

Land Use - Planning Area 13: 217.5 acres

Construction Phase - PA 13: Grading 6/1/16-1/31/17; Building 2/1/17-4/30/17; Paving 5/1/17-5/15/17; Coating 5/16/17-5/31/17.

Off-road Equipment - Coating: air compressor.

Off-road Equipment - Building: 1 concrete/industrial saw; 1 other equipment; 1 rough terrain forklift.

Off-road Equipment - No demolition phase.

Off-road Equipment - Grading: 1 crawler tractor; 1 grader; 3 off-highway trucks; 1 roller; 12 scrapers; 4 tractors/loaders/backhoes.

Off-road Equipment - Paving:

Off-road Equipment - No site preparation phase.

Grading - PA 13: 217.5 acres.

Vehicle Trips - Golf Course: 50 ADT per hole.

Woodstoves -

Energy Use -

Water And Wastewater - Golf Course: 0.26 mgd (94.9 mgy).

Solid Waste - Golf Course: 22 tons per year (inclusive of 50% diversion rate).

Construction Off-road Equipment Mitigation - Water unpaved roads/exposed areas 2 times (55% fugitive dust reduction); Limit vehicle speeds to 15 mph.

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016											0.00	2,875.46	2,875.46	0.22	0.00	2,880.00
2017											0.00	467.94	467.94	0.03	0.00	468.66
Total											0.00	3,343.40	3,343.40	0.25	0.00	3,348.66

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016											0.00	2,875.46	2,875.46	0.22	0.00	2,880.00
2017											0.00	467.94	467.94	0.03	0.00	468.66
Total											0.00	3,343.40	3,343.40	0.25	0.00	3,348.66

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	0.00	0.00	0.00	0.00	0.00
Energy											0.00	0.00	0.00	0.00	0.00	0.00
Mobile											0.00	678.47	678.47	0.03	0.00	679.10
Waste											4.47	0.00	4.47	0.26	0.00	10.01
Water											0.00	306.68	306.68	0.01	0.01	308.60
Total											4.47	985.15	989.62	0.30	0.01	997.71

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	0.00	0.00	0.00	0.00	0.00
Energy											0.00	0.00	0.00	0.00	0.00	0.00
Mobile											0.00	678.47	678.47	0.03	0.00	679.10
Waste											4.47	0.00	4.47	0.26	0.00	10.01
Water											0.00	306.68	306.68	0.01	0.01	308.60
Total											4.47	985.15	989.62	0.30	0.01	997.71

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.4 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2,842.09	2,842.09	0.21	0.00	2,846.59
Total											0.00	2,842.09	2,842.09	0.21	0.00	2,846.59

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	33.37	33.37	0.00	0.00	33.40
Total											0.00	33.37	33.37	0.00	0.00	33.40

3.4 Grading - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2,842.09	2,842.09	0.21	0.00	2,846.59
Total											0.00	2,842.09	2,842.09	0.21	0.00	2,846.59

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	33.37	33.37	0.00	0.00	33.40
Total											0.00	33.37	33.37	0.00	0.00	33.40

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	408.67	408.67	0.03	0.00	409.28
Total											0.00	408.67	408.67	0.03	0.00	409.28

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	4.70	4.70	0.00	0.00	4.70
Total											0.00	4.70	4.70	0.00	0.00	4.70

3.4 Grading - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	408.67	408.67	0.03	0.00	409.28
Total											0.00	408.67	408.67	0.03	0.00	409.28

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	4.70	4.70	0.00	0.00	4.70
Total											0.00	4.70	4.70	0.00	0.00	4.70

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	53.05	53.05	0.00	0.00	53.15
Total											0.00	53.05	53.05	0.00	0.00	53.15

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

3.5 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	53.05	53.05	0.00	0.00	53.15
Total											0.00	53.05	53.05	0.00	0.00	53.15

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	0.00	0.00	0.00	0.00	0.00
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

3.6 Paving - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	0.00	0.00	0.00	0.00	0.00
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

3.7 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	1.53	1.53	0.00	0.00	1.53
Total											0.00	1.53	1.53	0.00	0.00	1.53

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

3.7 Architectural Coating - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	1.53	1.53	0.00	0.00	1.53
Total											0.00	1.53	1.53	0.00	0.00	1.53

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	678.47	678.47	0.03	0.00	679.10
Unmitigated											0.00	678.47	678.47	0.03	0.00	679.10
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Golf Course	900.00	900.00	900.00	1,626,552	1,626,552
Total	900.00	900.00	900.00	1,626,552	1,626,552

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Golf Course	9.50	7.30	7.30	33.00	48.00	19.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.00	0.00	0.00	0.00	0.00	0.00
Electricity Unmitigated											0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Mitigated											0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated											0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Golf Course	0											0.00	0.00	0.00	0.00	0.00	0.00
Total												0.00	0.00	0.00	0.00	0.00	0.00

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Golf Course	0											0.00	0.00	0.00	0.00	0.00	0.00
Total												0.00	0.00	0.00	0.00	0.00	0.00

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Golf Course	0					0.00	0.00	0.00	0.00
Total						0.00	0.00	0.00	0.00

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Golf Course	0					0.00	0.00	0.00	0.00
Total						0.00	0.00	0.00	0.00

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated											0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Landscaping											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Landscaping											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					306.68	0.01	0.01	308.60
Unmitigated					306.68	0.01	0.01	308.60
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Golf Course	0 / 94.9					306.68	0.01	0.01	308.60
Total						306.68	0.01	0.01	308.60

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Golf Course	0 / 94.9					306.68	0.01	0.01	308.60
Total						306.68	0.01	0.01	308.60

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					4.47	0.26	0.00	10.01
Unmitigated					4.47	0.26	0.00	10.01
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Golf Course	22					4.47	0.26	0.00	10.01
Total						4.47	0.26	0.00	10.01

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Golf Course	22					4.47	0.26	0.00	10.01
Total						4.47	0.26	0.00	10.01

9.0 Vegetation

APPENDIX 2.0

Hazardous Materials Reports



California Regional Water Quality Control Board

Los Angeles Region



Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

Linda S. Adams
Agency Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger
Governor

April 5 2007

Mr. Preston W. Brooks
Cox, Castle & Nicholson, LLP
2049 Century Park East, 28th Floor
Los Angeles, California 90067

APPROVAL TO ABANDON WELLS - GREENPARK RUNKLE CANYON DEVELOPMENT, VENTURA COUNTY, CALIFORNIA (SLIC NO. 1111, SITE ID NO. 2040109)

Dear Mr. Brooks:

Los Angeles Regional Water Quality Control Board (Regional Board) staff have reviewed the May 25, 2006 *Groundwater Sampling Activities* (Report), prepared by Miller Brooks Environmental, Inc. The Report was received on May 26, 2006. The Report provides information on the results of two groundwater sampling events at groundwater monitoring wells MW-1 and MW-2, at the referenced site. The results of prior sampling and analyses were provided to the Regional Board in earlier reports. The wells were installed in May 2004, at the request of the Regional Board, to permit groundwater sampling with correct field techniques, to determine if perchlorate was present in groundwater beneath the site.

The wells were first sampled in May 2004, and then in June 2004, May 2005, June 2005, and March 2006. Perchlorate was not conclusively detected in any validated sample. One duplicate groundwater sample from MW-2, collected in June 2004, contained an estimated 0.33 micrograms per liter perchlorate. However, data validation conducted for this sample indicated that the detection was consistent with laboratory error.

In addition to perchlorate, all samples were analyzed for n-nitrosodimethylamine (n-NDMA). Initial groundwater samples were also analyzed for volatile organic compounds (VOCs). One groundwater sample collected from MW-2 in March of 2006 contained 2.8 nanograms per liter (ng/L) n-NDMA. Traces of VOCs were detected in several groundwater samples; however they were at concentrations well below maximum contaminant levels (MCLs).

Perchlorate has not been detected in groundwater samples collected from wells MW-1 and MW-2, installed specifically to evaluate groundwater for perchlorate, and VOCs were not detected in any of the groundwater samples collected in Runkle Canyon above trace concentrations (well below MCLs). Therefore, the Regional Board does not consider perchlorate or VOCs potential risks to human health or the groundwater resource in Runkle Canyon.

Federal and state drinking water maximum contaminant levels have not been established for n-NDMA and the concentration of 2.8 ng/L n-NDMA is much less than the California Department of Health Services (DHS) response level (200 ng/L) at which the water should be removed from the drinking water supply. The detected concentration is also below the DHS Notification Level (10 ng/L) and the California Office of Environmental Health Hazard Assessment's Draft Public Health Goal (3 ng/L).

California Environmental Protection Agency



Recycled Paper

Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

Mr. Preston Brooks
Cox, Castle & Nicholson LLP

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April 5, 2007

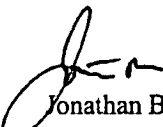
Based on groundwater sample analytical results for perchlorate, VOCs, and n-NDMA, the Regional Board has no further requirements for this site, monitoring wells may be abandoned in accordance with the California Department of Water Resources Bulletins 74-81 and 74-90, California Well Standards. However, prior to abandoning groundwater monitoring wells please provide a copy of the Report to Ventura County Public Works at the following address, for their review and concurrence:

David Penaro, Manager
Water Resources Division
County of Ventura
Public Works Agency
800 South Victoria Avenue
Ventura, CA 93009-1600

Please provide the Regional Board with a well abandonment report within 30 days of well abandonment. The report must include, at a minimum, a site map, a description of the well abandonment process, and copies of all signed permits related to the well abandonment.

Thank you for your continuing cooperation. **Should you have any questions regarding this letter, please contact Mr. David Bacharowski, AEO at (213) 576-6607, or Mr. Peter Raftery at (213) 576-6724.**

Sincerely,



Jonathan Bishop
Executive Officer

cc David Penaro, Ventura County Public Works Agency

California Environmental Protection Agency



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Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.



Linda S. Adams
Secretary for
Environmental Protection



Department of Toxic Substances Control

Maureen F. Gorsen, Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806



Arnold Schwarzenegger
Governor

October 17, 2008

Mr. Chuck Heffernan
Authorized Member Representative
Runkle Canyon, LLC
27240 Turnberry Lane, Suite 100
Valencia, California 91355

Mr. Jeffery Lawhon
Authorized Member Representative
Runkle Canyon, LLC
23823 Valencia Boulevard
Valencia, California 91355

Dear Sirs:

The California Department of Toxic Substances Control (DTSC), assisted by the California Department of Public Health's Radiologic Health Branch, has completed its review of the 41 documents submitted by Runkle Canyon, LLC pursuant to the California Land Reuse and Revitalization Act (CLRRRA) agreement (Docket No. HAS-CLRRRA-07/08-160) executed between DTSC and Runkle Canyon, LLC in April 2008. Those 41 documents consist of reports and letters that explain and summarize investigations that occurred at the project site between 1999 and 2007. Today's letter comments on the documents reviewed, prescribes additional work necessary to complete the assessment of environmental conditions at Runkle Canyon, and requests that Runkle Canyon, LLC prepare a Response Plan to address the concerns summarized at the end of this letter.

1. Potential Radiologic Contamination from Santa Susana Field Lab (SSFL)

Several investigations were performed to evaluate whether the site is contaminated with radiologic elements from the nearby SSFL. The elements of concern are strontium 90 (Sr-90), cesium 137 (Cs-137), and tritium. Analytical results from samples collected at Runkle Canyon indicated that Cs-137 and tritium were not problems. However, results from the Sr-90 sampling are not consistent. The early sampling analyses (1998-2003) had detection limits that allowed comparisons to the typical U.S. background for Sr-90 in soil of 0.7 pCi/g but the detection limits were too high to allow comparison to the local

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background of 0.052 pCi/g. Some Sr-90 sample results were above both background levels. Subsequent testing showed much lower levels, and a risk assessment prepared by a consultant to Runkle Canyon, LLC indicated that based on the more recent data, there is no elevated human health risk.

Several investigations that included sample collection for radioactive elements have been conducted on the Runkle Canyon property. The most complete discussion of radiologic conditions and investigations is in Document #5 prepared by Dade Moeller and Associates in 2005.¹ The first investigation that included radiologic testing was performed by QST Environmental in 1999 and is described in Document #38. That investigation consisted of analyzing four soil samples for Sr-90, Cs-137, and tritium. Based on Sr-90 detections, the report concluded that the Runkle Canyon property may have been affected by SSFL activities and recommended further investigation to evaluate the lateral and vertical extent of radiologic compounds, and determine naturally-occurring conditions for those compounds.

The next radiologic investigation was performed by Foster Wheeler in 1999, and is described in Document #24. The purpose of that investigation was to address the concerns raised in the QST report, determine radiologic conditions across the site, and evaluate areas downgradient of SSFL for radiologic contamination. Fifty-eight (58) soil samples were collected in a triangular grid across the site. The number of samples and the grid configuration were determined using the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). The methods presented in the MARSSIM are endorsed by U.S. EPA. In addition to these 58 soil samples, an additional nine samples were collected to evaluate areas downgradient of the SSFL where contamination would be suspected. These were referred to as the "discretionary" samples. The report references 12 discretionary sample locations and states that locations that were already part of the site-wide sampling were excluded. The table summarizing the discretionary samples lists nine samples, so it appears that three of the discretionary sampling locations are included in the site-wide sampling. The report concluded that, based on the surface soil sampling that was conducted, the site is considered to be non-contaminated for the radionuclides detected.

In 2000, Harding ESE performed an additional investigation to determine if operations conducted at SSFL had impacted on-site soils based on surface run-off carrying radionuclides to the site. The investigation is described in Document #8. A total of 19 soil samples were collected at 17 locations, and duplicate samples were collected at

¹ Document numbers cited throughout this letter correspond to the document list in section 3.3 of the aforementioned CLRRRA agreement.

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two of the locations. The sampling locations were selected to evaluate areas with the highest probability of being impacted with radionuclides from SSFL. Consequently, the sampling locations included on-site drainage washes originating near SSFL, access road drainage ditches, and low-lying areas. Based on the radionuclide testing, Harding ESE concluded that, while not dispositive, the data collected provide some indication that the site is not contaminated with Sr-90.

The Foster Wheeler (1999) report concludes that the site is "noncontaminated" and the Harding ESE (2000) report states there is "...some indication (but non-conclusive) that the site is not contaminated...". However, the data indicate some levels of Sr-90 above both typical U.S. background and the local background.

Miller Brooks Environmental, Inc. (MBE) performed three different investigations to evaluate radionuclides on the Runkle Canyon property. One of the investigations, described in Document #36, consisted of readings taken with a handheld Geiger counter at three locations, and then having a certified health physicist review the readings. This investigation concluded that the readings measured at these three locations were within the range of normal background readings. Due to the testing method that was used and the sparse number of locations, this is not a reliable survey and should not be counted on to evaluate radionuclide concentrations on the Runkle Canyon property.

In 2003, MBE performed an investigation to verify results of the Sr-90 testing that Harding ESE performed in 2000. That investigation is described in Document #13, a site investigation report prepared by MBE. MBE collected 17 surface soil samples in approximately the same locations as the Harding ESE surface samples and 10 subsurface soil samples; in addition MBE also collected nine water samples for tritium which showed only background levels to be present. Sr-90 was detected in two soil samples and was non-detect in all of the others. The Sr-90 detections were 2.10 (+/- 1.20) picocuries/gram (pCi/g) and 2.20 (+/- 1.20) pCi/g. The minimum detectable activity (MDA) of the non-detect samples ranged from 2.00 pCi/g to 2.8 pCi/g. The report concluded that the Sr-90 concentrations were either below detectable concentrations or below levels considered to pose health risk. However, the data do not appear useable for a risk assessment due to the high MDAs. Document #14 is a report prepared by MBE that describes a similar investigation on an adjacent portion of the Runkle Canyon property. In this investigation Sr-90 was not detected at MDAs ranging from 2.00 pCi/g to 2.8 pCi/g. As in the other report, it appears that the MDAs from these analyses were too high to be useful in a risk assessment. The 2003 MBE survey report conclusion that no detectable concentration of Sr-90 was found in surface soil and

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shallow soil samples is not supported by the information in the report. There were two soil samples that exceeded Sr-90 background (0.05 pCi/g Sr-90) and MDA (2.2 pCi/g of Sr-90).

A risk assessment, Document #5, was performed by Dade Moeller & Associates, Inc. using data from the QST, Foster Wheeler and Harding ESE investigations. Data from the MBE investigations were not used in the risk assessment due the MDAs being too high to provide definitive information. The risk assessment includes discussions of the previous data, radiologic health risks, resident scenarios, and procedures for using the U.S. EPA default preliminary remediation goals (PRGs). Based on the risk assessment, the residential radiological health risk associated with the proposed development due to Sr-90 would be less than 1×10^{-6} . Dade Moeller calculated the 1×10^{-6} risk to be 18.6 pCi/g for a typical resident and 1.1 pCi/g for a highly exposed resident using site-specific parameters.

In September 2007 an additional soil sampling campaign was conducted in the proposed residential area and the northwest area of the site (Document #7). A total of 63 soil samples were collected at random sampling locations determined using the MARSSIM approach. Six locations included both shallow and deep samples. This study had an average MDA of 0.02 pCi/g which was much lower than the previous studies. Sample results were also much lower than earlier studies, ranging from -0.001 to 0.078 pCi/g which are comparable to and generally less than the local background 0.052 pCi/g. Based on these results the report stated the potential annual health risk to future residents to be less than 1×10^{-6} and that no further soil sampling for Sr-90 would be necessary.

2. Perchlorate in Groundwater

In 2004, MBE collected samples from soil borings as part of an investigation to sample for perchlorate and other organic and inorganic compounds. Perchlorate was detected in two samples that consisted of silt and groundwater. The samples were the result of trying to collect groundwater samples from a hollow stem auger once the augers were advanced to the water table. The laboratory that analyzed the samples classified them as soil and presented the results in $\mu\text{g/kg}$. The two samples contained perchlorate at concentrations of 50 and 60 $\mu\text{g/kg}$. Details regarding the site investigation and analytical results are presented in Document #16. Based on the perchlorate detection, the Los Angeles Regional Water Quality Control Board (LARWQCB) issued a letter dated February 26, 2004 requesting information regarding potential sources on the Runkle Canyon site, and the installation and sampling of two groundwater wells.

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In response to the LARWQCB letter, MBE installed two groundwater wells and sampled them five times. Perchlorate was detected once at a trace level, 0.33 µg/l, in one duplicate sample. Data validation was performed by a third party, and the validation report indicated that the detection was consistent with laboratory error, due to the wrong elution time being used to identify perchlorate along with interference from other compounds. The LARWQCB issued a letter on November 29, 2006, Document #40, requesting that the two wells be made available to the Army Corp of Engineers to help in a region-wide perchlorate study. None of the documents indicate whether the Army Corp of Engineers ever utilized the wells. On April 5, 2007, the LARWQCB issued a letter concluding that perchlorate was not considered a potential risk to human health or groundwater resources in Runkle Canyon.

The wells were also tested for volatile organic compounds (VOCs) and N-nitrosodimethylamine (NDMA). Some VOCs and NDMA were detected at very low concentrations. However, the concentrations detected were well below maximum contaminant concentrations for VOCs and the California Department of Public Health response level for NDMA. Consequently, the LARWQCB concluded that VOCs and NDMA were not considered a potential risk to human health or groundwater resources in Runkle Canyon, and on April 5, 2007 the LARWQCB issued a letter, Document #28, giving approval to abandon the wells. Allowing for the possibility that DTSC may request additional sampling, Runkle Canyon, LLC has not abandoned the wells. There is nothing in the documents to indicate the sampling or analytical testing regarding these wells were in error or inaccurate. DTSC concurs with the April 5, 2007 LARWQCB letter and does not recommend any additional investigation to evaluate if perchlorate is present in groundwater.

3. White Crystalline Material

A white crystalline material has been observed at Runkle Canyon in the area of the creek bed that runs down the middle of the site and at the base of spoils piles left from the previous on-site mining activity. Based on analyses of several samples of the white crystalline material, DTSC believes this material is a naturally-occurring evaporite salt. Early analytical testing indicated that the material contains different metals; however, the metals concentrations were not high enough to pose a threat to human health. It appears that this is the arsenic-containing material that the "Radiation Rangers" sampled in 2007. The material was re-sampled and splits were collected by the City of Simi Valley and the property owner's consultant. The sample splits did not contain elevated arsenic concentrations. A rock coated with white material and collected by

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Radiation Rangers was found to contain elevated concentrations of chromium (Cr); however, no chain of custody was maintained.

The white crystalline material was noted in Document #39, the Ramco Phase I Report prepared in 1998. The Ramco report attributed the material to leaching from the surface mining aggregate stockpiles and recommended that the material be identified for regulatory compliance. Document #38 contains analytical results for the white substance. The report concludes that the analytical data indicate that the material consists mainly of metals and inorganic compounds that are normally nontoxic, and that because of a pH lower than average soils, additional investigative work is recommended. Document #24 provided analytical data from metals testing and results of X-Ray diffraction analyses to determine the crystal structure of the material. A total of 13 soil samples were analyzed for metals concentrations and 2 samples were analyzed for crystal structure/mineral identification. The metals analyses did not detect metals at concentrations greater than corresponding PRGs. The X-Ray diffraction tests indicated that the material consists of hexahydrite and konyaite, two naturally-occurring evaporite minerals comprising magnesium sulfate. The main difference between the two minerals is that konyaite contains sodium, whereas hexahydrite does not. Hexahydrite is essentially identical to Epsom salt, which is also a form of magnesium sulfate. The difference between the two is that Epsom salt incorporates seven molecules of water in its crystal structure, while hexahydrite incorporates six molecules.

4. Surface Mining

Surface mining is first mentioned in Document #39. Mining aggregate piles are mentioned as being unstable for building, and white crystalline material was noted near the base of the piles. The report also noted that some Class III (municipal) wastes had been disposed of in the aggregate piles.

Surface mining was performed at the Runkle Canyon site for sand and gravel products, and spoils piles of mined material are present in the proposed development area. Investigations performed by consultants for Runkle Canyon, LLC and a previous developer did not produce any data indicating threats to human health or the environment as a result of the mining activities. Ventura County has certified that the mine was properly closed and the area reclaimed. Remnants from the mining activity include spoils piles, some containing trash and debris, and several power poles that held transformers. Soil at the base of all of the power poles that held transformers was analyzed for polychlorinated biphenyls (PCBs). None of the soil samples had detectable concentrations of PCBs.

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A report by MBE in May 2003, Document #9, describes sampling done to assess some asphalt material that was partially buried in the aggregate pile. Analysis for metals, total petroleum hydrocarbons (TPH), VOCs, polycyclic aromatic hydrocarbons (PAHs) and PCBs did not detect any elevated concentrations and it was concluded that the asphaltic material was part of an old roadbed.

Document #41 prepared by Geocon describes the assessment of tarry material contained within the mining aggregate piles. In 1995 Geocon performed some trenching in the aggregate piles to evaluate the nature and distribution of some tarry material that was seeping from the piles. The tarry material was mixed with sand and gravel. Seven trenches were excavated and the tar was found in one of the trenches. The volume of tarry material was estimated at 12 cubic yards. A sample of the tar was collected and analyzed for TPH, carbon range speciation, VOCs, and PAHs. Benzene, toluene, and ethylbenzene were detected at concentrations of 35, 62 and 27 $\mu\text{g}/\text{kg}$, respectively. No other VOCs were detected. Benzo(a)anthracene and chrysene were the only PAHs detected, and the combined B(a)P equivalent was 0.0025 mg/kg, which is below the PRG for benzo(a)pyrene of 0.006 mg/kg. However, it appears that the B(a)P conversion was improperly done and the tarry substance does in fact exceed the PRG. The Geocon report concluded that the tar appears to be asphalt or asphalt cement, and does not pose a recognized environmental hazard. Due to being unsuitable for use in fill, the report recommends removing the tarry material and disposing of it in a Class III landfill or a recycling facility. DTSC concurs with the recommendation of removing the tarry material.

5. Oil and Gas Wells

Document #37 is a letter written by MBE that summarized their search of California Department of Oil, Gas and Geothermal Resources records to determine if any oil or gas wells were present on the Runkle Canyon property. Based on its records review, MBE concluded that there were no oil gas wells present on the Runkle Canyon site. Five wells were located near the Runkle Canyon property, but all five have been abandoned, and they were all located northwest of the Runkle Canyon property with the closest well location being about 250 feet away from the property line. The MBE letter contains backup information such as copies of the Division of Oil, Gas and Geothermal Resources well records and a well location map.

FURTHER ACTIONS

Based on its review of the 41 documents, DTSC concludes that additional work is necessary to better define environmental conditions at the site and to address one or more potential threats to public health and the environment. DTSC requests that Runkle Canyon, LLC prepare a Response Plan addressing these needs. Here is DTSC's prescription for that Response Plan:

Radionuclide Testing

- (1) Explain the reason(s) for the apparent decrease in residual Sr-90 soil activity from 1998 to 2007.
- (2) Provide additional justification for statements made in Document #7 that "The overall conclusion is that there is effectively no health risk from Sr-90 in Runkle Canyon soil," and "No further sampling of soils at Runkle Canyon for the detection of Sr-90 is necessary". The information you provide should address MARSSIM area classification(s), the justification(s) for the classification(s), sample density calculations, and non-parametric statistics. Runkle Canyon, LLC should consider including provisions for additional radionuclide testing in the Response Plan. This aspect of the Response Plan should at a minimum, specify sample locations, the number of samples to be collected at each location, the analytical methods to be used, the detection limits to be used, and a justification for the proposed level of sampling.
- (3) Explain why Cs-137 soil radioactivity was not present (above background) when Sr-90 was identified. If no reasonable explanation can be given, the Response Plan should include provisions for testing to identify Cs-137 and determine ratios of Cs-137 to Sr-90 in soil.

White Crystalline Material

The white crystalline material appears to be sulfate salts leaching out of the mined aggregate stockpiles. Because the material on the rock obtained from the "Radiation Rangers," containing elevated Cr, the material on-site should be collected and analyzed for metals concentrations and mineral composition to verify Cr concentrations in the material and provide a positive identification of the material. DTSC plans to independently collect and analyze representative samples of the white material for those purposes. If the results are positive, it will then be necessary for Runkle Canyon, LLC to map the location(s) and extent of the material, prior to the 2008-2009 rainy

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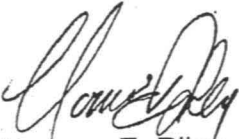
season, in preparation for possible removal and disposal or other corrective action. If the results confirm Cr or other metals are present at concentrations deemed actionable and the material cannot be mapped ahead of the forthcoming wet season, DTSC will direct that measures be taken to prevent the material from dissolving and washing away. Such measures could include removal, or placement of a suitable temporary cover. The Response Plan should address this contingency.

Tar Material

The tar material encountered at the site poses a potential threat to human health because benzo(a)anthracene concentrations exceed the PRG. The tar material should be removed from the site and either properly recycled or disposed. The Response Plan should address the removal of this material.

See section 5.3 of the CLRRRA agreement for additional information regarding the Response Plan. If you have any questions regarding the above, please contact me at (916) 327-8642 or Ms. Nancy Bothwell Long at (916) 324-3154.

Sincerely,



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Runkle Canyon Response Plan Simi Valley, California

December 4, 2008

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Summary

Runkle Canyon is the site of a proposed residential development adjacent to existing neighborhoods at the southern edge of Simi Valley, California. The development would consist of approximately 1,595 acres that would include a mix of residence types (senior housing and single-family homes), open space, a neighborhood park, and a multiuse trail system. Residences would cover approximately 140 acres in the northern portion of the project area, and 1,456 acres would be for open space and recreational uses. Runkle Canyon, LLC is the developer.

Runkle Canyon has been the subject of extensive environmental investigation, including investigations of potential radiological contamination from activities at the Santa Susanna Field Laboratory (SSFL), with reports of environmental consultants dating back to 1999. The California Department of Toxic Substances Control (DTSC) conducted a review of forty-one (41) documents submitted by Runkle Canyon, LLC in connection with the Standard Agreement for participating under California's Land Reuse and Revitalization Act (CLRRRA) Program effective April 23, 2008. In a letter dated October 17, 2008, DTSC commented on the documents reviewed, prescribed additional work necessary in DTSC's opinion to complete the assessment of environmental conditions at Runkle Canyon, and requested Runkle Canyon, LLC to prepare a plan to respond to certain issues raised by DTSC. In this letter, DTSC ruled out any need for further investigation related to the groundwater or surface water at Runkle Canyon and instead focused its request for additional information and/or actions from Runkle Canyon, LLC on the following:

1. Further confirmation that there is no health risk from strontium-90 (^{90}Sr) and cesium-137 (^{137}Cs) in the soil.
2. The disposal of tar material at the site that poses a potential threat to human health because benzo(a)anthracene concentrations exceed acceptable levels.
3. Allowing DTSC access to the property for assessment of a "white precipitate" material (This independent collection and analysis was undertaken by DTSC with negative results for any material or metal of concern).

This document contains Runkle Canyon, LLC's proposed response plan to address DTSC's request to better define the environmental conditions at the site. Runkle Canyon, LLC proposes to take the following actions in response to DTSC's requests:

- Conduct additional soil sampling for ^{90}Sr and ^{137}Cs in certain areas of Runkle Canyon.
- Remove the tar material from the drainage area of Runkle Canyon.

Runkle Canyon, LLC will implement the soil sampling plan (attachment A) under direct observation of DTSC personnel in the field. Split samples will be collected and provided to DTSC for comparison purposes.

Runkle Canyon, LLC will remove the tar material from the site in accordance with Attachment B. DTSC is invited to observe the performance of this work if desired.

1.0 Introduction

Runkle Canyon is a proposed residential development adjacent to existing neighborhoods at the southern edge of Simi Valley, California, with access from the southern end of Sequoia Avenue. The project site consists of approximately 1,595 acres that would include a mix of residence types, open space, a neighborhood park, and a multiuse trail system. Runkle Canyon, LLC proposes residential development on approximately 140 acres in the northern portion of the project area and open space and recreational areas for the remaining approximately 1,456 acres. A total of 461 residences are approved for the site and would include 138 senior housing units (62 of which would be affordable housing), 298 single-family homes, and 25 single-family estate homes (City of Simi Valley 2004).

In 2004, the City of Simi Valley prepared a final environmental impact report (EIR) in accordance with the California Environmental Quality Act to evaluate the potential environmental impacts of the development activities (City of Simi Valley 2004). The EIR was certified on April 26, 2004. It provides a detailed environmental characterization of the site and of proposed activities.

The Radiologic Health Branch (RHB) of the California Department of Public Health and, more recently, the Department of Toxic Substances Control (DTSC) have continued to investigate the potential for presence of the radionuclide strontium-90 (^{90}Sr) in the soil of Runkle Canyon. Since the EIR certification there have been two soil sampling surveys. One survey resampled at the locations of the five highest ^{90}Sr soil concentrations from the previous studies, and the other was a comprehensive soil survey of the proposed residential area. Section 2.0 discusses the surveys.

A radiological health risk assessment from the potential presence of ^{90}Sr in the soil of Runkle Canyon was conducted in 2005 (Dade Moeller & Associates 2005a). Section 3.0 summarizes this assessment and discusses it in light of more recent sampling information.

This response plan addresses the requests made by DTSC upon the completion of its review of Runkle Canyon documents pursuant to the Standard Agreement under the California Land Reuse and Revitalization Act (CLRRA). In a letter to representatives of Runkle Canyon, LLC on October 17, 2008, DTSC requested that Runkle Canyon, LLC prepare a response plan to address the following issues:

1. An explanation of the apparent decrease in residual strontium-90 (^{90}Sr) activity in soils samples from 1998 to 2007.
2. A justification for the conclusions in one report that there is no health risk from ^{90}Sr in Runkle Canyon soil and that no further sampling is necessary with consideration of additional radionuclide testing.
3. An explanation of why cesium-137 (^{137}Cs) was not present (above background) when ^{90}Sr was identified.

4. A request for collection and analysis of samples for metals concentrations and mineral composition to verify chromium concentrations in a white crystalline material to assess the potential health hazard of this material.
5. A request to remove and properly dispose of tar material at the site that poses a potential threat to human health because benzo(a)anthracene concentrations exceed acceptable levels.

Section 4.0 discusses these issues and provides specific responses to them. Section 5.0 discusses the actions Runkle Canyon, LLC will undertake to in response to DTSC's requests. Attachments A and B are specific plans to address DTSC's requests and contain additional detail.

2.0 History of Radionuclide Soil Sampling in Runkle Canyon

Sampling for radionuclides in the surface soil of Runkle Canyon began in late 1998. Strontium-90 (^{90}Sr), cesium-137 (^{137}Cs), and tritium (^3H) have been the radionuclides of interest. A major point of comparison has been the background levels of these radionuclides from the U.S. Environmental Protection Agency (EPA 1995) for the area around the Santa Susana Field Laboratory (SSFL). Table 1 lists those values. Of particular interest have been the values for average local background concentration (fourth column), which were about 7 percent and 12 percent, respectively, of the typical U.S. background concentration for ^{90}Sr and ^{137}Cs (the last column). The local background concentration for tritium was consistent with the typical U.S. background concentration. None of these 1995 background samples were conducted at Runkle Canyon.

Table 1. Comparison of radionuclide concentrations (EPA 1995).

Radionuclide	Sampling Area on Brandeis-Bardin	Average Soil Concentration	Average Local Background Concentration	Typical U.S. Background Concentration
Strontium	RMDF Watershed	0.103 pCi/g	0.052 pCi/g	0.7 pCi/g
Cesium	Bldg 59 Watershed	0.20 pCi/g	0.087 pCi/g	0.7 pCi/g
Tritium	Bldg 59 Watershed	2,250 pCi/L	~140 pCi/L	100-300 pCi/L

pCi/g = picocuries per gram; pCi/L = picocuries per liter; RMDF = Radioactive Material Disposal Facility at SSFL

Sampling campaigns were conducted to determine if the Runkle Canyon site was contaminated with radionuclides that originated at SSFL. Sampling for ^3H is not included because it has not been detected above background levels. Similarly, ^{137}Cs has not been detected at elevated concentrations; however, ^{137}Cs is included in the following description because ^{137}Cs and ^{90}Sr are produced in nuclear reactors and atmospheric weapons testing in a ratio of about 1.6 to 1. During the earlier soil sampling campaigns, the ^{90}Sr concentration appeared to be somewhat elevated and the characteristic ^{137}Cs to ^{90}Sr ratio that would be indicative of either atmospheric fallout or nuclear reactor origin was not observed.

The following is a chronological history and description of ^{90}Sr and ^{137}Cs soil sampling in Runkle Canyon.

December 1998. QST Environmental collected four soil samples at three locations on December 23, 1998 (QST 1999). Sampling locations were all in proposed nonresidential areas in the southern 715-acre parcel of the property or at the extreme southern edge of the eastern 550-acre parcel. The sampling location closest to SSFL was about 440 meters west-southwest of the property line. Sample locations were selected to maximize the possibility of finding contamination and were not based on methods of the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM; EPA 2001). The samples were analyzed for ^{90}Sr , ^{137}Cs , and tritium (^3H). Table 2 summarizes the results. The study concluded, “It would appear there may have been some impact of radionuclides to the site from the SSFL facility. Consequently, a more extensive site investigation appears to be necessary to the [sic] determine the lateral and vertical impact of radionuclides in the soil.”

Table 2. Summary soil sampling statistics in December 1998 (QST 1999).

Result	^{90}Sr (4 samples)		^{137}Cs (4 samples)	
	Samples	MDC	Samples	MDC
Average (pCi/g)	0.59	0.21	0.028	0.17
Median (pCi/g)	0.62	0.19	0.017	0.14
Minimum (pCi/g)	0.25	0.19	-0.03	0.14
Maximum (pCi/g)	0.86	0.22	0.11	0.22
Std. deviation (pCi/g)	0.30	0.01	0.06	0.03
Results > MDC	4 of 4		0 of 4	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

June–July 1999. Foster Wheeler Environmental collected soil samples at 58 sampling locations determined using the MARSSIM process from June 28 to July 2, 1999 (Foster Wheeler 1999). The company collected an additional 9 discretionary samples and duplicates at three MARSSIM sample locations. Final results included 70 ^{90}Sr results and 67 ^{137}Cs results. The sampling locations were all in the eastern 550-acre parcel of the property and were split between residential and nonresidential areas of this parcel. Radionuclides analyzed were ^{90}Sr , ^{137}Cs , and ^3H . Table 3 lists the summary soil sampling statistics for ^{90}Sr and ^{137}Cs .

Table 3. Summary soil sampling statistics in June–July 1999 (Foster Wheeler 1999).

Result	^{90}Sr (70 samples)		^{137}Cs (67 samples)	
	Samples	MDC	Samples	MDC
Average (pCi/g)	1.33	0.75	0.09	0.08
Median (pCi/g)	1.07	0.75	0.09	0.08
Minimum (pCi/g)	-0.29	0.56	-0.05	0.05
Maximum (pCi/g)	12.34	0.99	0.3	0.12
Std deviation (pCi/g)	1.63	0.08	0.08	0.01
Results > MDC	52 of 70		29 of 67	
DCGL ^a (pCi/g)	1.229		2.857	
Results > DCGL	18 of 70		0 of 70	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

a. DCGL = derived concentration guideline level; based on 7.5 millirem per year per radionuclide and a risk of 4.5×10^{-6} per year per radionuclide.

Foster Wheeler determined the MARSSIM critical value would be 38, where the soil concentration in 38 of the 58 MARSSIM samples must exceed the determined DCGL (derived concentration guideline level) for the soil concentration of the sampled area to be considered above the DCGL. Thirteen of the 58 samples for ^{90}Sr and none of the samples for ^{137}Cs were above the DCGL, which led to the report's conclusion that the site was "non-contaminated for the radionuclides detected." Each of the DCGLs was based on 7.5 millirem per year, so that the total radiation dose from all radionuclides would be less than the EPA standard of 15 millirem per year (or less than an annual risk of 9×10^{-6}). However, the Foster Wheeler report did not make a statement as to whether the area was considered to be Survey Class 1, 2, or 3. The critical value is appropriate for a Class 1 area, but no samples would be expected to be above the DCGL for Class 2 or 3 areas. There is therefore some uncertainty about the appropriateness of the DCGL (it could be too low) or the analytical detection capability of the analysis (which could be too high). The average ^{90}Sr concentration was slightly above the DCGL, as was the concentration of 18 of the 70 soil samples. However, the 4.9×10^{-6} risk from the average soil concentration was still well within the EPA acceptable annual risk range; and the 4.9×10^{-5} risk from the highest soil sample was also well within that range. Annual risk from the average ^{137}Cs concentration was very low, at 1.4×10^{-7} .

September 2000. Nineteen samples were collected at 17 locations on September 23, 2000 (Harding ESE 2000). Sampling locations were all in nonresidential locations in the southern (Rancho Simi) 720-acre parcel. There were 2 blind duplicates (SS-18 and SS-19) at locations SS-3 and SS-7. Harding ESE conducted a limited surface soil sampling program "that would evaluate certain areas of the Property with the highest probability of being impacted by run-off [of radionuclides] from the [SSFL] facility." Therefore, this was not a MARSSIM-based sampling plan.

Table 4. Summary statistics for soil sampling in September 2000 (Harding ESE 2000).

Result	^{90}Sr (19 samples)		^{137}Cs (19 samples)	
	Samples	MDC	Samples	MDC
Average (pCi/g)	0.96	0.66	0.015	0.11
Median (pCi/g)	0.39	0.65	0.015	0.12
Minimum (pCi/g)	-0.32	0.47	-0.09	0.07
Maximum (pCi/g)	4.76	0.79	0.09	0.14
Std. deviation (pCi/g)	1.49	0.10	0.04	0.02
Results > MDC	7 of 19		1 of 19	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

The report compared sample results to the DCGL values that were calculated in Foster Wheeler (1999). The concentrations of ^{90}Sr in four samples exceeded the DCGL; none of the ^{137}Cs results exceeded the DCGL. This report concluded that "Harding ESE cannot make a definitive conclusion regarding the presence or absence of strontium-90 in the soil, without additional data."

March 2003. Miller Brooks Environmental conducted a survey on March 13 and 14, 2003 (Miller Brooks 2003a,b,c). The company collected 13 soil samples and conducted one soil boring to 7 feet in the southern 715-acre parcel, collected 6 soil samples and conducted five soil

borings to a depth of 7 feet in the 550-acre eastern parcel, and collected 4 soil samples from the 350-acre western parcel. Three offsite samples were collected. The analytical laboratory analysis of these soil samples for ^{90}Sr and the data reporting of an “analyte reporting limit” – presumably a minimum detectable concentration (MDC) – that ranged from 2 to 2.8 picocuries per gram, which was too high to be of value in comparison to the earlier sampling results that had lower MDCs. In addition, most of the results were not reported quantitatively but rather as “not detected at the reporting limit.” Only 2 of the 49 sample results (including samples at depth) were reported quantitatively (2.1 ± 1.2 and 2.2 ± 1.2 picocuries per gram). These data are not considered useful or representative for the presence of ^{90}Sr in the soil of Runkle Canyon when considered together with both the earlier and later sampling results. There was no analysis for ^{137}Cs .

June 2005. At the request of the State of California Department of Public Health Radiologic Health Branch (RHB), resampling for ^{90}Sr was conducted at the sample locations of the five highest ^{90}Sr soil sample results (Dade Moeller & Associates 2005b). Samples were collected as close as possible to the original five sample locations with representatives of the ownership group, Dade Moeller & Associates, and the State of California RHB present as samples were physically collected by an independent environmental contractor. The samples were split for independent analysis by both a contracted analytical laboratory and a California state laboratory RHB uses. Both laboratories showed ^{90}Sr concentrations to be much lower than the original results; the state laboratory results were the lowest. There was no analysis for ^{137}Cs because it had not been detected or was present only at very low concentrations in previous surveys. Table 5 lists the results.

Table 5. Strontium-90 in the five highest soil samples in June 2005 (Dade Moeller & Associates 2005b).

Sample	Original ^a Results (pCi/g)		Contracted Laboratory A (pCi/g)		CA State Laboratory (pCi/g)	
	Result	MDC	Result	MDC	Result	MDC
GP-29	5.13±0.69	0.84	0.140±0.167 -0.065±0.185	0.280 0.327	0.068±0.242	0.399
GP-44	6.38±0.79	0.99	0.247±0.180	0.293	0.013±0.179	0.299
GP-52	12.34±0.86	0.59	0.423±0.177	0.273	0.137±0.192	0.306
SS-3	3.64±0.62	0.75	0.215±0.150	0.244	-0.022±0.206	0.348
SS-6	4.76±0.63	0.64	0.173±0.170	0.282	0.056±0.265	0.439

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

a. GP-29, GP-44, GP-52 from Foster Wheeler (1999); SS-3, SS-6 from Harding ESE (2000).

The results seemed to indicate that the earlier, higher results were anomalous and could have been caused by cross-contamination or analytical or counting issues in the laboratories. The results from the State of California laboratory were even lower, and they are more consistent with the results of sampling in 2007 (discussed below). The report concluded that an already low potential health risk from ^{90}Sr was likely even lower based on the results. The report further concluded that no additional ^{90}Sr sampling and analysis was necessary.

October 2007. At the direction of Runkle Canyon LLC, Dade Moeller & Associates developed a MARSSIM-based soil sampling plan for ^{90}Sr in the soil of the proposed residential area in the

eastern parcel and, at the request of the RHB, included the northwest quadrant of the site (Dade Moeller & Associates 2007a). The entire project site was considered a Class 3 survey area, and no results above the DCGL of 1 picocurie per gram were expected. An independent environmental firm was contracted to collect 63 soil samples from October 3 to 8, 2007. There were 57 surface sample locations (0 to 6 inches depth) and 6 locations where samples were collected at a depth of 6 to 12 inches. Unlike the early sampling campaigns, and at the urging of the RHB, a different analytical laboratory was contracted, one which had a ^{90}Sr MDC in soil of 0.03 to 0.05 picocuries per gram, which is significantly lower than earlier sampling analyses. Table 6 lists summary sampling statistics from the survey. These 2007 results showed there was no indication of ^{90}Sr in the proposed residential areas of Runkle Canyon and that the levels were much closer to the local background level of 0.052 picocuries per gram (EPA 1995). Because radioactive decay would have occurred and resulted in a nearly 40 percent decrease in the background level between background sampling in late 1994 and the 2007 sampling, and because the uncertainty of the original EPA value was 0.052 ± 0.031 picocuries per gram¹, these 2007 sample results are very similar to the expected background.

Table 6. Summary statistics for soil sampling (Dade Moeller & Associates 2007a; City of Simi Valley 2007).

Samples	Contracted Laboratory B		City of Simi Valley ^a	
	63 samples	MDC	10 samples	LLD ^b
Average (pCi/g)	0.014	0.019	0.011	0.013
Median (pCi/g)	0.012	0.019	0.012	0.013
Minimum (pCi/g)	-0.010	0.008	-0.002	0.009
Maximum (pCi/g)	0.078	0.033	0.027	0.02
Std deviation (pCi/g)	0.015	0.008	0.0082	0.0041
Results > MDC	19 of 63		5 of 10	
DCGL ^c (pCi/g)	1		Not applicable	
Results > DCGL	0 of 63		0 of 10	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

a. City of Simi Valley laboratory results are not included in the 2007 report.

b. LLD = lower limit of detection; LLD and MDC are comparable statistics.

c. DCGL = derived concentration guideline level; based on 7.5 millirem per year per radionuclide and a risk of 4.5×10^{-6} per year per radionuclide.

The City of Simi Valley also collected split soil samples during the sampling campaign and had 10 samples analyzed for ^{90}Sr . Table 6 shows those results in comparison with the Dade Moeller & Associates (2007a) results. The table shows that the contracted laboratory and the City of Simi Valley samples are very similar and are much lower than the earlier (pre-2007) results. Table 7 compares only the 10 split samples. Again, the results are very similar. Both are much lower than the pre-2007 results, and both are consistent with background levels expected in 2007.

¹ Calculated independently from the original report data because EPA (1995) does not provide an uncertainty estimate.

Table 7. Summary statistics for the 10 split soil samples (Dade Moeller & Associates 2007a and City of Simi Valley 2007).

	Contracted Laboratory B		City of Simi Valley	
	Samples	MDC	Samples	LLD ^a
Average (pCi/g)	0.015	0.015	0.011	0.013
Median (pCi/g)	0.013	0.013	0.012	0.013
Minimum (pCi/g)	-0.0003	0.008	-0.002	0.009
Maximum (pCi/g)	0.042	0.027	0.027	0.02
Std deviation (pCi/g)	0.014	0.006	0.0082	0.0041
Results > MDC	4 of 10		5 of 10	
DCGL ^b (pCi/g)	1		Not applicable	
Results > DCGL	0 of 10		0 of 10	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

a. LLD = lower limit of detection; LLD and MDC are comparable statistics.

b. DCGL = derived concentration guideline level; based on 7.5 millirem per year per radionuclide and a risk of 4.5×10^{-6} per year per radionuclide.

3.0 Radiological Health Risk Assessment

A radiological health risk assessment was conducted in 2005 (Dade Moeller & Associates 2005a) to consider the sampling data from 1998 to 2003 (QST 1999; Foster Wheeler 1999; Harding ESE 2000, Miller Brooks 2003a, 2003b, 2003c). The assessment concluded that the potential risk to future residents of Runkle Canyon would be very low, near the lower bound of the acceptable annual risk range of 1×10^{-6} to 1×10^{-4} for even those potentially highly exposed residents in the proposed suburban land use area². Typical residents and individuals who would use the nonresidential areas would have even lower risks – less than 1×10^{-6} per year in all cases. The parameter values and approaches of this assessment were generally consistent with those the National Committee on Radiation Protection and Measurements (NCRP) used to derive suburban and no food suburban (no home-grown vegetables) soil screening limits in Report 129 (NCRP 1999). The EPA Preliminary Remediation Goal (PRG) default scenario (EPA 2004) does not apply to Runkle Canyon because the proposed land use is well known and does not fit the default scenario.

Since 2003, soil sampling has indicated that the ⁹⁰Sr soil concentrations are even lower than indicated by the earlier sampling (Dade Moeller & Associates 2005b, 2007a). The exact reason for this decrease is not known, but it is likely due to bias in methods or counting protocols in the laboratories that performed the earlier analyses. Section 4.0 discusses this issue in more detail. As Section 2.0 discusses, the later sampling indicates the ⁹⁰Sr soil concentrations in Runkle Canyon are more indicative of the local background level.

Therefore, when considering the new sampling data in context of the previous radiological health risk assessment, it is likely that the potential radiological risk to all residents and visitors of Runkle Canyon would be much less than 1×10^{-6} per year in all cases.

² Ingestion of home-grown vegetables is the dominant exposure pathway. See NCRP 1999.

4.0 Actions Requested by the Department of Toxic Substances Control

This section addresses the actions DTSC requested of Runkle Canyon, LLC as part of its CLRRRA review and includes the company's responses to these requests. The DTSC requests are shown in *italics* with the Runkle Canyon, LLC response following thereafter. For clarity in the responses, the issues have been numbered from 1 to 5, and issue 2 has been split into 2 parts.

Based on its review of the 41 documents, DTSC concludes that additional work is necessary to better define environmental conditions at the site and to address one or more potential threats to public health and the environment. DTSC requests that Runkle Canyon, LLC prepare a Response Plan addressing these needs. Here is DTSC's prescription for that Response Plan:

Issue 1

Radionuclide Testing

(1) Explain the reason(s) for the apparent decrease in residual Sr-90 soil activity from 1998 to 2007.

Response. Some of the decrease in the detected level of ⁹⁰Sr in the soil of Runkle Canyon is a result of radioactive decay. The first survey occurred in December 1998 and the most recent in October 2007, almost 9 years later. Strontium-90 has a half-life of 29.1 years. Over this time the activity would decrease about 20 percent. Decay does not however account for the entire apparent decrease to the very low levels in the 2007 survey. The most recent independent results from three independent laboratories – the State of California laboratory in 2005 (Table 5), the City of Simi Valley in 2007, and Contracted Laboratory B in 2007 (Tables 6 and 7) – were much lower than earlier results, were consistent with one another, and were consistent with the expected local background. The likely explanation of the discrepancy between the earlier and the later results is that the analytical laboratories for the earlier surveys suffered from some type of bias³ in the analytical method or the counting technique. In fact, Contracted Laboratory A (Table 5), which analyzed five samples, was the same laboratory that analyzed the earlier Foster Wheeler samples in 1999 (Table 3), although the laboratory had changed ownership and name in the intervening period.

In summary, the apparent decrease in results is likely due to analytical or counting bias in the earlier sample analysis. This statement is partly speculative because any definitive statement would require extensive examination of laboratory protocols and data. The results from the 2007 sampling are likely more representative of the true level of ⁹⁰Sr in the soil of Runkle Canyon because of the consistency among the results from Contracted Laboratory B (which has NUPIC⁴ certification), the State of California laboratory, and the independent laboratory the City of Simi Valley used.

³ Bias is a persistent difference between the measured result and the true value of the quantity being measured, which does not vary if the measurement is repeated. (MARLAP Manual, USEPA, USNRC 2004)

⁴ NUPIC = Nuclear Procurement Issues Committee.

Issue 2a

- (2) *Provide additional justification for statements made in Document #7 that “The overall conclusion is that there is effectively no health risk from Sr-90 in Runkle Canyon soil,” and “No further sampling of soils at Runkle Canyon for the detection of Sr-90 is necessary.” The information you provide should address MARSSIM area classification(s), the justification(s), sample density calculations, and non-parametric statistics.*

Response. Document #7 is *Strontium-90 Soil Sampling in Runkle Canyon, Simi Valley, California* (Dade Moeller & Associates 2007a). The earlier Dade Moeller & Associates report, *Radiological Health Risks from Strontium-90 in the Runkle Canyon Development Simi Valley, California* (Dade Moeller & Associates 2005a) provides much of the basic justification for these statements. Using soil sampling data available at that time, the report showed that the potential annual risk to a highly exposed resident would be about 1×10^{-6} (1 in 1 million) and less than that risk level for a typical resident. The newer soil sampling data from 2007 showed a factor of 10 reduction in average concentration of ^{90}Sr in soil, and so the risk would also be reduced in direct proportion. The recommended limits for ^{90}Sr in soil in NCRP Report 129, *Recommended Screening Limits for Contaminated Surface Soil and Review of Factors Relevant to Site-Specific Studies*, for the suburban and no-food suburban exposure scenarios also provide indication that the potential risk is at or below the lower limit of the acceptable risk range. It should be emphasized that the default PRG value for ^{90}Sr should not be applied because the default land use scenario is not consistent with the proposed Runkle Canyon use. At the conclusion of the soil sampling Runkle Canyon, LLC proposes in the response to issue 2b below, the company will prepare a report that considers the new sampling results to further evaluate the potential health risk.

In relation to the soil sampling parameters DTSC requested, this information is included in the report, *Soil Sampling Plan for the Runkle Canyon Main and Northwest Grading Areas* (Dade Moeller & Associates 2007b), which has been provided to DTSC. In summary, this sampling area was considered MARSSIM Class 3, the DCGL was set at 1 picocurie per gram (which corresponds to an annual risk of less than 1×10^{-6}), and the estimated sample standard deviation was 0.172 picocurie per gram, resulting in 57 samples for the residential sampling area. None of the sample results were greater than the DCGL.

Issue 2b

Runkle Canyon, LLC should consider including provisions for additional radionuclide testing in the Response Plan. This aspect of the Response Plan should at a minimum, specify sample locations, the number of samples to be collected at each location, the analytical methods to be used, the detection limits to be used, and a justification for the proposed level of sampling.

Response. In accordance with DTSC’s request, Runkle Canyon, LLC will agree to perform additional ^{90}Sr soil sampling in those nonresidential areas of Runkle Canyon closest to the SSFL. Attachment A to this response plan is the soil sampling plan for that area and includes all of the requested information. In summary, this sampling area is considered MARSSIM Class 3 and the

DCGL is set at 1.7 picocuries per gram, which corresponds to an annual risk of 1×10^{-7} based on the no-food suburban exposure scenario in NCRP Report 129 (NCRP 1999). Using the MARSSIM methodology, 14 sample locations were randomly selected within a triangular grid over the sampling area that was generated by the VSP software program⁵. Analytical capability will have a detection limit of 0.05 picocurie per gram or lower for ⁹⁰Sr, which is similar to that for the 2007 sampling. Upon request Runkle Canyon, LLC will collect split soil samples and provide to DTSC for analysis of ⁹⁰Sr.

Issue 3

(3) Explain why Cs-137 soil radioactivity was not present (above background) when Sr-90 was identified. If no reasonable explanation can be given, the Response Plan should include provisions for testing to identify Cs-137 and determine ratios of Cs-137 to Sr-90 in soil.

Response. Cesium-137, as a gamma-emitting radionuclide, is much easier to detect than ⁹⁰Sr, and no radiochemical separation is needed. In reviewing the historical sampling information it can be seen that the detection limits for ¹³⁷Cs are much lower than those for ⁹⁰Sr. Therefore, the discrepancy is not due to error in detection of ¹³⁷Cs but rather to limitations in the detection of ⁹⁰Sr in the earlier laboratory analysis (as noted in the response to issue 1). None of the previous sample analyses showed any indication of the presence of ¹³⁷Cs. However, Runkle Canyon, LLC will agree to take additional tests for the presence of ¹³⁷Cs in the soil at Runkle Canyon. Each of the soil samples for ⁹⁰Sr will also be analyzed for ¹³⁷Cs. Upon request Runkle Canyon, LLC will collect split soil samples and provide to DTSC for analysis of ¹³⁷Cs. The sampling plan in Attachment A includes analysis for ¹³⁷Cs.

Issue 4

White Crystalline Material

The white crystalline material appears to be sulfate salts leaching out of the mined aggregate stockpiles. Because the material on the rock obtained from the "Radiation Rangers," containing elevated Cr, the material on-site should be collected and analyzed for metals concentrations and mineral composition to verify Cr concentrations in the material and provide a positive identification of the material. DTSC plans to independently collect and analyze representative samples of the white material for those purposes. If the results are positive, it will then be necessary for Runkle Canyon, LLC to map the location(s) and extent of the material, prior to the 2008-2009 rainy season, in preparation for possible removal and disposal or other corrective action. If the results confirm Cr or other metals are present at concentrations deemed actionable and the material cannot be mapped ahead of the forthcoming wet season, DTSC will direct that measures be taken to prevent the material from dissolving and washing away. Such measures could include removal, or placement of a suitable temporary cover. The Response Plan should address this contingency.

⁵ Visual Sample Plan (VSP) software version 5.3. Software and documentation available at <http://dgo.pnl.gov/vsp>. Software copyright 2008 Battelle Memorial Institute. All rights reserved.

Response. The DTSC Environmental Chemistry Laboratory has analyzed the white precipitate samples. Two sets of samples were collected by DTSC on August 27, 2008 and September 24, 2008. None of the samples contained elevated chromium concentrations. Final results were received on November 3, 2008. Table 8 summarizes the results.

Table 8. Results of white precipitate chemical analysis by DTSC (milligram per kilogram).

Chemical	Sample Identification ^a				Reference Criteria	
	RC-1	RC-2	RC-3	RC-4	CHHSL	TTLIC
Silver	<10	<10	<10	<10	380	500
Arsenic	<10	<10	11	<10	0.07	500
Barium	49	14	29	30	5,200	10,000
Beryllium	<1.0	<1.0	<1.0	<1.0	150	75
Cadmium	<1.0	<1.0	<1.0	<1.0	1.7	100
Cobalt	13	<10	<10	<10	660	8,000
Chromium	12	<10	<10	<10	170	2,500
Copper	16	<10	<10	<10	3,000	2,500
Molybdenum	<10	<10	<10	<10	380	3,500
Nickel	30	28	66	28	1,600	2,000
Lead	19	12	10	12	150	1,000
Antimony	<10	15	36	<10	3,000	500
Selenium	<10	<10	<10	<10	380	100
Thallium	<10	<10	<10	<10	5	700
Vanadium	39	<10	13	27	530	2,400
Zinc	41	<10	<10	24	2,300	5,000

CHHSL = California human health screening level; TTLIC = total threshold limits concentration (a hazardous waste criteria).

a. Bold numbers indicate results above the minimum detectable concentration (MDC).

Because laboratory analysis showed arsenic levels above the California human health screening level (CHHSL) and the total threshold limits concentration (TTLIC) (a hazardous waste criteria), which is a common occurrence, DTSC had a contracted analytical laboratory perform x-ray diffraction on the precipitate to determine if the arsenic compounds were naturally occurring. The x-ray diffraction identified the mineralogical makeup of the material. The DTSC reported the following information:

The minerals were identified as quartz and feldspars, which are rock forming minerals along with calcite, gypsum, hexahydrite and blodite. The last four are evaporite minerals that form by water dissolving materials in rock or soil and then leaving behind crystals as the water evaporates. Calcite is calcium carbonate (CaCO₃) while the gypsum, hexahydrite and blodite are all sulfate minerals. The sulfate minerals consist of a sulfate group (SO₄) attached to an anion, calcium for gypsum and magnesium and sodium for hexahydrite and blodite. These are all naturally occurring minerals very similar to epsom salt.

These results indicate that the white precipitate is composed of naturally occurring minerals. Therefore, no additional action is required.

Issue 5

Tar Material

The tar material encountered at the site poses a potential threat to human health because benzo(a)anthracene concentrations exceed the PRG. The tar material should be removed from the site and either properly recycled or disposed. The Response Plan should address the removal of this material.

Response. Runkle Canyon, LLC will remove the tar material. Attachment B provides details of the proposal.

5.0 Actions To Be Taken by Runkle Canyon, LLC

The following actions will be taken by Runkle Canyon, LLC in response to the DTSC requests and in consideration of the specific responses to these requests in Section 4.0 of this response plan:

1. Runkle Canyon, LLC will conduct additional MARSSIM-based soil sampling for the presence of ⁹⁰Sr and ¹³⁷Cs in Runkle Canyon areas closest to SSFL but excluding the proposed residential areas Runkle Canyon, LLC has already sampled. Attachment A contains the proposed soil sampling plan. Once the sampling results are complete, Runkle Canyon, LLC will provide a report to DTSC.
2. Runkle Canyon, LLC will remove the tar material from the surface drainage area of Runkle Canyon. Attachment B contains the proposed plan for removal of this material. Once the removal is complete, Runkle Canyon, LLC will notify DTSC.

These actions, in combination with the responses in Section 4.0, address the requests DTSC stated in its October 17, 2008 letter.

6.0 References

Document reference numbers from the CLRRRA Standard Agreement are shown in brackets where applicable.

City of Simi Valley 2004. *Runkle Canyon Final Environmental Impact Report*. SCH No. 2002121143. May 2004 (Certified April 26, 2004). City of Simi Valley, Simi Valley, CA.

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- [6] Dade Moeller & Associates. 2005b. *Supplemental Soil Sampling for Strontium-90 in the Runkle Canyon Development, Simi Valley, California*. DMA-TR-15. Dade Moeller & Associates, Inc., Richland Washington.
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- [24, 25, 26, 27] Foster Wheeler Environmental Corporation. 1999. *Runkle Ranch Site Investigation , Simi Valley, California*. Final Report. Foster Wheeler Environmental Corporation, Costa Mesa, CA.
- [8] Harding ESE. 2000. *Results of Limited Soil Sampling, Rancho Simi Property. APN 6850-130-180, Simi Valley, California*. November 3, 2000. Harding ESE, Phoenix, AZ.
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- [15] Miller Brooks Environmental, Inc. 2003b. *Site Investigation Report of 550-Acre Parcel; GreenPark Runkle Canyon, LLC Runkle Canyon Property in Simi Valley, California*. September 17, 2003. Miller Brooks Environmental, Inc., Huntington Beach, CA.
- [13] Miller Brooks Environmental, Inc. 2003c. *Site Investigation Report of Southern 715-Acre Parcel; GreenPark Runkle Canyon, LLC Runkle Canyon Property in Simi Valley, California*. September 17, 2003. Miller Brooks Environmental, Inc., Huntington Beach, CA.
- National Council on Radiation Protection and Measurements (NCRP). 1999. *Recommended Screening Limits for Contaminated Surface Soil and Review of Factors Relevant to Site-Specific Studies*. NCRP Report 129, National Council on Radiation Protection and Measurements, Bethesda, MD.
- [38] QST Environmental, Inc. 1999. "Results of Preliminary Soil Samples at Runkle Ranch in Simi Valley, California." Letter Report from John S. Kim to Ms. Marina Robertson, GreenPark Ventures, LLC, dated February 5, 1999.
- U.S. Environmental Protection Agency (EPA) 1995. EPA Update July 1995. U.S. Environmental Protection Agency Region IX, San Francisco, California.
<http://www.etec.energy.gov/Health-and-Safety/Brandeis-Bardin.html>

U.S. Environmental Protection Agency (EPA). 2001. *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*. EPA-402-R-97-016, Rev. 1 (also NUREG-1575, Rev. 1, DOE/EH-0624, Rev. 1). U.S. Environmental Protection Agency, Washington, DC. www.epa.gov/radiation/marssim/obtain.htm

U.S. Environmental Protection Agency (EPA). 2004. *Preliminary Remediation Goals for Radionuclides*. <http://epa-prgs.ornl.gov/radionuclides/>, updated August 4, 2004. U.S. Environmental Protection Agency, Washington, DC.

Attachment A
Soil Sampling Plan for Proposed Non-Residential Eastern and
Southeastern Areas of Runkle Canyon



Dade Moeller & Associates, Inc.
Technical Report

DMA-TR-38

**Soil Sampling Plan for Proposed
Non-residential Eastern and Southeastern
Areas of Runkle Canyon**

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December 2008

Prepared for
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Soil Sampling Plan for Proposed Non-residential Eastern
and Southeastern Areas of Runkle Canyon

December 2008

LIMITATIONS

Dade Moeller & Associates prepared this soil sampling plan pursuant to the directions received from Runkle Canyon, LLC. Our work is based on information available at the time of publication.

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Soil Sampling Plan for Proposed Non-residential Eastern
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1.0 INTRODUCTION

Runkle Canyon is a proposed residential development adjacent to existing neighborhoods at the southern edge of Simi Valley, California accessed at the end of Sequoia Avenue. The California Department of Toxic Substances Control (DTSC) reviewed the Runkle Canyon soil sampling documentation with respect to the California Land Reuse and Revitalization Act (CLRRA) agreement between DTSC and the property owner Runkle Canyon, LLC. DTSC requested that additional soil sampling for ^{90}Sr be conducted on the site.

Several soil sampling campaigns had been earlier been conducted as part of the environmental characterization of the site (QST 1999; Foster Wheeler 1999; Harding ESE 2000; Miller Brooks 2003a, 2003b, 2003c). The sampling conducted in 1998, 1999 and 2000 appeared to indicate the presence of strontium-90 (^{90}Sr) in surface soil; there was no indication of other radionuclides analyzed in the samples – cesium-137 (^{137}Cs) and tritium (^3H). Subsequent sampling conducted at the locations of five highest samples (Dade Moeller & Associates 2005b) showed much lower ^{90}Sr levels than initially indicated. In addition, a MARSSIM-based sampling of the proposed residential area commissioned by Runkle Canyon, LLC in 2007 showed the levels to be even lower and consistent with the local background for ^{90}Sr (Dade Moeller & Associates 2007, USEPA 1995). The State of California analyzed split soil samples from the 2007 sampling and showed lower results consistent with the later sampling.

Runkle Canyon, LLC has agreed to conduct additional MARSSIM-based soil sampling in proposed non-residential eastern and southeastern portions of the site. These areas are closest to the Santa Susana Field Laboratory (SSFL). Runkle Canyon, LLC has also agreed to have samples analyzed for both ^{90}Sr and ^{137}Cs to see if additional information can be gained on the ratios of these radionuclides in soil.

This sampling plan directs the collection of additional samples from the eastern and southeastern areas of the Runkle Canyon site which will be proposed non-residential areas – no homes will be built in this area and no or minimal grading will take place. The objective of this additional sampling is to provide further quantitative information to ensure that the potential risk to members of the public remains well below acceptable risk guidelines.

2.0 FUNCTIONS AND REQUIREMENTS

Soil sampling of the Runkle Canyon area includes the following work functions to be performed by an environmental sampling firm and an analytical laboratory contracted by Runkle Canyon, LLC. Dade Moeller & Associates will provide oversight and technical direction as requested by Runkle Canyon, LLC and will prepare a report on the analytical results.

A contracted environmental sampling firm will:

- Review this Plan and develop a soil sampling protocol that is consistent with ASTM C998-05 “Standard Practice for Sampling Surface Soil for Radionuclides,” subject to additional requirements noted in Section 4.0.
- Notify Runkle Canyon, LLC of all planned departures from the Plan.

- Identify potential hazards during sampling and develop controls. Provide safety briefings for sampling personnel.
- Provide all required safety and personal protective equipment.
- Perform soil sampling.
- Document all survey activities and observations in a controlled logbook or equivalent.
- Package samples and ship to the analytical laboratory in a manner that meets all chain-of-custody requirements.

A contracted analytical laboratory will:

- Perform requested sample analyses for ^{90}Sr and ^{137}Cs and provide requested data as stated in Section 5.0 of this plan.
- Interpret the analytical data and prepare a final report on the analytical results.

3.0 NUMBER OF SAMPLES AND LOCATIONS

Determination of the number of sampling locations described below was developed using methods discussed in the *Multi-Agency Radiation Survey and Site Investigation Manual* (EPA 2001). The areas to be sampled are considered to be Class 3 areas using the MARSSIM criteria. Class 3 areas are those considered to be uncontaminated or minimally affected by contaminants. This has been demonstrated by the previously noted sampling reports.

A site-specific radiological risk analysis of the Runkle Canyon area (Ikenberry 2005a) estimated that even “highly exposed” residents of Runkle Canyon would have an annual risk level of 1×10^{-6} (one in one million) at a concentration of about 1.1 pCi/g of ^{90}Sr if it was assumed to be distributed evenly throughout the surface soil. Typical residents of Runkle Canyon and visitors to the undisturbed open spaces would experience much lower levels of risk. MARSSIM requires a Derived Concentration Guideline Level (DCGL) as one of the parameters to establish the number of samples required. For the non-residential areas in this sampling campaign soil screening limits from the National Council on Radiation Protection and Measurements Report No. 129 (NCRP 1999) were used. Because this is a non-residential area, the “No Food Suburban” exposure scenario was used; a DCGL was established at 1.7 pCi/g, which corresponds to an annual risk of 1×10^{-7} for a “highly exposed” individual at the 95th percentile.

The number of samples required was determined using the Visual Sample Plan (VSP) software version 5.3 (Battelle Memorial Institute 2008; see Appendix A). VSP incorporates the MARSSIM method; Appendix A contains the VSP output. Table 1 shows a summary of the sampling parameters. A total of 14 samples were determined to be adequate (with 20% allowance) with α and β errors each set to 5%. Figure 1 shows the Runkle Canyon main and northwest grading areas with the overlaid soil sampling grid. Table 2 shows the sample locations and coordinates.

The sampling area was selected to include non-residential area closer to the SSFL than the proposed residential area sampled in 2007; the residential area previously sampled was excluded. In addition, the sampling areas was selected to include all of the “higher” samples from earlier analyses (Dade Moeller & Associates 2005b). To accomplish this, a small separate sampling

area was included to the west of the main sampling area and directly south of the previously sampled residential area as shown in Figure 1. This area will be the location of sample N14 as noted in Table 2.

Table 1. Sampling parameters for the eastern and southeastern non-residential area.

Parameter	Value	Comments
Survey class	3	No significant contamination expected
DCGL	1.7 pCi/g ⁹⁰ Sr	Based on NCRP #129 <i>No Food Suburban</i> , 1×10^{-7} yr ⁻¹ risk
Std deviation	0.015 pCi/g	Based on 2007 sampling
α and β errors	5 %	Typical
Samples	14	Includes 20% overage (3 samples)
Area	267 acres	

Table 2. Sample Location Coordinates and Sample Designation.

Area: Runkle Canyon eastern & southeastern non-residential area					
Latitude (North)	Longitude (West)	Label ¹	Value	Type	Historical
34°13'26.82"	-118° 43'21.51"	N 01		Systematic	
34°13'25.49"	-118° 43'09.51"	N 02		Systematic	
34°13'34.95"	-118° 43'28.05"	N 03		Systematic	
34°13'35.12"	-118° 43'15.43"	N 04		Systematic	
34°13'42.05"	-118° 43'32.37"	N 05		Systematic	
34°13'43.02"	-118° 43'20.56"	N 06		Systematic	
34°13'52.56"	-118° 43'39.01"	N 07		Systematic	
34°14'00.69"	-118° 43'46.43"	N 08		Systematic	
34°14'09.75"	-118° 43'52.44"	N 09		Systematic	
34°14'08.02"	-118° 43'39.57"	N 10		Systematic	
34°14'27.10"	-118° 43'43.47"	N 11		Systematic	
34°14'35.63"	-118° 43'34.77"	N 12		Systematic	
34°14'47.58"	-118° 43'24.37"	N 13		Systematic	
34°13'55.74"	-118° 44'05.75"	N 14		Systematic	

¹. Labels start in the lower lefthand (southeast) corner of the grid in Figure 1 and move north, west to east except for N14, which is last since it is in a separate sampling area.

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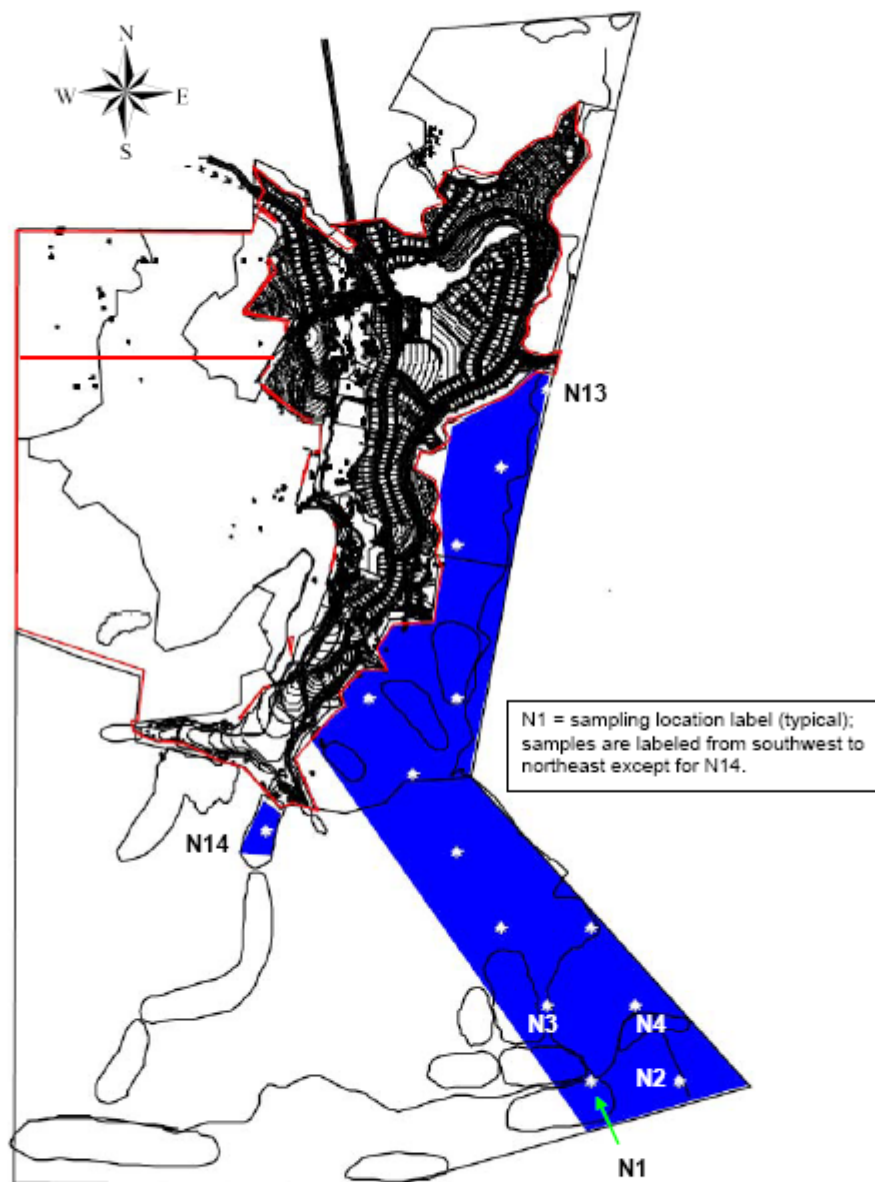


Figure 1. Sampling area and sample locations for the non-residential Runkle Canyon area.

Dade Moeller & Associates

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4.0 SAMPLE COLLECTION AND HANDLING

Collection of soil samples is required to determine the concentration of the radionuclide strontium-90 in soil. The soil sampling protocol will follow ASTM C998 "Standard Practice for Sampling Surface Soil for Radionuclides" or equivalent with the following modifications: one 1-m² area will be cleared and sampled rather than two 1-m² areas (with 5 cores or plugs rather than 10); and surface soil samples will be taken from a depth of 0 to 6 inches (0 to 15 cm) if possible.^a Shallower samples (0 to 3 inches) are acceptable if soil conditions prevent deeper sampling, with appropriate documentation in the sampling logbook. Samples shall be taken as close to the locations in Table 1 as feasible. Actions shall be taken to prevent cross-contamination between samples. Soil will be sieved using a 10 mesh sieve to remove vegetation and pebbles; if there is difficulty using 10 mesh a slightly larger mesh size (4) may be considered. A minimum of 500 ml aliquots (approximately 1 kg each) will be taken and provided to the analytical laboratory using standard chain of custody procedures and forms. Samples shall be collected by qualified individuals using the appropriate equipment and procedures. Upon request by DTSC, split soil samples will be collected and provided to DTSC for independent analysis for the presence of radionuclides.

All sample media, personal protective equipment, and other materials or equipment used during the sampling may be properly disposed as sanitary waste. The waste is not considered radioactive waste.

Activities associated with the soil sampling should be planned and monitored to assure that the health and safety of those performing the sampling and other personnel are adequately protected. Health and safety concerns at this undeveloped site may include heat or cold depending upon the time of year, sharp objects, falling objects, tripping hazards, and biological hazards such as insects and snakes. It is expected that environmental sampling firm will conduct all sampling tasks consistent with their policies and procedures for health and safety. All personnel should be briefed on potential safety hazards prior to performing or observing tasks.

5.0 SAMPLE ANALYSIS

The analytical laboratory shall have written procedures that document its analytical capabilities for ⁹⁰Sr in soil, and a Quality Assurance/Quality Control (QA/QC) program that ensures the validity of the analytical results. The laboratory shall have the following minimum detectable concentration (MDC) capabilities:

- 0.05 pCi/g or lower for ⁹⁰Sr in soil
- 0.18 pCi/g and preferably less than 0.1 pCi/g for ¹³⁷Cs in soil.

The laboratory should have performance evaluation results from a recognized laboratory accreditation program, and should be able to provide QA audits or other records to verify its ability to produce valid results. Equipment calibrations shall be performed using National Institute of Standards and Technology (NIST) traceable reference radionuclide standards. For

^a One of the purposes of ASTM C998 is to provide samples for analysis of radionuclides following a recent airborne release, and to account for associated variability in surface soil deposition. These conditions do not apply for Runkle Canyon soil sampling; therefore modifications to the soil sampling procedure are applicable.

any sample result greater than 0.5 pCi/g ^{90}Sr , another analysis shall be performed of that soil sample. A complete analytical report shall be provided documenting the above information and providing quantitative numerical sample results (regardless if positive, negative or below the MDC), total propagated uncertainty, and the MDC. An explanation of total propagated uncertainty and the calculation of the MDC shall be provided. Additional requirements shall be in force as agreed with Runkle Canyon, LLC.

6.0 REPORTING

Upon completion of the sampling and laboratory analysis, Dade Moeller & Associates will prepare a report interpreting and analyzing the data.

7.0 REFERENCES

Foster Wheeler Environmental Corporation. 1999. *Runkle Ranch Site Investigation, Simi Valley, California*. Final Report. Foster Wheeler Environmental Corporation, Costa Mesa, CA.

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URL: www.epa.gov/radiation/marssim/obtain.htm

**APPENDIX A. SYSTEMATIC SAMPLING LOCATIONS FOR COMPARING A
MEDIAN WITH A FIXED THRESHOLD (NONPARAMETRIC - MARSSIM)****Summary**

This report summarizes the sampling design used, associated statistical assumptions, as well as general guidelines for conducting post-sampling data analysis. Sampling plan components presented here include how many sampling locations to choose and where within the sampling area to collect those samples. The type of medium to sample (i.e., soil, groundwater, etc.) and how to analyze the samples (in-situ, fixed laboratory, etc.) are addressed in other sections of the sampling plan.

The following table summarizes the sampling design developed. A figure that shows sampling locations in the field and a table that lists sampling location coordinates are provided as **Figure 1** and **Table 1**, respectively, in the main text of this sampling plan.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Compare a site mean or median to a fixed threshold
Type of Sampling Design	Nonparametric
Sample Placement (Location) in the Field	Systematic with a random start location
Working (Null) Hypothesis	The median(mean) value at the site exceeds the threshold
Formula for calculating number of sampling locations	Sign Test - MARSSIM version
Calculated total number of samples	14
Number of samples on map ^a	14
Number of selected sample areas ^b	2
Specified sampling area ^c	11,645,000 ft ² (267 acres)
Size of grid / Area of grid cell ^d	973 feet / 820,500 ft ² (19 acres)
Grid pattern	Triangular

^a This number may differ from the calculated number because of 1) grid edge effects, 2) adding judgment samples, or 3) selecting or unselecting sample areas.

^b The number of selected sample areas is the number of colored areas on the map of the site. These sample areas contain the locations where samples are collected.

^c The sampling area is the total surface area of the selected colored sample areas on the map of the site.

^d Size of grid / Area of grid cell gives the linear and square dimensions of the grid used to systematically place samples.

Primary Sampling Objective

The primary purpose of sampling at this site is to compare a site median or mean value with a fixed threshold. The working hypothesis (or 'null' hypothesis) is that the median (mean) value at the site is equal to or exceeds the threshold. The alternative hypothesis is that the median (mean) value is less than the threshold. VSP calculates the number of samples required to reject the null hypothesis in favor of the alternative one, given a selected sampling approach and inputs to the associated equation.

Selected Sampling Approach

A nonparametric systematic sampling approach with a random start was used to determine the number of samples and to specify sampling locations. A nonparametric formula was chosen because the conceptual model and historical information (e.g., historical data from this site or a very similar site) indicate that typical parametric assumptions may not be true.

Both parametric and non-parametric equations rely on assumptions about the population. Typically, however, non-parametric equations require fewer assumptions and allow for more uncertainty about the

statistical distribution of values at the site. The trade-off is that if the parametric assumptions are valid, the required number of samples is usually less than if a non-parametric equation was used.

Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site. Statistical analyses of systematically collected data are valid if a random start to the grid is used. One disadvantage of systematically collected samples is that spatial variability or patterns may not be discovered if the grid spacing is large relative to the spatial patterns.

Number of Total Samples: Calculation Equation and Inputs

The equation used to calculate the number of samples is based on a Sign test (see PNNL 13450 for discussion). For this site, the null hypothesis is rejected in favor of the alternative one if the median(mean) is sufficiently smaller than the threshold. The number of samples to collect is calculated so that if the inputs to the equation are true, the calculated number of samples will cause the null hypothesis to be rejected.

The formula used to calculate the number of samples is:

$$n = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(\text{Sign}P - 0.5)^2}$$

where

$$\text{Sign}P = \Phi\left(\frac{\Delta}{s_{total}}\right)$$

$\Phi(z)$ is the cumulative standard normal distribution on $(-\infty, z)$ (see PNNL-13450 for details),

n is the number of samples,

s_{total} is the estimated standard deviation of the measured values including analytical error,

Δ is the width of the gray region,

α is the acceptable probability of incorrectly concluding the site median(mean) is less than the threshold,

β is the acceptable probability of incorrectly concluding the site median(mean) exceeds the threshold,

$Z_{1-\alpha}$ is the value of the standard normal distribution such that the proportion of the distribution less than $Z_{1-\alpha}$ is $1-\alpha$,

$Z_{1-\beta}$ is the value of the standard normal distribution such that the proportion of the distribution less than $Z_{1-\beta}$ is $1-\beta$.

Note: MARSSIM suggests that the number of samples should be increased by at least 20% to account for missing or unusable data and uncertainty in the calculated value of n . VSP allows a user-supplied percent overage as discussed in MARSSIM (EPA 2000, p. 5-33).

The values of these inputs that result in the calculated number of sampling locations are:

Analyte	n ^a	Parameter					
		S	Δ	α	β	$Z_{1-\alpha}$ ^b	$Z_{1-\beta}$ ^c
	14	0.015	0.05	0.05	0.05	1.64485	1.64485

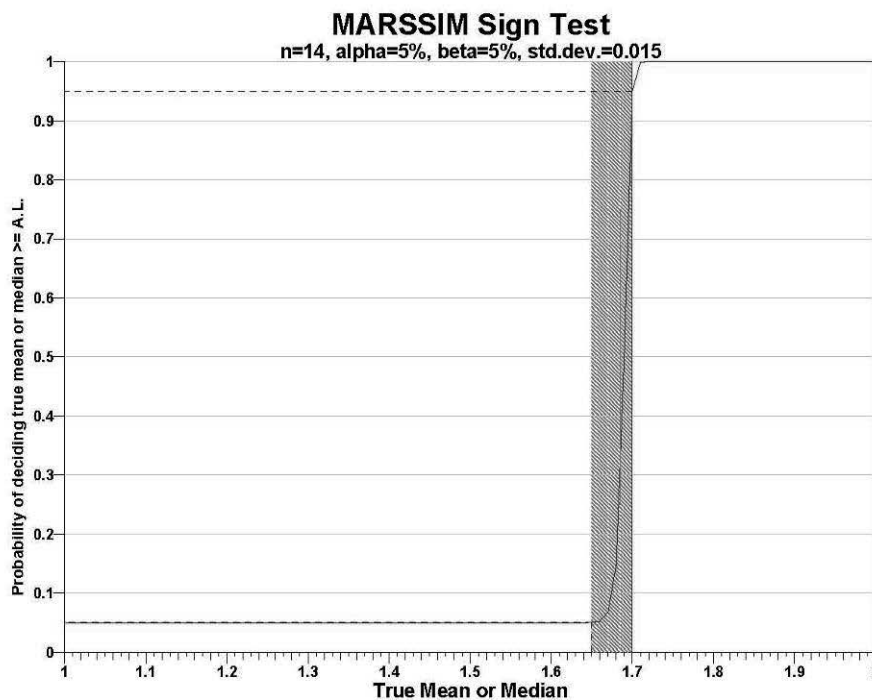
^a The final number of samples has been increased by the MARSSIM Overage of 20%.

^b This value is automatically calculated by VSP based upon the user defined value of α .

^c This value is automatically calculated by VSP based upon the user defined value of β .

The following figure is a performance goal diagram, described in EPA's QA/G-4 guidance (EPA, 2000). It shows the probability of concluding the sample area is dirty on the vertical axis versus a range of possible true median(mean) values for the site on the horizontal axis. This graph contains all of the inputs to the number of samples equation and pictorially represents the calculation.

The red vertical line is shown at the threshold (action limit) on the horizontal axis. The width of the gray shaded area is equal to Δ ; the upper horizontal dashed blue line is positioned at $1-\alpha$ on the vertical axis; the lower horizontal dashed blue line is positioned at β on the vertical axis. The vertical green line is positioned at one standard deviation below the threshold. The shape of the red curve corresponds to the estimates of variability. The calculated number of samples results in the curve that passes through the lower bound of Δ at β and the upper bound of Δ at $1-\alpha$. If any of the inputs change, the number of samples that result in the correct curve changes.



Statistical Assumptions

The assumptions associated with the formulas for computing the number of samples are:

1. the computed sign test statistic is normally distributed,
2. the variance estimate, S^2 , is reasonable and representative of the population being sampled,
3. the population values are not spatially or temporally correlated, and
4. the sampling locations will be selected probabilistically.

The first three assumptions will be assessed in a post data collection analysis. The last assumption is valid because the gridded sample locations were selected based on a random start.

Soil Sampling Plan for Proposed Non-residential Eastern
and Southeastern Areas of Runkle Canyon

December 2008

Sensitivity Analysis

The sensitivity of the calculation of number of samples was explored by varying the standard deviation, lower bound of gray region (% of action level), beta (%), probability of mistakenly concluding that $\mu >$ action level and alpha (%), probability of mistakenly concluding that $\mu <$ action level. The following table shows the results of this analysis.

AL=1.7		Number of Samples					
		$\alpha=5$		$\alpha=10$		$\alpha=15$	
		s=0.03	s=0.015	s=0.03	s=0.015	s=0.03	s=0.015
LBGR=90	$\beta=5$	14	14	11	11	10	10
	$\beta=10$	11	11	9	9	8	8
	$\beta=15$	10	10	8	8	6	6
LBGR=80	$\beta=5$	14	14	11	11	10	10
	$\beta=10$	11	11	9	9	8	8
	$\beta=15$	10	10	8	8	6	6
LBGR=70	$\beta=5$	14	14	11	11	10	10
	$\beta=10$	11	11	9	9	8	8
	$\beta=15$	10	10	8	8	6	6

s = Standard Deviation

LBGR = Lower Bound of Gray Region (% of Action Level)

β = Beta (%), Probability of mistakenly concluding that $\mu >$ action level

α = Alpha (%), Probability of mistakenly concluding that $\mu <$ action level

AL = Action Level (Threshold)

Recommended Data Analysis Activities

Post data collection activities generally follow those outlined in EPA's Guidance for Data Quality Assessment (EPA, 2000). The data analysts will become familiar with the context of the problem and goals for data collection and assessment. The data will be verified and validated before being subjected to statistical or other analyses. Graphical and analytical tools will be used to verify to the extent possible the assumptions of any statistical analyses that are performed as well as to achieve a general understanding of the data. The data will be assessed to determine whether they are adequate in both quality and quantity to support the primary objective of sampling.

Because the primary objective for sampling for this site is to compare the site median(mean) value with a threshold value, the data will be assessed in this context. Assuming the data are adequate, at least one statistical test will be done to perform a comparison between the data and the threshold of interest. Results of the exploratory and quantitative assessments of the data will be reported, along with conclusions that may be supported by them.

This report was automatically produced* by Visual Sample Plan (VSP) software version 5.3.

Software and documentation available at <http://dgo.pnl.gov/vsp>

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Attachment B
Response Plan for Removal of Tar Material

GEOCON

INLAND EMPIRE, INC.

ENVIRONMENTAL ■ GEOTECHNICAL ■ MATERIALS



Project No. A8314-77-03

November 28, 2008

VIA EMAIL

Mr. Chuck Heffernan
Runkle Canyon, LLC
27240 Turnberry Lane, Suite 100
Valencia, CA 91355

Subject: RUNKLE CANYON
SIMI VALLEY, CALIFORNIA
RESPONSE PLAN FOR REMOVAL OF TAR MATERIAL

Mr. Heffernan:

In accordance with your request on behalf of Runkle Canyon, LLC (the Client), we are providing this Response Plan for the removal of the tar-like material present within the drainage area of Runkle Canyon (the Site).

1.0 Site Description

Runkle Canyon is located at the terminus of Sequoia Avenue in the City of Simi Valley, California. The property consists of three parcels totaling approximately 1,615 acres; a northeast 550 acre parcel, a northwest 350 acre parcel, and a southern 715 acre parcel. There is no known street address for the property.

The Site is generally a north-south trending valley extending through the central part of the 550 acre parcel. A small intermittent stream, which appears to drain the majority of the 550-acre parcel and the 715-acre parcel, meanders northward across the valley floor. East of the stream channel are rolling hills that comprise the majority of the 550-acre parcel. West of the stream channel is a steep ridge line that comprises the eastern portion of the 350-acre parcel. The portion of the 350-acre parcel west of the ridgeline appears to drain through an unnamed north-south trending canyon to the west of Runkle Canyon. Drainage from the 715-acre parcel appears to flow onto the southern end of the 550-acre parcel along three drainage courses. The area where the three drainages converge on the 550-acre parcel has been referred to as the "Fish Tail" area of the Site.

Surface mining was historically performed at the Site for sand and gravel products. Large volumes of semi-processed sand and gravel material from the former quarry operation have been placed within the Fish Tail area of the Site. The piles of material from the quarry appear to be in excess of 30 feet thick in areas where the stream has eroded channels through them. Miscellaneous debris, currently exposed in the stream channel walls, was observed to have been buried by the aggregate material placed in the Fish Tail area. The debris included items such as, pipes of various diameter, length, and material, concrete and asphalt rubble, long sheets of rubber material presumed to be remnants of the former conveyor system, tires, and a black solid to very viscous tar like substance.

Project No. A8314-77-03

- 1 -

November 28, 2008

2.0 Project Description and Objective

A tar material has been observed to be buried within piles of mined aggregate (sand and gravel) within the "Fish Tail" area of the Site. Seeps of the tar material are exposed within a section of the east wall of the stream channel that has been cut through the piles of mined aggregate. During the summer months the viscous tar flows from the seeps down the embankment and collects in pools at the bottom of the slope. Other areas of the channel walls within the vicinity of the seeps have been reported to contain similar material mixed with varying amount of sand and gravel.

In August 2005 Geocon conducted an assessment of the tar material. Seven exploratory trenches, labeled T1 through T7, were excavated to depths ranging from 10 to 13 feet using a rubber-tired backhoe equipped with a 24-inch bucket. The first trench, T1 was excavated adjacent to where the material could be seen seeping out of the stream channel wall. The tar was encountered at depths ranging from 7 to 12 feet in T1.

Six additional trenches were excavated, T2 through T7, encompassing T1 to the north, south, and east. The western extent of the material was defined by the wall of the stream channel. The tar material was encountered in trench T1 only. The volume of material observed in T1 was estimated to be approximately 12 cubic yards.

In a letter dated October 17, 2008 the California Department of Toxic Substances Control (DTSC) directed that the tar material be removed from the Site and properly recycled or disposed.

3.0 Tar Material Excavation and Disposal

The following sections present the recommended technical and logistical aspects of implementing remedial excavation and offsite disposal of the tar material.

Pre-Field Activities

- Identify, and obtain pre-approval from, an appropriately licensed landfill or recycling facility for acceptance of the waste materials.
- The Contractor should provide a minimum of 48 hours notice prior to the start of the soil excavation activities to subscribing local public utilities via Underground Service Alert (USA). Field meetings with public utility USA subscribers and utility potholing may be necessary to adequately delineate subsurface public utilities and conduits in proximity to the proposed remedial excavation locations.
- Meet with representatives from the California Department of Fish and Game and Army Corps of Engineers to discuss potential impacts to the stream channel that may occur during excavation activities.

Field Activities

- Removal of trees, brush, and other rubble may be required to access portions of the mined aggregate piles where the tar material is reportedly buried. Grading of an access road to allow equipment to enter the stream cut channel may also be required.
- Excavation of the tar material from the mined aggregate piles will be performed with a track-mounted excavator.

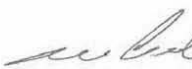
- Excavation of the tar material will be based on visual observations. Effort will be made to minimize the amount of clean aggregate material transported off site.
- When possible the excavated materials will be loaded directly into haul trucks. The haul trucks will be covered with tarps prior to transport to the designated landfill/recycling facility. Temporary stockpiling of the waste materials may be performed on the west side of the stream cut channel if conditions prevent access of haul trucks near the excavation.
- The Contractor will implement effective dust control measures including watering the active work area to prevent visible dust. Work will be suspended if weather conditions, including wind speeds or gusts exceeding 25 miles per hour, prevent effective dust control. Excavation equipment will be inspected and cleaned (if necessary) prior to leaving the Site.
- Site restoration activities will be dependant on the extent of the excavation but at a minimum will include returning the bottom of the stream cut channel to near its original elevation and hydro-seeding the excavated area to comply with California Department of Fish and Game requirements.

The activities outlined above are designed to address the tar material known to be present within a limited area of the mined aggregate piles at the Site. It is possible that similar material may be buried within the aggregate piles elsewhere at the Site. Development plans for the Site include the mass grading and removal of the aggregate piles within the "Fish Tail" area. If additional tar material is discovered during future grading activities it will be managed appropriately.

Please contact the undersigned at your convenience if you have any questions regarding this letter or if we may be of further service.

Sincerely,

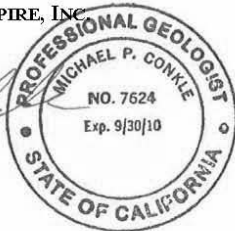
GEOCON INLAND EMPIRE, INC



Michael Conkle, PG
Senior Geologist

MPC:am

(1) Addressee



Runkle Canyon Response Plan Simi Valley, California

Revision 1

July 22, 2010

Prepared for:
Runkle Canyon, LLC
10990 Wilshire Boulevard
Los Angeles, CA 90024

Prepared by:



1835 Terminal Drive, Suite 200
Richland, WA 99354

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Summary

Runkle Canyon is the site of a proposed residential development adjacent to existing neighborhoods at the southern edge of Simi Valley, California. The development would consist of approximately 1,595 acres that would include a mix of residence types (senior housing and single-family homes), open space, a neighborhood park, and a multiuse trail system. Residences would cover approximately 140 acres in the northern portion of the project area, and 1,456 acres would be for open space and recreational uses. Runkle Canyon, LLC is the developer.

Runkle Canyon has been the subject of extensive environmental investigation, including investigations of potential radiological contamination from activities at the Santa Susanna Field Laboratory (SSFL), with reports of environmental consultants dating back to 1999. The California Department of Toxic Substances Control (DTSC) conducted a review of forty-one (41) documents submitted by Runkle Canyon, LLC in connection with the Standard Agreement for participating under California's Land Reuse and Revitalization Act (CLRRRA) Program effective April 23, 2008. In a letter dated October 17, 2008, DTSC commented on the documents reviewed, prescribed additional work necessary in DTSC's opinion to complete the assessment of environmental conditions at Runkle Canyon, and requested Runkle Canyon, LLC to prepare a plan to respond to certain issues raised by DTSC. In this letter, DTSC ruled out any need for further investigation related to the groundwater at Runkle Canyon and instead focused its request for additional information and/or actions from Runkle Canyon, LLC on the following:

1. Further investigation into whether the presence of strontium-90 (^{90}Sr) and cesium-137 (^{137}Cs) in the soil represents a health risk.
2. The disposal of tar material at the site that poses a potential threat to human health because benzo(a)anthracene concentrations exceed acceptable levels.
3. Allowing DTSC access to the property for assessment of a "white precipitate" material (This independent collection and analysis was undertaken by DTSC with negative results for any material or metal of concern).

This document contains Runkle Canyon, LLC's proposed response plan to address DTSC's request to better define the environmental conditions at the site. Runkle Canyon, LLC proposes to take the following actions in response to DTSC's requests:

- Conduct additional soil sampling for ^{90}Sr and ^{137}Cs in certain areas of Runkle Canyon.
- Remove the tar material from the drainage area of Runkle Canyon.

Runkle Canyon, LLC will implement the soil sampling plan and work plan (attachments A and B) under direct observation of DTSC personnel in the field. Split samples will be collected and provided to DTSC for comparison purposes.

Runkle Canyon, LLC will remove the tar material from the site in accordance with Attachment C. DTSC is invited to observe the performance of this work if desired.

This revised Response Plan is provided in response to comments from the Department of Toxic Substances Control (DTSC 2010) and members of the public.

1.0 Introduction

Runkle Canyon is a proposed residential development adjacent to existing neighborhoods at the southern edge of Simi Valley, California, with access from the southern end of Sequoia Avenue. The project site consists of approximately 1,595 acres that would include a mix of residence types, open space, a neighborhood park, and a multiuse trail system. Runkle Canyon, LLC proposes residential development on approximately 140 acres in the northern portion of the project area and open space and recreational areas for the remaining approximately 1,456 acres. A total of 461 residences are approved for the site and would include 138 senior housing units (62 of which would be affordable housing), 298 single-family homes, and 25 single-family estate homes (City of Simi Valley 2004).

In 2004, the City of Simi Valley prepared a final environmental impact report (EIR) in accordance with the California Environmental Quality Act to evaluate the potential environmental impacts of the development activities (City of Simi Valley 2004). The EIR was certified on April 26, 2004. It provides a detailed environmental characterization of the site and of proposed activities.

The Radiologic Health Branch (RHB) of the California Department of Public Health and, more recently, the Department of Toxic Substances Control (DTSC) have continued to investigate the potential for presence of the radionuclide strontium-90 (^{90}Sr) in the soil of Runkle Canyon. Since the EIR certification there have been two soil sampling surveys. One survey resampled at the locations of the five highest ^{90}Sr soil concentrations from the previous studies, and the other was a comprehensive soil survey of the proposed residential area. Section 2.0 discusses the surveys.

A radiological health risk assessment from the potential presence of ^{90}Sr in the soil of Runkle Canyon was conducted in 2005 (Dade Moeller & Associates 2005a). Section 3.0 summarizes this assessment and discusses it in light of more recent sampling information.

This response plan addresses the requests made by DTSC upon the completion of its review of Runkle Canyon documents pursuant to the Standard Agreement under the California Land Reuse and Revitalization Act (CLRRRA). In a letter to representatives of Runkle Canyon, LLC on October 17, 2008, DTSC requested that Runkle Canyon, LLC prepare a response plan to address the following issues:

1. An explanation of the apparent decrease in residual strontium-90 (^{90}Sr) activity in soils samples from 1998 to 2007.
2. A justification for the conclusions in one report that there is no health risk from ^{90}Sr in Runkle Canyon soil and that no further sampling is necessary with consideration of additional radionuclide testing.

3. An explanation of why cesium-137 (^{137}Cs) was not present (above background) when ^{90}Sr was identified.
4. A request for collection and analysis of samples for metals concentrations and mineral composition to verify chromium concentrations in a white crystalline material to assess the potential health hazard of this material.
5. A request to remove and properly dispose of tar material at the site that poses a potential threat to human health because benzo(a)anthracene concentrations exceed acceptable levels.

Section 4.0 discusses these issues and provides specific responses to them. Section 5.0 discusses the actions Runkle Canyon, LLC will undertake to in response to DTSC's requests. Attachments A, B and C are specific plans to address DTSC's requests and contain additional detail.

2.0 History of Radionuclide Soil Sampling in Runkle Canyon

Sampling for radionuclides in the surface soil of Runkle Canyon began in late 1998. Strontium-90 (^{90}Sr), cesium-137 (^{137}Cs), and tritium (^3H) have been the radionuclides of interest. A major point of comparison has been the background levels of these radionuclides from the U.S. Environmental Protection Agency (EPA 1995) for the area around the Santa Susana Field Laboratory (SSFL). Table 1 lists those values. Of particular interest have been the values for average local background concentration (fourth column), which were about 7 percent and 12 percent, respectively, of the typical U.S. background concentration for ^{90}Sr and ^{137}Cs (the last column). The local background concentration for tritium was consistent with the typical U.S. background concentration. None of these 1995 background samples were conducted at Runkle Canyon.

Table 1. Comparison of radionuclide concentrations (EPA 1995).

Radionuclide	Sampling Area on Brandeis-Bardin	Average Soil Concentration	Average Local Background Concentration	Typical U.S. Background Concentration
Strontium	RMDF Watershed	0.103 pCi/g	0.052 pCi/g	0.7 pCi/g
Cesium	Bldg 59 Watershed	0.20 pCi/g	0.087 pCi/g	0.7 pCi/g
Tritium	Bldg 59 Watershed	2,250 pCi/L	~140 pCi/L	100-300 pCi/L

pCi/g = picocuries per gram; pCi/L = picocuries per liter; RMDF = Radioactive Material Disposal Facility at SSFL

Sampling campaigns were conducted to determine if the Runkle Canyon site was contaminated with radionuclides that originated at SSFL. Sampling for ^3H is not included because it has not been detected above background levels. Similarly, ^{137}Cs has not been detected at elevated concentrations; however, ^{137}Cs is included in the following description because ^{137}Cs and ^{90}Sr are produced in nuclear reactors and atmospheric weapons testing in a ratio of about 1.6 to 1. During the earlier soil sampling campaigns, the ^{90}Sr concentration appeared to be somewhat elevated and the characteristic ^{137}Cs to ^{90}Sr ratio that would be indicative of either atmospheric fallout or nuclear reactor origin was not observed. The following is a chronological history and description of ^{90}Sr and ^{137}Cs soil sampling in Runkle Canyon.

December 1998. QST Environmental collected four soil samples at three locations on December 23, 1998 (QST 1999). Sampling locations were all in proposed nonresidential areas in the southern 715-acre parcel of the property or at the extreme southern edge of the eastern 550-acre parcel. The sampling location closest to SSFL was about 440 meters west-southwest of the property line. Sample locations were selected to maximize the possibility of finding contamination and were not based on methods of the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM; EPA 2001). The samples were analyzed for ^{90}Sr , ^{137}Cs , and tritium (^3H). Table 2 summarizes the results. The study concluded, “It would appear there may have been some impact of radionuclides to the site from the SSFL facility. Consequently, a more extensive site investigation appears to be necessary to the [sic] determine the lateral and vertical impact of radionuclides in the soil.”

Table 2. Summary soil sampling statistics in December 1998 (QST 1999).

Result	^{90}Sr (4 samples)		^{137}Cs (4 samples)	
	Samples	MDC	Samples	MDC
Average (pCi/g)	0.59	0.21	0.028	0.17
Median (pCi/g)	0.62	0.19	0.017	0.14
Minimum (pCi/g)	0.25	0.19	-0.03	0.14
Maximum (pCi/g)	0.86	0.22	0.11	0.22
Std. deviation (pCi/g)	0.30	0.01	0.06	0.03
Results > MDC	4 of 4		0 of 4	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

June–July 1999. Foster Wheeler Environmental collected soil samples at 58 sampling locations determined using the MARSSIM process from June 28 to July 2, 1999 (Foster Wheeler [FW] 1999). The company collected an additional 9 discretionary samples and duplicates at three MARSSIM sample locations. Final results included 70 ^{90}Sr results and 67 ^{137}Cs results. The sampling locations were all in the eastern 550-acre parcel of the property and were split between residential and nonresidential areas of this parcel. Radionuclides analyzed were ^{90}Sr , ^{137}Cs , and ^3H . Table 3 lists the summary soil sampling statistics for ^{90}Sr and ^{137}Cs .

Table 3. Summary soil sampling statistics in June–July 1999 (FW 1999).

Result	^{90}Sr (70 samples)		^{137}Cs (67 samples)	
	Samples	MDC	Samples	MDC
Average (pCi/g)	1.33	0.75	0.09	0.08
Median (pCi/g)	1.07	0.75	0.09	0.08
Minimum (pCi/g)	-0.29	0.56	-0.05	0.05
Maximum (pCi/g)	12.34	0.99	0.3	0.12
Std deviation (pCi/g)	1.63	0.08	0.08	0.01
Results > MDC	52 of 70		29 of 67	
DCGL ^a (pCi/g)	1.229		2.857	
Results > DCGL	18 of 70		0 of 70	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

a. DCGL = derived concentration guideline level; based on 7.5 millirem per year per radionuclide and a risk of 4.5×10^{-6} per year per radionuclide.

Foster Wheeler determined the MARSSIM critical value would be 38, where the soil concentration in 38 of the 58 MARSSIM samples must exceed the determined DCGL (derived concentration guideline level) for the soil concentration of the sampled area to be considered above the DCGL. Thirteen of the 58 samples for ^{90}Sr and none of the samples for ^{137}Cs were above the DCGL, which led to the report's conclusion that the site was "non-contaminated for the radionuclides detected." Each of the DCGLs was based on 7.5 millirem per year, so that the total radiation dose from all radionuclides would be less than the EPA standard of 15 millirem per year (or less than an annual risk of 9×10^{-6}). However, the Foster Wheeler report did not make a statement as to whether the area was considered to be Survey Class 1, 2, or 3. The critical value is appropriate for a Class 1 area, but no samples would be expected to be above the DCGL for Class 2 or 3 areas. There is therefore some uncertainty about the appropriateness of the DCGL (it could be too low) or the analytical detection capability of the analysis (which could be too high). The average ^{90}Sr concentration was slightly above the DCGL, as was the concentration of 18 of the 70 soil samples. However, Foster Wheeler used the MARSSIM methods to determine that concentrations of both ^{90}Sr and ^{137}Cs were less than their respective DCGLs and the total dose rate would be less than 15 mrem per year. —

September 2000. Nineteen samples were collected at 17 locations on September 23, 2000 (Harding ESE 2000). Sampling locations were all in nonresidential locations in the southern (Rancho Simi) 720-acre parcel. There were 2 blind duplicates (SS-18 and SS-19) at locations SS-3 and SS-7. Harding ESE conducted a limited surface soil sampling program "that would evaluate certain areas of the Property with the highest probability of being impacted by run-off [of radionuclides] from the [SSFL] facility." Therefore, this was not a MARSSIM-based sampling plan.

Table 4. Summary statistics for soil sampling in September 2000 (Harding ESE 2000).

Result	^{90}Sr (19 samples)		^{137}Cs (19 samples)	
	Samples	MDC	Samples	MDC
Average (pCi/g)	0.96	0.66	0.015	0.11
Median (pCi/g)	0.39	0.65	0.015	0.12
Minimum (pCi/g)	-0.32	0.47	-0.09	0.07
Maximum (pCi/g)	4.76	0.79	0.09	0.14
Std. deviation (pCi/g)	1.49	0.10	0.04	0.02
Results > MDC	7 of 19		1 of 19	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

The report compared sample results to the DCGL values that were calculated in Foster Wheeler (1999). The concentrations of ^{90}Sr in four samples exceeded the DCGL; none of the ^{137}Cs results exceeded the DCGL. This report concluded that "Harding ESE cannot make a definitive conclusion regarding the presence or absence of strontium-90 in the soil, without additional data."

March 2003. Miller Brooks Environmental conducted a survey on March 13 and 14, 2003 (Miller Brooks 2003a,b,c). The company collected 13 soil samples and conducted one soil boring to 7 feet in the southern 715-acre parcel, collected 6 soil samples and conducted five soil borings to a depth of 7 feet in the 550-acre eastern parcel, and collected 4 soil samples from the

350-acre western parcel. Three offsite samples were collected. The analytical laboratory analysis of these soil samples for ^{90}Sr and the data reporting of an “analyte reporting limit” – presumably a minimum detectable concentration (MDC) – that ranged from 2 to 2.8 picocuries per gram, which was too high to be of value in comparison to the earlier sampling results that had lower MDCs. In addition, most of the results were not reported quantitatively but rather as “not detected at the reporting limit.” Only 2 of the 49 sample results (including samples at depth) were reported quantitatively (2.1 ± 1.2 and 2.2 ± 1.2 picocuries per gram). These data are not considered useful or representative for the presence of ^{90}Sr in the soil of Runkle Canyon when considered together with both the earlier and later sampling results. There was no analysis for ^{137}Cs .

June 2005. At the request of the State of California Department of Public Health Radiologic Health Branch (RHB), resampling for ^{90}Sr was conducted at the sample locations of the five highest ^{90}Sr soil sample results (Dade Moeller & Associates 2005b). Samples were collected as close as possible to the original five sample locations with representatives of the ownership group, Dade Moeller & Associates, and the State of California RHB present as samples were physically collected by an independent environmental contractor. The samples were split for independent analysis by both a contracted analytical laboratory and a California state laboratory RHB uses. Both laboratories showed ^{90}Sr concentrations to be much lower than the original results; the state laboratory results were the lowest. There was no analysis for ^{137}Cs because it had not been detected or was present only at very low concentrations in previous surveys. Table 5 lists the results.

Table 5. Strontium-90 in the five highest soil samples in June 2005 (Dade Moeller & Associates 2005b).

Sample	Original ^a Results (pCi/g)		Contracted Laboratory A (pCi/g)		CA State Laboratory (pCi/g)	
	Result	MDC	Result	MDC	Result	MDC
GP-29	5.13±0.69	0.84	0.140±0.167 -0.065±0.185	0.280 0.327	0.068±0.242	0.399
GP-44	6.38±0.79	0.99	0.247±0.180	0.293	0.013±0.179	0.299
GP-52	12.34±0.86	0.59	0.423±0.177	0.273	0.137±0.192	0.306
SS-3	3.64±0.62	0.75	0.215±0.150	0.244	-0.022±0.206	0.348
SS-6	4.76±0.63	0.64	0.173±0.170	0.282	0.056±0.265	0.439

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

a. GP-29, GP-44, GP-52 from Foster Wheeler (1999); SS-3, SS-6 from Harding ESE (2000).

The results seemed to indicate that the earlier, higher results were anomalous and could have been caused by cross-contamination or analytical or counting issues in the laboratories. The results from the State of California laboratory were even lower, and they are more consistent with the results of sampling in 2007 (discussed below). The report concluded that an already low potential health risk from ^{90}Sr was likely even lower based on the results. The report further concluded that no additional ^{90}Sr sampling and analysis was necessary.

October 2007. At the direction of Runkle Canyon LLC, Dade Moeller & Associates developed a MARSSIM-based soil sampling plan for ^{90}Sr in the soil of the proposed residential area in the eastern parcel and, at the request of the RHB, included the northwest quadrant of the site (Dade

Moeller & Associates 2007a). The entire project site was considered a Class 3 survey area, and no results above the DCGL of 1 picocurie per gram were expected. An independent environmental firm was contracted to collect 63 soil samples from October 3 to 8, 2007. There were 57 surface sample locations (0 to 6 inches depth) and 6 locations where samples were collected at a depth of 6 to 12 inches. Unlike the early sampling campaigns, and at the urging of the RHB, a different analytical laboratory was contracted, one which had a ^{90}Sr MDC in soil of 0.03 to 0.05 picocuries per gram, which is significantly lower than earlier sampling analyses. Table 6 lists summary sampling statistics from the survey. These 2007 results showed there was no indication of ^{90}Sr in the proposed residential areas of Runkle Canyon and that the levels were much closer to the local background level of 0.052 picocuries per gram (EPA 1995). Because radioactive decay would have occurred and resulted in a nearly 40 percent decrease in the background level between background sampling in late 1994 and the 2007 sampling, and because the uncertainty of the original EPA value was 0.052 ± 0.031 picocuries per gram¹, these 2007 sample results are very similar to the expected background.

Table 6. Summary statistics for soil sampling (Dade Moeller & Associates 2007a; City of Simi Valley 2007).

Samples	Contracted Laboratory B		City of Simi Valley ^a	
	63 samples	MDC	10 samples	LLD ^b
Average (pCi/g)	0.014	0.019	0.011	0.013
Median (pCi/g)	0.012	0.019	0.012	0.013
Minimum (pCi/g)	-0.010	0.008	-0.002	0.009
Maximum (pCi/g)	0.078	0.033	0.027	0.02
Std deviation (pCi/g)	0.015	0.008	0.0082	0.0041
Results > MDC	19 of 63		5 of 10	
DCGL ^c (pCi/g)	1		Not applicable	
Results > DCGL	0 of 63		0 of 10	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

a. City of Simi Valley laboratory results are not included in the 2007 report.

b. LLD = lower limit of detection; LLD and MDC are comparable statistics.

c. DCGL = derived concentration guideline level; based on less than 1×10^{-6} risk.

The City of Simi Valley also collected split soil samples during the sampling campaign and had 10 samples analyzed for ^{90}Sr . Table 6 shows those results in comparison with the Dade Moeller & Associates (2007a) results. The table shows that the contracted laboratory and the City of Simi Valley samples are very similar and are much lower than the earlier (pre-2007) results. Table 7 compares only the 10 split samples. Again, the results are very similar. Both are much lower than the pre-2007 results, and both are consistent with background levels expected in 2007.

¹ Calculated independently from the original report data because EPA (1995) does not provide an uncertainty estimate.

Table 7. Summary statistics for the 10 split soil samples (Dade Moeller & Associates 2007a and City of Simi Valley 2007).

	Contracted Laboratory B		City of Simi Valley	
	Samples	MDC	Samples	LLD ^a
Average (pCi/g)	0.015	0.015	0.011	0.013
Median (pCi/g)	0.013	0.013	0.012	0.013
Minimum (pCi/g)	-0.0003	0.008	-0.002	0.009
Maximum (pCi/g)	0.042	0.027	0.027	0.02
Std deviation (pCi/g)	0.014	0.006	0.0082	0.0041
Results > MDC	4 of 10		5 of 10	
DCGL ^b (pCi/g)	1		Not applicable	
Results > DCGL	0 of 10		0 of 10	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

a. LLD = lower limit of detection; LLD and MDC are comparable statistics.

b. DCGL = derived concentration guideline level; based on less than 1×10^{-6} risk.

3.0 Radiological Health Risk Assessment

A radiological health risk assessment was conducted in 2005 (Dade Moeller & Associates 2005a) to consider the sampling data from 1998 to 2003 (QST 1999; Foster Wheeler 1999; Harding ESE 2000, Miller Brooks 2003a, 2003b, 2003c). The assessment concluded that the potential risk to future residents of Runkle Canyon would be very low, near the lower bound of the acceptable risk range of 1×10^{-6} to 1×10^{-4} for even those potentially highly exposed residents in the proposed suburban land use area². Typical residents and individuals who would use the nonresidential areas would have even lower risks – less than 1×10^{-6} in all cases. The parameter values and approaches of this assessment were generally consistent with those the National Committee on Radiation Protection and Measurements (NCRP) used to derive suburban and no food suburban (no home-grown vegetables) soil screening limits in Report 129 (NCRP 1999). The EPA Preliminary Remediation Goal (PRG) default scenario (EPA 2004) does not apply to Runkle Canyon because the proposed land use is well known and does not fit the default scenario.

Since 2003, soil sampling has indicated that the ⁹⁰Sr soil concentrations are even lower than indicated by the earlier sampling (Dade Moeller & Associates 2005b, 2007a). The exact reason for this decrease is not known, but it is likely due to bias in methods or counting protocols in the laboratories that performed the earlier analyses. Section 4.0 discusses this issue in more detail. As Section 2.0 discusses, the later sampling indicates the ⁹⁰Sr soil concentrations in Runkle Canyon are more indicative of the local background level.

Therefore, when considering the new sampling data in context of the previous radiological health risk assessment, it is likely that the potential radiological risk to all residents and visitors of Runkle Canyon would be much less than 1×10^{-6} in all cases.

² Ingestion of home-grown vegetables is the dominant exposure pathway. See NCRP 1999.

4.0 Actions Requested by the Department of Toxic Substances Control

This section addresses the actions DTSC requested of Runkle Canyon, LLC as part of its CLRRRA review and includes the company's responses to these requests. The DTSC requests are shown in *italics* with the Runkle Canyon, LLC response following thereafter. For clarity in the responses, the issues have been numbered from 1 to 5, and issue 2 has been split into 2 parts.

Based on its review of the 41 documents, DTSC concludes that additional work is necessary to better define environmental conditions at the site and to address one or more potential threats to public health and the environment. DTSC requests that Runkle Canyon, LLC prepare a Response Plan addressing these needs. Here is DTSC's prescription for that Response Plan:

Issue 1

Radionuclide Testing

(1) Explain the reason(s) for the apparent decrease in residual Sr-90 soil activity from 1998 to 2007.

Response. Some of the decrease in the detected level of ⁹⁰Sr in the soil of Runkle Canyon is a result of radioactive decay. The first survey occurred in December 1998 and the most recent in October 2007, almost 9 years later. Strontium-90 has a half-life of 29.1 years. Over this time the activity would decrease about 20 percent. Decay does not however account for the entire apparent decrease to the very low levels in the 2007 survey. The most recent independent results from three independent laboratories – the State of California laboratory in 2005 (Table 5), the City of Simi Valley in 2007, and Contracted Laboratory B in 2007 (Tables 6 and 7) – were much lower than earlier results, were consistent with one another, and were consistent with the expected local background. The likely explanation of the discrepancy between the earlier and the later results is that the analytical laboratories for the earlier surveys suffered from some type of bias³ in the analytical method or the counting technique. In fact, Contracted Laboratory A (Table 5), which analyzed five samples, was the same laboratory that analyzed the earlier Foster Wheeler samples in 1999 (Table 3), although the laboratory had changed ownership and name in the intervening period.

In summary, the apparent decrease in results is likely due to analytical or counting bias in the earlier sample analysis. This statement is partly speculative because any definitive statement would require extensive examination of laboratory protocols and data. The results from the 2007 sampling are likely more representative of the true level of ⁹⁰Sr in the soil of Runkle Canyon because of the consistency among the results from Contracted Laboratory B (which has NUPIC⁴ certification), the State of California laboratory, and the independent laboratory the City of Simi Valley used.

³ Bias is a persistent difference between the measured result and the true value of the quantity being measured, which does not vary if the measurement is repeated. (MARLAP Manual, USEPA, USNRC 2004)

⁴ NUPIC = Nuclear Procurement Issues Committee.

Issue 2a

- (2) *Provide additional justification for statements made in Document #7 that “The overall conclusion is that there is effectively no health risk from Sr-90 in Runkle Canyon soil,” and “No further sampling of soils at Runkle Canyon for the detection of Sr-90 is necessary.” The information you provide should address MARSSIM area classification(s), the justification(s), sample density calculations, and non-parametric statistics.*

Response. Document #7 is *Strontium-90 Soil Sampling in Runkle Canyon, Simi Valley, California* (Dade Moeller & Associates 2007a). The earlier Dade Moeller & Associates report, *Radiological Health Risks from Strontium-90 in the Runkle Canyon Development Simi Valley, California* (Dade Moeller & Associates 2005a) provides much of the basic justification for these statements. Using soil sampling data available at that time, the report showed that the potential risk to a highly exposed resident would be about 1×10^{-6} (1 in 1 million) and less than that risk level for a typical resident. The newer soil sampling data from 2007 showed a factor of 10 reduction in average concentration of ^{90}Sr in soil, and so the risk would also be reduced in direct proportion. The recommended limits for ^{90}Sr in soil in NCRP Report 129, *Recommended Screening Limits for Contaminated Surface Soil and Review of Factors Relevant to Site-Specific Studies*, for the suburban and no-food suburban exposure scenarios also provide indication that the potential risk is at or below the lower limit of the acceptable risk range. It should be emphasized that the default PRG value for ^{90}Sr should not be applied because the default land use scenario is not consistent with the proposed Runkle Canyon use. At the conclusion of the soil sampling Runkle Canyon, LLC proposes in the response to issue 2b below, the company will prepare a report that considers the new sampling results to further evaluate the potential health risk.

In relation to the soil sampling parameters DTSC requested, this information is included in the report, *Soil Sampling Plan for the Runkle Canyon Main and Northwest Grading Areas* (Dade Moeller & Associates 2007b), which has been provided to DTSC. In summary, this sampling area was considered MARSSIM Class 3, the DCGL was set at 1 picocurie per gram (which corresponds to a risk of less than 1×10^{-6}), and the estimated sample standard deviation was 0.172 picocurie per gram, resulting in 57 samples for the residential sampling area. None of the sample results were greater than the DCGL.

Issue 2b

Runkle Canyon, LLC should consider including provisions for additional radionuclide testing in the Response Plan. This aspect of the Response Plan should at a minimum, specify sample locations, the number of samples to be collected at each location, the analytical methods to be used, the detection limits to be used, and a justification for the proposed level of sampling.

Response. In accordance with DTSC’s request, Runkle Canyon, LLC will agree to perform additional ^{90}Sr soil sampling in those nonresidential areas of Runkle Canyon closest to the SSFL. Attachment A to this response plan is the soil sampling plan for that area and includes all of the requested information. In summary, this sampling area is considered MARSSIM Class 3 and the

DCGL is set at 1.7 picocuries per gram, which corresponds to an annual risk of 1×10^{-7} based on the no-food suburban exposure scenario in NCRP Report 129 (NCRP 1999). Using the MARSSIM methodology, 14 sample locations were randomly selected within a triangular grid over the sampling area that was generated by the VSP software program⁵. Analytical capability will have a detection limit of 0.05 picocurie per gram or lower for ⁹⁰Sr, which is similar to that for the 2007 sampling. Upon request Runkle Canyon, LLC will collect split soil samples and provide to DTSC for analysis of ⁹⁰Sr.

Issue 3

(3) Explain why Cs-137 soil radioactivity was not present (above background) when Sr-90 was identified. If no reasonable explanation can be given, the Response Plan should include provisions for testing to identify Cs-137 and determine ratios of Cs-137 to Sr-90 in soil.

Response. Cesium-137, as a gamma-emitting radionuclide, is much easier to detect than ⁹⁰Sr, and no radiochemical separation is needed. In reviewing the historical sampling information it can be seen that the detection limits for ¹³⁷Cs are much lower than those for ⁹⁰Sr. Therefore, the discrepancy is not due to error in detection of ¹³⁷Cs but rather to limitations in the detection of ⁹⁰Sr in the earlier laboratory analysis (as noted in the response to issue 1). None of the previous sample analyses showed any indication of the presence of ¹³⁷Cs. However, Runkle Canyon, LLC will agree to take additional tests for the presence of ¹³⁷Cs in the soil at Runkle Canyon. Each of the soil samples for ⁹⁰Sr will also be analyzed for ¹³⁷Cs. Upon request Runkle Canyon, LLC will collect split soil samples and provide to DTSC for analysis of ¹³⁷Cs. The sampling plan in Attachment A includes analysis for ¹³⁷Cs.

Issue 4

White Crystalline Material

The white crystalline material appears to be sulfate salts leaching out of the mined aggregate stockpiles. Because the material on the rock obtained from the "Radiation Rangers," containing elevated Cr, the material on-site should be collected and analyzed for metals concentrations and mineral composition to verify Cr concentrations in the material and provide a positive identification of the material. DTSC plans to independently collect and analyze representative samples of the white material for those purposes. If the results are positive, it will then be necessary for Runkle Canyon, LLC to map the location(s) and extent of the material, prior to the 2008-2009 rainy season, in preparation for possible removal and disposal or other corrective action. If the results confirm Cr or other metals are present at concentrations deemed actionable and the material cannot be mapped ahead of the forthcoming wet season, DTSC will direct that measures be taken to prevent the material from dissolving and washing away. Such measures could include removal, or placement of a suitable temporary cover. The Response Plan should address this contingency.

⁵ Visual Sample Plan (VSP) software version 5.3. Software and documentation available at <http://dgo.pnl.gov/vsp>. Software copyright 2008 Battelle Memorial Institute. All rights reserved.

Response. The DTSC Environmental Chemistry Laboratory has analyzed the white precipitate samples. Two sets of samples were collected by DTSC on August 27, 2008 and September 24, 2008. None of the samples contained elevated chromium concentrations. Final results were received on November 3, 2008. Table 8 summarizes the results.

Table 8. Results of white precipitate chemical analysis by DTSC (milligram per kilogram).

Chemical	Sample Identification ^a				Reference Criteria	
	RC-1	RC-2	RC-3	RC-4	CHHSL	TTLIC
Silver	<10	<10	<10	<10	380	500
Arsenic	<10	<10	11	<10	0.07	500
Barium	49	14	29	30	5,200	10,000
Beryllium	<1.0	<1.0	<1.0	<1.0	150	75
Cadmium	<1.0	<1.0	<1.0	<1.0	1.7	100
Cobalt	13	<10	<10	<10	660	8,000
Chromium	12	<10	<10	<10	170	2,500
Copper	16	<10	<10	<10	3,000	2,500
Molybdenum	<10	<10	<10	<10	380	3,500
Nickel	30	28	66	28	1,600	2,000
Lead	19	12	10	12	150	1,000
Antimony	<10	15	36	<10	3,000	500
Selenium	<10	<10	<10	<10	380	100
Thallium	<10	<10	<10	<10	5	700
Vanadium	39	<10	13	27	530	2,400
Zinc	41	<10	<10	24	2,300	5,000

CHHSL = California human health screening level; TTLIC = total threshold limits concentration (a hazardous waste criteria).

a. Bold numbers indicate results above the minimum detectable concentration (MDC).

Because laboratory analysis showed arsenic levels above the California human health screening level (CHHSL) and the total threshold limits concentration (TTLIC) (a hazardous waste criteria), which is a common occurrence, DTSC had a contracted analytical laboratory perform metals analysis on the precipitate to determine arsenic concentrations, and x-ray diffraction testing to determine the mineral composition, and verify that it was a naturally occurring mineral. Based on this testing, the precipitate consists of common naturally occurring minerals and does not contain elevated concentrations of metals, including arsenic. The DTSC reported the following information:

The minerals were identified as quartz and feldspars, which are rock forming minerals along with calcite, gypsum, hexahydrite and blodite. The last four are evaporite minerals that form by water dissolving materials in rock or soil and then leaving behind crystals as the water evaporates. Calcite is calcium carbonate (CaCO₃) while the gypsum, hexahydrite and blodite are all sulfate minerals. The sulfate minerals consist of a sulfate group (SO₄) attached to an

anion, calcium for gypsum and magnesium and sodium for hexahydrite and blodite. These are all naturally occurring minerals very similar to epsom salt.

These results indicate that the white precipitate is composed of naturally occurring minerals. Therefore, no additional action is required.

Issue 5

Tar Material

The tar material encountered at the site poses a potential threat to human health because benzo(a)anthracene concentrations exceed the PRG. The tar material should be removed from the site and either properly recycled or disposed. The Response Plan should address the removal of this material.

Response. Runkle Canyon, LLC will remove the tar material. Attachment C provides details of the proposal.

5.0 Actions To Be Taken by Runkle Canyon, LLC

The following actions will be taken by Runkle Canyon, LLC in response to the DTSC requests and in consideration of the specific responses to these requests in Section 4.0 of this response plan:

1. Runkle Canyon, LLC will conduct additional MARSSIM-based soil sampling for the presence of ⁹⁰Sr and ¹³⁷Cs in Runkle Canyon areas closest to SSFL but excluding the proposed residential areas Runkle Canyon, LLC has already sampled. Attachment A contains the proposed soil sampling plan. Once the sampling results are complete, Runkle Canyon, LLC will provide a report to DTSC.
2. Runkle Canyon, LLC will remove the tar material from the surface drainage area of Runkle Canyon. Attachment C contains the proposed plan for removal of this material. Prior to beginning this work Runkle Canyon, LLC will notify DTSC to coordinate any desired oversight.

These actions, in combination with the responses in Section 4.0, address the requests DTSC stated in its October 17, 2008 letter.

In response to DTSC comments (DTSC 2010) and comments from members of the public on the original response plan, Runkle Canyon, LLC will additionally take the following actions:

3. Runkle Canyon, LLC has revised the soil sampling plan (Attachment A) to include the collection of 22 additional soil samples. The plan was also revised to include the collection of 10 percent replicate samples. DTSC will obtain split samples, retain chain of custody for those samples, and submit them to Environmental Chemistry Laboratory (ECL) for analysis. The samples collected by Runkle Canyon, LLC, will be submitted to a separate laboratory approved by DTSC. Stantec's work plan for sample collection is provided as Attachment B.

4. Runkle Canyon, LLC will arrange to have three trenches placed in the fill material that is present at the base of the former quarry area and DTSC will collect samples of this material for analysis by ECL. The trenches will allow for collection at the 0-6 inch level and at the 3-4 foot level (below surface grade). Split samples will also be obtained by Runkle Canyon, LLC of this material for independent analysis. This scope of work is also included within Attachment B.
5. Runkle Canyon, LLC will contact the Ventura County Watershed Protection District prior to beginning excavation of the tar material and obtain an encroachment permit, if needed.
6. Following removal of the tar-like material, Runkle Canyon, LLC will conduct confirmatory sampling to verify that the material has been removed. These changes are included in the revised work plan included as Attachment C.

6.0 References

Document reference numbers from the CLRRRA Standard Agreement are shown in brackets where applicable.

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Attachment A
Soil Sampling Plan for Proposed Open Space Eastern and
Southeastern Areas of Runkle Canyon
Revision 1, July 22, 2010



Dade Moeller & Associates, Inc.
Technical Report

**Soil Sampling Plan for Proposed
Open Space Eastern and Southeastern Areas
of Runkle Canyon**

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July 2010

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LIMITATIONS

Dade Moeller & Associates prepared this soil sampling plan pursuant to the directions received from Runkle Canyon, LLC. Our work is based on information available at the time of publication.

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1.0 INTRODUCTION

Runkle Canyon is a proposed residential development adjacent to existing neighborhoods at the southern edge of Simi Valley, California accessed at the end of Sequoia Avenue. The California Department of Toxic Substances Control (DTSC) reviewed the Runkle Canyon soil sampling documentation with respect to the California Land Reuse and Revitalization Act (CLRRA) agreement between DTSC and the property owner Runkle Canyon, LLC. DTSC requested that additional soil sampling for ^{90}Sr be conducted on the site.

Several soil sampling campaigns had been earlier been conducted as part of the environmental characterization of the site (QST 1999; Foster Wheeler 1999; Harding ESE 2000, Miller Brooks 2003a, 2003b, 2003c). The sampling conducted in 1998, 1999 and 2000 appeared to indicate the presence of strontium-90 (^{90}Sr) in surface soil; there was no indication of other radionuclides analyzed in the samples – cesium-137 (^{137}Cs) and tritium (^3H). Subsequent sampling conducted at the locations of five highest samples (Dade Moeller & Associates 2005b) showed much lower ^{90}Sr levels than initially indicated. In addition, a MARSSIM-based sampling of the proposed residential area commissioned by Runkle Canyon, LLC in 2007 showed the levels to be even lower and consistent with the local background for ^{90}Sr (Dade Moeller & Associates 2007, USEPA 1995). The State of California analyzed split soil samples from the 2007 sampling and showed lower results consistent with the later sampling.

Runkle Canyon, LLC has agreed to conduct additional MARSSIM-based soil sampling in proposed open space eastern and southeastern portions of the site. These areas are closest to the Santa Susana Field Laboratory (SSFL). Runkle Canyon, LLC has also agreed to have samples analyzed for both ^{90}Sr and ^{137}Cs to see if additional information can be gained on the ratios of these radionuclides in soil.

This sampling plan directs the collection of additional samples from the eastern and southeastern areas of the Runkle Canyon site which will be proposed open space areas – no homes will be built in this area and no or minimal grading will take place. The objective of this additional sampling is to provide further quantitative information to ensure that the potential risk to members of the public remains well below acceptable risk guidelines.

After reviewing the original sampling plan and response plan, as well as public comments, DTSC requested that additional soil sampling be conducted (DTSC 2010). Surface soil samples will be collected at an additional 22 locations across portions of the Runkle Canyon Site planned for both open space and residential use. These additional soil samples have been added to the original sampling plan; the locations are set forth in section 3.2. Replicate soil samples will also be collected as stated in section 3.3. DTSC has also requested that trenches be prepared so that samples of the fill material in the former quarry area can be collected; this sampling is addressed in Section 3.4.

2.0 FUNCTIONS AND REQUIREMENTS

As planned and consistent with prior sampling campaigns, Dade Moeller & Associates will not perform the soil sampling at the site. Stantec Consulting Corporation (Stantec) will perform the environmental soil sampling. Stantec's work plan is presented separately. In addition, an

analytical laboratory approved by DTSC will be used to analyze all soil samples. Dade Moeller & Associates will provide oversight and technical direction as requested by Runkle Canyon, LLC and will prepare a report on the analytical results.

Stantec will:

- Review this Plan and develop a soil sampling protocol that is consistent with ASTM C998-05 “Standard Practice for Sampling Surface Soil for Radionuclides,” subject to additional requirements noted in Section 4.0.
- Notify Runkle Canyon, LLC of all planned departures from the Plan.
- Identify potential hazards during sampling and develop controls. Provide safety briefings for sampling personnel.
- Provide all required safety and personal protective equipment.
- Perform soil sampling.
- Document all survey activities and observations in a controlled logbook or equivalent.
- Package samples and ship to the analytical laboratory in a manner that meets all chain-of-custody requirements.

The DTSC-approved analytical laboratory will:

- Perform requested sample analyses for ^{90}Sr and ^{137}Cs and provide requested data as stated in Section 5.0 of this plan.
- Interpret the analytical data and prepare a final report on the analytical results.

3.0 NUMBER OF SAMPLES AND LOCATIONS

3.1 MARSSIM-Based Sampling of the Open Space Area

Determination of the number of sampling locations described below was developed using methods discussed in the *Multi-Agency Radiation Survey and Site Investigation Manual* (EPA 2001). The areas to be sampled are considered to be Class 3 areas using the MARSSIM criteria. Class 3 areas are those considered to be uncontaminated or minimally affected by contaminants. This has been demonstrated by the previously noted sampling reports.

A site-specific radiological risk analysis of the Runkle Canyon area (Ikenberry 2005a) estimated that even “highly exposed” residents of Runkle Canyon would have an annual risk level of 1×10^{-6} (one in one million) at a concentration of about 1.1 pCi/g of ^{90}Sr if it was assumed to be distributed evenly throughout the surface soil. Typical residents of Runkle Canyon and visitors to the undisturbed open spaces would experience much lower levels of risk. MARSSIM requires a Derived Concentration Guideline Level (DCGL) as one of the parameters to establish the number of samples required. For the open space areas in this sampling campaign soil screening limits from the National Council on Radiation Protection and Measurements Report No. 129 (NCRP 1999) were used. Because this is a non-residential area, the “No Food Suburban” exposure scenario was used; a DCGL was established at 1.7 pCi/g, which corresponds to an annual risk of 1×10^{-7} for a “highly exposed” individual at the 95th percentile.

The number of samples required was determined using the Visual Sample Plan (VSP) software version 5.3 (Battelle Memorial Institute 2008; see Appendix A). VSP incorporates the MARSSIM method; Appendix A contains the VSP output. Table 1 shows a summary of the sampling parameters. A total of 14 samples were determined to be adequate (with 20% allowance) with α and β errors each set to 5%. Figure 1 shows the Runkle Canyon main and northwest grading areas with the overlaid soil sampling grid. Table 2 shows the sample locations and coordinates. The sampling area was selected to include proposed open space closer to the SSFL than the proposed residential area sampled in 2007; the residential area previously sampled was excluded. In addition, the sampling area was selected to include all of the “higher” samples from earlier analyses (Dade Moeller & Associates 2005b). To accomplish this, a small separate sampling area was included to the west of the main sampling area and directly south of the previously sampled residential area as shown in Figure 1. This area will be the location of sample N14 as noted in Table 2.

Table 1. Sampling parameters for the eastern and southeastern open space area.

Parameter	Value	Comments
Survey class	3	No significant contamination expected
DCGL	1.7 pCi/g ⁹⁰ Sr	Based on NCRP #129 <i>No Food Suburban</i> ; 1×10^{-7} yr ⁻¹ risk
Std deviation	0.015 pCi/g	Based on 2007 sampling
α and β errors	5 %	Typical
Samples	14	Includes 20% overage (3 samples)
Area	267 acres	

Table 2. MARSSIM-based sample location coordinates and sample designation.

Area: Runkle Canyon eastern & southeastern open space area					
Latitude (North)	Longitude (West)	Label ¹	Value	Type	Historical
34°13'26.82"	-118° 43'21.51"	N 01		Systematic	
34°13'25.49"	-118° 43'09.51"	N 02		Systematic	
34°13'34.95"	-118° 43'28.05"	N 03		Systematic	
34°13'35.12"	-118° 43'15.43"	N 04		Systematic	
34°13'42.05"	-118° 43'32.37"	N 05		Systematic	
34°13'43.02"	-118° 43'20.56"	N 06		Systematic	
34°13'52.56"	-118° 43'39.01"	N 07		Systematic	
34°14'00.69"	-118° 43'46.43"	N 08		Systematic	
34°14'09.75"	-118° 43'52.44"	N 09		Systematic	
34°14'08.02"	-118° 43'39.57"	N 10		Systematic	
34°14'27.10"	-118° 43'43.47"	N 11		Systematic	
34°14'35.63"	-118° 43'34.77"	N 12		Systematic	
34°14'47.58"	-118° 43'24.37"	N 13		Systematic	
34°13'55.74"	-118° 44'05.75"	N 14		Systematic	

¹. Labels start in the lower lefthand (southeast) corner of the grid in Figure 1 and move north, west to east except for N14, which is last since it is in a separate sampling area.

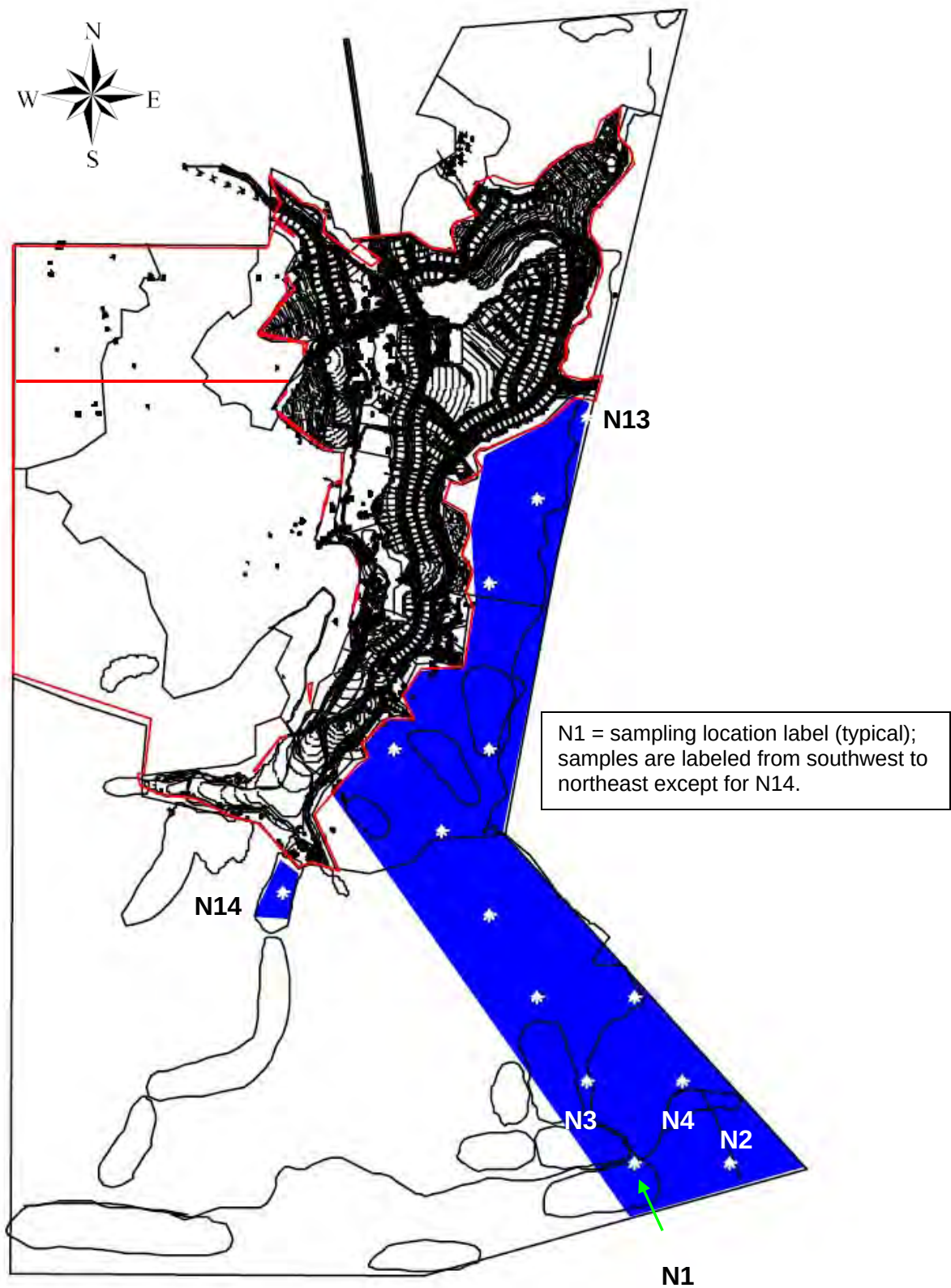


Figure 1. Sampling area and sample locations for the open space Runkle Canyon area.

3.2 DTSC-Directed Soil Sampling

DTSC has directed that an additional 22 soil samples be collected at Runkle Canyon. The locations of these additional sample locations are shown in Figure 2. Sample collection, handling, and analysis of these samples shall be the same as for the other samples collected and as directed elsewhere in this plan. These and all other soil samples shall be split with DTSC pursuant to the work plan submitted by Stantec.

3.3 Replicate Samples

Ten percent of the 36 soil sample shall have replicate samples collected. Four replicate samples shall be collected, two associated with sample locations from the MARSSIM-based sampling area, and two associated with sample locations from the DTSC-directed locations.

3.4 Sampling of Fill Material at the Former Quarry Area

DTSC has directed that additional sampling will also be collected of the fill material at the former quarry area. Three trenches will be placed and two samples will be collected from each trench. One sample in each trench shall be collected from the 0-6 inch below-grade level, and one sample collected from the 3-4 feet below-grade level for a total of six quarry fill samples. Replicate samples will not be collected for the fill material samples.

4.0 SAMPLE COLLECTION AND HANDLING

Collection of soil samples is required to determine the concentration of the radionuclides ⁹⁰Sr and ¹³⁷Cs in soil. The soil sampling protocol will follow ASTM C998 “Standard Practice for Sampling Surface Soil for Radionuclides” or equivalent with the following modifications: one 1-m² area will be cleared and sampled rather than two 1-m² areas (with 5 cores or plugs rather than 10); and surface soil samples will be taken from a depth of 0 to 6 inches (0 to 15 cm) if possible.^a Shallower samples (0 to 3 inches) are acceptable if soil conditions prevent deeper sampling, with appropriate documentation in the sampling logbook. Samples shall be taken as close to the locations in Table 1 as feasible. Actions shall be taken to prevent cross-contamination between samples. Soil will be sieved using a 10 mesh sieve to remove vegetation and pebbles; if there is difficulty using 10 mesh a slightly larger mesh size (4) may be considered. A minimum of 500 ml aliquots (approximately 1 kg each) will be taken and provided to the analytical laboratory using standard chain of custody procedures and forms. Samples shall be collected by qualified individuals using the appropriate equipment and procedures. Upon request by DTSC, split soil samples will be collected and provided to DTSC for independent analysis for the presence of radionuclides. All sample media, personal protective equipment, and other materials or equipment used during the sampling may be properly disposed as sanitary waste. The waste is not considered radioactive waste.

^a One of the purposes of ASTM C998 is to provide samples for analysis of radionuclides following a recent airborne release, and to account for associated variability in surface soil deposition. These conditions do not apply for Runkle Canyon soil sampling; therefore modifications to the soil sampling procedure are applicable.

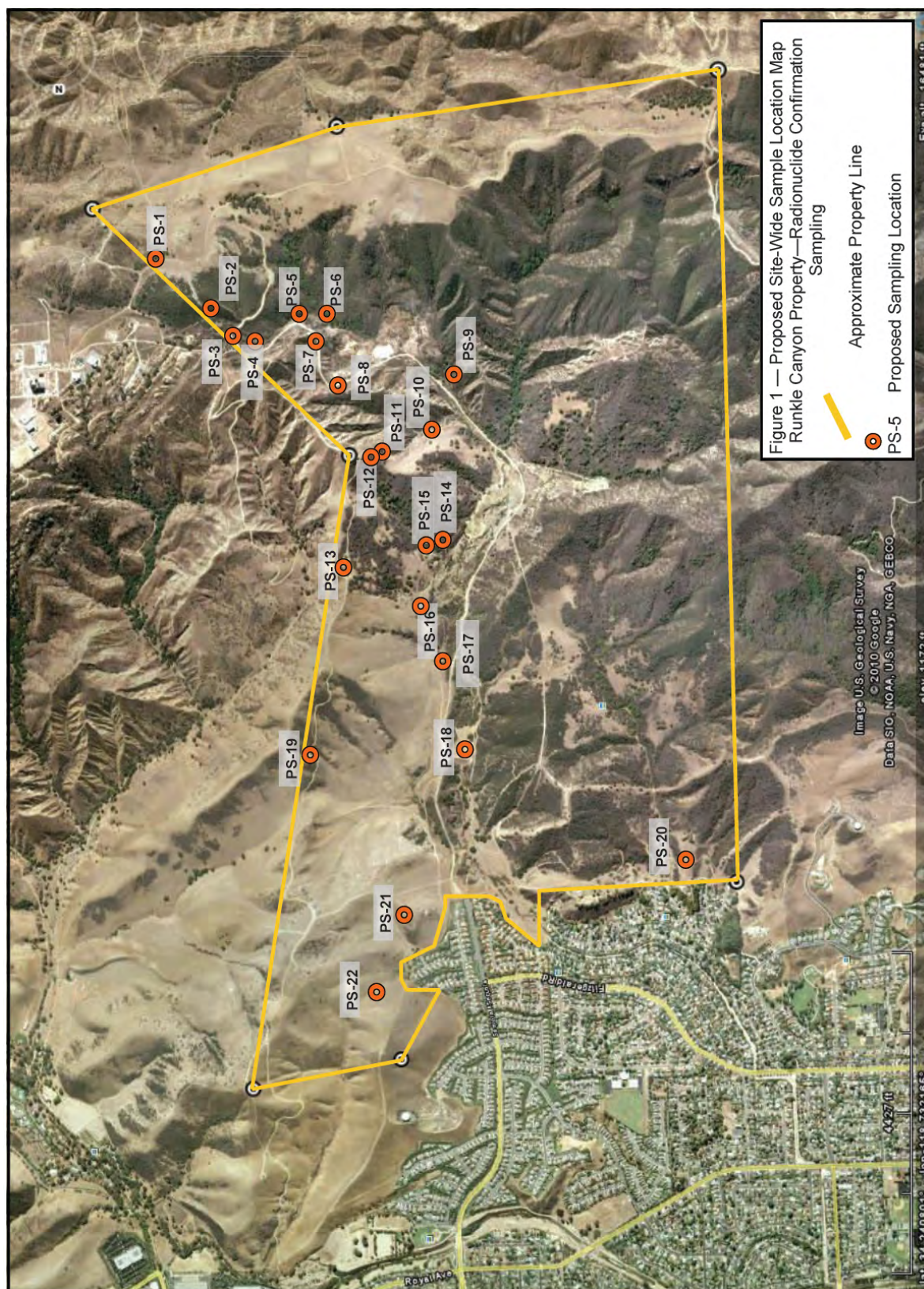


Figure 2. Locations of 22 additional DTSC-directed soil samples.

Activities associated with the soil sampling should be planned and monitored to assure that the health and safety of those performing the sampling and other personnel are adequately protected. Health and safety concerns at this undeveloped site may include heat or cold depending upon the time of year, sharp objects, falling objects, tripping hazards, and biological hazards such as insects and snakes. It is expected that environmental sampling firm will conduct all sampling tasks consistent with their policies and procedures for health and safety. All personnel should be briefed on potential safety hazards prior to performing or observing tasks.

5.0 SAMPLE ANALYSIS

The analytical laboratory shall have written procedures that document its analytical capabilities for ^{90}Sr and ^{137}Cs in soil, and a Quality Assurance/Quality Control (QA/QC) program that ensures the validity of the analytical results. The laboratory shall have the following minimum detectable concentration (MDC) capabilities:

- 0.05 pCi/g or lower for ^{90}Sr in soil
- 0.18 pCi/g and preferably less than 0.1 pCi/g for ^{137}Cs in soil.

The laboratory should have performance evaluation results from a recognized laboratory accreditation program, and should be able to provide QA audits or other records to verify its ability to produce valid results. Equipment calibrations shall be performed using National Institute of Standards and Technology (NIST) traceable reference radionuclide standards. For any sample result greater than 0.5 pCi/g ^{90}Sr , another analysis shall be performed of that soil sample. A complete analytical report shall be provided documenting the above information and providing quantitative numerical sample results (regardless if positive, negative or below the MDC), total propagated uncertainty, and the MDC. An explanation of total propagated uncertainty and the calculation of the MDC shall be provided. Additional requirements shall be in force as agreed with Runkle Canyon, LLC.

6.0 REPORTING

Upon completion of the sampling and laboratory analysis, Dade Moeller & Associates will prepare a report interpreting and analyzing the data.

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APPENDIX A. SYSTEMATIC SAMPLING LOCATIONS FOR COMPARING A MEDIAN WITH A FIXED THRESHOLD (NONPARAMETRIC - MARSSIM)

Summary

This report summarizes the sampling design used, associated statistical assumptions, as well as general guidelines for conducting post-sampling data analysis. Sampling plan components presented here include how many sampling locations to choose and where within the sampling area to collect those samples. The type of medium to sample (i.e., soil, groundwater, etc.) and how to analyze the samples (in-situ, fixed laboratory, etc.) are addressed in other sections of the sampling plan.

The following table summarizes the sampling design developed. A figure that shows sampling locations in the field and a table that lists sampling location coordinates are provided as **Figure 1** and **Table 1**, respectively, in the main text of this sampling plan.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Compare a site mean or median to a fixed threshold
Type of Sampling Design	Nonparametric
Sample Placement (Location) in the Field	Systematic with a random start location
Working (Null) Hypothesis	The median(mean) value at the site exceeds the threshold
Formula for calculating number of sampling locations	Sign Test - MARSSIM version
Calculated total number of samples	14
Number of samples on map ^a	14
Number of selected sample areas ^b	2
Specified sampling area ^c	11,645,000 ft ² (267 acres)
Size of grid / Area of grid cell ^d	973 feet / 820,500 ft ² (19 acres)
Grid pattern	Triangular

^a This number may differ from the calculated number because of 1) grid edge effects, 2) adding judgment samples, or 3) selecting or unselecting sample areas.

^b The number of selected sample areas is the number of colored areas on the map of the site. These sample areas contain the locations where samples are collected.

^c The sampling area is the total surface area of the selected colored sample areas on the map of the site.

^d Size of grid / Area of grid cell gives the linear and square dimensions of the grid used to systematically place samples.

Primary Sampling Objective

The primary purpose of sampling at this site is to compare a site median or mean value with a fixed threshold. The working hypothesis (or 'null' hypothesis) is that the median (mean) value at the site is equal to or exceeds the threshold. The alternative hypothesis is that the median (mean) value is less than the threshold. VSP calculates the number of samples required to reject the null hypothesis in favor of the alternative one, given a selected sampling approach and inputs to the associated equation.

Selected Sampling Approach

A nonparametric systematic sampling approach with a random start was used to determine the number of samples and to specify sampling locations. A nonparametric formula was chosen because the conceptual model and historical information (e.g., historical data from this site or a very similar site) indicate that typical parametric assumptions may not be true.

Both parametric and non-parametric equations rely on assumptions about the population. Typically, however, non-parametric equations require fewer assumptions and allow for more uncertainty about the

statistical distribution of values at the site. The trade-off is that if the parametric assumptions are valid, the required number of samples is usually less than if a non-parametric equation was used.

Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site. Statistical analyses of systematically collected data are valid if a random start to the grid is used. One disadvantage of systematically collected samples is that spatial variability or patterns may not be discovered if the grid spacing is large relative to the spatial patterns.

Number of Total Samples: Calculation Equation and Inputs

The equation used to calculate the number of samples is based on a Sign test (see PNNL 13450 for discussion). For this site, the null hypothesis is rejected in favor of the alternative one if the median(mean) is sufficiently smaller than the threshold. The number of samples to collect is calculated so that if the inputs to the equation are true, the calculated number of samples will cause the null hypothesis to be rejected.

The formula used to calculate the number of samples is:

$$n = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(\text{Sign}P - 0.5)^2}$$

where

$$\text{Sign}P = \Phi\left(\frac{\Delta}{S_{\text{total}}}\right)$$

$\Phi(z)$ is the cumulative standard normal distribution on $(-\infty, z)$ (see PNNL-13450 for details),

n is the number of samples,

S_{total} is the estimated standard deviation of the measured values including analytical error,

Δ is the width of the gray region,

α is the acceptable probability of incorrectly concluding the site median(mean) is less than the threshold,

β is the acceptable probability of incorrectly concluding the site median(mean) exceeds the threshold,

$Z_{1-\alpha}$ is the value of the standard normal distribution such that the proportion of the distribution less than $Z_{1-\alpha}$ is $1-\alpha$,

$Z_{1-\beta}$ is the value of the standard normal distribution such that the proportion of the distribution less than $Z_{1-\beta}$ is $1-\beta$.

Note: MARSSIM suggests that the number of samples should be increased by at least 20% to account for missing or unusable data and uncertainty in the calculated value of n . VSP allows a user-supplied percent overage as discussed in MARSSIM (EPA 2000, p. 5-33).

The values of these inputs that result in the calculated number of sampling locations are:

Analyte	n ^a	Parameter					
		S	Δ	α	β	$Z_{1-\alpha}$ ^b	$Z_{1-\beta}$ ^c
	14	0.015	0.05	0.05	0.05	1.64485	1.64485

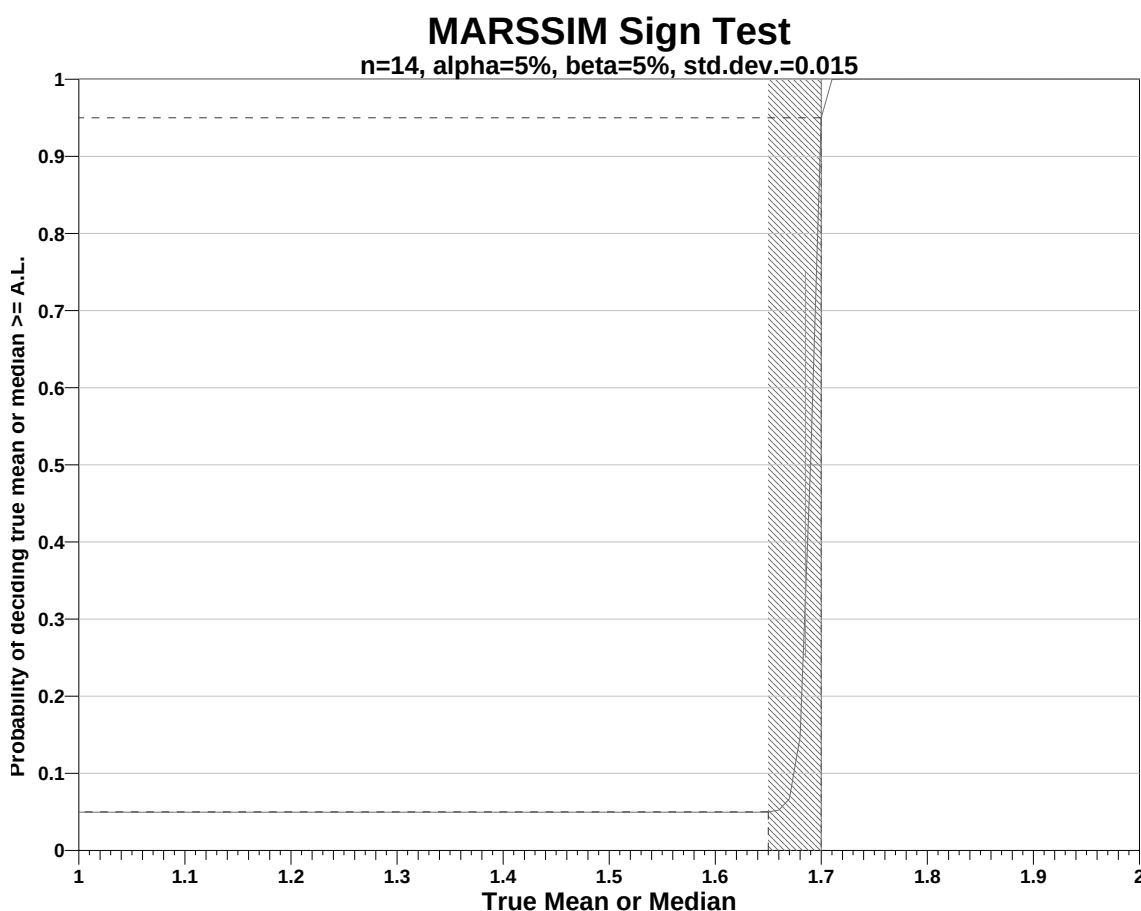
^a The final number of samples has been increased by the MARSSIM Overage of 20%.

^b This value is automatically calculated by VSP based upon the user defined value of α .

^c This value is automatically calculated by VSP based upon the user defined value of β .

The following figure is a performance goal diagram, described in EPA's QA/G-4 guidance (EPA, 2000). It shows the probability of concluding the sample area is dirty on the vertical axis versus a range of possible true median(mean) values for the site on the horizontal axis. This graph contains all of the inputs to the number of samples equation and pictorially represents the calculation.

The red vertical line is shown at the threshold (action limit) on the horizontal axis. The width of the gray shaded area is equal to Δ ; the upper horizontal dashed blue line is positioned at $1-\alpha$ on the vertical axis; the lower horizontal dashed blue line is positioned at β on the vertical axis. The vertical green line is positioned at one standard deviation below the threshold. The shape of the red curve corresponds to the estimates of variability. The calculated number of samples results in the curve that passes through the lower bound of Δ at β and the upper bound of Δ at $1-\alpha$. If any of the inputs change, the number of samples that result in the correct curve changes.



Statistical Assumptions

The assumptions associated with the formulas for computing the number of samples are:

1. the computed sign test statistic is normally distributed,
2. the variance estimate, S^2 , is reasonable and representative of the population being sampled,
3. the population values are not spatially or temporally correlated, and
4. the sampling locations will be selected probabilistically.

The first three assumptions will be assessed in a post data collection analysis. The last assumption is valid because the gridded sample locations were selected based on a random start.

Sensitivity Analysis

The sensitivity of the calculation of number of samples was explored by varying the standard deviation, lower bound of gray region (% of action level), beta (%), probability of mistakenly concluding that $\mu >$ action level and alpha (%), probability of mistakenly concluding that $\mu <$ action level. The following table shows the results of this analysis.

AL=1.7		Number of Samples					
		$\alpha=5$		$\alpha=10$		$\alpha=15$	
		s=0.03	s=0.015	s=0.03	s=0.015	s=0.03	s=0.015
LBGR=90	$\beta=5$	14	14	11	11	10	10
	$\beta=10$	11	11	9	9	8	8
	$\beta=15$	10	10	8	8	6	6
LBGR=80	$\beta=5$	14	14	11	11	10	10
	$\beta=10$	11	11	9	9	8	8
	$\beta=15$	10	10	8	8	6	6
LBGR=70	$\beta=5$	14	14	11	11	10	10
	$\beta=10$	11	11	9	9	8	8
	$\beta=15$	10	10	8	8	6	6

s = Standard Deviation

LBGR = Lower Bound of Gray Region (% of Action Level)

β = Beta (%), Probability of mistakenly concluding that $\mu >$ action level

α = Alpha (%), Probability of mistakenly concluding that $\mu <$ action level

AL = Action Level (Threshold)

Recommended Data Analysis Activities

Post data collection activities generally follow those outlined in EPA's Guidance for Data Quality Assessment (EPA, 2000). The data analysts will become familiar with the context of the problem and goals for data collection and assessment. The data will be verified and validated before being subjected to statistical or other analyses. Graphical and analytical tools will be used to verify to the extent possible the assumptions of any statistical analyses that are performed as well as to achieve a general understanding of the data. The data will be assessed to determine whether they are adequate in both quality and quantity to support the primary objective of sampling.

Because the primary objective for sampling for this site is to compare the site median(mean) value with a threshold value, the data will be assessed in this context. Assuming the data are adequate, at least one statistical test will be done to perform a comparison between the data and the threshold of interest. Results of the exploratory and quantitative assessments of the data will be reported, along with conclusions that may be supported by them.

This report was automatically produced* by Visual Sample Plan (VSP) software version 5.3.

Software and documentation available at <http://dqo.pnl.gov/vsp>

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* - The report contents may have been modified or reformatted by end-user of software.

Attachment B
Stantec Work Plan for Collection of Soil Samples



Stantec Consulting Corporation
25864-F Business Center Drive
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Tel: (909) 335-6116
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July 23, 2010

Mr. Eric Hoffman, Authorized Member Representative
Runkle Canyon, LLC
c/o KB Home Southern California
10990 Wilshire Boulevard
Los Angeles, California 90024

RE: SOIL SAMPLING WORK PLAN FOR RUNKLE CANYON

Dear Mr. Hoffman:

Stantec Consulting Corporation (Stantec) has prepared this "Soil Sampling Plan for Runkle Canyon (the "Site") located at the southern end of Sequoia Ave, Simi Valley (see attached Figure 1, Site Location Map), on behalf of Runkle Canyon, LLC. This Revised Soil Sampling Plan incorporates comments from the letter submitted by The California Department of Toxic Substances Control (DTSC), assisted by the California Department of Public Health's Radiologic Health Branch on July 22, 2010.

The following document provides a description of the Site conditions, background information, sampling procedures and scope of services to complete the proposed work.

Stantec has prepared the following Soil Sampling Work Plan at the request and authorization of Runkle Canyon, LLC.

1.0 SITE INFORMATION

Runkle Canyon is a proposed residential development adjacent to existing neighborhoods at the southern edge of Simi Valley, California accessed at the end of Sequoia Avenue. The California Department of Toxic Substances Control (DTSC) reviewed the Runkle Canyon soil sampling documentation with respect to the California Land Reuse and Revitalization Act (CLRRRA) agreement between DTSC and the property owner Runkle Canyon, LLC. DTSC requested that additional soil sampling for ⁹⁰Sr be conducted on the site.

2.0 SCOPE OF WORK

Stantec will perform the following activities for the site soil sampling:

- Develop a soil sampling protocol that is consistent with ASTM C998-05 "Standard Practice for Sampling Surface Soil for Radionuclides," subject to additional requirements noted in Section 2.2.
- Notify Runkle Canyon, LLC and DTSC of all departures from this Soil Sampling Work Plan.

- Identify potential hazards during sampling and develop controls. Provide safety briefings for sampling personnel.
- Provide all required safety and personal protective equipment.
- Perform soil sampling.
- Document all survey activities and observations in a controlled logbook or equivalent.
- Package samples and ship to the analytical laboratory in a manner that meets all chain-of-custody requirements.

2.1 PRE-FIELD ACTIVITIES

Stantec will prepare a site specific Health and Safety Plan (HASP) to be implemented during field sampling. Activities associated with the soil sampling should be planned and monitored to assure that the health and safety of those performing the sampling and other personnel are adequately protected. Health and safety concerns at this undeveloped site may include heat or cold depending upon the time of year, sharp objects, falling objects, tripping hazards, and biological hazards such as insects and snakes. All personnel should be briefed on potential safety hazards prior to performing or observing tasks.

If necessary, Underground Service Alert (USA) will be notified at least 48 hours prior to excavation to identify any public utilities that may exist in the area of the proposed quarry trench locations.

2.2 FIELD INVESTIGATION

Surface Soil Sampling

Stantec will locate the 14 pre-defined Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) sampling locations using a GPS system (i.e., Trimble GeoExploer 008 XH unit). The precise sample locations will be approved by DTSC and then staked or flagged. The proposed coordinates of the MARSSIM systematic sample locations are presented in Table 2 and plotted on Figure 2.

In DTSC's letter dated July 22, 2010 twenty-two supplemental soil sample were required. The exact location of the twenty-two supplemental DTSC soil sampling locations will be determined by DTSC. The proposed supplemental soil sampling location are presented in Appendix A and described in Table 1. The final locations of all samples will be staked or flagged and the location recorded using the GPS system.

At each sampling location, portable mowing equipment, where necessary, will be used to clear the area (no trees or large bushes will be cut). If trees or large bushes interfere with the sampling location, the location will be moved to the closest proximal and accessible location and the coordinates recorded. Similarly, any locations that fall on rock outcrops will be moved to the nearest practical soil sampling location.

At each of the 14 MARSSIM locations and 22 DTSC supplemental sampling locations soil samples will be collected. Collection of soil samples is required to determine the concentration of the radionuclides ^{90}Sr and ^{137}Cs in soil. The soil sampling protocol will follow ASTM C998 "Standard Practice for Sampling Surface Soil for Radionuclides" or equivalent with the following modifications: one 1-m² area will be cleared and sampled rather than two 1-m² areas (with 5 cores or plugs rather than 10); and surface soil samples will be taken from a depth of 0 to 6 inches (0 to 15 cm) if possible.¹ Shallower samples (0 to 3 inches) are acceptable if soil conditions prevent deeper sampling, with appropriate documentation in the sampling logbook. Samples shall be taken as close to the locations in Table 1 as feasible. Actions shall be taken to prevent cross-contamination between samples. Soil will be sieved using a 10 mesh sieve to remove vegetation and pebbles; if there is difficulty using 10 mesh a slightly larger mesh size (4) may be considered. The manually homogenized sample will be divided by a universal sample splitter. A minimum of two 500 ml aliquots (approximately 1 kg each) will be taken and provided to the analytical laboratory using standard chain of custody procedures and forms. Samples shall be collected by qualified individuals using the appropriate equipment and procedures. Upon request by DTSC, split soil samples will be collected and provided to DTSC for independent analysis for the presence of radionuclides as listed in Section 3.0.

Quarry Trench Sampling

At the direction of DTSC, Stantec will place three trenches in the fill area, using a backhoe. The trenches will allow evaluation of the fill and assess if ash from burn material is present. Two discrete samples from each trench, one at 0-6 inches and one from three to four feet bgs, will be collected.

At each soil location, at least one soil-filled brass tube will be collected for potential laboratory analysis. Volatile Organic Compound (VOC) soil samples will be collected first following EPA sampling procedure 5035 utilizing encore sample containers directly from the sample location within the trench. The encore samples will be placed into the provided sealable bags and then will be labeled, and placed in an iced cooler pending delivery (under COC) to a laboratory for chemical analysis.

The remaining soil at each soil sample location will be collected in glass sample jars. A minimum of two 500 ml aliquots (approximately 1 kg each) will be taken and provided to the analytical laboratory using standard COC procedures and forms. Samples shall be collected by DTSC and Stantec personnel, who will maintain custody of samples.

2.3 SAMPLE RECORDS

All samples will be labeled, recorded in a field logbook, and shipped under COC to an approved analytical laboratory. DTSC samples will be sent under DTSC COC to the Environmental Chemistry Laboratory owned by DTSC for analysis. Samples obtained by Stantec will be sent under Stantec's COC to Test America and DTSC approved laboratory for ^{90}Sr and ^{137}Cs . All field activities, sample IDs, and observations will be documented in a field logbook or equivalent.

2.4 QA/QC

Ten percent of the total 36 surface soil sample shall have replicate samples collected. Four replicate samples shall be collected, two associated with sample locations from the MARSSIM-based sampling area, and two associated with sample locations from the DTSC-directed locations. No replicate samples will be collected from the quarry trench samples.

2.5 FIELD EQUIPMENT CLEANING PROCEDURE

To maintain quality control during drilling operations, the sampling equipment will be cleaned using an Alconox or Liquinox (or equivalent) scrub solution, followed by a double rinse, first in tap water followed by a final rinse using distilled water. All sampling and sieving equipment will be decontaminated and rinsed prior to each sampling interval.

2.6 WASTE DISPOSAL

The waste is not considered radioactive waste. Following waste characterization all sample media, personal protective equipment, and other materials or equipment used during the sampling may be properly disposed as sanitary waste.

3.0 LABORATORY TESTING PROGRAM

All samples will be securely labeled, with a self-adhering label containing the sampler's initials, property location, sample I.D., sample depth, sample time and sample date. All samples collected for non-radioactive analysis will be stored in an ice-filled cooler for shipment to the laboratory. All samples will be annotated and delivered to the laboratory on COC form.

Soil samples collected for Runkle Canyon, LLC are to be analyzed for ^{90}Sr and ^{137}Cs will be packaged and shipped to a DTSC-approved analytical laboratory. Test America Analytical Laboratories, Inc. (Test America) will be used to analyze the remaining quarry trench soil samples for non-radioactive contaminants. Test America is certified to perform the analyses indicated herein by the California Environmental Laboratory Accreditation Program (ELAP).

Non-radioactive quarry trench soil samples will be analyzed in a California certified laboratory for the following:

Title 22 metals	EPA test method 6010B/7000 series
TPH (carbon chain – C4-C40)	EPA test method 8015M
VOCs	EPA test method 8260B
PCBs	EPA test method 8082
SVOCs	EPA test method 8270
Dioxins	EPA test method 8280

All laboratory sample results will be forwarded to Runkle Canyon, LLC. Dade Moeller & Associates (Dade Moeller) will interpret the analytical data and prepare a final report on the analytical results.

4.0 REPORTING

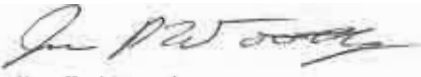
At the completion of the proposed soil sampling, all field notes and sample collect logs will be forwarded to Dade Moeller. The final report will provide chemical analysis results, and tables and figures appropriate to convey the information received from the field and laboratory data. Applicable conclusions and recommendations based upon the investigation data will also be included in Dade Moeller final report.

5.0 IMPLEMENTATION SCHEDULE

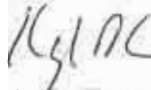
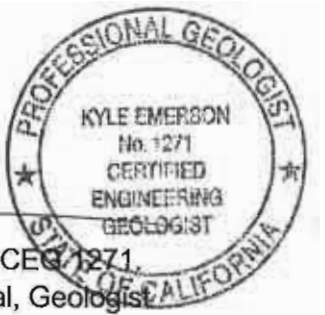
We anticipate that soil sampling will require 3-4 days to complete. Currently the proposed starting date for the scope of work is July 27, 2010.

We trust this revised Soil Sampling Work Plan meets with your approval. Should you have any questions regarding the information contained in this Soil Sampling Work Plan, please do not hesitate to contact the undersigned at your earliest convenience.

Respectfully submitted,
STANTEC CONSULTING CORPORATION



Jim DeWoody
Senior Scientist

Kyle D. Emerson, CEG 1271
Managing Principal, Geologist

Attachments:

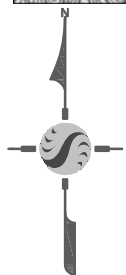
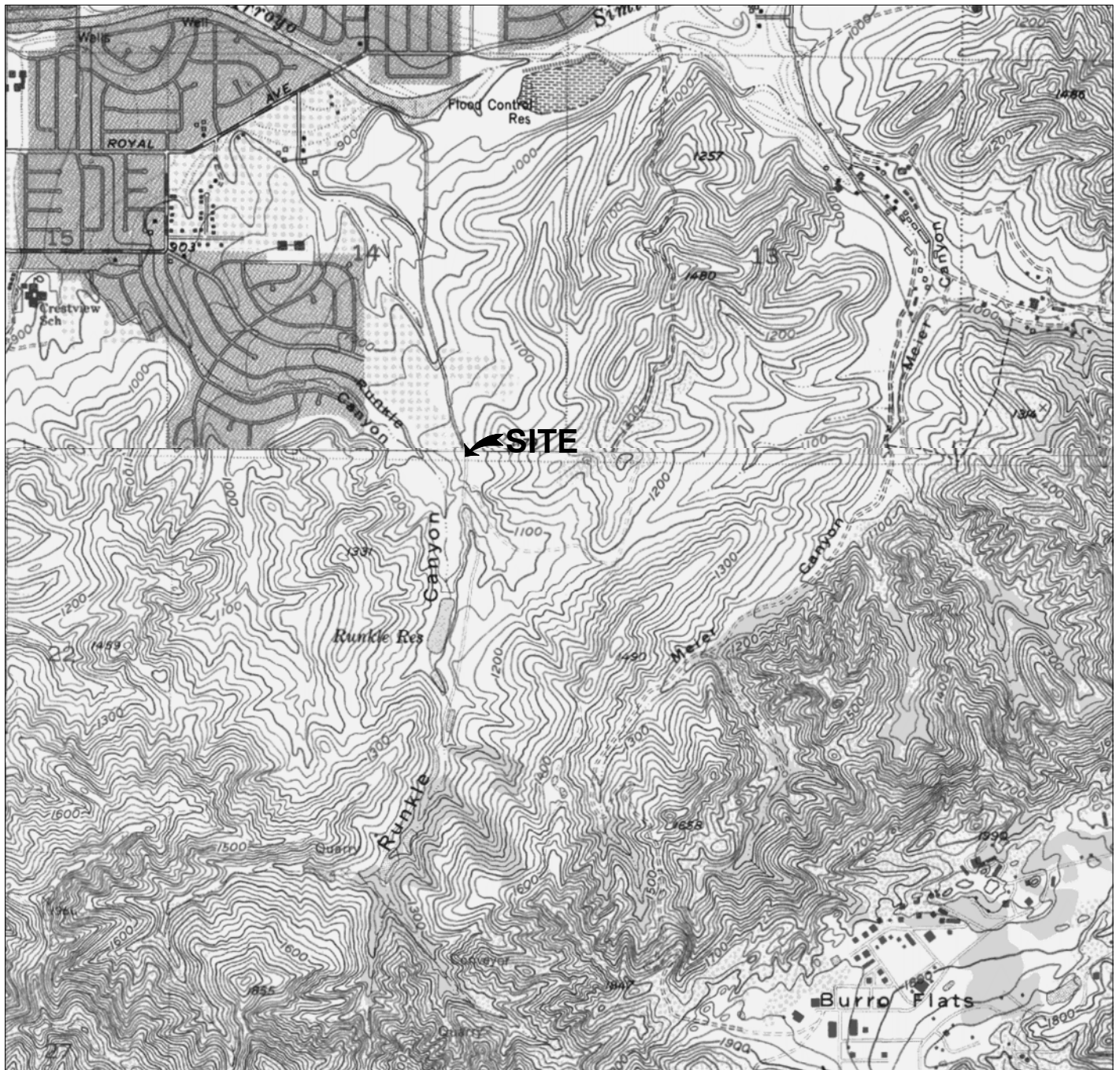
Figure 1 – Site Location Map

Figure 2 – Site Plan with Proposed MARSSIM Sample Locations

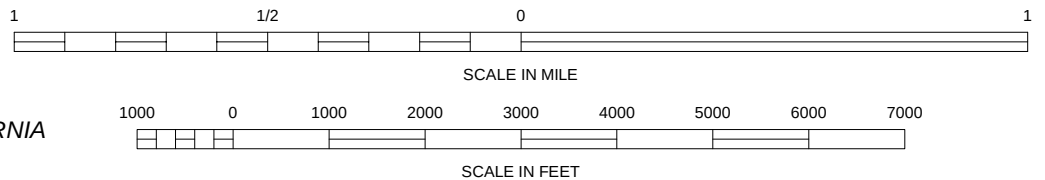
Table 1 – MARSSIM-based Systematic Sample Locations

Appendix – DTSC Additional Sampling Location Map

FIGURES



CALIFORNIA



REFERENCE: USGS 7.5 X 15 MINUTE QUADRANGLE; SIMI VALLEY EAST, 1951, PHOTOREVISED 1969



Stantec

25864-F BUSINESS CENTER DRIVE
REDLANDS, CA 92374
PHONE: (909) 335-6116 FAX: (909) 335-6120

FOR:

KB HOMES
PROPOSED RUNKLE CANYON PROPERTY
SIMI VALLEY, CALIFORNIA

JOB NUMBER:

DRAWN BY:

JEF

CHECKED BY:

JEF

APPROVED BY:

JEF

FIGURE:

1

DATE:

7/23/10/10

SITE LOCATION MAP



Stantec

2655 CAMINO DEL RIO NORTH, SUITE 302
SAN DIEGO, CALIFORNIA
PHONE: (619) 296-6195/296-6199 (FAX)

PREPARED FOR:

KB Homes
Runkle Canyon
Simi Valley, CA 93062

JOB NUMBER:
185602238

DRAWN BY:
JL

CHECKED BY:
RO

APPROVED BY:

FIGURE:

2

DATE:
07/23/2010

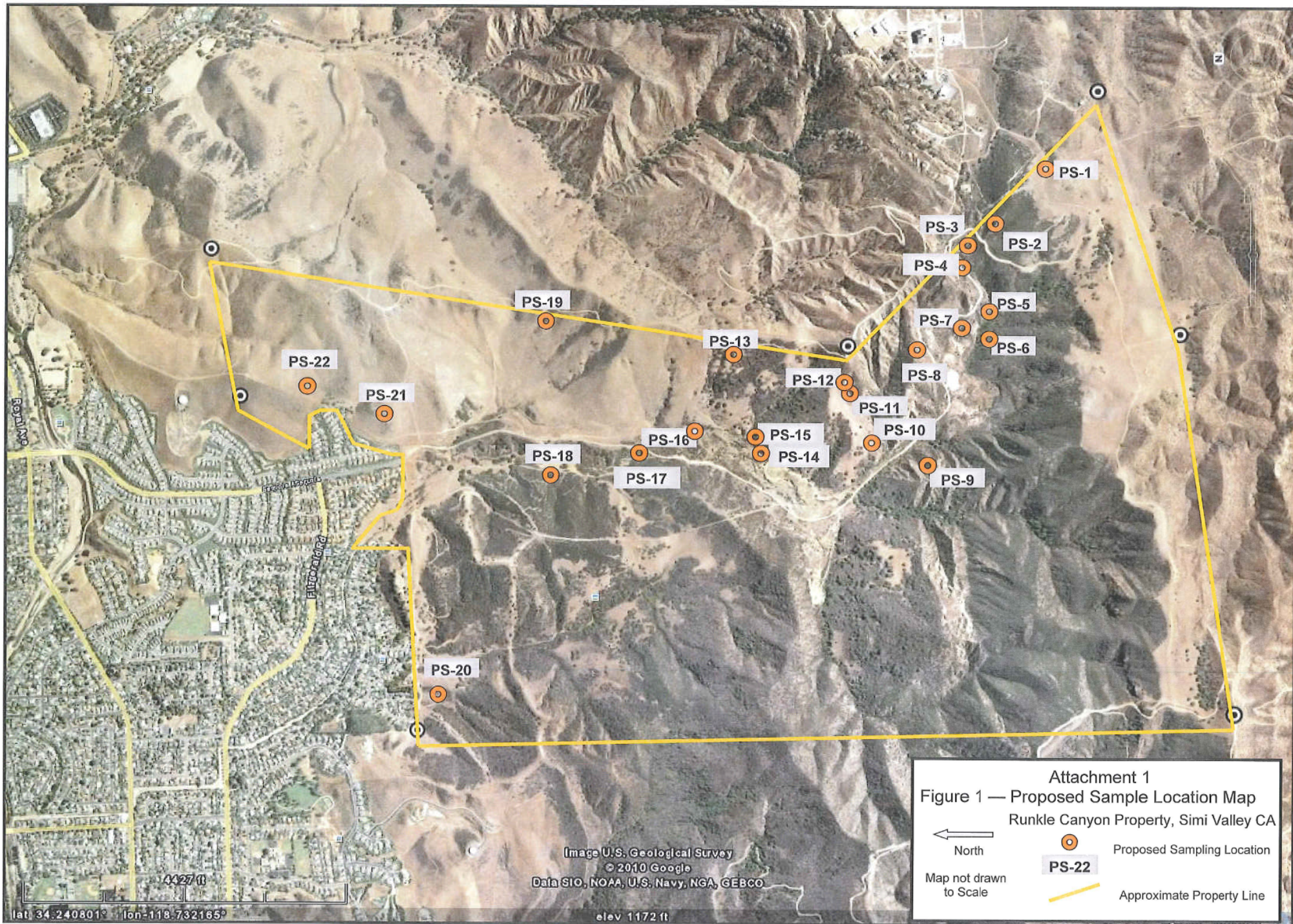
SITE AREA MAP

TABLES

Table 1
MARSSIM Based Systematic Sample Locations
Runkle Canyon Property
Simi Valley, CA

Runkle Canyon Coordinates		
Label	Latitude (North)	Longitude (West)
N 01	34°13'26.82"	-118° 43'21.51"
N 02	34°13'25.49"	-118° 43'09.51"
N 03	34°13'34.95"	-118° 43'28.05"
N 04	34°13'35.12"	-118° 43'15.43"
N 05	34°13'42.05"	-118° 43'32.37"
N 06	34°13'43.02"	-118° 43'20.56"
N 07	34°13'52.56"	-118° 43'39.01"
N 08	34°14'00.69"	-118° 43'46.43"
N 09	34°14'09.75"	-118° 43'52.44"
N 10	34°14'08.02"	-118° 43'39.57"
N 11	34°14'27.10"	-118° 43'43.47"
N 12	34°14'35.63"	-118° 43'34.77"
N 13	34°14'47.58"	-118° 43'24.37"
N 14	34°13'55.74"	-118° 44'05.75"

APPENDIX
DTSC'S ADDITIONAL SAMPLE LOCATION MAP



Attachment C
Response Plan for Removal of Tar Material



Project No. A8314-77-05
July 23, 2010

VIA EMAIL

Ms. Kristen Keipert
Runkle Canyon, LLC
10990 Wilshire Boulevard
Los Angeles, CA 90024

Subject: RUNKLE CANYON
SIMI VALLEY, CALIFORNIA
REVISED RESPONSE PLAN FOR REMOVAL OF TAR MATERIAL

Ms. Keipert:

In accordance with your request on behalf of Runkle Canyon, LLC (the Client), we are providing this revised Response Plan for the removal of the tar-like material present within the drainage area of Runkle Canyon (the Site).

1.0 Site Description

Runkle Canyon is located at the terminus of Sequoia Avenue in the City of Simi Valley, California. The property consists of three parcels totaling approximately 1,615 acres; a northeast 550 acre parcel, a northwest 350 acre parcel, and a southern 715 acre parcel. There is no known street address for the property.

The Site is generally a north-south trending valley extending through the central part of the 550 acre parcel. A small intermittent stream, which appears to drain the majority of the 550-acre parcel and the 715-acre parcel, meanders northward across the valley floor. East of the stream channel are rolling hills that comprise the majority of the 550-acre parcel. West of the stream channel is a steep ridge line that comprises the eastern portion of the 350-acre parcel. The portion of the 350-acre parcel west of the ridgeline appears to drain through an unnamed north-south trending canyon to the west of Runkle Canyon. Drainage from the 715-acre parcel appears to flow onto the southern end of the 550-acre parcel along three drainage courses. The area where the three drainages converge on the 550-acre parcel has been referred to as the "Fish Tail" area of the Site.

Surface mining was historically performed at the Site for sand and gravel products. Large volumes of semi-processed sand and gravel material from the former quarry operation have been placed within the Fish Tail area of the Site. The piles of material from the quarry appear to be in excess of 30 feet thick in areas where the stream has eroded channels through them. Miscellaneous debris, currently exposed in the stream channel walls, was observed to have been buried by the aggregate material placed in the Fish Tail area. The debris included items such as, pipes of various diameter, length, and material, concrete and asphalt rubble, long sheets of rubber material presumed to be remnants of the former conveyor system, tires, and a black solid to very viscous tar like substance.

2.0 Project Description and Objective

A tar material has been observed to be buried within piles of mined aggregate (sand and gravel) within the “Fish Tail” area of the Site. Seeps of the tar material are exposed within a section of the east wall of the stream channel that has been cut through the piles of mined aggregate. During the summer months the viscous tar flows from the seeps down the embankment and collects in pools at the bottom of the slope. Other areas of the channel walls within the vicinity of the seeps have been reported to contain similar material mixed with varying amount of sand and gravel.

In August 2005 Geocon conducted an assessment of the tar material. Seven exploratory trenches, labeled T1 through T7, were excavated to depths ranging from 10 to 13 feet using a rubber-tired backhoe equipped with a 24-inch bucket. The first trench, T1 was excavated adjacent to where the material could be seen seeping out of the stream channel wall. The tar was encountered at depths ranging from 7 to 12 feet in T1.

Six additional trenches were excavated, T2 through T7, encompassing T1 to the north, south, and east. The western extent of the material was defined by the wall of the stream channel. The tar material was encountered in trench T1 only. The volume of material observed in T1 was estimated to be approximately 12 cubic yards.

In a letter dated October 17, 2008 the California Department of Toxic Substances Control (DTSC) directed that the tar material be removed from the Site and properly recycled or disposed.

3.0 Tar Material Excavation and Disposal

The following sections present the recommended technical and logistical aspects of implementing remedial excavation and offsite disposal of the tar material.

Pre-Field Activities

- Identify, and obtain pre-approval from, an appropriately licensed landfill or recycling facility for acceptance of the waste materials.
- The Contractor should provide a minimum of 48 hours notice prior to the start of the soil excavation activities to subscribing local public utilities via Underground Service Alert (USA). Field meetings with public utility USA subscribers and utility potholing may be necessary to adequately delineate subsurface public utilities and conduits in proximity to the proposed remedial excavation locations.
- Meet with representatives from the California Department of Fish and Game and Army Corps of Engineers to discuss potential impacts to the stream channel that may occur during excavation activities.
- Contact the Ventura County Watershed Protection District to verify the need for an encroachment permit, and obtain an encroachment permit if one is required.

Field Activities

- Excavation of the tar material from the mined aggregate piles will be performed with a track-mounted excavator.
- Excavation of the tar material will be based on visual observations. Effort will be made to minimize the amount of clean aggregate material transported off site.

- When possible the excavated materials will be loaded directly into haul trucks. The haul trucks will be covered with tarps prior to transport to the designated landfill/recycling facility. Temporary stockpiling of the waste materials may be performed on the west side of the stream cut channel if conditions prevent access of haul trucks near the excavation.
- The Contractor will implement effective dust control measures including watering the active work area to prevent visible dust. Work will be suspended if weather conditions, including wind speeds or gusts exceeding 25 miles per hour, prevent effective dust control. Excavation equipment will be inspected and cleaned (if necessary) prior to leaving the Site.
- Confirmation samples will be collected from the sides and bottom of the excavation to verify that benzo(a)anthracene concentrations in soil do not exceed the United States Environmental Protection Agency (EPA), Region 9, Regional Screening Level, and site-specific clean-up goal of 0.15 milligrams per kilogram (mg/kg). At a minimum one soil sample will be collected from each of the sidewalls and three soil samples will be collected from the bottom of the excavation. The soil samples will be collected at locations dictated by the DTSC. The soil samples will be submitted to a State-certified analytical laboratory for analysis of benzo(a)anthracene by EPA Test Method 8310.
- Site restoration activities will be dependant on the extent of the excavation but at a minimum will include returning the bottom of the stream cut channel to near its original elevation and hydro-seeding the excavated area to comply with California Department of Fish and Game requirements.

The activities outlined above are designed to address the tar material known to be present within a limited area of the mined aggregate piles at the Site. It is possible that similar material may be buried within the aggregate piles elsewhere at the Site. Development plans for the Site include the mass grading and removal of the aggregate piles within the "Fish Tail" area. If additional tar material is discovered during future grading activities it will be managed appropriately.

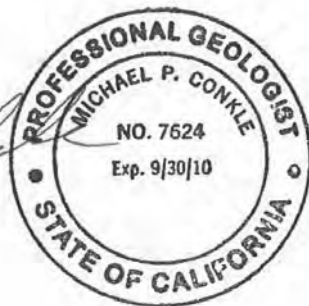
Please contact the undersigned at your convenience if you have any questions regarding this letter or if we may be of further service.

Sincerely,

GEOCON WEST, INC.



Michael Conkle, PG
Senior Geologist



MPC:

(1) Addressee



Linda S. Adams
Secretary for
Environmental Protection



Department of Toxic Substances Control

Maziar Movassaghi
Acting Director
1001 "I" Street
Sacramento, California 95812-0806



Arnold Schwarzenegger
Governor

July 22, 2010

Mr. Eric Hoffman, Authorized Member Representative
Runkle Canyon, LLC
c/o KB Home Southern California
10990 Wilshire Boulevard
Los Angeles, California 90024

DEPARTMENT OF TOXIC SUBSTANCES CONTROL REVIEW AND COMMENTS ON THE RUNKLE CANYON RESPONSE PLAN, VENTURA COUNTY, CALIFORNIA

Dear Mr. Hoffman:

The California Department of Toxic Substances Control (DTSC), assisted by the California Department of Public Health's Radiologic Health Branch, has completed its review of public comments regarding the Response Plan prepared by Dade Moeller & Associates, dated December 4, 2008. DTSC made the Response Plan available for public comment from January 14, 2009 through February 13, 2009. The Response Plan includes three main components:

- Site summary, including a history of radionuclide sampling in Runkle Canyon, and a radiological health assessment
- Soil-Sampling Plan for Proposed Non-Residential Eastern and Southeastern Areas of Runkle Canyon (Appendix A)
- Plan for Removal of the Tar Material from the Drainage Areas of Runkle Canyon (Appendix B)

Based on DTSC's review of the Response Plan, and after careful consideration of the public comments, as well as review of analytical results from DTSC's own collection of samples, DTSC has reached the following conclusions:

White Crystalline Material

Based on sampling and analytical results DTSC has determined that the white crystalline material is an evaporite salt consisting of naturally-occurring minerals that does not pose a threat to human health or the environment. Based on this

determination, no additional action is required with regards to the white crystalline material.

Surface Water

Community members expressed concerns regarding some surface water samples that they had collected which exhibited some higher metals concentrations than samples collected during previous and subsequent investigations. To evaluate current conditions DTSC staff collected two samples after a rainstorm and analyzed the samples for metals concentrations. Surface water flow at the site is ephemeral so sampling runoff is only possible directly after rainstorms. These samples contained relatively low concentrations of metals which are comparable to concentrations detected during previous investigations. Arsenic, vanadium and chromium were not detected in the surface water samples. Analytical data from these two samples validate the analytical data from previous investigations; consequently, DTSC is not requiring additional surface water investigation.

Response Plan

DTSC reviewed the Response Plan prepared in response to an October 17, 2008 letter sent from DTSC to Runkle Canyon, LLC. DTSC approves the Response Plan, provided, however, that the Response Plan be amended in the following respects:

The Response Plan Summary states that DTSC requested "Further confirmation that there is no health risk from strontium-90 and cesium-137 in the soil." Revise this statement to present an objective of evaluating the health risk from strontium-90 and cesium-137 in soil rather than assuming from the beginning that no health threat exists.

Soil-Sampling Plan for Proposed Non-Residential Eastern and Southeastern Areas of Runkle Canyon (Appendix A)

Radiological Sampling

The fourteen samples proposed to be collected as described in the Soil-Sampling Plan for Proposed Non-Residential Eastern and Southeastern Areas of Runkle Canyon (Appendix A) shall be supplemented by twenty-two additional samples to be collected at the locations depicted in the attached site diagram. DTSC's proposed sampling locations and rationale for collection of the additional samples is described in the attached figure and table (Attachment 1). DTSC requires that 10% of the samples be replicates. DTSC staff will accompany sampling personnel during the radionuclide testing and provide oversight by evaluating specific sampling locations and collecting sample splits. Split samples obtained by DTSC personnel in the field shall be under DTSC chain-of-custody and sent to a DTSC contract laboratory

meeting the required performance standards, for analysis. All additional samples collected for radionuclides at the subject site shall be analyzed for strontium-90 and cesium-137 and no other radionuclides or chemicals.

Plan for Removal of the Tar Material (Appendix B)

Ventura County Watershed Protection District

The Ventura County Watershed Protection District commented that the proposed excavation activity may encroach upon red line channels located within their jurisdiction, and that an encroachment permit from the District will be required for any work in, on, over, under, adjacent or across both of these red line channels. Runkle Canyon LLC needs to contact the Watershed Protection District prior to beginning any excavation to verify the need for an encroachment permit, and to obtain an encroachment permit if one is required.

Confirmation Sampling

The Plan for Removal of the Tar Material (Appendix B) describes the excavation, removal and proper disposal of approximately 30 cubic yards of tar-like material from piles of mined aggregate (sand and gravel) within the "Fish Tail" of three drainages that converge within the property. Runkle LLC must perform confirmation sampling to verify that the tar-like material has been removed. The confirmation sampling shall verify that, at the completion of the removal, benzo(a)anthracene concentrations in soil do not exceed the United States Environmental Protection Agency, Region 9, Preliminary Remediation Goal and site-specific clean-up goal of 0.015 milligrams/kilogram. A minimum four sidewall samples and three samples from the bottom of the excavation area shall be collected and the results provided in a completion report provided to DTSC within 90 days of completing the excavation work.

Former Quarry Area

The former quarry was inspected by DTSC staff on July 13, 2010 and DTSC determined that fill material is present at the base of the quarry (see Attachment 2 DTSC Daily Filed Report). Sampling of the fill material is required to evaluate whether the fill presents a threat to human health and the environment. At the direction of DTSC, the Runkle LLC consultant shall place three trenches in the fill area, using a backhoe, to assess the nature of the fill and for collection of samples. The trenches will allow evaluation of the fill and assess if ash from burn material is present. There was no ash or debris present at the surface during DTSC's inspection. DTSC will collect two discrete samples from each trench, one at 0-6 inches and one from three to four feet below grade surface. DTSC will

send the samples to the DTSC Environmental Chemistry Laboratory (ECL) and analyze the samples for chemicals known to be used at the Former Santa Susana Field Laboratory, Area IV, including metals, strontium-90, cesium-137, volatile organic compounds, total petroleum hydrocarbons (TPH), and polychlorinated biphenyls (PCBs). If burned debris is present in the fill, then the analytical testing will also include semi-volatile compounds and dioxins.

Schedule

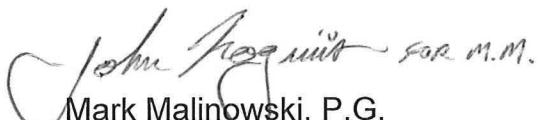
Runkle Canyon, LLC shall provide a revised Response Plan and Appendices modified to incorporate the above identified changes. The revised plan will call for samples to be collected by Runkle Canyon LLC, and split samples by DTSC, not later than July 31, 2010. The revised plan shall call for the laboratory analytical results to be expedited. Given the additional sampling, the sampling will likely take two to three days to complete rather than a single day identified in the original response plan.

Runkle Canyon, LLC shall submit a written report with a summary of the analytical results not later than August 31, 2010. The report shall also contain a revised radiological risk assessment to include all sample results obtained pursuant to the Response Plan, together with all prior sampling results taken at the subject property.

If the plan and report identified above are received by the dates specified, then DTSC anticipates being able to issue a final decision no later than September 30, 2010.

If you have any questions regarding the above, please contact me at (916) 255-3717 or Mr. Richard Brausch at (916) 327-1186.

Sincerely,


Mark Malinowski, P.G.
Project Director

Attachment: *DTSC Proposed Sample Locations and Rationale*
DTSC July 13, 2010 Quarry Inspection Report

cc: (see next page)

Mr. Eric Hoffman
July 22, 2010
Page 5

cc: (via e-mail)

Mr. Bob Tummolo,
Authorized Member Representative
Runkle Canyon, LLC
23823 Valencia Boulevard
Valencia, CA 91355
Bob.Tummolo@lennar.com

Mr. Stan Koyanagi
KB Home, Vice President
Senior Regional Counsel
SKoyanagi@kbhome.com

Mr. Preston Brooks
Cox Castle & Nicholson LLP
2049 Century Park East, 28th Floor
Los Angeles, CA 90067-3284
PBrooks@coxcastle.com

Ms. Patty Zwarts
Deputy Secretary
California Environmental
Protection Agency
1001 I Street, P.O. Box 2815
Sacramento, CA 95812
Pattyz@claepa.ca.gov

Ms. Nancy Bothwell Long
Senior Staff Counsel
Department of Toxic Substances Control
NLong@dtsc.ca.gov

Mr. Mike Sedell
City Manager
City of Simi Valley
2929 Tapo Canyon Road
Simi Valley, CA 93063-2199
MSedell@simivalley.org

Mr. John Naginis, PG
Sr. Engineering Geologist
Department of Toxic Substances Control
JNaginis@dtsc.ca.gov

Ms. Susan Callery
Public Participation Specialist
Department of Toxic Substance
SCallery@dtsc.ca.gov

Mr. James Thomas
Health Physicist
California Department of Public Health
James.Thomas@cdph.ca.gov

Attachment 1
Proposed Sampling Figure and Table

Attachment 1 - DTSC Proposed Supplemental Sampling
Sampling locations shown on attached figure.

Proposed Sample	Rationale	Proximate previous locations
PS-1	Proximate location to SSFL and along minor wind pattern	MB-3, SS-7, SS-7A
PS-2	Evaluate potential drainage from SSFL onto Runkle Canyon Property- SS-6 was elevated	SS-6 (elevated)
PS-3	Evaluate potential drainage from SSFL onto Runkle Canyon Property	SS-6 (elevated), MB-4
PS-4	Evaluate potential drainage from SSFL onto Runkle Canyon Property	NA
PS-5	Evaluate potential drainage from SSFL onto Runkle Canyon Property	NA
PS-6	Evaluate potential drainage from SSFL meets main Runkle Canyon Drainage	NA
PS-7	Evaluate potential in drainage from SSFL aerial (major wind direction) deposition.	NA
PS-8	Evaluate potential in drainage from SSFL aerial (major wind direction) deposition.	SS-5, SS-5A
PS-9	Evaluate elevated Strontium 90 result in SS-3	SS-3 (elevated)
PS-10	Evaluate drainage from elevated readings at GP-52-M	GP-59-M
PS-11	Evaluate elevated Strontium 90 result in GP-52-M	GP-52-M (elevated)
PS-12	Evaluate elevated Strontium 90 result in GP-52-M	GP-52-M (elevated)
PS-13	Evaluate elevated Strontium 90 result in GP-44-M	GP-44-M
PS-14	Evaluate sediment up-drainage of GP-44-M (elevated)	NA

Attachment 1 - DTSC Proposed Supplemental Sampling (continued)

Proposed Sample	Rationale	Proximate previous locations
PS-15	Evaluate potential aerial deposition from SSFL (major wind direction). Strontium 90 result in GP-42-M (above 1.7 pCi/g DCGL)	GP-42-M
PS-16	Evaluate elevated Strontium 90 result in GP-40-M. Evaluate proposed residential property	GP-40-M
PS-17	Evaluate elevated Strontium 90 result in GP-38-M	GP-38-M
PS-18	Evaluate elevated Strontium 90 result in GP-04-D and sediment in former reservoir.	GP-04-D
PS-19	Evaluate elevated Strontium 90 result in GP-29-M	GP-29-M
PS-20	Evaluate proposed residential property (furthest from SSFL)	MBE-9 & MBE-10
PS-21	Evaluate proposed residential property	GP-13-M
PS-22	Evaluate proposed residential property	GP-06-M & GP-07-M

Attachment 2
DTSC Daily Field Report

DTSC
Daily Field Report

Page

1 of 1

Site/Facility: RUNKLE CANYON

Name

JOHN NAGINIS

Date

7-13-2010

Day

M (T) W T F S

Site Code

301383-11

PCA

12045

Notes

13:00 - ARRIVE AT RUNKLE CANYON GATE MEET KRISTEN KEIPERT OF KB HOMES AND JAMES DEWODDY OF STANTEC COMPANY. DISCUSS PURPOSE OF VISIT: EXAMINE QUARRY AREA TO LOOK FOR FILL SOIL. IF FILL SOIL IS APPARENT THEN MAP OUT EXTENT AND DO A RECON. WITH METAL DETECTOR.

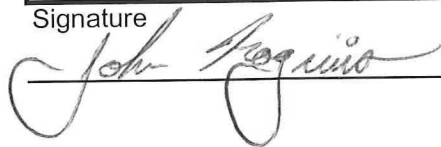
FOUND QUARRY WITH NO PROBLEMS. MANY BUSHES ARE GROWING OVER THE AREA. WE WENT THROUGH THE BUSHES TO THE QUARRY FACE LOOKING FOR SIGNS OF FILL MATERIAL AND DUMPING, SUCH AS ABNORMALLY FLAT AREAS OR ABRUPT CHANGES IN TOPOGRAPHY, TRASH OR DEBRIS STICKING OUT OF THE GROUND, OR ABRUPT CHANGES IN VEGETATION.

AN ARE OF FAIRLY FLAT GROUND THAT APPEARED TO HAVE A CHANGE IN SLOPE WITH THE SURROUNDING TOPOGRAPHY WAS IDENTIFIED ADJACENT TO THE MAIN RUNKLE ROAD, BETWEEN THE ROAD AND THE QUARRY. IT APPEARED TO BE AN AREA OF FILL SOIL WITH THE DEPTH OF FILL RANGING FROM 1 FOOT TO ABOUT 5 FEET. AT MOST. I DID SEVERAL TRANSECTS ACROSS THE FILL WITH THE METAL DETECTOR (SCHONSTEDT) AND FOUND TWO ANOMALIES. ONE WAS FAIRLY DISTINCT AND DISCRETE AND THE OTHER WAS DIFFUSE.

I MAPPED THE PERIMETER OF THE APPARENT FILL AREA AS WELL AS THE TWO ANOMALIES. USING A GPS UNIT. I ALSO MAPPED THE ADJACENT ROAD TO GIVE SOME CONTEXT TO THE LOCATION OF THE FILL. BEFORE LEAVING THE SITE I MAPPED SOME LANDMARKS IN THE AREA SO I GEOREFERENCE FIGURES OR MAPS.

I LEFT THE SITE AT ABOUT 15:30

Signature

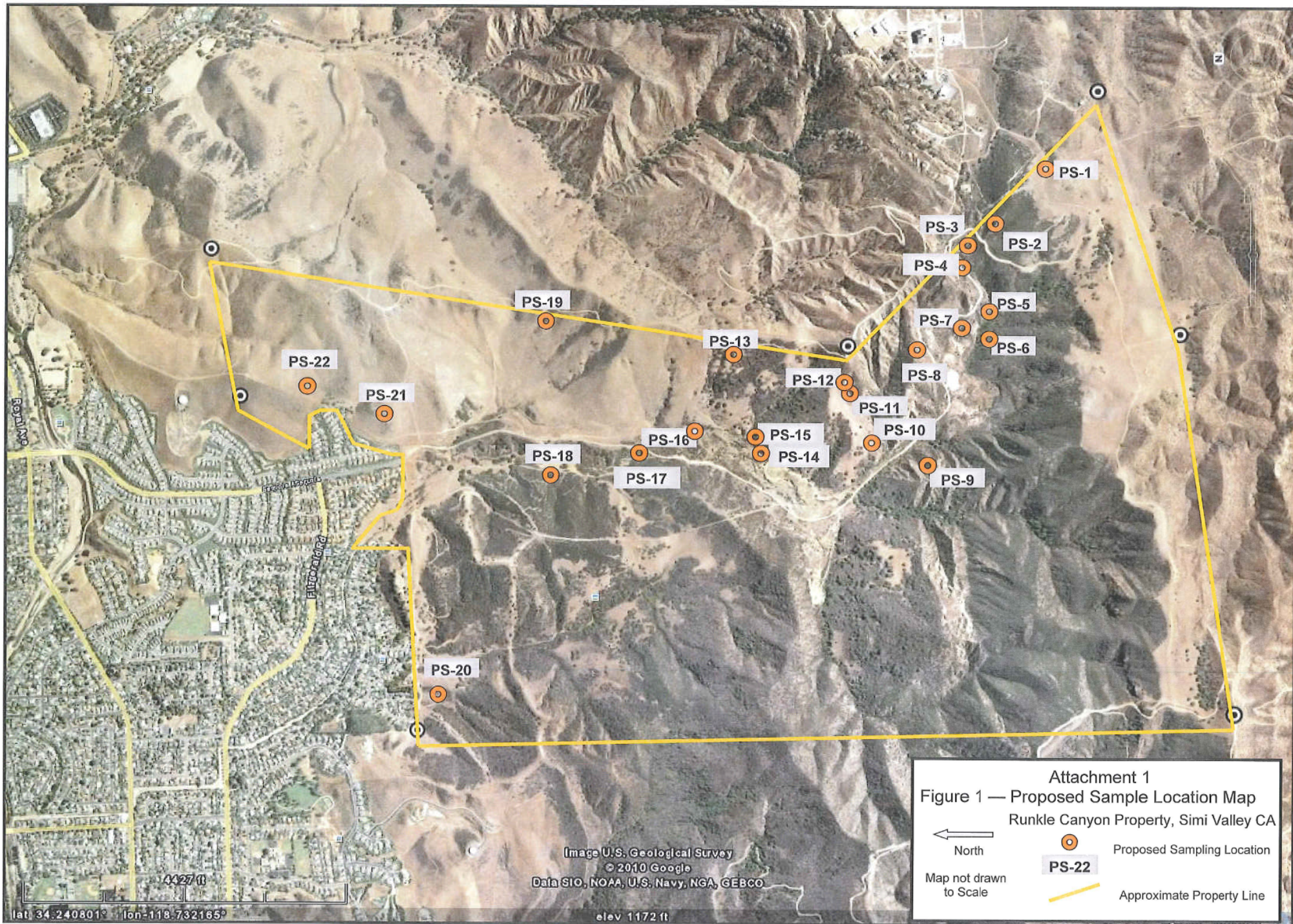


Name

JOHN NAGINIS

Title

SENIOR GEO.





**RUNKLE CANYON RESPONSE
PLAN SOIL SAMPLING -
CHEMICAL ANALYSIS**

Quarry Area
Runkle Canyon
Simi Valley, California

Stantec Project No.: 185802301

Submitted to:

Runkle Canyon, LLC
27240 Turnberry Lane
Valencia, California 91355

and

Cox, Castle Nicholson LLP
2049 Century Park East, 28th Floor
Los Angeles, California 90067

Submitted by:

Stantec Consulting Corporation
25864-F Business Center Drive
Redlands, California

September 28, 2010



Stantec

Stantec Consulting Corporation
25864-F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

September 28, 2010

Mr. Eric Hoffman, Authorized Member Representative
Runkle Canyon, LLC
27240 Turnberry Lane
Valencia, California 91355

Preston W. Brooks
Cox, Castle Nicholson LLP
2049 Century Park East, 28th Floor
Los Angeles, California 90067

RE: RUNKLE CANYON RESPONSE PLAN SOIL SAMPLING – CHEMICAL ANALYSIS
Quarry Area
Runkle Canyon
Simi Valley, California

Dear Mr. Hoffman and Mr. Brooks,

At the request and authorization of Runkle Canyon LLC, Stantec Consulting Corporation (Stantec) has prepared this report detailing the results of soil sampling for chemical analysis completed at the above referenced property. The soil sampling was completed in general accordance with Stantec's *Revised Proposal to Perform Runkle Canyon Response Plan Soil Sampling*, dated July 23, 2010. The results of the completed work are summarized in the following Executive Summary, and described in greater detail in the attached report.

EXECUTIVE SUMMARY

Stantec conducted soil sampling for chemical analysis at the on the above referenced property located at Runkle Canyon within the City of Simi Valley, California on July 28 and 29, 2010.

As directed in the Department of Toxic Substance Control (DTSC) approved work plan, Stantec collect soil samples at three separate locations identified as QT-A, QT-B, and QT-C (see Figure 2 attached). At each location samples were collected at depths of 0.5 and 4.0 feet below ground surface (bgs) for chemical analysis. Each of these samples were submitted to a State Certified chemical laboratory of analysis. Each sample was analyzed for total petroleum hydrocarbons as gasoline (TPHg), TPH as diesel fuel (TPHd), TPH as oil (TPHo), volatile organic compounds (VOCs), heavy metals, and PCBs.

The results of the chemical analysis reported no detectable concentrations of TPHg, TPHd, VOCs or PCBs above laboratory reporting limits. TPHo was detected in all but one sample, ranging from 5.4 to 19 milligrams per kilogram (mg/kg) (see Table 1). At these concentrations the TPHo is well below California Regional Water Quality Control Board (CRWQCB) Environmental Screening Levels (ESLs). Various heavy metals were detected in the soil samples analyzed within the range

One Team. Infinite Solutions.

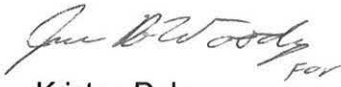
Stantec

Runkle Canyon LLC
September 28, 2010
Page 2

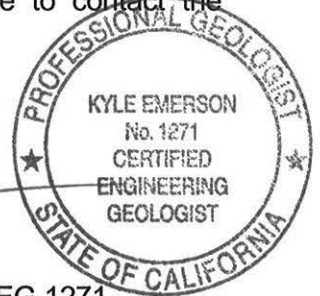
of typical background concentrations (Table 2). As a result, no further investigation of these analytes is recommended in this area.

It has been a pleasure to provide environmental consulting services for you on this project and we look forward to working with you in the future. Should there be any questions regarding the information provided within the accompanying report, please do not hesitate to contact the undersigned at (909) 335-6116.

Respectfully submitted,
STANTEC CONSULTING CORPORATION



Kristen Daly
Staff Geologist



Kyle D. Emerson, CEG 1271
Managing Principal Geologist

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1.0 INTRODUCTION

This report documents the methodology and findings of soil sampling for chemical analysis completed by Stantec Consulting Corporation (Stantec) at the quarry located at Runkle Canyon within the City of Simi Valley, California on July 28 and 29, 2010.

The completed work was conducted in general accordance with Stantec's *Revised Proposal to Perform Runkle Canyon Response Plan Soil Sampling*, dated July 23, 2010, and in addition to a Multi-Agency Radiation Survey and Site Investigation as detailed by Dade Moeller & Associates, 2010 approved by the Department of Toxic Substance Control (DTSC). The scope of work and the results of the investigation are described in subsequent sections.

1.1 SITE BACKGROUND

Runkle Canyon is a proposed residential development adjacent to existing neighborhoods at the southern edge of Simi Valley, California accessed at the end of Sequoia Avenue. The California Department of Toxic Substances Control (DTSC) reviewed the Runkle Canyon soil sampling documentation with respect to the California Land Reuse and Revitalization Act (CLRRRA) agreement between DTSC and the property owner Runkle Canyon, LLC. DTSC requested that additional soil sampling for ⁹⁰Sr be conducted on the site, as well as sampling in the quarry area to allow evaluation of the fill and assess if ash from burn material is present and analyze the samples for chemicals known to be used at the Former Santa Susana Field Laboratory, Area IV (quarry area), including metals, strontium-90, cesium-137, volatile organic compounds (VOCs), total petroleum hydrocarbons (TPH), and poly-chlorinated biphenyls (PCBs).

As a result of the latter issue, Stantec prepared the following scope of work to complete a chemical assessment of the soil in the quarry area at the above referenced property.

2.0 FIELD INVESTIGATION PROGRAM

2.1 SCOPE-OF-WORK

Based on the prepared and approved sampling plan, soil samples were taken. This work included the following tasks:

DTSC Trench Sampling

- At the direction of DTSC, Stantec placed three trenches in the fill area, using a backhoe.
- The trenches allowed evaluation of the fill and assessed if ash from burn material was present. DTSC collected two discrete samples from each trench, one at 0-6 inches and one from three to four feet below grade surface.

Sample Collection

- All samples were labeled, recorded in a field logbook, and shipped under chain-of-custody to an approved analytical laboratory. DTSC samples were sent under chain-of-custody to the Environmental Chemistry Laboratory owned by DTSC for analysis.
- All field activities, sample IDs, and observations were documented in a field logbook.

Report Development

- Development of a report describing the methodology, findings, results of the investigation, as well as conclusions and recommendations derived from the investigation findings.

2.2 SOIL SAMPLING PROCEDURES

At each soil location, at least one soil-filled brass tube was collected for potential laboratory analysis. VOC soil samples were collected first following EPA sampling procedure 5035 utilizing encore sample containers directly from the sample location within the trench. The encore samples were placed into the provided sealable bags and then were labeled, and placed in an iced cooler pending delivery (under COC) to a laboratory for chemical analysis.

The remaining soil at each soil sample location was collected in glass sample jars. A minimum of two 500 ml aliquots (approximately 1 kg each) were taken and provided to the analytical laboratory using standard COC procedures and forms. Samples were collected by DTSC and Stantec personnel, who maintained custody of samples. Copies of the chain-of-custody forms are included as Appendix A.

Decontamination Procedures

Prior to sampling at each sample interval, sample equipment was decontaminated in non-phosphate detergent solution and double rinsed with distilled water.

3.0 LABORATORY TESTING PROGRAM

All samples were securely labeled, with a self-adhering label containing the sampler's initials, property location, sample I.D., sample depth, sample time and sample date. All samples collected for non-radioactive analysis were stored in an ice-filled cooler for shipment to the laboratory. All samples were annotated and delivered to the laboratory.

Non-radioactive quarry trench soil samples were analyzed in a California certified laboratory for the following:

Title 22 metals	EPA test method 6010B/7000 series
TPH (carbon chain – C4-C40)	EPA test method 8015M
VOCs	EPA test method 8260B
PCBs	EPA test method 8082

Analytical laboratory test results are attached as Appendix A and summarized in Tables 1 and 2.

4.0 INVESTIGATION RESULTS

4.1 ANALYTICAL RESULTS

The laboratory test results are discussed below and summarized in Tables 1 and 2. The complete laboratory analytical test results are presented on the laboratory data sheets attached as Appendix A.

Chemical analysis of all analyzed soil samples reported no detectable concentrations of TPH as gasoline (TPHg), TPH as diesel (TPHd), volatile organic compounds (VOCs), and PCBs above laboratory reporting limits. TPH as heavy oil (TPHo) was detected in all but one sample, ranging from 5.4 to 19 milligrams per kilogram (mg/kg), which is well below Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs). Heavy metal concentrations were within the range of background levels as detailed in Table 2.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Stantec conducted soil sampling for chemical analysis at the on the above referenced property located at Runkle Canyon within the City of Simi Valley, California on July 28 and 29, 2010.

As directed in the Department of Toxic Substance Control (DTSC) approved work plan, Stantec collect soil samples at three separate locations identified as QT-A, QT-B, and QT-C (see Figure 2 attached). At each location samples were collected at depths of 0.5 and 4.0 feet below ground surface (bgs) for chemical analysis. Each of these samples were submitted to a State Certified chemical laboratory of analysis. Each sample was analyzed for total petroleum hydrocarbons as gasoline (TPHg), TPH as diesel fuel (TPHd), TPH as oil (TPHo), volatile organic compounds (VOCs), heavy metals, and PCBs.

The results of the chemical analysis reported no detectable concentrations of TPHg, TPHd, VOCs or PCBs above laboratory reporting limits. TPHo was detected in all but one sample, ranging from 5.4 to 19 milligrams per kilogram (mg/kg) (see Table 1). At these concentrations the TPHo is well below California Regional Water Quality Control Board (CRWQCB) Environmental Screening Levels (ESLs). Various heavy metals were detected in the soil samples analyzed within the range of typical background concentrations (Table 2). As a result, no further investigation of these analytes is recommended in this area.

6.0 CLOSURE

The conclusions presented in this report are professional opinions based on data described in this report. The opinions of this report have been arrived at in accordance with currently accepted hydrogeologic and engineering standards and practices applicable to this location, and are subject to the following inherent limitations. Stantec makes no other warranty, either expressed or implied, concerning the conclusions and professional advice that is contained within the body of this report.

Inherent in most projects performed in a heterogeneous subsurface environment, continuing excavation and assessments may reveal findings that are different than those presented herein. This facet of the environmental profession should be considered when formulating professional opinions on the limited data collected on these projects.

This report has been issued with the clear understanding that it is the responsibility of the owner, or their representative, to make appropriate notifications to regulatory agencies. It is specifically not the responsibility of Stantec to conduct appropriate notifications as specified by current County and State regulations.

The information presented in this report is valid as of the date our exploration was performed. Site conditions may degrade with time; consequently, the findings presented herein are subject to change.

7.0 REFERENCES

Stantec, *Revised Proposal to Perform Runkle Canyon Response Plan Soil Sampling*, dated July 23, 2010.

TABLES

Table 1
Soil Analytical Results 2010- Quarry Trench Sample
Runkle Canyon
Simi Valley, CA

			Total Petroleum Hydrocarbons (mg/kg)		
			Method 8015m		
Sample ID	Sample Date	Sample Depth (feet bgs)	TPH (gasoline)	TPH (diesel)	TPH (oil)
RWQCB ESLs			180	180	2,500
USEPA PRGs (ug/kg)			NA	NA	NA
QT-A-0.5	7/28/2010	0.5	<0.086	<5.0	19
QT-A-4.0	7/28/2010	4	<0.1	<5.0	<5.0
QT-B-0.5	7/28/2010	0.5	<0.087	<5.0	6.0
QT-B-4.0	7/28/2010	4	<0.088	<5.0	12
QT-C-0.5	7/29/2010	0.5	<0.094	<5.0	5.6
QT-C-4.0	7/29/2010	4	<0.074	<5.0	5.4

Notes:

All VOC concentrations reported below Reporting Limits

All PCB concentrations reported below Reporting Limits

TPH concentrations are presented in milligrams per kilogram (mg/kg)

< - indicates concentration is below the laboratory method detection level

Abbreviations:

USEPA PRGs - United States Environmental Protection Agencies Preliminary Remediation Goals for industrial soils

RWQCB ESL - Regional Water Quality Control Board Environmental Screening Levels for shallow soils (<10 feet)

ND - Concentration not detected above laboratory method detection level

bgs - below ground surface

Table 2
Metals Soil Analytical Results 2010- Quarry Trench Sample
Runkle Canyon
Simi Valley, CA

			Metals (mg/kg)																
			Method 6010B/7000																
Sample ID	Sample Date	Sample Depth	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
California Background Levels (mg/kg)			0.15 - 1.95	0.6 - 11.0	133 - 1400	0.25 - 2.7	0.05 - 1.7	23 - 1579	2.7 - 46.9	9.1 - 96.4	7800	0.10 - 0.90	0.1 - 9.6	9 - 509	0.015 - 0.43	0.10 - 8.3	0.17 - 1.1	39 - 288	88 - 236
Site Specific Clean-up Levels (mg/kg)			NA	NA	NA	NA	NA	37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
QT-A-0.5	7/28/2010	0.5	<9.8	2.8	50	0.64	<0.49	16	6.3	14	4.4	<0.020	<2.0	11	<2.0	<0.98	<9.8	47	42
QT-A-4.0	7/28/2010	4	<10	<2.0	25	0.63	<0.50	11	7.5	12	2.2	<0.020	<2.0	11	<2.0	<1.0	<10	40	36
QT-B-0.5	7/28/2010	0.5	<9.9	2.8	47	0.67	<0.50	17	6.4	14	4.6	<0.020	<2.0	11	<2.0	<0.99	<9.9	47	44
QT-B-4.0	7/28/2010	4	<10	3.0	48	0.51	<0.50	13	5.9	13	3.5	<0.020	<2.0	9.6	<2.0	<1.0	<10	42	40
QT-C-0.5	7/29/2010	0.5	<9.9	2.9	39	0.56	<0.49	14	5.7	12	3.8	0.033	<2.0	9.8	<2.0	<0.99	<9.9	41	36
QT-C-4.0	7/29/2010	4	<9.8	2.5	35	0.52	<0.49	16	5.8	11	3.4	<0.020	<2.0	10	<2.0	<0.98	<9.8	36	32

Notes:

All concentrations are presented in milligrams per kilogram (mg/kg)

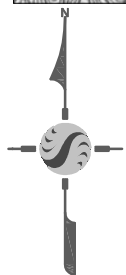
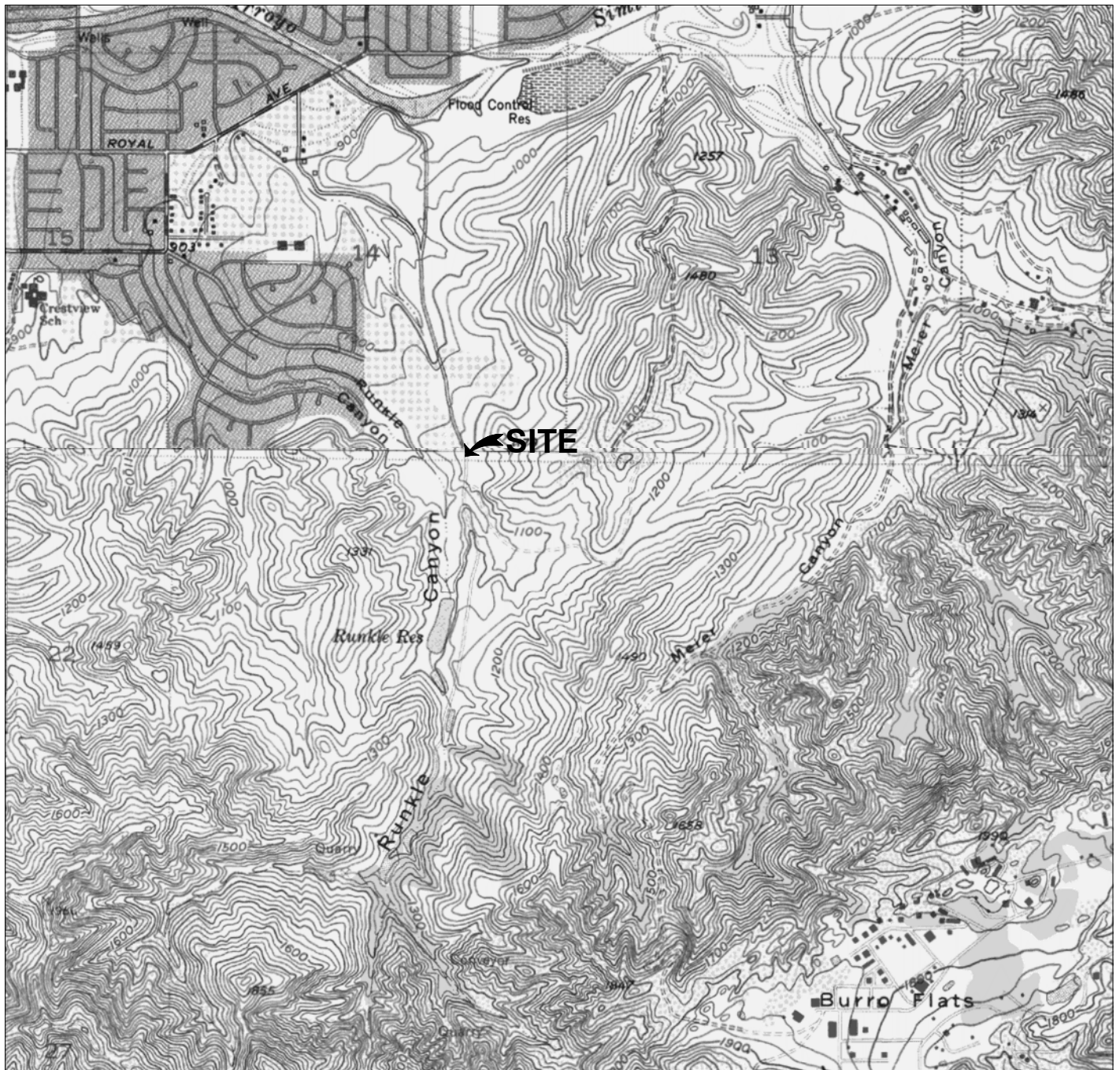
< - indicates concentration is below the laboratory method detection level

Abbreviations:

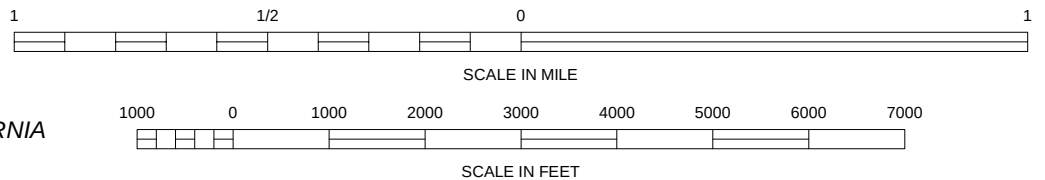
bgs - below ground surface

NA - not available

FIGURES



CALIFORNIA



REFERENCE: USGS 7.5 X 15 MINUTE QUADRANGLE; SIMI VALLEY EAST, 1951, PHOTOREVISED 1969



Stantec

25864-F BUSINESS CENTER DRIVE
REDLANDS, CA 92374
PHONE: (909) 335-6116 FAX: (909) 335-6120

FOR:

KB HOMES
PROPOSED RUNKLE CANYON PROPERTY
SIMI VALLEY, CALIFORNIA

JOB NUMBER:

DRAWN BY:

JEF

CHECKED BY:

JEF

APPROVED BY:

JEF

FIGURE:

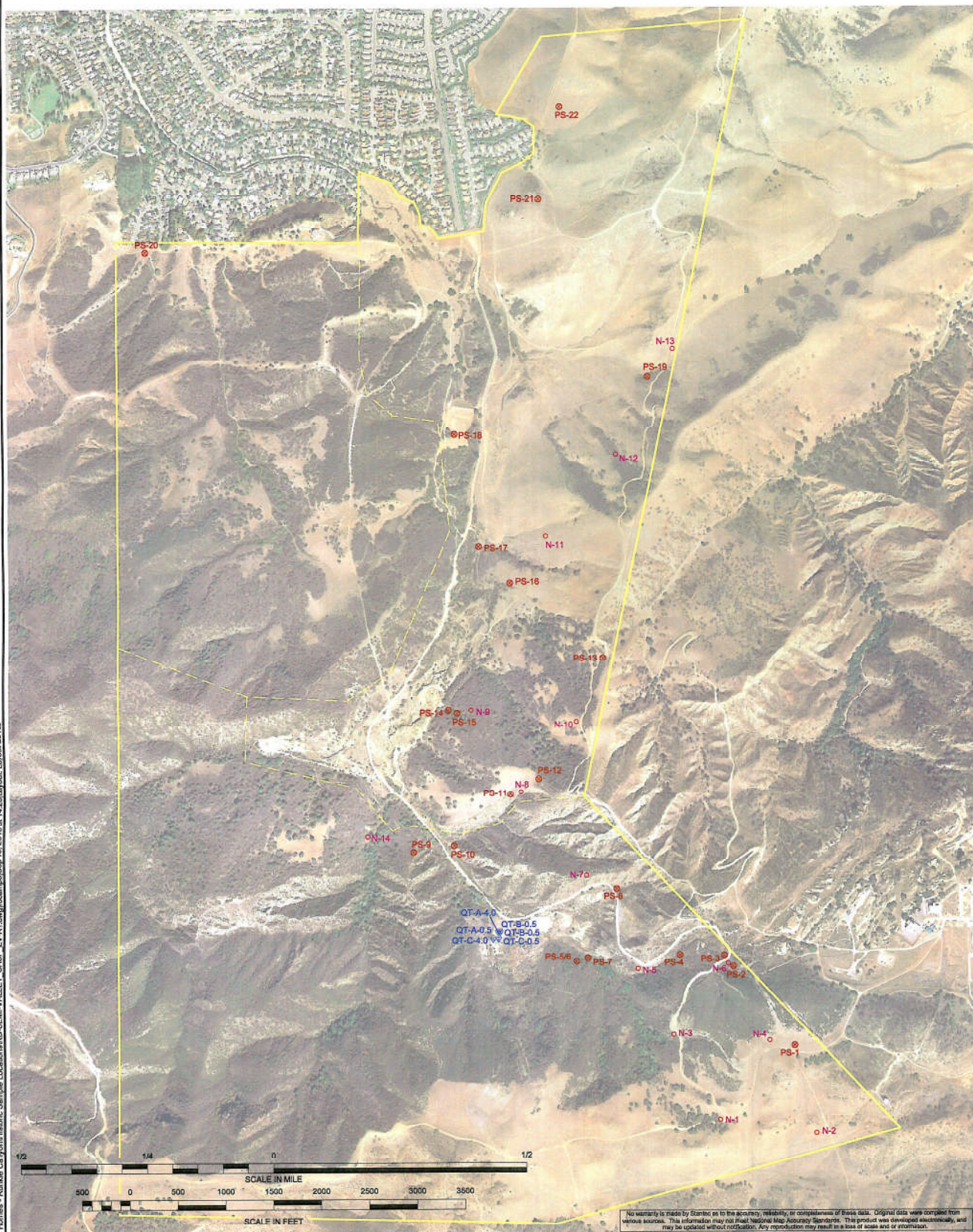
1

DATE:

7/23/10/10

SITE LOCATION MAP

FILEPATH:\CADD\38\Projects 2010\Regional Independents\KB Homes - Runkle Canyon\Habitats Sample Locations\KB-SEM-VALLEY_CASP_ZV-R1.dwg; 16, 2010 at 14:28; Layout: Layout 2010



LEGEND:

- PS-10 SURVEYED SAMPLE LOCATIONS (DM, 2010)
- N-10 SURVEYED SAMPLE LOCATIONS (DM, 2010)
- QT-A-0.5 SURVEYED SAMPLE LOCATIONS (DM, 2010)



RE
GOOGLE EARTH PRO
SIMI VALLEY, CA
LICENSE NUMBER: JCPMX84H47PH7HT



2655 CAMINO DEL RIO NORTH, SUITE 302
SAN DIEGO, CALIFORNIA
PHONE: (619) 296-6195/296-6199 (FAX)

PREPARED FOR:

KB Homes
Runkle Canyon
Simi Valley, CA 93062

JOB NUMBER:
165802301

DRAWN BY:
JL

CHECKED BY:
RJO

APPROVED BY:

DATE:
09/02/2010

**RADIONUCLIDE 2010
SAMPLES LOCATION MAP**

FIGURE:

3

KB-SEM-VALLEY_CASP_ZV-R1

APPENDIX A
LABORATORY DATA SHEETS AND QA/QC RESULTS

LABORATORY REPORT

Prepared For: Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project: Simi Valley
Runkle Canyon

Sampled: 07/28/10-07/29/10

Received: 07/29/10

Issued: 08/06/10 16:38

NELAP #01108CA California ELAP#2706 CSDLAC #10256 AZ #AZ0671 NV #CA01531

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. The Chain of Custody, 1 page, is included and is an integral part of this report.

This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

LABORATORY ID	CLIENT ID	MATRIX
ITG2683-01	QT-A-0.5	Soil
ITG2683-02	QT-A-4.0	Soil
ITG2683-03	QT-B-0.5'	Soil
ITG2683-04	QT-B-4.0'	Soil
ITG2683-05	QT-C-0.5'	Soil
ITG2683-06	QT-C-4.0'	Soil

Reviewed By:



TestAmerica Irvine

Lena Davidkova
Project Manager

Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

EXTRACTABLE FUEL HYDROCARBONS (EPA 3545/8015B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-01 (QT-A-0.5' - Soil)				Sampled: 07/28/10				
Reporting Units: mg/kg								
DRO (C13-C22)	EPA 8015B	10H0267	5.0	ND	1	8/3/2010	8/4/2010	
ORO (C23-C40)	EPA 8015B	10H0267	5.0	19	1	8/3/2010	8/4/2010	
EFH (C13 - C40)	EPA 8015B	10H0267	5.0	23	1	8/3/2010	8/4/2010	
Surrogate: n-Octacosane (40-140%)				97 %				
Sample ID: ITG2683-02 (QT-A-4.0' - Soil)				Sampled: 07/28/10				
Reporting Units: mg/kg								
DRO (C13-C22)	EPA 8015B	10H0267	5.0	ND	1	8/3/2010	8/4/2010	
ORO (C23-C40)	EPA 8015B	10H0267	5.0	ND	1	8/3/2010	8/4/2010	
EFH (C13 - C40)	EPA 8015B	10H0267	5.0	ND	1	8/3/2010	8/4/2010	
Surrogate: n-Octacosane (40-140%)				78 %				
Sample ID: ITG2683-03 (QT-B-0.5' - Soil)				Sampled: 07/28/10				
Reporting Units: mg/kg								
DRO (C13-C22)	EPA 8015B	10H0267	5.0	ND	1	8/3/2010	8/4/2010	
ORO (C23-C40)	EPA 8015B	10H0267	5.0	6.0	1	8/3/2010	8/4/2010	
EFH (C13 - C40)	EPA 8015B	10H0267	5.0	7.1	1	8/3/2010	8/4/2010	
Surrogate: n-Octacosane (40-140%)				81 %				
Sample ID: ITG2683-04 (QT-B-4.0' - Soil)				Sampled: 07/28/10				
Reporting Units: mg/kg								
DRO (C13-C22)	EPA 8015B	10H0267	5.0	ND	1	8/3/2010	8/5/2010	
ORO (C23-C40)	EPA 8015B	10H0267	5.0	12	1	8/3/2010	8/5/2010	
EFH (C13 - C40)	EPA 8015B	10H0267	5.0	16	1	8/3/2010	8/5/2010	
Surrogate: n-Octacosane (40-140%)				86 %				
Sample ID: ITG2683-05 (QT-C-0.5' - Soil)				Sampled: 07/29/10				
Reporting Units: mg/kg								
DRO (C13-C22)	EPA 8015B	10H0267	5.0	ND	1	8/3/2010	8/5/2010	
ORO (C23-C40)	EPA 8015B	10H0267	5.0	5.6	1	8/3/2010	8/5/2010	
EFH (C13 - C40)	EPA 8015B	10H0267	5.0	6.7	1	8/3/2010	8/5/2010	
Surrogate: n-Octacosane (40-140%)				85 %				
Sample ID: ITG2683-06 (QT-C-4.0' - Soil)				Sampled: 07/29/10				
Reporting Units: mg/kg								
DRO (C13-C22)	EPA 8015B	10H0267	5.0	ND	1	8/3/2010	8/5/2010	
ORO (C23-C40)	EPA 8015B	10H0267	5.0	5.4	1	8/3/2010	8/5/2010	
EFH (C13 - C40)	EPA 8015B	10H0267	5.0	6.2	1	8/3/2010	8/5/2010	
Surrogate: n-Octacosane (40-140%)				80 %				

TestAmerica Irvine

Lena Davidkova
Project Manager

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ITG2683 <Page 2 of 37>

Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE FUEL HYDROCARBONS BY GC/MS (EPA 5035/CA LUFT)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-01 (QT-A-0.5' - Soil)				Sampled: 07/28/10				
Reporting Units: ug/kg								
GRO (C4 - C12)	TPH by GC/MS	10H0165	86	ND	0.864	8/3/2010	8/3/2010	
Surrogate: Dibromofluoromethane (80-125%)				97 %				
Surrogate: Toluene-d8 (80-120%)				98 %				
Surrogate: 4-Bromofluorobenzene (80-120%)				98 %				
Sample ID: ITG2683-02 (QT-A-4.0' - Soil)				Sampled: 07/28/10				
Reporting Units: ug/kg								
GRO (C4 - C12)	TPH by GC/MS	10H0165	100	ND	1.02	8/3/2010	8/3/2010	
Surrogate: Dibromofluoromethane (80-125%)				99 %				
Surrogate: Toluene-d8 (80-120%)				106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)				99 %				
Sample ID: ITG2683-03 (QT-B-0.5' - Soil)				Sampled: 07/28/10				
Reporting Units: ug/kg								
GRO (C4 - C12)	TPH by GC/MS	10H0165	87	ND	0.865	8/3/2010	8/3/2010	
Surrogate: Dibromofluoromethane (80-125%)				98 %				
Surrogate: Toluene-d8 (80-120%)				101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)				96 %				
Sample ID: ITG2683-04 (QT-B-4.0' - Soil)				Sampled: 07/28/10				
Reporting Units: ug/kg								
GRO (C4 - C12)	TPH by GC/MS	10H0165	88	ND	0.885	8/3/2010	8/3/2010	
Surrogate: Dibromofluoromethane (80-125%)				103 %				
Surrogate: Toluene-d8 (80-120%)				107 %				
Surrogate: 4-Bromofluorobenzene (80-120%)				99 %				
Sample ID: ITG2683-05 (QT-C-0.5' - Soil)				Sampled: 07/29/10				
Reporting Units: ug/kg								
GRO (C4 - C12)	TPH by GC/MS	10H0165	94	ND	0.943	8/3/2010	8/3/2010	
Surrogate: Dibromofluoromethane (80-125%)				101 %				
Surrogate: Toluene-d8 (80-120%)				102 %				
Surrogate: 4-Bromofluorobenzene (80-120%)				94 %				
Sample ID: ITG2683-06 (QT-C-4.0' - Soil)				Sampled: 07/29/10				
Reporting Units: ug/kg								
GRO (C4 - C12)	TPH by GC/MS	10H0165	74	ND	0.741	8/3/2010	8/3/2010	
Surrogate: Dibromofluoromethane (80-125%)				99 %				
Surrogate: Toluene-d8 (80-120%)				102 %				
Surrogate: 4-Bromofluorobenzene (80-120%)				95 %				

TestAmerica Irvine

Lena Davidkova
Project Manager

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ITG2683 <Page 3 of 37>

Stantec Consulting Corp. - Redlands
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Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-01 (QT-A-0.5 - Soil)			Sampled: 07/28/10					
Reporting Units: ug/kg								
Benzene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Bromobenzene	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
Bromochloromethane	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
Bromodichloromethane	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Bromoform	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
Bromomethane	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
n-Butylbenzene	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
sec-Butylbenzene	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
tert-Butylbenzene	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
Carbon tetrachloride	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
Chlorobenzene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Chloroethane	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
Chloroform	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Chloromethane	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
2-Chlorotoluene	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
4-Chlorotoluene	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
1,2-Dibromo-3-chloropropane	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
Dibromochloromethane	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,2-Dibromoethane (EDB)	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Dibromomethane	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,2-Dichlorobenzene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,3-Dichlorobenzene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,4-Dichlorobenzene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Dichlorodifluoromethane	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
1,1-Dichloroethane	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,2-Dichloroethane	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,1-Dichloroethene	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
cis-1,2-Dichloroethene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
trans-1,2-Dichloroethene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,2-Dichloropropane	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,3-Dichloropropane	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
2,2-Dichloropropane	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
cis-1,3-Dichloropropene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
trans-1,3-Dichloropropene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,1-Dichloropropene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Ethylbenzene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Hexachlorobutadiene	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
Isopropylbenzene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
p-Isopropyltoluene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Methylene chloride	EPA 8260B	10H0165	17	ND	0.864	8/3/2010	8/3/2010	
Naphthalene	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	

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Project Manager

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Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-01 (QT-A-0.5 - Soil) - cont.				Sampled: 07/28/10				
Reporting Units: ug/kg								
n-Propylbenzene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Styrene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,1,1,2-Tetrachloroethane	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
1,1,2,2-Tetrachloroethane	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Tetrachloroethene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Toluene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,2,3-Trichlorobenzene	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
1,2,4-Trichlorobenzene	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
1,1,1-Trichloroethane	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,1,2-Trichloroethane	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Trichloroethene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Trichlorofluoromethane	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
1,2,3-Trichloropropane	EPA 8260B	10H0165	8.6	ND	0.864	8/3/2010	8/3/2010	
1,2,4-Trimethylbenzene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
1,3,5-Trimethylbenzene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Vinyl chloride	EPA 8260B	10H0165	4.3	ND	0.864	8/3/2010	8/3/2010	
m,p-Xylenes	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
o-Xylene	EPA 8260B	10H0165	1.7	ND	0.864	8/3/2010	8/3/2010	
Surrogate: 4-Bromofluorobenzene (80-120%)				98 %				
Surrogate: Dibromofluoromethane (80-125%)				97 %				
Surrogate: Toluene-d8 (80-120%)				98 %				

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Project Manager

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Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-02 (QT-A-4.0 - Soil)			Sampled: 07/28/10					
Reporting Units: ug/kg								
Benzene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Bromobenzene	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
Bromochloromethane	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
Bromodichloromethane	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Bromoform	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
Bromomethane	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
n-Butylbenzene	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
sec-Butylbenzene	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
tert-Butylbenzene	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
Carbon tetrachloride	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
Chlorobenzene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Chloroethane	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
Chloroform	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Chloromethane	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
2-Chlorotoluene	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
4-Chlorotoluene	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
1,2-Dibromo-3-chloropropane	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
Dibromochloromethane	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,2-Dibromoethane (EDB)	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Dibromomethane	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,2-Dichlorobenzene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,3-Dichlorobenzene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,4-Dichlorobenzene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Dichlorodifluoromethane	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
1,1-Dichloroethane	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,2-Dichloroethane	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,1-Dichloroethene	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
cis-1,2-Dichloroethene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
trans-1,2-Dichloroethene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,2-Dichloropropane	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,3-Dichloropropane	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
2,2-Dichloropropane	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
cis-1,3-Dichloropropene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
trans-1,3-Dichloropropene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,1-Dichloropropene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Ethylbenzene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Hexachlorobutadiene	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
Isopropylbenzene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
p-Isopropyltoluene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Methylene chloride	EPA 8260B	10H0165	20	ND	1.02	8/3/2010	8/3/2010	
Naphthalene	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	

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Project Manager

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Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-02 (QT-A-4.0 - Soil) - cont.				Sampled: 07/28/10				
Reporting Units: ug/kg								
n-Propylbenzene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Styrene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,1,1,2-Tetrachloroethane	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
1,1,2,2-Tetrachloroethane	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Tetrachloroethene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Toluene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,2,3-Trichlorobenzene	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
1,2,4-Trichlorobenzene	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
1,1,1-Trichloroethane	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,1,2-Trichloroethane	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Trichloroethene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Trichlorofluoromethane	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
1,2,3-Trichloropropane	EPA 8260B	10H0165	10	ND	1.02	8/3/2010	8/3/2010	
1,2,4-Trimethylbenzene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
1,3,5-Trimethylbenzene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Vinyl chloride	EPA 8260B	10H0165	5.1	ND	1.02	8/3/2010	8/3/2010	
m,p-Xylenes	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
o-Xylene	EPA 8260B	10H0165	2.0	ND	1.02	8/3/2010	8/3/2010	
Surrogate: 4-Bromofluorobenzene (80-120%)				99 %				
Surrogate: Dibromofluoromethane (80-125%)				99 %				
Surrogate: Toluene-d8 (80-120%)				106 %				

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Project Manager

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Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-03 (QT-B-0.5' - Soil)			Sampled: 07/28/10					
Reporting Units: ug/kg								
Benzene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Bromobenzene	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
Bromochloromethane	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
Bromodichloromethane	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Bromoform	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
Bromomethane	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
n-Butylbenzene	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
sec-Butylbenzene	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
tert-Butylbenzene	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
Carbon tetrachloride	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
Chlorobenzene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Chloroethane	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
Chloroform	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Chloromethane	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
2-Chlorotoluene	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
4-Chlorotoluene	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
1,2-Dibromo-3-chloropropane	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
Dibromochloromethane	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,2-Dibromoethane (EDB)	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Dibromomethane	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,2-Dichlorobenzene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,3-Dichlorobenzene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,4-Dichlorobenzene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Dichlorodifluoromethane	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
1,1-Dichloroethane	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,2-Dichloroethane	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,1-Dichloroethene	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
cis-1,2-Dichloroethene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
trans-1,2-Dichloroethene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,2-Dichloropropane	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,3-Dichloropropane	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
2,2-Dichloropropane	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
cis-1,3-Dichloropropene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
trans-1,3-Dichloropropene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,1-Dichloropropene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Ethylbenzene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Hexachlorobutadiene	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
Isopropylbenzene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
p-Isopropyltoluene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Methylene chloride	EPA 8260B	10H0165	17	ND	0.865	8/3/2010	8/3/2010	
Naphthalene	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	

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Project Manager

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Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-03 (QT-B-0.5' - Soil) - cont.				Sampled: 07/28/10				
Reporting Units: ug/kg								
n-Propylbenzene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Styrene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,1,1,2-Tetrachloroethane	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
1,1,2,2-Tetrachloroethane	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Tetrachloroethene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Toluene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,2,3-Trichlorobenzene	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
1,2,4-Trichlorobenzene	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
1,1,1-Trichloroethane	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,1,2-Trichloroethane	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Trichloroethene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Trichlorofluoromethane	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
1,2,3-Trichloropropane	EPA 8260B	10H0165	8.7	ND	0.865	8/3/2010	8/3/2010	
1,2,4-Trimethylbenzene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
1,3,5-Trimethylbenzene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Vinyl chloride	EPA 8260B	10H0165	4.3	ND	0.865	8/3/2010	8/3/2010	
m,p-Xylenes	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
o-Xylene	EPA 8260B	10H0165	1.7	ND	0.865	8/3/2010	8/3/2010	
Surrogate: 4-Bromofluorobenzene (80-120%)				96 %				
Surrogate: Dibromofluoromethane (80-125%)				98 %				
Surrogate: Toluene-d8 (80-120%)				101 %				

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Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-04 (QT-B-4.0' - Soil)			Sampled: 07/28/10					
Reporting Units: ug/kg								
Benzene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Bromobenzene	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
Bromochloromethane	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
Bromodichloromethane	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Bromoform	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
Bromomethane	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
n-Butylbenzene	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
sec-Butylbenzene	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
tert-Butylbenzene	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
Carbon tetrachloride	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
Chlorobenzene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Chloroethane	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
Chloroform	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Chloromethane	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
2-Chlorotoluene	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
4-Chlorotoluene	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
1,2-Dibromo-3-chloropropane	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
Dibromochloromethane	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,2-Dibromoethane (EDB)	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Dibromomethane	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,2-Dichlorobenzene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,3-Dichlorobenzene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,4-Dichlorobenzene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Dichlorodifluoromethane	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
1,1-Dichloroethane	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,2-Dichloroethane	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,1-Dichloroethene	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
cis-1,2-Dichloroethene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
trans-1,2-Dichloroethene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,2-Dichloropropane	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,3-Dichloropropane	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
2,2-Dichloropropane	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
cis-1,3-Dichloropropene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
trans-1,3-Dichloropropene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,1-Dichloropropene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Ethylbenzene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Hexachlorobutadiene	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
Isopropylbenzene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
p-Isopropyltoluene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Methylene chloride	EPA 8260B	10H0165	18	ND	0.885	8/3/2010	8/3/2010	
Naphthalene	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	

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Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-04 (QT-B-4.0' - Soil) - cont.				Sampled: 07/28/10				
Reporting Units: ug/kg								
n-Propylbenzene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Styrene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,1,1,2-Tetrachloroethane	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
1,1,2,2-Tetrachloroethane	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Tetrachloroethene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Toluene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,2,3-Trichlorobenzene	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
1,2,4-Trichlorobenzene	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
1,1,1-Trichloroethane	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,1,2-Trichloroethane	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Trichloroethene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Trichlorofluoromethane	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
1,2,3-Trichloropropane	EPA 8260B	10H0165	8.8	ND	0.885	8/3/2010	8/3/2010	
1,2,4-Trimethylbenzene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
1,3,5-Trimethylbenzene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Vinyl chloride	EPA 8260B	10H0165	4.4	ND	0.885	8/3/2010	8/3/2010	
m,p-Xylenes	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
o-Xylene	EPA 8260B	10H0165	1.8	ND	0.885	8/3/2010	8/3/2010	
Surrogate: 4-Bromofluorobenzene (80-120%)				99 %				
Surrogate: Dibromofluoromethane (80-125%)				103 %				
Surrogate: Toluene-d8 (80-120%)				107 %				

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Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-05 (QT-C-0.5' - Soil)			Sampled: 07/29/10					
Reporting Units: ug/kg								
Benzene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Bromobenzene	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
Bromochloromethane	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
Bromodichloromethane	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Bromoform	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
Bromomethane	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
n-Butylbenzene	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
sec-Butylbenzene	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
tert-Butylbenzene	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
Carbon tetrachloride	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
Chlorobenzene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Chloroethane	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
Chloroform	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Chloromethane	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
2-Chlorotoluene	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
4-Chlorotoluene	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
1,2-Dibromo-3-chloropropane	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
Dibromochloromethane	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,2-Dibromoethane (EDB)	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Dibromomethane	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,2-Dichlorobenzene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,3-Dichlorobenzene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,4-Dichlorobenzene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Dichlorodifluoromethane	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
1,1-Dichloroethane	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,2-Dichloroethane	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,1-Dichloroethene	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
cis-1,2-Dichloroethene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
trans-1,2-Dichloroethene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,2-Dichloropropane	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,3-Dichloropropane	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
2,2-Dichloropropane	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
cis-1,3-Dichloropropene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
trans-1,3-Dichloropropene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,1-Dichloropropene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Ethylbenzene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Hexachlorobutadiene	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
Isopropylbenzene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
p-Isopropyltoluene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Methylene chloride	EPA 8260B	10H0165	19	ND	0.943	8/3/2010	8/3/2010	
Naphthalene	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	

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Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-05 (QT-C-0.5' - Soil) - cont.				Sampled: 07/29/10				
Reporting Units: ug/kg								
n-Propylbenzene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Styrene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,1,1,2-Tetrachloroethane	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
1,1,2,2-Tetrachloroethane	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Tetrachloroethene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Toluene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,2,3-Trichlorobenzene	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
1,2,4-Trichlorobenzene	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
1,1,1-Trichloroethane	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,1,2-Trichloroethane	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Trichloroethene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Trichlorofluoromethane	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
1,2,3-Trichloropropane	EPA 8260B	10H0165	9.4	ND	0.943	8/3/2010	8/3/2010	
1,2,4-Trimethylbenzene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
1,3,5-Trimethylbenzene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Vinyl chloride	EPA 8260B	10H0165	4.7	ND	0.943	8/3/2010	8/3/2010	
m,p-Xylenes	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
o-Xylene	EPA 8260B	10H0165	1.9	ND	0.943	8/3/2010	8/3/2010	
Surrogate: 4-Bromofluorobenzene (80-120%)				94 %				
Surrogate: Dibromofluoromethane (80-125%)				101 %				
Surrogate: Toluene-d8 (80-120%)				102 %				

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Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-06 (QT-C-4.0' - Soil)				Sampled: 07/29/10				
Reporting Units: ug/kg								
Benzene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Bromobenzene	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
Bromochloromethane	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
Bromodichloromethane	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Bromoform	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
Bromomethane	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
n-Butylbenzene	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
sec-Butylbenzene	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
tert-Butylbenzene	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
Carbon tetrachloride	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
Chlorobenzene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Chloroethane	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
Chloroform	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Chloromethane	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
2-Chlorotoluene	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
4-Chlorotoluene	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
1,2-Dibromo-3-chloropropane	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
Dibromochloromethane	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,2-Dibromoethane (EDB)	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Dibromomethane	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,2-Dichlorobenzene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,3-Dichlorobenzene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,4-Dichlorobenzene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Dichlorodifluoromethane	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
1,1-Dichloroethane	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,2-Dichloroethane	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,1-Dichloroethene	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
cis-1,2-Dichloroethene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
trans-1,2-Dichloroethene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,2-Dichloropropane	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,3-Dichloropropane	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
2,2-Dichloropropane	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
cis-1,3-Dichloropropene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
trans-1,3-Dichloropropene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,1-Dichloropropene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Ethylbenzene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Hexachlorobutadiene	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
Isopropylbenzene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
p-Isopropyltoluene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Methylene chloride	EPA 8260B	10H0165	15	ND	0.741	8/3/2010	8/3/2010	
Naphthalene	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	

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Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-06 (QT-C-4.0' - Soil) - cont.				Sampled: 07/29/10				
Reporting Units: ug/kg								
n-Propylbenzene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Styrene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,1,1,2-Tetrachloroethane	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
1,1,2,2-Tetrachloroethane	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Tetrachloroethene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Toluene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,2,3-Trichlorobenzene	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
1,2,4-Trichlorobenzene	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
1,1,1-Trichloroethane	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,1,2-Trichloroethane	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Trichloroethene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Trichlorofluoromethane	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
1,2,3-Trichloropropane	EPA 8260B	10H0165	7.4	ND	0.741	8/3/2010	8/3/2010	
1,2,4-Trimethylbenzene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
1,3,5-Trimethylbenzene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Vinyl chloride	EPA 8260B	10H0165	3.7	ND	0.741	8/3/2010	8/3/2010	
m,p-Xylenes	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
o-Xylene	EPA 8260B	10H0165	1.5	ND	0.741	8/3/2010	8/3/2010	
Surrogate: 4-Bromofluorobenzene (80-120%)				95 %				
Surrogate: Dibromofluoromethane (80-125%)				99 %				
Surrogate: Toluene-d8 (80-120%)				102 %				

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Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

POLYCHLORINATED BIPHENYLS (EPA 3546/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-01 (QT-A-0.5 - Soil)				Sampled: 07/28/10				
Reporting Units: ug/kg								
Aroclor 1016	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1221	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1232	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1242	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1248	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1254	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1260	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Surrogate: Decachlorobiphenyl (45-120%)				69 %				
Sample ID: ITG2683-02 (QT-A-4.0 - Soil)				Sampled: 07/28/10				
Reporting Units: ug/kg								
Aroclor 1016	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1221	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1232	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1242	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1248	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1254	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1260	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Surrogate: Decachlorobiphenyl (45-120%)				100 %				
Sample ID: ITG2683-03 (QT-B-0.5' - Soil)				Sampled: 07/28/10				
Reporting Units: ug/kg								
Aroclor 1016	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1221	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1232	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1242	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1248	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1254	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1260	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Surrogate: Decachlorobiphenyl (45-120%)				90 %				

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Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

POLYCHLORINATED BIPHENYLS (EPA 3546/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-04 (QT-B-4.0' - Soil)				Sampled: 07/28/10				
Reporting Units: ug/kg								
Aroclor 1016	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1221	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1232	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1242	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1248	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1254	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1260	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Surrogate: Decachlorobiphenyl (45-120%)				102 %				
Sample ID: ITG2683-05 (QT-C-0.5' - Soil)				Sampled: 07/29/10				
Reporting Units: ug/kg								
Aroclor 1016	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1221	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1232	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1242	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1248	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1254	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1260	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Surrogate: Decachlorobiphenyl (45-120%)				99 %				
Sample ID: ITG2683-06 (QT-C-4.0' - Soil)				Sampled: 07/29/10				
Reporting Units: ug/kg								
Aroclor 1016	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1221	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1232	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1242	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1248	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1254	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Aroclor 1260	EPA 8082	10H0051	50	ND	1	8/2/2010	8/3/2010	
Surrogate: Decachlorobiphenyl (45-120%)				86 %				

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Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METALS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-01 (QT-A-0.5 - Soil)				Sampled: 07/28/10				
Reporting Units: mg/kg								
Mercury	EPA 7471A	10H0251	0.020	ND	1	8/3/2010	8/3/2010	
Antimony	EPA 6010B	10H0184	9.8	ND	0.98	8/3/2010	8/3/2010	
Arsenic	EPA 6010B	10H0184	2.0	2.8	0.98	8/3/2010	8/3/2010	
Barium	EPA 6010B	10H0184	0.98	50	0.98	8/3/2010	8/3/2010	
Beryllium	EPA 6010B	10H0184	0.49	0.64	0.98	8/3/2010	8/3/2010	
Cadmium	EPA 6010B	10H0184	0.49	ND	0.98	8/3/2010	8/3/2010	
Chromium	EPA 6010B	10H0184	0.98	16	0.98	8/3/2010	8/3/2010	
Cobalt	EPA 6010B	10H0184	0.98	6.3	0.98	8/3/2010	8/3/2010	
Copper	EPA 6010B	10H0184	2.0	14	0.98	8/3/2010	8/3/2010	
Lead	EPA 6010B	10H0184	2.0	4.4	0.98	8/3/2010	8/3/2010	
Molybdenum	EPA 6010B	10H0184	2.0	ND	0.98	8/3/2010	8/3/2010	
Nickel	EPA 6010B	10H0184	2.0	11	0.98	8/3/2010	8/3/2010	
Selenium	EPA 6010B	10H0184	2.0	ND	0.98	8/3/2010	8/3/2010	
Silver	EPA 6010B	10H0184	0.98	ND	0.98	8/3/2010	8/3/2010	
Thallium	EPA 6010B	10H0184	9.8	ND	0.98	8/3/2010	8/3/2010	
Vanadium	EPA 6010B	10H0184	0.98	47	0.98	8/3/2010	8/3/2010	
Zinc	EPA 6010B	10H0184	4.9	42	0.98	8/3/2010	8/3/2010	

Sample ID: ITG2683-02 (QT-A-4.0 - Soil)

Sampled: 07/28/10

Reporting Units: mg/kg

Mercury	EPA 7471A	10H0251	0.020	ND	0.98	8/3/2010	8/3/2010	
Antimony	EPA 6010B	10H0184	10	ND	0.995	8/3/2010	8/3/2010	
Arsenic	EPA 6010B	10H0184	2.0	ND	0.995	8/3/2010	8/3/2010	
Barium	EPA 6010B	10H0184	1.0	25	0.995	8/3/2010	8/3/2010	
Beryllium	EPA 6010B	10H0184	0.50	0.63	0.995	8/3/2010	8/3/2010	
Cadmium	EPA 6010B	10H0184	0.50	ND	0.995	8/3/2010	8/3/2010	
Chromium	EPA 6010B	10H0184	1.0	11	0.995	8/3/2010	8/3/2010	
Cobalt	EPA 6010B	10H0184	1.0	7.5	0.995	8/3/2010	8/3/2010	
Copper	EPA 6010B	10H0184	2.0	12	0.995	8/3/2010	8/3/2010	
Lead	EPA 6010B	10H0184	2.0	2.2	0.995	8/3/2010	8/3/2010	
Molybdenum	EPA 6010B	10H0184	2.0	ND	0.995	8/3/2010	8/3/2010	
Nickel	EPA 6010B	10H0184	2.0	11	0.995	8/3/2010	8/3/2010	
Selenium	EPA 6010B	10H0184	2.0	ND	0.995	8/3/2010	8/3/2010	
Silver	EPA 6010B	10H0184	1.0	ND	0.995	8/3/2010	8/3/2010	
Thallium	EPA 6010B	10H0184	10	ND	0.995	8/3/2010	8/3/2010	
Vanadium	EPA 6010B	10H0184	1.0	40	0.995	8/3/2010	8/3/2010	
Zinc	EPA 6010B	10H0184	5.0	36	0.995	8/3/2010	8/3/2010	

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Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METALS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-03 (QT-B-0.5' - Soil)				Sampled: 07/28/10				
Reporting Units: mg/kg								
Mercury	EPA 7471A	10H0251	0.020	ND	1.02	8/3/2010	8/3/2010	M2
Antimony	EPA 6010B	10H0184	9.9	ND	0.99	8/3/2010	8/3/2010	
Arsenic	EPA 6010B	10H0184	2.0	2.8	0.99	8/3/2010	8/3/2010	
Barium	EPA 6010B	10H0184	0.99	47	0.99	8/3/2010	8/3/2010	
Beryllium	EPA 6010B	10H0184	0.50	0.67	0.99	8/3/2010	8/3/2010	
Cadmium	EPA 6010B	10H0184	0.50	ND	0.99	8/3/2010	8/3/2010	
Chromium	EPA 6010B	10H0184	0.99	17	0.99	8/3/2010	8/3/2010	
Cobalt	EPA 6010B	10H0184	0.99	6.4	0.99	8/3/2010	8/3/2010	
Copper	EPA 6010B	10H0184	2.0	14	0.99	8/3/2010	8/3/2010	
Lead	EPA 6010B	10H0184	2.0	4.6	0.99	8/3/2010	8/3/2010	
Molybdenum	EPA 6010B	10H0184	2.0	ND	0.99	8/3/2010	8/3/2010	
Nickel	EPA 6010B	10H0184	2.0	11	0.99	8/3/2010	8/3/2010	
Selenium	EPA 6010B	10H0184	2.0	ND	0.99	8/3/2010	8/3/2010	
Silver	EPA 6010B	10H0184	0.99	ND	0.99	8/3/2010	8/3/2010	
Thallium	EPA 6010B	10H0184	9.9	ND	0.99	8/3/2010	8/3/2010	
Vanadium	EPA 6010B	10H0184	0.99	47	0.99	8/3/2010	8/3/2010	
Zinc	EPA 6010B	10H0184	5.0	44	0.99	8/3/2010	8/3/2010	

Sample ID: ITG2683-04 (QT-B-4.0' - Soil)

Sampled: 07/28/10

Reporting Units: mg/kg								
Mercury	EPA 7471A	10H0251	0.020	ND	0.98	8/3/2010	8/3/2010	
Antimony	EPA 6010B	10H0184	10	ND	0.995	8/3/2010	8/3/2010	
Arsenic	EPA 6010B	10H0184	2.0	3.0	0.995	8/3/2010	8/3/2010	
Barium	EPA 6010B	10H0184	1.0	48	0.995	8/3/2010	8/3/2010	
Beryllium	EPA 6010B	10H0184	0.50	0.51	0.995	8/3/2010	8/3/2010	
Cadmium	EPA 6010B	10H0184	0.50	ND	0.995	8/3/2010	8/3/2010	
Chromium	EPA 6010B	10H0184	1.0	13	0.995	8/3/2010	8/3/2010	
Cobalt	EPA 6010B	10H0184	1.0	5.9	0.995	8/3/2010	8/3/2010	
Copper	EPA 6010B	10H0184	2.0	13	0.995	8/3/2010	8/3/2010	
Lead	EPA 6010B	10H0184	2.0	3.5	0.995	8/3/2010	8/3/2010	
Molybdenum	EPA 6010B	10H0184	2.0	ND	0.995	8/3/2010	8/3/2010	
Nickel	EPA 6010B	10H0184	2.0	9.6	0.995	8/3/2010	8/3/2010	
Selenium	EPA 6010B	10H0184	2.0	ND	0.995	8/3/2010	8/3/2010	
Silver	EPA 6010B	10H0184	1.0	ND	0.995	8/3/2010	8/3/2010	
Thallium	EPA 6010B	10H0184	10	ND	0.995	8/3/2010	8/3/2010	
Vanadium	EPA 6010B	10H0184	1.0	42	0.995	8/3/2010	8/3/2010	
Zinc	EPA 6010B	10H0184	5.0	40	0.995	8/3/2010	8/3/2010	

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Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METALS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITG2683-05 (QT-C-0.5' - Soil)				Sampled: 07/29/10				
Reporting Units: mg/kg								
Mercury	EPA 7471A	10H0251	0.020	0.033	0.98	8/3/2010	8/3/2010	
Antimony	EPA 6010B	10H0184	9.9	ND	0.985	8/3/2010	8/3/2010	
Arsenic	EPA 6010B	10H0184	2.0	2.9	0.985	8/3/2010	8/3/2010	
Barium	EPA 6010B	10H0184	0.99	39	0.985	8/3/2010	8/3/2010	
Beryllium	EPA 6010B	10H0184	0.49	0.56	0.985	8/3/2010	8/3/2010	
Cadmium	EPA 6010B	10H0184	0.49	ND	0.985	8/3/2010	8/3/2010	
Chromium	EPA 6010B	10H0184	0.99	14	0.985	8/3/2010	8/3/2010	
Cobalt	EPA 6010B	10H0184	0.99	5.7	0.985	8/3/2010	8/3/2010	
Copper	EPA 6010B	10H0184	2.0	12	0.985	8/3/2010	8/3/2010	
Lead	EPA 6010B	10H0184	2.0	3.8	0.985	8/3/2010	8/3/2010	
Molybdenum	EPA 6010B	10H0184	2.0	ND	0.985	8/3/2010	8/3/2010	
Nickel	EPA 6010B	10H0184	2.0	9.8	0.985	8/3/2010	8/3/2010	
Selenium	EPA 6010B	10H0184	2.0	ND	0.985	8/3/2010	8/3/2010	
Silver	EPA 6010B	10H0184	0.99	ND	0.985	8/3/2010	8/3/2010	
Thallium	EPA 6010B	10H0184	9.9	ND	0.985	8/3/2010	8/3/2010	
Vanadium	EPA 6010B	10H0184	0.99	41	0.985	8/3/2010	8/3/2010	
Zinc	EPA 6010B	10H0184	4.9	36	0.985	8/3/2010	8/3/2010	

Sample ID: ITG2683-06 (QT-C-4.0' - Soil)

Sampled: 07/29/10

Reporting Units: mg/kg

Mercury	EPA 7471A	10H0251	0.020	ND	1.02	8/3/2010	8/3/2010	
Antimony	EPA 6010B	10H0184	9.8	ND	0.98	8/3/2010	8/3/2010	
Arsenic	EPA 6010B	10H0184	2.0	2.5	0.98	8/3/2010	8/3/2010	
Barium	EPA 6010B	10H0184	0.98	35	0.98	8/3/2010	8/3/2010	
Beryllium	EPA 6010B	10H0184	0.49	0.52	0.98	8/3/2010	8/3/2010	
Cadmium	EPA 6010B	10H0184	0.49	ND	0.98	8/3/2010	8/3/2010	
Chromium	EPA 6010B	10H0184	0.98	16	0.98	8/3/2010	8/3/2010	
Cobalt	EPA 6010B	10H0184	0.98	5.8	0.98	8/3/2010	8/3/2010	
Copper	EPA 6010B	10H0184	2.0	11	0.98	8/3/2010	8/3/2010	
Lead	EPA 6010B	10H0184	2.0	3.4	0.98	8/3/2010	8/3/2010	
Molybdenum	EPA 6010B	10H0184	2.0	ND	0.98	8/3/2010	8/3/2010	
Nickel	EPA 6010B	10H0184	2.0	10	0.98	8/3/2010	8/3/2010	
Selenium	EPA 6010B	10H0184	2.0	ND	0.98	8/3/2010	8/3/2010	
Silver	EPA 6010B	10H0184	0.98	ND	0.98	8/3/2010	8/3/2010	
Thallium	EPA 6010B	10H0184	9.8	ND	0.98	8/3/2010	8/3/2010	
Vanadium	EPA 6010B	10H0184	0.98	36	0.98	8/3/2010	8/3/2010	
Zinc	EPA 6010B	10H0184	4.9	32	0.98	8/3/2010	8/3/2010	

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Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

POTENTIAL STLC / TCLP / TTLC LIMITS EXCEEDANCE

Analyte	Units	Sample Result	STLC Max. Limit mg/L (ppm)	TTLC Max. Limit mg/Kg (ppm)	TCLP Max. Limit mg/L (ppm)
ITG2683-01 (QT-A-0.5 - Soil)					
Mercury	mg/kg	ND	0.20	20	0.20
Antimony	mg/kg	ND	15	500	
Arsenic	mg/kg	2.8	5.0	500	5.0
Barium	mg/kg	50	100	10000	100
Beryllium	mg/kg	0.64	0.75	75	
Cadmium	mg/kg	ND	1.0	100	1.0
Chromium	mg/kg	16	5.0	2500	5.0
Cobalt	mg/kg	6.3	80	8000	
Copper	mg/kg	14	25	2500	
Lead	mg/kg	4.4	5.0	1000	5.0
Molybdenum	mg/kg	ND	350	3500	
Nickel	mg/kg	11	20	2000	
Selenium	mg/kg	ND	1.0	100	1.0
Silver	mg/kg	ND	5.0	500	5.0
Thallium	mg/kg	ND	7.0	700	
Vanadium	mg/kg	47	24	2400	
Zinc	mg/kg	42	250	5000	
ITG2683-02 (QT-A-4.0 - Soil)					
Mercury	mg/kg	ND	0.20	20	0.20
Antimony	mg/kg	ND	15	500	
Arsenic	mg/kg	ND	5.0	500	5.0
Barium	mg/kg	25	100	10000	100
Beryllium	mg/kg	0.63	0.75	75	
Cadmium	mg/kg	ND	1.0	100	1.0
Chromium	mg/kg	11	5.0	2500	5.0
Cobalt	mg/kg	7.5	80	8000	
Copper	mg/kg	12	25	2500	
Lead	mg/kg	2.2	5.0	1000	5.0
Molybdenum	mg/kg	ND	350	3500	
Nickel	mg/kg	11	20	2000	
Selenium	mg/kg	ND	1.0	100	1.0
Silver	mg/kg	ND	5.0	500	5.0
Thallium	mg/kg	ND	7.0	700	
Vanadium	mg/kg	40	24	2400	
Zinc	mg/kg	36	250	5000	

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Attention: Jim DeWoody

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Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

POTENTIAL STLC / TCLP / TTLC LIMITS EXCEEDANCE

Analyte	Units	Sample Result	STLC Max. Limit mg/L (ppm)	TTLC Max. Limit mg/Kg (ppm)	TCLP Max. Limit mg/L (ppm)
ITG2683-03 (QT-B-0.5' - Soil)					
Mercury	mg/kg	ND	0.20	20	0.20
Antimony	mg/kg	ND	15	500	
Arsenic	mg/kg	2.8	5.0	500	5.0
Barium	mg/kg	47	100	10000	100
Beryllium	mg/kg	0.67	0.75	75	
Cadmium	mg/kg	ND	1.0	100	1.0
Chromium	mg/kg	17	5.0	2500	5.0
Cobalt	mg/kg	6.4	80	8000	
Copper	mg/kg	14	25	2500	
Lead	mg/kg	4.6	5.0	1000	5.0
Molybdenum	mg/kg	ND	350	3500	
Nickel	mg/kg	11	20	2000	
Selenium	mg/kg	ND	1.0	100	1.0
Silver	mg/kg	ND	5.0	500	5.0
Thallium	mg/kg	ND	7.0	700	
Vanadium	mg/kg	47	24	2400	
Zinc	mg/kg	44	250	5000	
ITG2683-04 (QT-B-4.0' - Soil)					
Mercury	mg/kg	ND	0.20	20	0.20
Antimony	mg/kg	ND	15	500	
Arsenic	mg/kg	3.0	5.0	500	5.0
Barium	mg/kg	48	100	10000	100
Beryllium	mg/kg	0.51	0.75	75	
Cadmium	mg/kg	ND	1.0	100	1.0
Chromium	mg/kg	13	5.0	2500	5.0
Cobalt	mg/kg	5.9	80	8000	
Copper	mg/kg	13	25	2500	
Lead	mg/kg	3.5	5.0	1000	5.0
Molybdenum	mg/kg	ND	350	3500	
Nickel	mg/kg	9.6	20	2000	
Selenium	mg/kg	ND	1.0	100	1.0
Silver	mg/kg	ND	5.0	500	5.0
Thallium	mg/kg	ND	7.0	700	
Vanadium	mg/kg	42	24	2400	
Zinc	mg/kg	40	250	5000	

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Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

POTENTIAL STLC / TCLP / TTLC LIMITS EXCEEDANCE

Analyte	Units	Sample Result	STLC Max. Limit mg/L (ppm)	TTLC Max. Limit mg/Kg (ppm)	TCLP Max. Limit mg/L (ppm)
ITG2683-05 (QT-C-0.5' - Soil)					
Mercury	mg/kg	0.033	0.20	20	0.20
Antimony	mg/kg	ND	15	500	
Arsenic	mg/kg	2.9	5.0	500	5.0
Barium	mg/kg	39	100	10000	100
Beryllium	mg/kg	0.56	0.75	75	
Cadmium	mg/kg	ND	1.0	100	1.0
Chromium	mg/kg	14	5.0	2500	5.0
Cobalt	mg/kg	5.7	80	8000	
Copper	mg/kg	12	25	2500	
Lead	mg/kg	3.8	5.0	1000	5.0
Molybdenum	mg/kg	ND	350	3500	
Nickel	mg/kg	9.8	20	2000	
Selenium	mg/kg	ND	1.0	100	1.0
Silver	mg/kg	ND	5.0	500	5.0
Thallium	mg/kg	ND	7.0	700	
Vanadium	mg/kg	41	24	2400	
Zinc	mg/kg	36	250	5000	
ITG2683-06 (QT-C-4.0' - Soil)					
Mercury	mg/kg	ND	0.20	20	0.20
Antimony	mg/kg	ND	15	500	
Arsenic	mg/kg	2.5	5.0	500	5.0
Barium	mg/kg	35	100	10000	100
Beryllium	mg/kg	0.52	0.75	75	
Cadmium	mg/kg	ND	1.0	100	1.0
Chromium	mg/kg	16	5.0	2500	5.0
Cobalt	mg/kg	5.8	80	8000	
Copper	mg/kg	11	25	2500	
Lead	mg/kg	3.4	5.0	1000	5.0
Molybdenum	mg/kg	ND	350	3500	
Nickel	mg/kg	10	20	2000	
Selenium	mg/kg	ND	1.0	100	1.0
Silver	mg/kg	ND	5.0	500	5.0
Thallium	mg/kg	ND	7.0	700	
Vanadium	mg/kg	36	24	2400	
Zinc	mg/kg	32	250	5000	

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Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (EPA 3545/8015B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10H0267 Extracted: 08/03/10										
Blank Analyzed: 08/04/2010 (10H0267-BLK1)										
DRO (C13-C22)	ND	5.0	mg/kg							
ORO (C23-C40)	ND	5.0	mg/kg							
EFH (C13 - C40)	ND	5.0	mg/kg							
Surrogate: n-Octacosane	4.73		mg/kg	6.67		71	40-140			
LCS Analyzed: 08/04/2010 (10H0267-BS1)										
EFH (C10 - C28)	28.5	5.0	mg/kg	33.3		86	45-115			
Surrogate: n-Octacosane	5.46		mg/kg	6.67		82	40-140			
Matrix Spike Analyzed: 08/04/2010 (10H0267-MS1)					Source: ITG2683-01					
EFH (C10 - C28)	34.8	5.0	mg/kg	33.3	12.0	68	40-120			
Surrogate: n-Octacosane	6.04		mg/kg	6.67		91	40-140			
Matrix Spike Dup Analyzed: 08/04/2010 (10H0267-MSD1)					Source: ITG2683-01					
EFH (C10 - C28)	37.8	5.0	mg/kg	33.3	12.0	77	40-120	8	30	
Surrogate: n-Octacosane	6.17		mg/kg	6.67		92	40-140			

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Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

VOLATILE FUEL HYDROCARBONS BY GC/MS (EPA 5035/CA LUFT)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10H0165 Extracted: 08/03/10										
Blank Analyzed: 08/03/2010 (10H0165-BLK1)										
GRO (C4 - C12)	ND	100	ug/kg							
Surrogate: Dibromofluoromethane	53.4		ug/kg	50.0		107	80-125			
Surrogate: Toluene-d8	52.4		ug/kg	50.0		105	80-120			
Surrogate: 4-Bromofluorobenzene	48.7		ug/kg	50.0		97	80-120			
LCS Analyzed: 08/03/2010 (10H0165-BS2)										MNR1
GRO (C4 - C12)	790	100	ug/kg	1000		79	60-135			
Surrogate: Dibromofluoromethane	52.8		ug/kg	50.0		106	80-125			
Surrogate: Toluene-d8	52.1		ug/kg	50.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	48.9		ug/kg	50.0		98	80-120			
LCS Dup Analyzed: 08/03/2010 (10H0165-BSD2)										
GRO (C4 - C12)	730	100	ug/kg	1000		73	60-135	8	20	
Surrogate: Dibromofluoromethane	48.7		ug/kg	50.0		97	80-125			
Surrogate: Toluene-d8	52.1		ug/kg	50.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	48.5		ug/kg	50.0		97	80-120			

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Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10H0165 Extracted: 08/03/10										
Blank Analyzed: 08/03/2010 (10H0165-BLK1)										
Benzene	ND	2.0	ug/kg							
Bromobenzene	ND	5.0	ug/kg							
Bromochloromethane	ND	5.0	ug/kg							
Bromodichloromethane	ND	2.0	ug/kg							
Bromoform	ND	5.0	ug/kg							
Bromomethane	ND	5.0	ug/kg							
n-Butylbenzene	ND	5.0	ug/kg							
sec-Butylbenzene	ND	5.0	ug/kg							
tert-Butylbenzene	ND	5.0	ug/kg							
Carbon tetrachloride	ND	5.0	ug/kg							
Chlorobenzene	ND	2.0	ug/kg							
Chloroethane	ND	5.0	ug/kg							
Chloroform	ND	2.0	ug/kg							
Chloromethane	ND	5.0	ug/kg							
2-Chlorotoluene	ND	5.0	ug/kg							
4-Chlorotoluene	ND	5.0	ug/kg							
1,2-Dibromo-3-chloropropane	ND	5.0	ug/kg							
Dibromochloromethane	ND	2.0	ug/kg							
1,2-Dibromoethane (EDB)	ND	2.0	ug/kg							
Dibromomethane	ND	2.0	ug/kg							
1,2-Dichlorobenzene	ND	2.0	ug/kg							
1,3-Dichlorobenzene	ND	2.0	ug/kg							
1,4-Dichlorobenzene	ND	2.0	ug/kg							
Dichlorodifluoromethane	ND	5.0	ug/kg							
1,1-Dichloroethane	ND	2.0	ug/kg							
1,2-Dichloroethane	ND	2.0	ug/kg							
1,1-Dichloroethene	ND	5.0	ug/kg							
cis-1,2-Dichloroethene	ND	2.0	ug/kg							
trans-1,2-Dichloroethene	ND	2.0	ug/kg							
1,2-Dichloropropane	ND	2.0	ug/kg							
1,3-Dichloropropane	ND	2.0	ug/kg							
2,2-Dichloropropane	ND	2.0	ug/kg							
cis-1,3-Dichloropropene	ND	2.0	ug/kg							
trans-1,3-Dichloropropene	ND	2.0	ug/kg							
1,1-Dichloropropene	ND	2.0	ug/kg							
Ethylbenzene	ND	2.0	ug/kg							

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Attention: Jim DeWoody

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Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10H0165 Extracted: 08/03/10										
Blank Analyzed: 08/03/2010 (10H0165-BLK1)										
Hexachlorobutadiene	ND	5.0	ug/kg							
Isopropylbenzene	ND	2.0	ug/kg							
p-Isopropyltoluene	ND	2.0	ug/kg							
Methylene chloride	ND	20	ug/kg							
Naphthalene	ND	5.0	ug/kg							
n-Propylbenzene	ND	2.0	ug/kg							
Styrene	ND	2.0	ug/kg							
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg							
1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg							
Tetrachloroethene	ND	2.0	ug/kg							
Toluene	ND	2.0	ug/kg							
1,2,3-Trichlorobenzene	ND	5.0	ug/kg							
1,2,4-Trichlorobenzene	ND	5.0	ug/kg							
1,1,1-Trichloroethane	ND	2.0	ug/kg							
1,1,2-Trichloroethane	ND	2.0	ug/kg							
Trichloroethene	ND	2.0	ug/kg							
Trichlorofluoromethane	ND	5.0	ug/kg							
1,2,3-Trichloropropane	ND	10	ug/kg							
1,2,4-Trimethylbenzene	ND	2.0	ug/kg							
1,3,5-Trimethylbenzene	ND	2.0	ug/kg							
Vinyl chloride	ND	5.0	ug/kg							
m,p-Xylenes	ND	2.0	ug/kg							
o-Xylene	ND	2.0	ug/kg							
Surrogate: 4-Bromofluorobenzene	48.7		ug/kg	50.0		97	80-120			
Surrogate: Dibromofluoromethane	53.4		ug/kg	50.0		107	80-125			
Surrogate: Toluene-d8	52.4		ug/kg	50.0		105	80-120			

LCS Analyzed: 08/03/2010 (10H0165-BS1)

MNR1

Benzene	47.6	2.0	ug/kg	50.0		95	65-120			
Bromobenzene	53.9	5.0	ug/kg	50.0		108	75-120			
Bromochloromethane	52.8	5.0	ug/kg	50.0		106	70-135			
Bromodichloromethane	58.7	2.0	ug/kg	50.0		117	70-135			
Bromoform	49.3	5.0	ug/kg	50.0		99	55-135			
Bromomethane	49.3	5.0	ug/kg	50.0		99	60-145			
n-Butylbenzene	48.5	5.0	ug/kg	50.0		97	70-130			
sec-Butylbenzene	48.8	5.0	ug/kg	50.0		98	70-125			

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Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10H0165 Extracted: 08/03/10										
LCS Analyzed: 08/03/2010 (10H0165-BS1)										MNR1
tert-Butylbenzene	48.9	5.0	ug/kg	50.0		98	70-125			
Carbon tetrachloride	60.6	5.0	ug/kg	50.0		121	65-140			
Chlorobenzene	50.3	2.0	ug/kg	50.0		101	75-120			
Chloroethane	54.9	5.0	ug/kg	50.0		110	60-140			
Chloroform	52.4	2.0	ug/kg	50.0		105	70-130			
Chloromethane	51.5	5.0	ug/kg	50.0		103	45-145			
2-Chlorotoluene	51.2	5.0	ug/kg	50.0		102	70-125			
4-Chlorotoluene	52.4	5.0	ug/kg	50.0		105	75-125			
1,2-Dibromo-3-chloropropane	53.6	5.0	ug/kg	50.0		107	50-135			
Dibromochloromethane	61.4	2.0	ug/kg	50.0		123	65-140			
1,2-Dibromoethane (EDB)	52.4	2.0	ug/kg	50.0		105	70-130			
Dibromomethane	52.5	2.0	ug/kg	50.0		105	70-130			
1,2-Dichlorobenzene	53.9	2.0	ug/kg	50.0		108	75-120			
1,3-Dichlorobenzene	54.1	2.0	ug/kg	50.0		108	75-125			
1,4-Dichlorobenzene	51.2	2.0	ug/kg	50.0		102	75-120			
Dichlorodifluoromethane	45.9	5.0	ug/kg	50.0		92	35-160			
1,1-Dichloroethane	52.8	2.0	ug/kg	50.0		106	70-130			
1,2-Dichloroethane	55.3	2.0	ug/kg	50.0		111	60-140			
1,1-Dichloroethene	50.6	5.0	ug/kg	50.0		101	70-125			
cis-1,2-Dichloroethene	53.2	2.0	ug/kg	50.0		106	70-125			
trans-1,2-Dichloroethene	47.7	2.0	ug/kg	50.0		95	70-125			
1,2-Dichloropropane	50.1	2.0	ug/kg	50.0		100	70-130			
1,3-Dichloropropane	53.0	2.0	ug/kg	50.0		106	70-125			
2,2-Dichloropropane	59.0	2.0	ug/kg	50.0		118	60-145			
cis-1,3-Dichloropropene	52.7	2.0	ug/kg	50.0		105	75-125			
trans-1,3-Dichloropropene	60.5	2.0	ug/kg	50.0		121	70-135			
1,1-Dichloropropene	49.6	2.0	ug/kg	50.0		99	70-130			
Ethylbenzene	49.4	2.0	ug/kg	50.0		99	70-125			
Hexachlorobutadiene	41.8	5.0	ug/kg	50.0		84	60-135			
Isopropylbenzene	50.3	2.0	ug/kg	50.0		101	75-130			
p-Isopropyltoluene	47.1	2.0	ug/kg	50.0		94	75-125			
Methylene chloride	44.2	20	ug/kg	50.0		88	55-135			
Naphthalene	53.4	5.0	ug/kg	50.0		107	55-135			
n-Propylbenzene	51.7	2.0	ug/kg	50.0		103	70-130			
Styrene	50.9	2.0	ug/kg	50.0		102	75-130			
1,1,1,2-Tetrachloroethane	56.2	5.0	ug/kg	50.0		112	70-130			

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Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10H0165 Extracted: 08/03/10										
LCS Analyzed: 08/03/2010 (10H0165-BS1)										MNR1
1,1,2,2-Tetrachloroethane	56.2	2.0	ug/kg	50.0		112	55-140			
Tetrachloroethene	49.1	2.0	ug/kg	50.0		98	70-125			
Toluene	50.0	2.0	ug/kg	50.0		100	70-125			
1,2,3-Trichlorobenzene	46.5	5.0	ug/kg	50.0		93	60-130			
1,2,4-Trichlorobenzene	48.0	5.0	ug/kg	50.0		96	70-135			
1,1,1-Trichloroethane	57.7	2.0	ug/kg	50.0		115	65-135			
1,1,2-Trichloroethane	50.8	2.0	ug/kg	50.0		102	65-135			
Trichloroethene	51.8	2.0	ug/kg	50.0		104	70-125			
Trichlorofluoromethane	56.6	5.0	ug/kg	50.0		113	60-145			
1,2,3-Trichloropropane	54.1	10	ug/kg	50.0		108	60-135			
1,2,4-Trimethylbenzene	52.7	2.0	ug/kg	50.0		105	70-125			
1,3,5-Trimethylbenzene	52.6	2.0	ug/kg	50.0		105	70-125			
Vinyl chloride	55.4	5.0	ug/kg	50.0		111	55-135			
m,p-Xylenes	102	2.0	ug/kg	100		102	70-125			
o-Xylene	51.0	2.0	ug/kg	50.0		102	70-125			
Surrogate: 4-Bromofluorobenzene	48.0		ug/kg	50.0		96	80-120			
Surrogate: Dibromofluoromethane	52.8		ug/kg	50.0		106	80-125			
Surrogate: Toluene-d8	51.8		ug/kg	50.0		104	80-120			
LCS Dup Analyzed: 08/03/2010 (10H0165-BSD1)										
Benzene	50.4	2.0	ug/kg	50.0		101	65-120	6	20	
Bromobenzene	52.8	5.0	ug/kg	50.0		106	75-120	2	20	
Bromochloromethane	54.1	5.0	ug/kg	50.0		108	70-135	3	20	
Bromodichloromethane	58.5	2.0	ug/kg	50.0		117	70-135	0.4	20	
Bromoform	46.8	5.0	ug/kg	50.0		94	55-135	5	25	
Bromomethane	52.7	5.0	ug/kg	50.0		105	60-145	7	20	
n-Butylbenzene	54.1	5.0	ug/kg	50.0		108	70-130	11	20	
sec-Butylbenzene	52.2	5.0	ug/kg	50.0		104	70-125	7	20	
tert-Butylbenzene	52.5	5.0	ug/kg	50.0		105	70-125	7	20	
Carbon tetrachloride	63.8	5.0	ug/kg	50.0		128	65-140	5	20	
Chlorobenzene	50.6	2.0	ug/kg	50.0		101	75-120	0.6	20	
Chloroethane	58.0	5.0	ug/kg	50.0		116	60-140	6	25	
Chloroform	53.2	2.0	ug/kg	50.0		106	70-130	1	20	
Chloromethane	56.4	5.0	ug/kg	50.0		113	45-145	9	25	
2-Chlorotoluene	53.7	5.0	ug/kg	50.0		107	70-125	5	20	
4-Chlorotoluene	55.1	5.0	ug/kg	50.0		110	75-125	5	20	

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Project Manager

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25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10H0165 Extracted: 08/03/10										
LCS Dup Analyzed: 08/03/2010 (10H0165-BSD1)										
1,2-Dibromo-3-chloropropane	52.0	5.0	ug/kg	50.0		104	50-135	3	30	
Dibromochloromethane	59.8	2.0	ug/kg	50.0		120	65-140	3	20	
1,2-Dibromoethane (EDB)	51.6	2.0	ug/kg	50.0		103	70-130	2	20	
Dibromomethane	51.0	2.0	ug/kg	50.0		102	70-130	3	20	
1,2-Dichlorobenzene	52.7	2.0	ug/kg	50.0		105	75-120	2	20	
1,3-Dichlorobenzene	55.0	2.0	ug/kg	50.0		110	75-125	2	20	
1,4-Dichlorobenzene	52.3	2.0	ug/kg	50.0		105	75-120	2	20	
Dichlorodifluoromethane	56.0	5.0	ug/kg	50.0		112	35-160	20	30	
1,1-Dichloroethane	55.7	2.0	ug/kg	50.0		111	70-130	5	20	
1,2-Dichloroethane	57.6	2.0	ug/kg	50.0		115	60-140	4	20	
1,1-Dichloroethene	52.2	5.0	ug/kg	50.0		104	70-125	3	20	
cis-1,2-Dichloroethene	55.0	2.0	ug/kg	50.0		110	70-125	3	20	
trans-1,2-Dichloroethene	51.6	2.0	ug/kg	50.0		103	70-125	8	20	
1,2-Dichloropropane	51.7	2.0	ug/kg	50.0		103	70-130	3	20	
1,3-Dichloropropane	53.6	2.0	ug/kg	50.0		107	70-125	1	20	
2,2-Dichloropropane	65.2	2.0	ug/kg	50.0		130	60-145	10	20	
cis-1,3-Dichloropropene	54.2	2.0	ug/kg	50.0		108	75-125	3	20	
trans-1,3-Dichloropropene	60.2	2.0	ug/kg	50.0		120	70-135	0.6	20	
1,1-Dichloropropene	53.7	2.0	ug/kg	50.0		107	70-130	8	20	
Ethylbenzene	51.5	2.0	ug/kg	50.0		103	70-125	4	20	
Hexachlorobutadiene	43.1	5.0	ug/kg	50.0		86	60-135	3	20	
Isopropylbenzene	54.0	2.0	ug/kg	50.0		108	75-130	7	20	
p-Isopropyltoluene	52.9	2.0	ug/kg	50.0		106	75-125	12	20	
Methylene chloride	44.3	20	ug/kg	50.0		89	55-135	0.1	20	
Naphthalene	50.6	5.0	ug/kg	50.0		101	55-135	6	25	
n-Propylbenzene	56.7	2.0	ug/kg	50.0		113	70-130	9	20	
Styrene	50.9	2.0	ug/kg	50.0		102	75-130	0.04	20	
1,1,1,2-Tetrachloroethane	54.8	5.0	ug/kg	50.0		110	70-130	2	20	
1,1,2,2-Tetrachloroethane	55.1	2.0	ug/kg	50.0		110	55-140	2	30	
Tetrachloroethene	51.2	2.0	ug/kg	50.0		102	70-125	4	20	
Toluene	50.9	2.0	ug/kg	50.0		102	70-125	2	20	
1,2,3-Trichlorobenzene	43.6	5.0	ug/kg	50.0		87	60-130	6	20	
1,2,4-Trichlorobenzene	46.9	5.0	ug/kg	50.0		94	70-135	2	20	
1,1,1-Trichloroethane	59.4	2.0	ug/kg	50.0		119	65-135	3	20	
1,1,2-Trichloroethane	51.1	2.0	ug/kg	50.0		102	65-135	0.6	20	
Trichloroethene	53.2	2.0	ug/kg	50.0		106	70-125	3	20	

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Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10H0165 Extracted: 08/03/10										
LCS Dup Analyzed: 08/03/2010 (10H0165-BSD1)										
Trichlorofluoromethane	61.2	5.0	ug/kg	50.0		122	60-145	8	25	
1,2,3-Trichloropropane	55.8	10	ug/kg	50.0		112	60-135	3	25	
1,2,4-Trimethylbenzene	53.7	2.0	ug/kg	50.0		107	70-125	2	20	
1,3,5-Trimethylbenzene	55.8	2.0	ug/kg	50.0		112	70-125	6	20	
Vinyl chloride	60.2	5.0	ug/kg	50.0		120	55-135	8	25	
m,p-Xylenes	107	2.0	ug/kg	100		107	70-125	5	20	
o-Xylene	52.8	2.0	ug/kg	50.0		106	70-125	4	20	
Surrogate: 4-Bromofluorobenzene	49.0		ug/kg	50.0		98	80-120			
Surrogate: Dibromofluoromethane	51.7		ug/kg	50.0		103	80-125			
Surrogate: Toluene-d8	52.1		ug/kg	50.0		104	80-120			

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Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

POLYCHLORINATED BIPHENYLS (EPA 3546/8082)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10H0051 Extracted: 08/02/10										
Blank Analyzed: 08/02/2010 (10H0051-BLK1)										
Aroclor 1016	ND	50	ug/kg							
Aroclor 1221	ND	50	ug/kg							
Aroclor 1232	ND	50	ug/kg							
Aroclor 1242	ND	50	ug/kg							
Aroclor 1248	ND	50	ug/kg							
Aroclor 1254	ND	50	ug/kg							
Aroclor 1260	ND	50	ug/kg							
Surrogate: Decachlorobiphenyl	32.8		ug/kg	33.3		98	45-120			
LCS Analyzed: 08/02/2010 (10H0051-BS1)										
Aroclor 1016	269	50	ug/kg	267		101	65-115			
Aroclor 1260	263	50	ug/kg	267		98	65-115			
Surrogate: Decachlorobiphenyl	33.2		ug/kg	33.3		100	45-120			
Matrix Spike Analyzed: 08/02/2010 (10H0051-MS1)										
					Source: ITG2665-08					
Aroclor 1016	218	50	ug/kg	267	ND	82	50-120			
Aroclor 1260	224	50	ug/kg	267	ND	84	50-125			
Surrogate: Decachlorobiphenyl	28.1		ug/kg	33.3		84	45-120			
Matrix Spike Dup Analyzed: 08/02/2010 (10H0051-MSD1)										
					Source: ITG2665-08					
Aroclor 1016	194	50	ug/kg	267	ND	73	50-120	11	30	
Aroclor 1260	216	50	ug/kg	267	ND	81	50-125	4	30	
Surrogate: Decachlorobiphenyl	27.5		ug/kg	33.3		82	45-120			

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Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10H0184 Extracted: 08/03/10										
Blank Analyzed: 08/03/2010 (10H0184-BLK1)										
Antimony	ND	9.9	mg/kg							
Arsenic	ND	2.0	mg/kg							
Barium	ND	0.99	mg/kg							
Beryllium	ND	0.49	mg/kg							
Cadmium	ND	0.49	mg/kg							
Chromium	ND	0.99	mg/kg							
Cobalt	ND	0.99	mg/kg							
Copper	ND	2.0	mg/kg							
Lead	ND	2.0	mg/kg							
Molybdenum	ND	2.0	mg/kg							
Nickel	ND	2.0	mg/kg							
Selenium	ND	2.0	mg/kg							
Silver	ND	0.99	mg/kg							
Thallium	ND	9.9	mg/kg							
Vanadium	ND	0.99	mg/kg							
Zinc	ND	4.9	mg/kg							

LCS Analyzed: 08/03/2010 (10H0184-BS1)

Antimony	50.7	9.9	mg/kg	49.3		103	80-120
Arsenic	53.5	2.0	mg/kg	49.3		109	80-120
Barium	52.0	0.99	mg/kg	49.3		105	80-120
Beryllium	49.5	0.49	mg/kg	49.3		101	80-120
Cadmium	49.9	0.49	mg/kg	49.3		101	80-120
Chromium	50.1	0.99	mg/kg	49.3		102	80-120
Cobalt	48.6	0.99	mg/kg	49.3		99	80-120
Copper	50.9	2.0	mg/kg	49.3		103	80-120
Lead	50.5	2.0	mg/kg	49.3		103	80-120
Molybdenum	49.1	2.0	mg/kg	49.3		100	80-120
Nickel	52.0	2.0	mg/kg	49.3		106	80-120
Selenium	47.5	2.0	mg/kg	49.3		97	80-120
Silver	24.8	0.99	mg/kg	24.6		101	80-120
Thallium	51.4	9.9	mg/kg	49.3		104	80-120
Vanadium	50.5	0.99	mg/kg	49.3		102	80-120
Zinc	48.3	4.9	mg/kg	49.3		98	80-120

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Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10H0184 Extracted: 08/03/10										
Matrix Spike Analyzed: 08/03/2010 (10H0184-MS1)					Source: ITG2683-03					
Antimony	13.5	9.9	mg/kg	49.5	1.68	24	75-125			M2
Arsenic	55.8	2.0	mg/kg	49.5	2.77	107	75-125			
Barium	96.8	0.99	mg/kg	49.5	46.9	101	75-125			
Beryllium	50.1	0.50	mg/kg	49.5	0.675	100	75-125			
Cadmium	46.7	0.50	mg/kg	49.5	ND	94	75-125			
Chromium	66.1	0.99	mg/kg	49.5	16.6	100	75-125			
Cobalt	52.6	0.99	mg/kg	49.5	6.44	93	75-125			
Copper	64.7	2.0	mg/kg	49.5	14.3	102	75-125			
Lead	52.5	2.0	mg/kg	49.5	4.57	97	75-125			
Molybdenum	46.9	2.0	mg/kg	49.5	0.772	93	75-125			
Nickel	58.6	2.0	mg/kg	49.5	11.1	96	75-125			
Selenium	48.2	2.0	mg/kg	49.5	1.74	94	75-125			
Silver	23.5	0.99	mg/kg	24.8	ND	95	75-125			
Thallium	47.5	9.9	mg/kg	49.5	ND	96	75-125			
Vanadium	99.1	0.99	mg/kg	49.5	47.3	105	75-125			
Zinc	87.3	5.0	mg/kg	49.5	44.0	87	75-125			
Matrix Spike Dup Analyzed: 08/03/2010 (10H0184-MSD1)					Source: ITG2683-03					
Antimony	12.9	9.8	mg/kg	49.0	1.68	23	75-125	5	20	M2
Arsenic	53.4	2.0	mg/kg	49.0	2.77	103	75-125	4	20	
Barium	93.1	0.98	mg/kg	49.0	46.9	94	75-125	4	20	
Beryllium	49.1	0.49	mg/kg	49.0	0.675	99	75-125	2	20	
Cadmium	45.1	0.49	mg/kg	49.0	ND	92	75-125	4	20	
Chromium	64.0	0.98	mg/kg	49.0	16.6	97	75-125	3	20	
Cobalt	50.5	0.98	mg/kg	49.0	6.44	90	75-125	4	20	
Copper	62.8	2.0	mg/kg	49.0	14.3	99	75-125	3	20	
Lead	50.8	2.0	mg/kg	49.0	4.57	94	75-125	3	20	
Molybdenum	44.8	2.0	mg/kg	49.0	0.772	90	75-125	5	20	
Nickel	56.6	2.0	mg/kg	49.0	11.1	93	75-125	3	20	
Selenium	46.1	2.0	mg/kg	49.0	1.74	91	75-125	4	20	
Silver	23.0	0.98	mg/kg	24.5	ND	94	75-125	2	20	
Thallium	45.9	9.8	mg/kg	49.0	ND	94	75-125	3	20	
Vanadium	95.6	0.98	mg/kg	49.0	47.3	99	75-125	4	20	
Zinc	85.7	4.9	mg/kg	49.0	44.0	85	75-125	2	20	

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Project Manager

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Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<u>Batch: 10H0251 Extracted: 08/03/10</u>										
Blank Analyzed: 08/03/2010 (10H0251-BLK1)										
Mercury	ND	0.020	mg/kg							
LCS Analyzed: 08/03/2010 (10H0251-BS1)										
Mercury	0.817	0.020	mg/kg	0.800		102	80-120			
Matrix Spike Analyzed: 08/03/2010 (10H0251-MS1)										
Mercury	0.704	0.020	mg/kg	0.800	0.0748	79	70-130			
Matrix Spike Dup Analyzed: 08/03/2010 (10H0251-MSD1)										
Mercury	0.683	0.020	mg/kg	0.800	0.0748	76	70-130	3	20	

TestAmerica Irvine

Lena Davidkova
Project Manager

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.

ITG2683 <Page 35 of 37>

Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

DATA QUALIFIERS AND DEFINITIONS

M2 The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
MNR1 There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
ND Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
RPD Relative Percent Difference

ADDITIONAL COMMENTS

For Volatile Fuel Hydrocarbons (C4-C12):

Volatile Fuel Hydrocarbons (C4-C12) are quantitated against a gasoline standard. Quantitation begins immediately before TBA-d9.

For Extractable Fuel Hydrocarbons (EFH, DRO, ORO) :

Unless otherwise noted, Extractable Fuel Hydrocarbons (EFH, DRO, ORO) are quantitated against a Diesel Fuel Standard.

TestAmerica Irvine

Lena Davidkova
Project Manager

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.

ITG2683 <Page 36 of 37>

Stantec Consulting Corp. - Redlands
25864-F Business Center Drive
Redlands, CA 92374
Attention: Jim DeWoody

Project ID: Simi Valley
Runkle Canyon
Report Number: ITG2683

Sampled: 07/28/10-07/29/10
Received: 07/29/10

Certification Summary

TestAmerica Irvine

Method	Matrix	Nelac	California
EPA 6010B	Soil	X	X
EPA 7471A	Soil	X	X
EPA 8015B	Soil	X	X
EPA 8082	Soil	X	X
EPA 8260B	Soil	X	X
TPH by GC/MS	Soil	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for TestAmerica may be obtained by contacting the laboratory or visiting our website at www.testamericainc.com

TestAmerica Irvine

Lena Davidkova
Project Manager

GEOCON Results of Tar Removal Confirmation Samples



Project No. A8314-77-05

September 29, 2010

VIA EMAIL

Ms. Kristen Keipert
Runkle Canyon, LLC
10990 Wilshire Boulevard
Los Angeles, CA 90024

Subject: RUNKLE CANYON
SIMI VALLEY, CALIFORNIA
RESULTS OF TAR REMOVAL CONFIRMATION SAMPLES

Dear Ms. Keipert:

In accordance with your request on behalf of Runkle Canyon, LLC (the Client), we are providing the results of confirmation soil samples collected after the excavation of the tar-like material from within the drainage area of Runkle Canyon (the Site).

Background

Runkle Canyon is located at the terminus of Sequoia Avenue in the City of Simi Valley, California. The property consists of three parcels totaling approximately 1,615 acres; a northeast 550 acre parcel, a northwest 350 acre parcel, and a southern 715 acre parcel. There is no known street address for the property.

The Site is generally a north-south trending valley extending through the central part of the 550 acre parcel. A small intermittent stream, which appears to drain the majority of the 550-acre parcel and the 715-acre parcel, meanders northward across the valley floor. East of the stream channel are rolling hills that comprise the majority of the 550-acre parcel. West of the stream channel is a steep ridge line that comprises the eastern portion of the 350-acre parcel. The portion of the 350-acre parcel west of the ridgeline appears to drain through an unnamed north-south trending canyon to the west of Runkle Canyon. Drainage from the 715-acre parcel appears to flow onto the southern end of the 550-acre parcel along three drainage courses. The area where the three drainages converge on the 550-acre parcel has been referred to as the "Fish Tail" area of the Site.

Surface mining was historically performed at the Site for sand and gravel products. Large volumes of semi-processed sand and gravel material from the former quarry operation have been placed within the Fish Tail area of the Site. The piles of material from the quarry appear to be in excess of 30 feet thick in areas where the stream has eroded channels through them. Miscellaneous debris, currently exposed in the stream channel walls, was observed to have been buried by the aggregate material placed in the Fish Tail area. The debris included items such as, pipes of various diameter, length, and material, concrete and asphalt rubble, long sheets of rubber material presumed to be remnants of the former conveyor system, tires, and a black solid to very viscous tar-like substance. A sample of the tar material collected in August 2005 was reported to contain

benzo(a) anthracene at a concentration in excess of the United States Environmental Protection Agency (EPA), Region 9, Regional Screening Level for residential use of 0.15 milligrams per kilogram (mg/kg).

In a letter dated October 17, 2008, the California Department of Toxic Substances Control (DTSC) directed that the tar material be removed from the Site and properly recycled or disposed.

Tar Removal Activities

On September 2 and 3, 2010, WD Equipment Leasing, Inc. (WD), under contract to Runkle Canyon LLC, performed the removal of the tar material visible within the east bank of the stream channel in the Fish Tail area of the Site. The tar removal was observed by representatives of Geocon and John Naginis, with the DTSC. The tar was removed from two areas, approximately 20 feet apart, where visible pieces of tar were exposed in the east bank of the stream channel.

Excavation limits were based on the visible presence of the tar material. The northern excavation (excavation Area A) was approximately 25-feet in length (north to south) by 10-feet in width (east to west) by 12-feet deep. The southern excavation (excavation Area B) was approximately 25-feet in length (north to south) by 10-feet in width (east to west) by 18-feet deep. The majority of material removed from the excavation areas was visibly clean aggregate material, which was placed in stockpiles adjacent to the excavations and later spread at the top of the stream bank. The tar material encountered during the excavation was observed to be present in thin discontinuous seams and scattered blocks. Approximately 15 yards of tar-containing material was transported off-site by WD for recycling. The approximate location of the excavation areas are shown on Figure 1.

Confirmation Soil Sampling

On September 3, 2010, John Naginis collected three soil samples at locations of his choosing from each excavation area. The samples were collected by transferring soil with a hand shovel directly into laboratory-provided sample containers. Mr. Naginis provided spilt samples from each sample location to Geocon for independent testing. Upon receipt the samples were labeled and placed in a chilled ice chest for transport to the analytical laboratory under chain-of-custody procedures.

We submitted the six soil samples (labeled EXA-1 through -3, and EXB-1 through -3) to Advanced Technologies Laboratory, a NELAC accredited laboratory, located in Signal Hill, California for analysis of polynuclear aromatic hydrocarbons (PAHs) by EPA Test Method 8270C to evaluate the potential presence of benzo(a)anthracene in soil.

The lab evaluated the samples for the presence of 16 PAH compounds, including benzo(a)anthracene. Concentrations of PAHs greater than or equal to the laboratory reporting limit of 5.0 micrograms per kilogram were not reported for any of the samples. The laboratory analytical report is attached.

Conclusions

The known tar material identified within this area of the mined aggregate piles at the Site has been excavated and removed. Based on the analytical results of the soil samples collected from the limits of the tar removal excavation, it does not appear that PAHs reportedly present in the tar have impacted the surrounding aggregate material, therefore, no further investigation is warranted.

Limitations

This report has been prepared exclusively for Runkle Canyon, LLC. The information obtained is only relevant as of the date of the latest site visit. The information contained herein is only valid as of the date of the report, and may require an update to reflect additional information obtained.

The Client should recognize that this report is not a comprehensive site characterization and should not be construed as such. The findings and conclusions as presented in this report are predicated on the results of the limited soil sampling and laboratory analyses performed, based on the scope of services requested by the Client. It is possible that conditions may exist in the subsurface between the areas explored that could significantly change the conclusions and recommendations stated in this report. In addition, the information obtained is not intended to address potential impacts related to sources other than those requested by the Client as specified herein.

Therefore, the report should only be deemed conclusive with respect to the information obtained. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

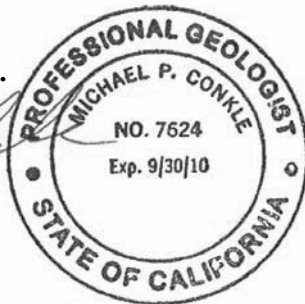
Please contact us should you have any questions regarding this letter, or if we may be of further service.

Sincerely,

GEOCON WEST, INC.



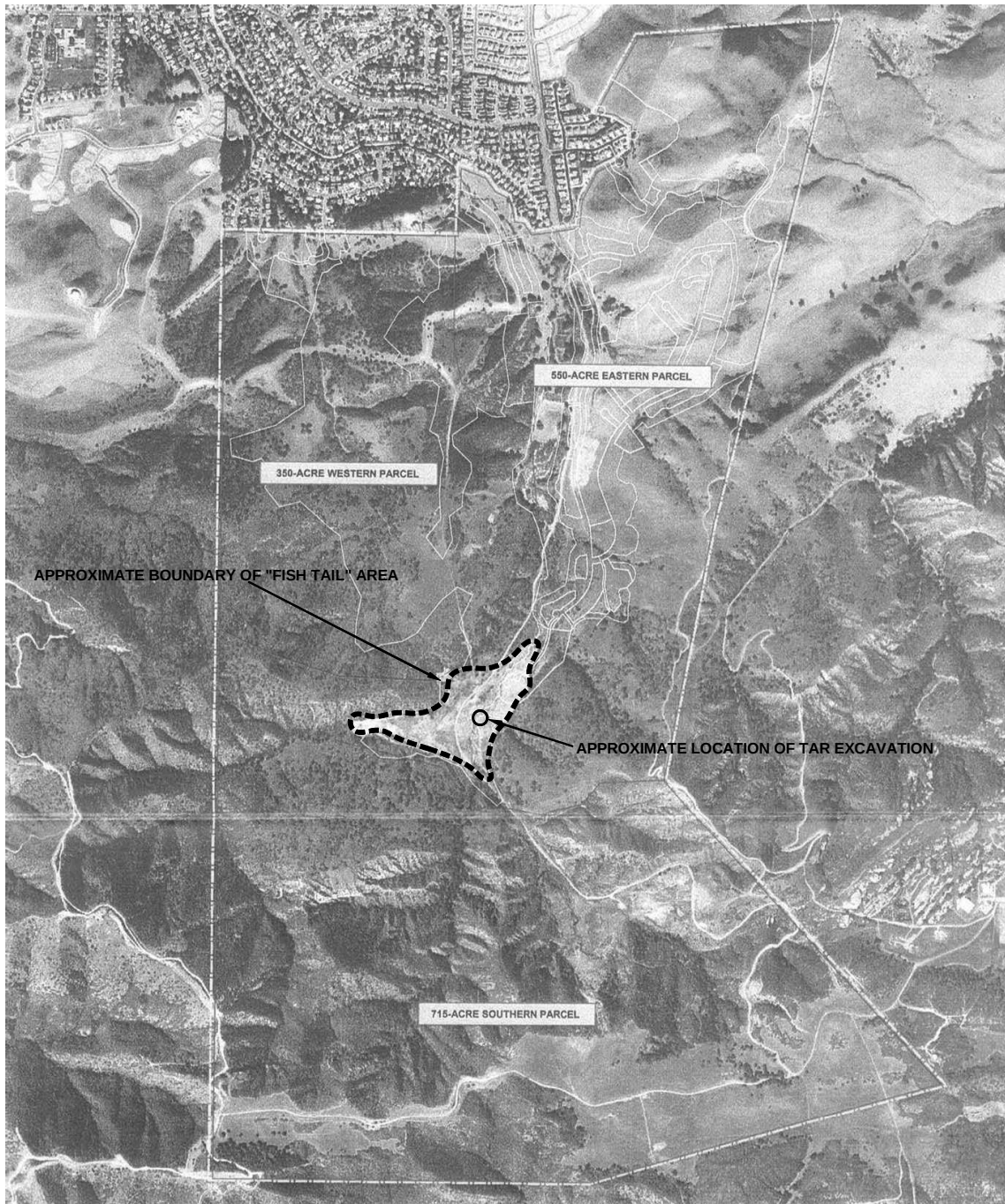
Michael Conkle, PG
Senior Geologist



Attachments:

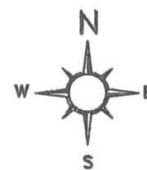
Figure 1 – Site Plan

Laboratory Report and Chain-of-custody Documentation



LEGEND

- PROPERTY LINE
- PARCEL BOUNDARY
- TRACT BOUNDARY (SHOWN IN WHITE)
- PROPOSED TRACT ROAD (SHOWN IN WHITE)



GEOCON
WEST, INC.



ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

MPC

8000

SITE PLAN

RUNKLE CANYON, LLC
Runkle Canyon Development
Simi Valley, California

SEP. 24, 2010

PROJECT NO. A8314-77-05

FIG. 1

September 10, 2010



Mike Conkle
Geocon Consultants, Inc.
3303 N. San Fernando Blvd., Suite 100
Burbank, CA 91504

TEL: (818) 841-8388
FAX: (818) 841-1704

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196

Workorder No.: 113597

RE: RUNKLE, A8314-77-05

Attention: Mike Conkle

Enclosed are the results for sample(s) received on September 03, 2010 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,


Eddie F. Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.



*Advanced Technology
Laboratories*

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: RUNKLE, A8314-77-05
Lab Order: 113597

CASE NARRATIVE

Analytical Comments for Method 8270

Surrogate recovery biased high for samples 113597-001A, 113597-002A, 113597-003A, 113597-004A, 113597-005A and 113597-006A, possibly due to matrix interferences.

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for samples 113597-002AMS and 113597-002AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-Sep-10

CLIENT: Geocon Consultants, Inc.
Lab Order: 113597
Project: RUNKLE, A8314-77-05
Lab ID: 113597-001A

Client Sample ID: EXA-1
Collection Date: 9/2/2010 3:32:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3550B

EPA 8270C

RunID:	MS6_100909A	QC Batch:	66683	PrepDate:	9/8/2010	Analyst:	DMP
Acenaphthene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Acenaphthylene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Anthracene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Benzo(a)anthracene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Benzo(a)pyrene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Benzo(b)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Benzo(g,h,i)perylene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Benzo(k)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Chrysene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Dibenz(a,h)anthracene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Fluorene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Indeno(1,2,3-cd)pyrene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Naphthalene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Phenanthrene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Pyrene	ND	5.0	µg/Kg	1	9/9/2010 10:59 AM		
Surr: 1,2-Dichlorobenzene-d4	98.0	36-108	%REC	1	9/9/2010 10:59 AM		
Surr: 2-Fluorobiphenyl	123	43-109	S %REC	1	9/9/2010 10:59 AM		
Surr: 4-Terphenyl-d14	143	34-158	%REC	1	9/9/2010 10:59 AM		
Surr: Nitrobenzene-d5	85.4	39-108	%REC	1	9/9/2010 10:59 AM		

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



Advanced Technology
Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755

Tel: 562. 989.4045

Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-Sep-10

CLIENT: Geocon Consultants, Inc.
Lab Order: 113597
Project: RUNKLE, A8314-77-05
Lab ID: 113597-002A

Client Sample ID: EXA-2
Collection Date: 9/2/2010 3:34:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3550B

EPA 8270C

RunID:	MS6_100909A	QC Batch:	66683	PrepDate:	9/8/2010	Analyst:	DMP
Acenaphthene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Acenaphthylene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Anthracene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Benzo(a)anthracene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Benzo(a)pyrene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Benzo(b)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Benzo(g,h,i)perylene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Benzo(k)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Chrysene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Dibenz(a,h)anthracene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Fluorene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Indeno(1,2,3-cd)pyrene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Naphthalene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Phenanthrene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Pyrene	ND	5.0	µg/Kg	1	9/9/2010 11:26 AM		
Surr: 1,2-Dichlorobenzene-d4	91.7	36-108	%REC	1	9/9/2010 11:26 AM		
Surr: 2-Fluorobiphenyl	112	43-109	S %REC	1	9/9/2010 11:26 AM		
Surr: 4-Terphenyl-d14	165	34-158	S %REC	1	9/9/2010 11:26 AM		
Surr: Nitrobenzene-d5	92.1	39-108	%REC	1	9/9/2010 11:26 AM		

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



Advanced Technology
Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755

Tel: 562. 989.4045

Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-Sep-10

CLIENT: Geocon Consultants, Inc.
Lab Order: 113597
Project: RUNKLE, A8314-77-05
Lab ID: 113597-003A

Client Sample ID: EXA-3
Collection Date: 9/2/2010 3:35:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3550B

EPA 8270C

RunID:	MS6_100909A	QC Batch:	66683	PrepDate:	9/8/2010	Analyst:	DMP
Acenaphthene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Acenaphthylene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Anthracene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Benzo(a)anthracene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Benzo(a)pyrene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Benzo(b)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Benzo(g,h,i)perylene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Benzo(k)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Chrysene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Dibenz(a,h)anthracene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Fluorene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Indeno(1,2,3-cd)pyrene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Naphthalene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Phenanthrene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Pyrene	ND	5.0	µg/Kg	1	9/9/2010 11:53 AM		
Surr: 1,2-Dichlorobenzene-d4	101	36-108	%REC	1	9/9/2010 11:53 AM		
Surr: 2-Fluorobiphenyl	132	43-109	S %REC	1	9/9/2010 11:53 AM		
Surr: 4-Terphenyl-d14	155	34-158	%REC	1	9/9/2010 11:53 AM		
Surr: Nitrobenzene-d5	93.5	39-108	%REC	1	9/9/2010 11:53 AM		

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



Advanced Technology
Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-Sep-10

CLIENT: Geocon Consultants, Inc.
Lab Order: 113597
Project: RUNKLE, A8314-77-05
Lab ID: 113597-004A

Client Sample ID: EXB-1
Collection Date: 9/2/2010 3:25:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3550B

EPA 8270C

RunID:	MS6_100909A	QC Batch:	66683	PrepDate:	9/8/2010	Analyst:	DMP
Acenaphthene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Acenaphthylene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Anthracene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Benzo(a)anthracene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Benzo(a)pyrene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Benzo(b)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Benzo(g,h,i)perylene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Benzo(k)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Chrysene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Dibenz(a,h)anthracene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Fluorene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Indeno(1,2,3-cd)pyrene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Naphthalene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Phenanthrene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Pyrene	ND	5.0	µg/Kg	1	9/9/2010 12:20 PM		
Surr: 1,2-Dichlorobenzene-d4	97.9	36-108	%REC	1	9/9/2010 12:20 PM		
Surr: 2-Fluorobiphenyl	120	43-109	S %REC	1	9/9/2010 12:20 PM		
Surr: 4-Terphenyl-d14	152	34-158	%REC	1	9/9/2010 12:20 PM		
Surr: Nitrobenzene-d5	100	39-108	%REC	1	9/9/2010 12:20 PM		

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



Advanced Technology
Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755

Tel: 562. 989.4045

Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-Sep-10

CLIENT: Geocon Consultants, Inc.
Lab Order: 113597
Project: RUNKLE, A8314-77-05
Lab ID: 113597-005A

Client Sample ID: EXB-2
Collection Date: 9/2/2010 3:20:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3550B

EPA 8270C

RunID: MS6_100909A	QC Batch: 66683	PrepDate: 9/8/2010	Analyst: DMP		
Acenaphthene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Acenaphthylene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Anthracene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Benzo(a)anthracene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Benzo(a)pyrene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Benzo(b)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Benzo(g,h,i)perylene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Benzo(k)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Chrysene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Dibenz(a,h)anthracene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Fluorene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Indeno(1,2,3-cd)pyrene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Naphthalene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Phenanthrene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Pyrene	ND	5.0	µg/Kg	1	9/9/2010 12:48 PM
Surr: 1,2-Dichlorobenzene-d4	100	36-108	%REC	1	9/9/2010 12:48 PM
Surr: 2-Fluorobiphenyl	114	43-109	S %REC	1	9/9/2010 12:48 PM
Surr: 4-Terphenyl-d14	121	34-158	%REC	1	9/9/2010 12:48 PM
Surr: Nitrobenzene-d5	99.5	39-108	%REC	1	9/9/2010 12:48 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 10-Sep-10

CLIENT: Geocon Consultants, Inc.
Lab Order: 113597
Project: RUNKLE, A8314-77-05
Lab ID: 113597-006A

Client Sample ID: EXB-3
Collection Date: 9/2/2010 3:22:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3550B

EPA 8270C

RunID: MS6_100909A	QC Batch: 66683	PrepDate: 9/8/2010	Analyst: DMP		
Acenaphthene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Acenaphthylene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Anthracene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Benzo(a)anthracene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Benzo(a)pyrene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Benzo(b)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Benzo(g,h,i)perylene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Benzo(k)fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Chrysene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Dibenz(a,h)anthracene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Fluoranthene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Fluorene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Indeno(1,2,3-cd)pyrene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Naphthalene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Phenanthrene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Pyrene	ND	5.0	µg/Kg	1	9/9/2010 01:15 PM
Surr: 1,2-Dichlorobenzene-d4	102	36-108	%REC	1	9/9/2010 01:15 PM
Surr: 2-Fluorobiphenyl	124	43-109	S %REC	1	9/9/2010 01:15 PM
Surr: 4-Terphenyl-d14	155	34-158	%REC	1	9/9/2010 01:15 PM
Surr: Nitrobenzene-d5	102	39-108	%REC	1	9/9/2010 01:15 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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CLIENT: Geocon Consultants, Inc.
Work Order: 113597
Project: RUNKLE, A8314-77-05

ANALYTICAL QC SUMMARY REPORT**TestCode: 8270_S_SIM**

Sample ID: MB-66683		SampType: MBLK		TestCode: 8270_S_SIM		Units: µg/Kg		Prep Date: 9/8/2010			RunNo: 124829	
Client ID: PBS		Batch ID: 66683		TestNo: EPA 8270C		EPA 3550B		Analysis Date: 9/9/2010			SeqNo: 2007076	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene		ND	5.0									
Acenaphthylene		ND	5.0									
Anthracene		ND	5.0									
Benzo(a)anthracene		ND	5.0									
Benzo(a)pyrene		ND	5.0									
Benzo(b)fluoranthene		ND	5.0									
Benzo(g,h,i)perylene		ND	5.0									
Benzo(k)fluoranthene		ND	5.0									
Chrysene		ND	5.0									
Dibenz(a,h)anthracene		ND	5.0									
Fluoranthene		ND	5.0									
Fluorene		ND	5.0									
Indeno(1,2,3-cd)pyrene		ND	5.0									
Naphthalene		ND	5.0									
Phenanthrene		ND	5.0									
Pyrene		ND	5.0									
Surr: 1,2-Dichlorobenzene-d4		11.001		16.67		66.0	36	108				
Surr: 2-Fluorobiphenyl		12.919		16.67		77.5	43	109				
Surr: 4-Terphenyl-d14		14.517		16.67		87.1	34	158				
Surr: Nitrobenzene-d5		9.215		16.67		55.3	39	108				

Sample ID: LCS-66683	SampType: LCS	TestCode: 8270_S_SIM	Units: µg/Kg	Prep Date: 9/8/2010	RunNo: 124829						
Client ID: LCSS	Batch ID: 66683	TestNo: EPA 8270C	EPA 3550B	Analysis Date: 9/9/2010	SeqNo: 2007077						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	26.462	5.0	33.33	0	79.4	48	103				
Phenanthrene	28.829	5.0	33.33	0	86.5	56	110				
Pyrene	25.245	5.0	33.33	0	75.7	62	110				

Qualifiers:

B Analyte detected in the associated Method Blank
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out

E Value above quantitation range
 R RPD outside accepted recovery limits
 Calculations are based on raw values

H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference



CLIENT: Geocon Consultants, Inc.
Work Order: 113597
Project: RUNKLE, A8314-77-05

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_SIM

Sample ID: LCS-66683	SampType: LCS	TestCode: 8270_S_SIM	Units: µg/Kg	Prep Date: 9/8/2010	RunNo: 124829						
Client ID: LCSS	Batch ID: 66683	TestNo: EPA 8270C	EPA 3550B	Analysis Date: 9/9/2010	SeqNo: 2007077						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1,2-Dichlorobenzene-d4	11.158		16.67		66.9	36	108				
Surr: 2-Fluorobiphenyl	13.726		16.67		82.3	43	109				
Surr: 4-Terphenyl-d14	13.700		16.67		82.2	34	158				
Surr: Nitrobenzene-d5	9.940		16.67		59.6	39	108				

Sample ID: 113597-002AMS	SampType: MS	TestCode: 8270_S_SIM	Units: µg/Kg	Prep Date: 9/8/2010	RunNo: 124829						
Client ID: EXA-2	Batch ID: 66683	TestNo: EPA 8270C	EPA 3550B	Analysis Date: 9/9/2010	SeqNo: 2007078						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	21.476	5.0	33.33	0	64.4	52	133				
Phenanthrene	24.456	5.0	33.33	0	73.4	32	181				
Pyrene	24.101	5.0	33.33	0	72.3	46	157				
Surr: 1,2-Dichlorobenzene-d4	24.235		16.67		145	36	108				S
Surr: 2-Fluorobiphenyl	30.263		16.67		182	43	109				S
Surr: 4-Terphenyl-d14	38.008		16.67		228	34	158				S
Surr: Nitrobenzene-d5	23.929		16.67		144	39	108				S

Sample ID: 113597-002AMSD	SampType: MSD	TestCode: 8270_S_SIM	Units: µg/Kg	Prep Date: 9/8/2010	RunNo: 124829						
Client ID: EXA-2	Batch ID: 66683	TestNo: EPA 8270C	EPA 3550B	Analysis Date: 9/9/2010	SeqNo: 2007079						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	19.499	5.0	33.33	0	58.5	52	133	21.48	9.65	20	
Phenanthrene	23.420	5.0	33.33	0	70.3	32	181	24.46	4.33	20	
Pyrene	25.896	5.0	33.33	0	77.7	46	157	24.10	7.18	20	
Surr: 1,2-Dichlorobenzene-d4	21.589		16.67		130	36	108		0		S
Surr: 2-Fluorobiphenyl	27.489		16.67		165	43	109		0		S
Surr: 4-Terphenyl-d14	40.855		16.67		245	34	158		0		S
Surr: Nitrobenzene-d5	21.972		16.67		132	39	108		0		S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out

E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values

H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference



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Diane Galvan

From: Mike Conkle [conkle@geoconinc.com]
Sent: Tuesday, September 07, 2010 10:10 AM
To: Diane Galvan
Subject: RE: PAH samples

Hi Diane,
Please run the samples for PAHs by EPA Method 8270.

Can you get me results by Friday?

Michael Conkle, PG
Senior Geologist

GEOCON

3303 N. San Fernando Blvd., Suite 100
Burbank, California 91504
Tel (818) 841-8388 Fax (818) 841-1704 Mobile (213) 503-7841

Please visit our new website: <http://www.geoconinc.com>



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From: Diane Galvan [mailto:diane@atlglobal.com]
Sent: Friday, September 03, 2010 4:57 PM
To: Mike Conkle
Subject: RE: PAH samples

OK, will do.

From: Mike Conkle [mailto:conkle@geoconinc.com]
Sent: Friday, September 03, 2010 3:39 PM
To: Diane Galvan
Subject: PAH samples

Hi Diane,
Your courier picked up six soil samples earlier today for our Runkle project. On the chain of custody I had indicated that we wanted to run the samples for PAH's by 8310. We are considering running them by EPA Method 8270. Please hold the samples until you receive further instruction from me. Thanks.

Michael Conkle, PG
Senior Geologist



Dade Moeller & Associates, Inc.
Technical Report

**Evaluation and Health Risk Assessment
of Soil Sample Results for Runkle Canyon
Pursuant to the Revised Response Plan**

December 17, 2010

Prepared for
Runkle Canyon, LLC
10990 Wilshire Boulevard
Los Angeles, CA 90024

Dade Moeller & Associates, Inc.
1835 Terminal Drive, Suite 200
Richland, WA 99354



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Attachment A. Map showing 2010 Runkle Canyon Sampling Locations

Attachment B. Latitude and Longitude of Samples Collected during July 2010

Attachment C. Map Showing Locations of 2007 and 2010 Surface Soil Samples

Attachment D. Map Showing Locations of 1998 – 2005 Surface Soil Samples

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Evaluation and Health Risk Assessment of Soil Sample Results for Runkle Canyon Pursuant to the Revised Response Plan

SUMMARY. Runkle Canyon is a 1,600-acre site directly south of Simi Valley, California. About one-tenth of this area is proposed for development of a residential community, with the remainder being retained as “open space” for a variety of recreational uses. The site has been periodically sampled for the radionuclides strontium-90 (^{90}Sr) and cesium-137 (^{137}Cs) since 1998. In December 2008 a Response Plan was submitted to the California Department of Toxic Substances Control (DTSC), outlining proposed actions that would be taken to demonstrate that the site was safe for future residents and open space users. Following comments from members of the public and DTSC, the plan was revised and re-submitted in July 2010. One of the proposed actions of the Revised Response Plan was to collect additional soil samples and analyze again for the presence of ^{90}Sr and ^{137}Cs , this time with the direct involvement of DTSC. A human health radiological risk assessment was also to be performed.

During July 2010 thirty-nine surface soil samples were collected by an independent environmental services company from 35 sample locations in Runkle Canyon; the samples were analyzed for the presence of ^{90}Sr and ^{137}Cs by an independent, DTSC-approved analytical laboratory. A set of 14 sample locations were established using a MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual)-based sampling plan to evaluate the possible presence of these radionuclides in the proposed eastern and southeastern open space areas of Runkle Canyon nearest to the Santa Susanna Field Laboratory (SSFL). A second set of 21 sample locations were selected by DTSC to evaluate the potential transfer of radionuclides from the SSFL site into Runkle Canyon, and also to provide follow-up analysis of earlier samples where the highest levels of ^{90}Sr had been detected previously. Two duplicate samples were also collected for each of the sample sets at randomly selected sample locations. In addition, six soil samples were collected from three sampling trenches dug in an area of fill associated with a closed aggregate quarry in Runkle Canyon. The distributions of results for both radionuclides are generally consistent with the expected local background levels. Results of samples taken from trenches dug in the fill area of a closed aggregate quarry show even lower levels of the two radionuclides.

Levels of ^{90}Sr and ^{137}Cs detected in Runkle Canyon do not represent a significant health risk to future residents or visitors to the property. A human health risk assessment was performed by comparing surface soil concentrations of ^{90}Sr and ^{137}Cs in Runkle Canyon to the default preliminary remediation goal (PRG) for a residential soil scenario for samples in residential areas, and to a Runkle Canyon “open space user” scenario for samples collected in open space areas. Residential area samples from 2007 for ^{90}Sr were also included because they had not previously been part of a risk assessment. The total risk from ^{90}Sr and ^{137}Cs is shown to be less than 1 in 1 million using the health-protective 95 percent upper confidence level and the upper bound concentrations; the excess risk is at background levels for ^{90}Sr and for the ^{137}Cs residential scenario. The excess risk from ^{137}Cs for open space users is about 1 in 10 million. Evaluating more realistic scenarios that more accurately reflect expected use would result in even lower risk from ^{90}Sr and ^{137}Cs . Overall, the results demonstrate the property is safe for future residents and visitors. A summary of the soil sampling results is shown in Table S1 and risk assessment results are shown in Table S2. No further action is required for Runkle Canyon.

Table S1. Summary of soil sampling results for strontium-90 and cesium-137 in Runkle Canyon, 2007 and 2010. Sample results in picocuries per gram (pCi/g).

Descriptive Statistics	2010 ⁹⁰ Sr All Results	2007 ⁹⁰ Sr All Results	2010 ¹³⁷ Cs Residential Area ¹	2010 ¹³⁷ Cs Open Space Area ¹	2010 ¹³⁷ Cs All results
5 th percentile	-0.018	-0.0006	-0.0074	-0.009	-0.012
Average	0.013	0.014	0.027	0.069	0.060
Median	0.007	0.0115	0.025	0.059	0.043
95 th percentile	0.037	0.040	0.069	0.147	0.147
ProUCL Statistics²					
95% UCL ³	0.031 (np)	0.022 (np)	0.047 (n)	0.122 (np)	0.105 (np)
Upper Bound ⁴	0.037 (g)	0.025 (g)	0.055 (n)	0.096 (ln)	0.084 (ln)

1. 8 sample results from the residential area, 31 samples from the open space area.

2. Calculated using the EPA ProUCL code, version 4.00.05. Statistical distributions: np = non-parametric; g = gamma; n = normal; ln = lognormal.

3. UCL = Upper Confidence Limit.

4. Upper bound calculated by replacing non-detected values with the minimum detectable concentration.

Table S2. Assessment of total and excess risk in Runkle Canyon for future residents and open space users exposed to strontium-90 and cesium-137.

Risk Parameter	2010 ⁹⁰ Sr Resident, All Results ^{1,2}	2007 ⁹⁰ Sr Resident, All Results ^{1,2}	2010 ¹³⁷ Cs Resident	2010 ¹³⁷ Cs Open Space User	2010 ¹³⁷ Cs Resident, All results ^{1,3}
Total Risk					
95 th percent UCL	1.3×10^{-7}	9×10^{-8}	7.6×10^{-7}	2.7×10^{-7}	1.7×10^{-6} [3]
Upper Bound	1.5×10^{-7}	1.0×10^{-7}	8.9×10^{-7}	2.1×10^{-7}	1.4×10^{-6} [3]
Excess Risk (above background, using original 1995 background value)					
95 th percent UCL	bkgd	bkgd	bkgd	8×10^{-8}	3×10^{-7} [3]
Upper Bound	bkgd	bkgd	bkgd	2×10^{-8}	bkgd
Excess Risk (above background, using decay-corrected local background values)					
95 th percent UCL	bkgd	bkgd	bkgd	1.4×10^{-7}	7×10^{-7} [3]
Upper Bound	bkgd	bkgd	bkgd	8×10^{-8}	4×10^{-7} [3]

1. These values overestimate the risk to a resident, because most of the samples are from the open space area.

2. No open space user risks are presented for Sr-90; the risks would be much less than for a resident.

[3]. These risks are overestimated and should be used for comparative purposes only. Open space soil concentrations included in all results are not applicable for the resident scenario.

Evaluation and Health Risk Assessment of Soil Sample Results for Runkle Canyon Pursuant to the Revised Response Plan

1.0 INTRODUCTION

Runkle Canyon is a 1,600-acre site directly south of Simi Valley, California. About one-tenth of this area is proposed for development of a residential community, with the remainder being retained as “open space” for a variety of recreational uses. Since late 1998 nearly 200 soil samples have been collected and analyzed for the radionuclide strontium-90 (^{90}Sr), and over 100 samples have been analyzed for cesium-137 (^{137}Cs), most recently in 2000. During this time the levels of ^{90}Sr present in the surface soil have been the principal concern to members of the public and California regulators including the Department of Public Health and the Department of Toxic Substances Control. In December 2008 a Response Plan was submitted to the California Department of Toxic Substances Control (DTSC), outlining proposed actions that would be taken to demonstrate that the site was safe for future residents and open space users. Following comments from members of the public and from DTSC (DTSC 2010), the plan was revised and re-submitted in July 2010. One of the proposed actions of the Revised Runkle Canyon Response Plan (DM 2010a) was to collect additional soil samples and analyze again for the presence of ^{90}Sr and ^{137}Cs , this time with the direct involvement of DTSC.

Soil sampling for the presence of ^{90}Sr and ^{137}Cs was conducted in Runkle Canyon from July 27 – 30, 2010. There were five main objectives for the sampling of radionuclides during 2010:

1. collect surface soil samples in the eastern and southeastern open spaces areas of the site to supplement residential area samples collected in 2007 (DM 2007a);
2. collect surface soil samples at locations specified by DTSC, with further objectives of
 - evaluating the potential for spread of radionuclides from the Santa Susanna Field Laboratory (SSFL);
 - further evaluating locations where samples with the highest levels of ^{90}Sr had been collected during 1999 and 2000;
 - collecting additional samples in the residential area to verify results of samples collected in 2007.
3. collect soil samples at the surface and at depth in an area of fill from a closed quarry (also to be analyzed for specified chemicals);
4. analyze all samples for both ^{90}Sr and ^{137}Cs and evaluate the $^{137}\text{Cs}:^{90}\text{Sr}$ ratio with the intent of determining if a characteristic fission product ratio can be identified; and
5. conduct a health risk assessment based on the radionuclide concentrations in samples collected during 2010 for comparison to the results of an earlier health risk assessment (DM 2005a).

This report documents the results of the 2010 sampling for ^{90}Sr and ^{137}Cs in Runkle Canyon, and provides an assessment of the potential radiological risk to a future resident or user of the open spaces based on the recent sampling results. This report does not include results of any of the split samples which were the responsibility of DTSC and maintained under a separate chain of custody from collection through analysis.

2.0 BACKGROUND

A summary of the ^{90}Sr and ^{137}Cs sampling conducted in Runkle Canyon from 1998 through 2007 is provided in the revised Runkle Canyon Response Plan (DM 2010a). Interest in radionuclides has been driven by ^{90}Sr , where a small number of samples had results that were higher than expected. The concentrations of ^{137}Cs were never at issue, with concentrations much lower than those of ^{90}Sr . The summary soil sample statistics from the response plan are shown below.

Table 1. QST soil sampling, December 1998 (QST 1999).

Result	^{90}Sr (4 samples)		^{137}Cs (4 samples)	
	Samples	MDC	Samples	MDC
Average (pCi/g)	0.59	0.21	0.028	0.17
Median (pCi/g)	0.62	0.19	0.017	0.14
Minimum (pCi/g)	0.25	0.19	-0.03	0.14
Maximum (pCi/g)	0.86	0.22	0.11	0.22
Std. deviation (pCi/g)	0.30	0.01	0.06	0.03
Results > MDC	4 of 4		0 of 4	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

Table 2. Foster Wheeler MARSSIM-based sampling, July 1999 (FW 1999).

Result	^{90}Sr (70 samples)		^{137}Cs (67 samples)	
	Samples	MDC	Samples	MDC
Average (pCi/g)	1.33	0.75	0.09	0.08
Median (pCi/g)	1.07	0.75	0.09	0.08
Minimum (pCi/g)	-0.29	0.56	-0.05	0.05
Maximum (pCi/g)	12.34	0.99	0.3	0.12
Std deviation (pCi/g)	1.63	0.08	0.08	0.01
Results > MDC	52 of 70		29 of 67	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

Table 3. Harding ESE soil sampling, September 2000 (HESE 2000).

Result	^{90}Sr (19 samples)		^{137}Cs (19 samples)	
	Samples	MDC	Samples	MDC
Average (pCi/g)	0.96	0.66	0.015	0.11
Median (pCi/g)	0.39	0.65	0.015	0.12
Minimum (pCi/g)	-0.32	0.47	-0.09	0.07
Maximum (pCi/g)	4.76	0.79	0.09	0.14
Std. deviation (pCi/g)	1.49	0.10	0.04	0.02
Results > MDC	7 of 19		1 of 19	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

Table 4. Re-sampling of five highest soil sample locations, June 2005 (DM 2005b).

Sample	Original ^a Results (pCi/g)		Contracted Laboratory A (pCi/g)		CA State Laboratory (pCi/g)	
	Result	MDC	Result	MDC	Result	MDC
GP-29	5.13±0.69	0.84	0.140±0.167 -0.065±0.185	0.280 0.327	0.068±0.242	0.399
GP-44	6.38±0.79	0.99	0.247±0.180	0.293	0.013±0.179	0.299
GP-52	12.34±0.86	0.59	0.423±0.177	0.273	0.137±0.192	0.306
SS-3	3.64±0.62	0.75	0.215±0.150	0.244	-0.022±0.206	0.348
SS-6	4.76±0.63	0.64	0.173±0.170	0.282	0.056±0.265	0.439

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

a. GP-29, GP-44, GP-52 from Foster Wheeler (1999); SS-3, SS-6 from Harding ESE (2000).

Table 5. MARSSIM-based sampling of proposed residential area (DM 2007a; City of Simi Valley 2007).

Samples	Contracted Laboratory B		City of Simi Valley ^a	
	63 samples	MDC	10 samples	LLD ^b
Average (pCi/g)	0.014	0.019	0.011	0.013
Median (pCi/g)	0.012	0.019	0.012	0.013
Minimum (pCi/g)	-0.010	0.008	-0.002	0.009
Maximum (pCi/g)	0.078	0.033	0.027	0.02
Std deviation (pCi/g)	0.015	0.008	0.0082	0.0041
Results > MDC	19 of 63		5 of 10	

pCi/g = picocuries per gram; MDC = minimum detectable concentration.

a. City of Simi Valley laboratory results are not included in the 2007 report.

b. LLD = lower limit of detection; LLD and MDC are comparable statistics.

A human health risk assessment was prepared in 2005 (DM 2005a) based on all of the ⁹⁰Sr results at that time. This assessment used the US Environmental Protection Agency (EPA) preliminary remediation goal (PRG) calculator to develop site-specific PRGs based on exposure scenarios that were reflective of the planned land usage in the proposed housing development and by recreational users of the proposed open space. This assessment determined that the potential risk to future residents and open space users would be less than 1 in 1 million, and that the risk to nearby residents from earthmoving during the construction phase would be less than 1 in 1 billion.

Only the 2007 and 2010 sampling results have yet to be analyzed in a human health risk assessment.

3.0 SAMPLING APPROACH AND METHODS

A sampling plan (DM 2010b) was prepared to direct the collection of samples, following the same approach taken in the 2007 collection of soil samples (DM 2007b). An independent environmental services company, Stantec Consulting Services, Inc., also developed their own site-specific work plan and collected all of the 2010 samples included in this report. An independent analytical laboratory, Teledyne Brown Engineering of Knoxville, Tennessee, was approved by DTSC to analyze the 45 soil samples collected.

Surface soil samples. The DTSC-directed surface soil samples were designated “PS” and location and collection was affirmed on-site during sampling by a DTSC representative. A representative of DTSC was on site at all times while sampling was being conducted; the representative also collected split samples for DTSC and maintained the sample chain of custody on these samples. A total of 23 DTSC samples were collected; DTSC proposed 22 sample locations (later amended to 21 locations when one proposed location was inaccessible during sampling; locations 5 and 6 were combined) along with two duplicate samples at randomly selected sample locations. Fourteen randomly-selected MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual)-based (EPA 2001) sample locations were identified in the eastern and southeastern open-space areas of the Runkle Canyon property nearest to the Santa Susanna Field Laboratory (SSFL). Randomly selected duplicate samples were also collected at two sample locations.

The 39 surface soil samples were collected using a modified ASTM C998-05¹ sampling procedure to account for collection of ⁹⁰Sr and ¹³⁷Cs which could be in the surface soil layer from 0 to 6 inches (0 to 15 cm) in depth. The four duplicates were collected identically to the other soil samples. Three trenches were dug in the fill area using a backhoe to a depth of approximately four feet. Two soil samples were collected in each trench, one at a depth of 0.5 feet and one at 4 feet. Six trench samples were collected.

All soil samples were split on-site and the splits maintained under separate chains of custody by Stantec and DTSC. Sample containers were sealed with evidence tape and signed by both the Stantec and DTSC representatives. Sample containers were only opened upon receipt by the respective analytical laboratories. Attachment A shows the 2010 sample locations of both surface soil and trench samples. Latitude and longitude readings of all of the samples are included in Attachment B.

Analysis for ⁹⁰Sr and ¹³⁷Cs. A total of 45 soil samples were collected and submitted by Stantec to the Teledyne Brown Engineering laboratory for analysis. The DTSC-collected soil samples were not included, as they were handled separately by DTSC personnel and maintained under a separate chain of custody and analyzed at a different laboratory. Minimum detectable concentrations (MDCs) were specified to an independently contracted analytical laboratory so that the “local background level” of 0.05 pCi/g for ⁹⁰Sr could be detected; the same MDC of 0.05 pCi/g was specified for ¹³⁷Cs.

¹ ASTM Standard C 998, 2005, “Standard Practice for Sampling Surface Soil for Radionuclides,” ASTM International, West Conshohocken, PA, www.astm.org.

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4.0 RESULTS OF 2010 SOIL SAMPLING

Samples were collected at Runkle Canyon from July 27 – July 30, 2010 as described in Section 3.0. The results of the analysis for ^{90}Sr and ^{137}Cs in surface soil samples as reported by the analytical laboratory are shown in Table 6. Results of sampling the same radionuclides in the three trenches located in the fill area of the closed quarry are shown in Table 7.

Table 6. Results of surface soil sampling in Runkle Canyon for ^{90}Sr and ^{137}Cs .

Sample	Area ¹	Sr-90 Result ± 2 std dev ² (pCi/g)	Sr-90 MDC ³ (pCi/g)	Cs-137 Result ± 2 std dev (pCi/g)	Cs-137 MDC (pCi/g)	Cs-137:Sr-90 ratio
PS-1	OS	0.026 ± 0.031	0.025	0.049 ± 0.042	0.041	1.84
PS-2	OS	0.010 ± 0.022	0.020	0.015 ± 0.017	0.029	1.55
PS-3	OS	-0.0002 ± 0.028	0.029	0.030 ± 0.021	0.036	-158.42
PS-4	OS	-0.002 ± 0.035	0.040	0.023 ± 0.020	0.034	-9.42
PS-5/6	OS	0.003 ± 0.027	0.018	0.017 ± 0.020	0.034	5.17
PS-7	OS	0.007 ± 0.016	0.009	0.043 ± 0.015	0.016	5.76
PS-8	OS	0.011 ± 0.047	0.028	-0.017 ± 0.018	0.028	-1.45
PS-9	OS	0.135 ± 0.079	0.029	0.170 ± 0.025	0.032	1.26
PS-10	OS	0.001 ± 0.025	0.015	-0.009 ± 0.021	0.034	-10.69
PS-11	OS	0.037 ± 0.049	0.023	0.106 ± 0.050	0.054	2.85
PS-12	OS	-0.027 ± 0.048	0.038	0.032 ± 0.027	0.046	-1.19
PS-12 XX ⁴	OS	0.026 ± 0.055	0.028	-0.003 ± 0.024	0.039	-0.13
PS-13	OS	0.006 ± 0.047	0.034	0.059 ± 0.027	0.049	9.65
PS-14	R	0.019 ± 0.053	0.030	0.005 ± 0.029	0.048	0.27
PS-15	OS	0.025 ± 0.048	0.025	0.139 ± 0.031	0.033	5.63
PS-16	R	0.002 ± 0.032	0.020	0.033 ± 0.025	0.034	18.47
PS-17	R	0.007 ± 0.033	0.021	0.0001 ± 0.017	0.029	0.02
PS-18	R	0.005 ± 0.024	0.013	-0.012 ± 0.013	0.021	-2.22
PS-19	OS	0.020 ± 0.039	0.020	0.085 ± 0.023	0.028	4.26
PS-20	R	0.005 ± 0.043	0.024	0.059 ± 0.026	0.031	11.40
PS-21	R	0.003 ± 0.030	0.017	0.037 ± 0.010	0.014	11.90
PS-21 YY ⁴	R	0.002 ± 0.033	0.019	0.018 ± 0.028	0.048	9.48
PS-22	R	0.004 ± 0.079	0.045	0.074 ± 0.037	0.027	18.67
N-1	OS	0.067 ± 0.066	0.024	0.073 ± 0.036	0.049	1.09
N-2	OS	0.021 ± 0.104	0.046	0.084 ± 0.063	0.073	4.00
N-2 XX	OS	0.007 ± 0.037	0.037	0.037 ± 0.034	0.043	5.58
N-3	OS	0.026 ± 0.057	0.024	0.065 ± 0.040	0.049	2.49
N-4	OS	0.016 ± 0.048	0.037	0.082 ± 0.025	0.046	5.20
N-4 YY	OS	-0.010 ± 0.039	0.038	0.078 ± 0.061	0.045	-7.93
N-5	OS	0.015 ± 0.033	0.026	0.016 ± 0.030	0.045	1.05
N-6	OS	-0.001 ± 0.037	0.031	0.027 ± 0.029	0.049	-36.46
N-7	OS	-0.003 ± 0.101	0.050	0.116 ± 0.033	0.032	-44.44

Table 6, continued

Sample	Area ¹	Sr-90 Result ± 2 std dev ² (pCi/g)	Sr-90 MDC ³ (pCi/g)	Cs-137 Result ± 2 std dev (pCi/g)	Cs-137 MDC (pCi/g)	Cs-137:Sr-90 ratio
N-8	OS	0.022 $\pm$ 0.110	0.043	0.325 $\pm$ 0.062	0.053	14.77
N-9	OS	-0.008 $\pm$ 0.045	0.024	0.147 $\pm$ 0.029	0.035	-18.54
N-10	OS	-0.018 $\pm$ 0.058	0.031	0.087 $\pm$ 0.032	0.041	-4.76
N-11	OS	-0.003 $\pm$ 0.057	0.028	0.071 $\pm$ 0.025	0.046	-28.37
N-12	OS	0.029 $\pm$ 0.045	0.031	0.135 $\pm$ 0.048	0.051	4.74
N-13	OS	0.001 $\pm$ 0.038	0.032	0.030 $\pm$ 0.028	0.047	57.92
N-14	OS	0.014 $\pm$ 0.031	0.022	0.029 $\pm$ 0.028	0.050	2.06

1. Area of the sample is either open space (OS) or residential (R).
2. Std dev is standard deviation; 2 standard deviations show the 95 percent confidence interval around the result.
3. MDC is minimum detectable concentration in pCi/g, at the 95 percent confidence level.
4. Samples designated XX and YY are duplicates taken at the noted randomly selected sample location.

Strontium-90 surface soil concentrations ranged from negative values to 0.135 pCi/g, with an average value of 0.013 pCi/g and a median of 0.007 pCi/g. Cesium-137 surface soil concentrations ranged from negative values to 0.325 pCi/g, with an average value of 0.060 pCi/g and a median of 0.043 pCi/g. These results are generally consistent with the local background levels reported by the US EPA in 1995 (EPA 1995, McLaren Hart 1995) and corrected for radioactive decay to the time of sample collection in 2010, when sample activities would be expected to decay by more than 30 percent from 1995 levels.

A summary of the surface soil results for both radionuclides are presented in Table 7. Descriptive statistics of the results reported by the analytical laboratory are presented first. Early US EPA guidance on improving environmental radiation data recommended including the values as reported for statistical analysis (EPA 1980). More recently, the *Multi-Agency Radiological Laboratory Analytical Protocols Manual* (EPA 2004) (the MARLAP manual), more directly and extensively addressed the treatment and presentation of negative and zero results. The US Nuclear Regulatory Commission (NRC) is the co-publisher of the MARLAP manual, and it has received endorsement from the US Department of Energy and several other federal agencies. It is clear that the laboratory should report all data as obtained, whether positive, negative, or zero, together with their uncertainties.

In addition, calculated statistics for the 95 percent upper confidence limit (UCL) and the upper bound are also presented in Table 7. The US EPA **ProUCL** code, version 4.00.05 (EPA 2010a, b, c) was used to calculate the UCL and the upper bound. DTSC has indicated that calculation of the UCL and the upper bound using ProUCL is the preferred method for determining the radionuclide contaminant concentration to be used in a human health risk assessment.

The principle difference between calculation of the 95 percent UCL and the upper bound value using the ProUCL code lies in the treatment of the “non-detect” results. “Non-detects” are sample results which are reported by the laboratory as being less than the minimum detectable concentration (MDC) for that sample. If non-detects are present in sets of data, they must be

Table 7. Summary of the 2010 surface soil sampling results for ^{90}Sr and ^{137}Cs (in pCi/g)

Descriptive Statistics	Sr-90 All Results (n = 39)	Cs-137 Residential Area (n = 8)	Cs-137 Open Space (n = 31)	Cs-137 All results (n = 39)
5 th percentile	-0.018	-0.0074	-0.009	-0.012
Average	0.013	0.027	0.069	0.060
Median	0.007	0.025	0.059	0.043
95 th percentile	0.037	0.069	0.147	0.147
ProUCL Statistics ¹				
95 th % UCL ²	0.031 (np)	0.047 (n)	0.122 (np)	0.105 (np)
Upper Bound ³	0.037 (g)	0.055 (n)	0.096 (ln)	0.084 (ln)

1. Calculated using the EPA ProUCL code, version 4.00.05. Statistical distributions: np = non-parametric; g = gamma; n = normal; ln = lognormal.

2. UCL = Upper Confidence Limit.

3 The upper bound is calculated by replacing non-detect values with the minimum detectable concentration.

considered along with positively detected results when determining the descriptive statistics for data sets. There are 35 non-detects in the set of ^{90}Sr results, and 18 non-detects in the set of ^{137}Cs results. EPA guidance (EPA 1989) allows for best professional judgment in determining the most appropriate assignment of values for non-detect results. Options include using the reported value, using one-half of the MDC, using the MDC, or assigning non-detects to be zero.

The 95 percent UCL is calculated using all of the results as reported by the laboratory, including positive, less than MDC, zero, and negative values. ProUCL determines the statistical distribution that best fits the observed data; the 95 percent UCL for this distribution was one of two concentrations used in the radiological risk assessment.

The upper bound is calculated by replacing all of the reported non-detect values with the respective MDC for each sample, then calculating the 95 percent UCL using ProUCL. Because of the large number of non-detects in the data sets, the statistical distributions may change when calculating the upper bound compared to the 95 percent UCL, and the upper bound may be smaller than the UCL. The second technique is the most health-protective method of assigning a concentration value to a non-detect value as it maximizes the amount of a radionuclide that can be present in the sample (if it were higher than the MDC it would have been detected). The upper bound is also used in the radiological risk assessment. Calculating both the 95% UCL and the upper bound and using them as the representative values for the sample data sets provides conservative, health-protective concentrations for radiological risk assessment that most likely bound the actual concentrations of radionuclides that may be present in Runkle Canyon.

Comparisons to local background levels have been important for soil sample data collected at Runkle Canyon. Local background information is also needed to calculate excess risk in the radiological risk assessment. Table 8 shows the local background as originally presented by EPA in 1995 (EPA 1995) and also shows the background levels corrected for radioactive decay to 2007 and 2010 for use with the 2007 and 2010 sampling data.

Table 8. Local background levels for ^{90}Sr and ^{137}Cs .

	Sr-90		Cs-137	
	Average	95% UCL	Average	95% UCL
1995 ¹	0.052	0.11	0.087	0.21
Decay-Corrected, 2010 ²	0.036	0.075	0.060	0.14
Decay-Corrected, 2007 ³	0.038	0.081	na ⁴	na ⁴

1. Local background values from EPA (EPA 1995, McLaren Hart 1995).

2. Corrected for radioactive decay, to September 1, 2010.

3. Corrected for radioactive decay to November 1, 2007.

4. Not applicable; no ^{137}Cs analysis in 2007.

Graphical presentations of the 2010 ^{90}Sr and ^{137}Cs results are shown in Figures 1 and 2, respectively. Both figures show the 95 percent UCL and upper bound concentrations calculated using ProUCL. For comparison, the 1995 EPA local background concentrations and the associated 95 percent upper confidence limits are shown, as well as the local background concentrations decay-corrected to the time of laboratory analysis in 2010 and 2007.

Figure 1 shows one ^{90}Sr sample (PS-9) with a concentration of 0.135 ± 0.079 pCi/g that appears to be higher than the expected 95 percent UCL. ProUCL analysis identifies it as a potential statistical outlier but the value was included in the analysis. This sample concentration is not representative of the data collected and the UCL provides a much more representative concentration. Furthermore, the health risk information presented in section 5.0 supports a determination that this outlier concentration itself would present an insignificant risk of about 6 in 10 million. It is noted that the lower bound of the 95% confidence interval for this sample is within the 95% upper confidence limit of the local background. With the possible exception of this sample, the distribution of ^{90}Sr surface soil results appears consistent with both the 1995 and decay-corrected 2010 local background levels. The location of PS-9 is shown in Attachment A; it is on a steep ridgeline that is extremely difficult to reach and not a possible residence location.

Figure 2 shows that with the exception of one sample (N-8), the ^{137}Cs results are consistent with the expected local background distribution. ProUCL analysis identifies this sample as a potential statistical outlier but the value was included in the analysis. Sample result N-8 is higher than the 95% UCL of the local background, with a sample activity of 0.325 ± 0.062 pCi/g. An examination of the sampling location map in Figure 1 show that the randomly selected location of N-8 is near to and directly between samples PS-11 and PS-12, selected by DTSC to evaluate the potential for elevated ^{90}Sr levels. PS-12 was also randomly selected for a duplicate soil sample. The ^{137}Cs in PS-11 was 0.106 ± 0.050 pCi/g, in PS-12 was 0.032 ± 0.027 pCi/g and in the duplicate (PS-12 XX) was -0.003 ± 0.024 pCi/g. All of these other three samples are within the 95% UCL of the local background, indicating that the high result of sample N-8 is an isolated occurrence (an outlier) and is not representative of the data collected while the UCL provides a much more representative concentration. Furthermore, the health risk information presented in section 5.0 supports a determination that this outlier concentration itself would present an insignificant risk of about 5 in 1 million. It should also be noted that this group of samples is in a steep, difficult to reach area with no plans for future residential development.

Sr-90 Surface Soil Sampling Results

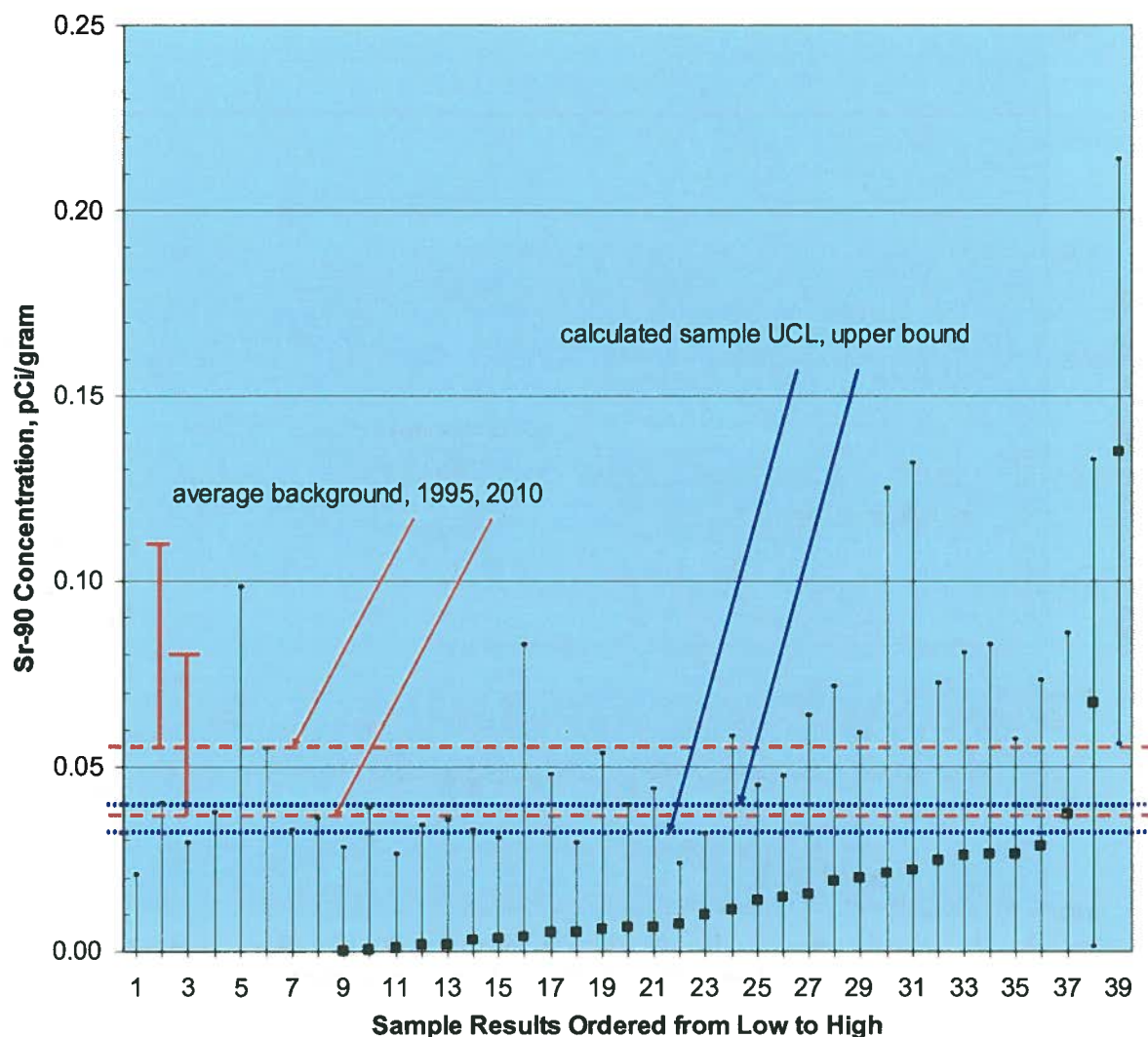


Figure 1. 2010 strontium-90 results showing 95% UCL and upper bound values, and compared to original and decay-adjusted local background level.

$^{137}\text{Cs}:$ ^{90}Sr Ratios. Examination of the $^{137}\text{Cs}:$ ^{90}Sr ratios presented in Table 6 show no discernable or consistent pattern of ratios. This is not unexpected, because the two elements have different chemical behaviors in soil, with strontium being more mobile and cesium tending to stay in place, particularly for clay soil. No conclusions can be drawn about the possible origination of ^{90}Sr and ^{137}Cs at the site based on the ratio information.

Cs-137 Surface Soil Sampling Results

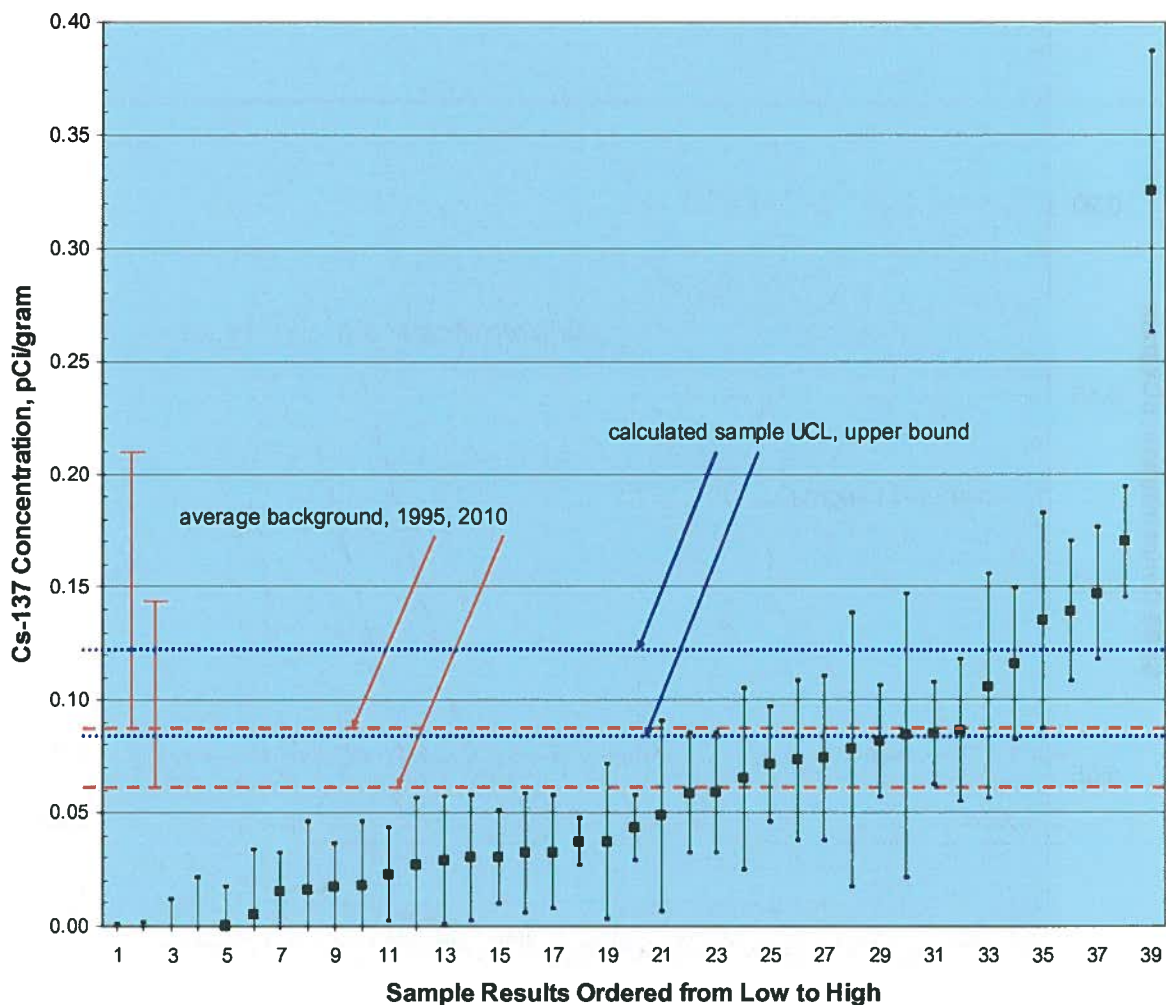


Figure 2. 2010 cesium-137 results showing 95% UCL and upper bound, and compared to original and decay-adjusted local background level.

Trench Sampling. Results of sampling for ^{90}Sr and ^{137}Cs in the three trenches located in the fill area of the closed quarry in the open space area of Runkle Canyon are shown in Table 9. For ^{90}Sr , 3 of the 6 results are negative, and the highest result is 0.012 ± 0.041 pCi/g. For ^{137}Cs , 5 of the 6 results are negative, and the other result is 0.0009 ± 0.029 pCi/g. These sample results indicate that clean, subsurface fill material was used and show no contamination or potential radioactive waste disposal in the fill area of the quarry. No summary statistics are presented.

Table 9. Results of trench soil sampling for ^{90}Sr and ^{137}Cs in Runkle Canyon.

Sample	depth ¹ (in feet)	Sr-90 Result ± 2 std dev ² (pCi/g)	Sr-90 MDC ³ (pCi/g)	Cs-137 Result ± 2 std dev (pCi/g)	Cs-137 MDC (pCi/g)	Cs-137:Sr-90 ratio
QT-A-0.5	0.5	-0.005 $\pm$ 0.017	0.011	0.0009 $\pm$ 0.029	0.047	-0.17
QT-A-4.0	4	0.012 $\pm$ 0.041	0.039	-0.006 $\pm$ 0.023	0.039	-0.50
QT-B-0.5	0.5	0.007 $\pm$ 0.039	0.038	-0.025 $\pm$ 0.028	0.046	-3.56
QT-B-4.0	4	-0.004 $\pm$ 0.029	0.026	-0.017 $\pm$ 0.027	0.043	4.44
QT-C-0.5	0.5	0.009 $\pm$ 0.031	0.024	-0.014 $\pm$ 0.030	0.047	-1.54
QT-C-4.0	4	-0.006 $\pm$ 0.026	0.025	-0.017 $\pm$ 0.027	0.044	3.02

1. Each sample was collected from the side of the trench at the specified depth.

2. Std dev is standard deviation; 2 standard deviations show the 95 percent confidence interval around the result.

3. MDC is minimum detectable concentration in pCi/g, at the 95 percent confidence level.

5.0 RADIOLOGICAL HEALTH RISK ASSESSMENT

A typical approach to estimating risk is to begin with generic conservative parameters and assumptions that can be broadly applied to potential exposure situations. This initial approach results in an overestimate of the potential radiological risk, and if the risk criteria are met then no further detailed analysis of risk is necessary. One approach to performing the risk assessment is to use the US EPA's **preliminary risk goal** (PRG) calculator (EPA 2010d). The PRG calculator allows for calculation of default and site-specific PRGs. PRGs are specified in several different formats; applicable for Runkle Canyon scenarios are soil concentrations in picocuries per gram (pCi/g). The default PRGs are based on conservative exposure scenarios, in which conservative assumptions are made to cover a broad range of potential exposures and land uses. All PRG values are calculated for a risk level of 1 in 1 million (1×10^{-6}).

The PRG calculator has several default scenarios; the appropriate scenario for an initial, conservative assessment of risk to Runkle Canyon residents is the residential soil scenario. This scenario assumes 30 years, 350 days per year, 24 hours per day of residence at the site. Parameters and default values for the residential soil scenario are shown in Table 10.

The residential soil scenario does not apply to users of open space areas in Runkle Canyon. A site specific open space user scenario would be less restrictive (allowing higher concentrations of radionuclides in soil with the same 1×10^{-6} risk) than the residential soil scenarios because the amount of time present is less, there is no ingestion intake of homegrown fruits and vegetables, and incidental ingestion of soil is less. Because this was an initial, conservative assessment of risk, it was desired to use an open space user scenario that was as close as possible to the PRG default scenarios. A site-specific open space user scenario was developed based on the PRG

Table 10. Parameters and default values for the PRG calculator residential soil scenario.

Parameter (parameter description), units	Parameter value
Slab size for ACF (area correction factor) m ²	Default (isotope-specific)
TR (target cancer risk) unitless	0.000001
t _r (time - resident) yr	30
ED _r (exposure duration - resident) yr	30
ET _r (exposure time - resident) hr/day	24
ET _{r-o} (exposure time - outdoor resident) hr/hr	0.073
ET _{r-i} (exposure time - indoor resident) hr/hr	0.684
ED _{r-c} (exposure duration - resident child) yr	6
ED _{r-a} (exposure duration - resident adult) yr	24
EF _r (exposure frequency - resident) day/yr	350
IRS _{r-a} (soil intake rate - resident adult) mg/day	100
IRS _{r-c} (soil intake rate - resident child) mg/day	200
IRF _{r-a} (fruit consumption rate - resident adult) mg/day	20.5
IRF _{r-c} (fruit consumption rate - resident child) mg/day	5.4
IRV _{r-a} (vegetable consumption rate - resident adult) mg/day	10.4
IRV _{r-c} (vegetable consumption rate - resident child) mg/day	3.8
IRA _{r-a} (inhalation rate - resident adult) m ³ /day	20
IRA _{r-c} (inhalation rate - resident child) m ³ /day	10
IFF _{r-adj} (age-adjusted fruit ingestion factor - resident) mg-yr/kg-day	17.48
IFV _{r-adj} (age-adjusted vegetable ingestion factor - resident) mg-yr/kg-day	9.08
IFS _{r-adj} (age-adjusted soil ingestion factor - resident) mg-yr/kg-day	120
IFA _{r-adj} (age-adjusted soil inhalation factor - resident) m ³ /day	18
GSF _i (gamma shielding factor - indoor) unitless	0.4
CPF _r (contaminated plant fraction) unitless	0.25

default outdoor worker scenario. The outdoor worker is exposed by external radiation exposure and inadvertent ingestion of soil, very similar to the potential exposure pathways of an open space user. The only change made from the default outdoor worker scenario was to reduce the exposure time from 8 hours per day to 2 hours per day, reflecting the more recreational nature of open space use. The open space user would be exposed for 450 hours per year under this scenario. (The PRG calculator requires that a value be chosen for slab size for the area correction factor, which was changed from the default to 10,000 m²; however, this does not change the outdoor worker PRG). Parameters and values for the default outdoor worker scenario and the open space user scenario are shown in Table 11.

Table 11. Parameters and values for the PRG calculator outdoor worker and open space user exposure scenarios.

Parameter (parameter description), units	Outdoor Worker Parameter value	Open Space User parameter value
Slab size for ACF (area correction factor) m ²	Default (isotope-specific)	10000
TR (target cancer risk) unitless	0.000001	0.000001
t _{ow} (time - outdoor worker) yr	25	25
ED _{ow} (exposure duration - outdoor worker) yr	25	25
ET _{ow} (exposure time - outdoor worker) hr/day	8	2
EF _{ow} (exposure frequency - outdoor worker) day/yr	225	225
IR _{ow} (soil intake rate - outdoor worker) mg/day	100	100
IRA _{ow} (inhalation rate - outdoor worker) m ³ /day	60	60
GSF _o (gamma shielding factor - outdoor) unitless	1	1

Default PRG for the residential soil scenario (1×10^{-6} risk). Default residential soil PRGs were calculated in September 2010 using the PRG calculator. These values are 0.240 pCi/g for ⁹⁰Sr + daughter (⁹⁰Y) and 0.0615 pCi/g for ¹³⁷Cs + daughter (^{137m}Ba). This default PRG for ⁹⁰Sr is slightly higher than that used in the 2005 risk assessment for Runkle Canyon (Ikenberry 2005), which was calculated to be 0.231 pCi/g. This change is likely due to updates in the PRG calculator.

Default PRG for the outdoor worker scenario (1×10^{-6} risk). Using the PRG calculator, the default PRG for an outdoor worker was calculated to be 9.9 pCi/g for ⁹⁰Sr and 0.115 pCi/g for ¹³⁷Cs. These values were not used in the risk assessment, but are presented as comparison for the open space user scenario which uses this scenario as a basis.

Site-specific PRG for the open space user scenario (1×10^{-6} risk). Using the PRG calculator, the site-specific PRG for an open space user was calculated to be 22.7 pCi/g for ⁹⁰Sr and 0.457 pCi/g for ¹³⁷Cs. As noted above, the only difference between this scenario and the default outdoor worker scenario is that the exposure time per day is reduced from 8 hours to 2 hours. For ⁹⁰Sr the PRG changes by a factor of 2.3 rather than a factor of 4 because the inadvertent ingestion of soil is a relatively important exposure pathway. Conversely, the PRG for ¹³⁷Cs changes almost exactly by a factor of 4, because external radiation exposure time is the most important exposure pathway.

The PRG concentrations used in the assessment of Runkle Canyon risk are shown in Table 12.

Table 12. PRG concentrations for assessment of exposure to ⁹⁰Sr and ¹³⁷Cs in Runkle Canyon.

Preliminary Remediation Goal (PRG, 1×10^{-6} risk)	Sr-90	Cs-137
Default PRG – resident (pCi/g)	0.240	0.0615
Site-specific PRG – Open space user ¹ (pCi/g)	22.7	0.457

1. Based on the default outside worker scenario, as described in the text.

Runkle Canyon Risk Assessment. A radiological health risk assessment was performed by comparing the 95 percent UCL and upper bound concentrations from the 2010 sampling to the PRGs for default resident and the open space user. These two concentrations were also calculated for the 2007 ^{90}Sr sample results (DM 2007a) and for a combined set of 2007 and 2010 ^{90}Sr sample results. It is important to note that Runkle Canyon consists of proposed residential areas and open space areas for which no development is planned. Table 6 shows which samples were located in residential (R) and open space (OS) areas. Eight of the surface soil samples were collected in the proposed residential area and 31 samples collected in the open space area. The focus of this sampling was primarily the open space areas near SSFL, hence the low number of residential area samples. The residential areas are farther from SSFL and none of the earlier, higher level samples were located in the proposed residential area. Also, the 2007 samples summarized in Table 5 represented an extensive sampling of the residential area and were collected with a representative of the City of Simi Valley present as an independent observer. The sample results from 2007 had not previously been the subject of a risk assessment as was the case for the earlier sample results; the 2007 results are therefore included to provide a more complete picture of the potential risk from ^{90}Sr in Runkle Canyon.

The results of a risk assessment may be presented as either total risk or excess risk. Total risk includes the risk from the evaluated contaminants at the site, including those present due to local background. Excess risk is the risk due only to the added contaminants at the site; the risk from the average local background is subtracted. The background risk depends upon the type of exposure as well as the radionuclide. The excess risk is generally preferred for assessing human health risk, because the background risk is present regardless of the additional radioactivity that may be at issue. The background risk for ^{90}Sr , ^{137}Cs , and the default residential and open space user scenarios are shown in Table 13.

Table 13. Average local background risk for 1995 and decay-corrected to 2010 and 2007¹.

Basis ¹	Strontium-90		Cesium-137	
	Resident (default PRG)	Open space User	Resident (default PRG)	Open space User
1995	2.2×10^{-7}	2.3×10^{-9}	1.4×10^{-6}	1.9×10^{-7}
Decay-corrected, 2010	1.5×10^{-7}	1.6×10^{-9}	9.8×10^{-7}	1.3×10^{-7}
Decay-corrected, 2007	1.6×10^{-7}	1.7×10^{-9}	na ²	na ²

1. Calculated using the average background values presented in Table 8.

2. Not applicable; no ^{137}Cs sample analysis in 2007.

Table 14 presents the results of this simple risk assessment. For ^{90}Sr , comparing the 95th percent UCL and upper bound soil concentrations to the default residential soil scenario indicates a risk much less than 1 in 1 million even for these conservative scenario assumptions. No discrimination was made between residential and open space areas; separating into these areas would further reduce the already low risk. Also, no estimated risk for the open space user was calculated for ^{90}Sr because the residential soil scenario risk is bounding; risk to an open space user would be about 1 percent of the risk to a future resident. Results for the 2007 residential area samples are also presented in Table 14. The data from the 2007 ^{90}Sr sampling (DM 2007a) were entered into ProUCL to calculate the risk. The results for 2007 data indicate a level of risk

Table 14. Assessment of risk in Runkle Canyon for future residents and open space users exposed to ^{90}Sr and ^{137}Cs .

Risk Parameter	2010 Sr-90 Resident, All Results ^{1,2}	2007 Sr-90 Resident, All Results ^{1,2}	2010 Cs-137 Resident	2010 Cs-137 Open Space	2010 Cs-137 Resident, All results ^{1,3}
Total Risk					
95 th percent UCL	1.3×10^{-7}	9×10^{-8}	7.6×10^{-7}	2.7×10^{-7}	1.7×10^{-6} [3]
Upper Bound	1.5×10^{-7}	1.0×10^{-7}	8.9×10^{-7}	2.1×10^{-7}	1.4×10^{-6} [3]
Excess Risk (above background, using original 1995 background value)					
95 th percent UCL	bkgd	bkgd	bkgd	8×10^{-8}	3×10^{-7} [3]
Upper Bound	bkgd	bkgd	bkgd	2×10^{-8}	bkgd
Excess Risk (above background, using decay-corrected local background values)					
95 th percent UCL	bkgd	bkgd	bkgd	1.4×10^{-7}	7×10^{-7} [3]
Upper Bound	bkgd	bkgd	bkgd	8×10^{-8}	4×10^{-7} [3]

1. These values overestimate the risk to a resident, because most of the samples are from the open space area.

2. No open space user risks are presented for Sr-90; the risks would be much less (~1%) than for a resident.

[3]. These risks are overestimated and should be used for comparative purposes only. Open space soil concentrations included in all results are not applicable for the resident scenario.

that is very similar to that of the 2010 sampling. In addition, the 95th percent UCL and upper bound concentrations were calculated for combined 2007 and 2010 ^{90}Sr sampling data, a total of 102 sample results. The 95th percent UCL for these data was 0.022 pCi/g, and the upper bound was 0.028 pCi/g. The risk indicated from the combined sample set is less than that for the 2010 sampling. This is not unexpected, since the 2007 samples came from the residential area in which concentrations have been demonstrated to be lower.

Locations of 2007 and 2010 samples are shown in Attachment C. For comparison, locations of samples taken from 1998 – 2005 are shown in Attachment D.

For ^{137}Cs , assessment of risk using the 95th percent UCL and upper bound soil concentrations shows the total risk to both future residents and open space users to be less than 1 in 1 million. Not unexpectedly, the excess risks are even lower. Excess risk to future residents cannot be distinguished from background risk, while excess risk to the open space user is approximately 1 in 10 million (1×10^{-7}).

The combined total risk from both ^{90}Sr and ^{137}Cs to a future resident in the proposed residential area would be 9×10^{-7} using the combined 95% UCLs and 1×10^{-6} using the combined upper bounds. If it were assumed there were residents in the open space area – emphasizing that no such residences are planned or anticipated – the combined total risk would be about 1.8×10^{-6} . The combined excess risk when the background levels are considered would be less than 1×10^{-6} in all cases.

A health risk assessment was not conducted for the 6 trench samples. The low levels of radionuclides in these samples and the depth of the 4-foot samples show the expected level of risk to be less than background for any exposure scenario.

6.0 CONCLUSIONS

Levels of ^{90}Sr and ^{137}Cs present in Runkle Canyon do not represent a significant health risk to future residents or visitors to the property. The total risk from both ^{90}Sr and ^{137}Cs is shown to be less than 1 in 1 million at the health-protective 95th percent UCL and the upper bound concentrations for both the future resident scenario (using the default PRG) and the open space user scenario. The excess risk from ^{90}Sr is shown to be less than the risk from local background (i.e., zero risk), as is the excess risk from ^{137}Cs for the future resident scenario. The excess risk to open space users from ^{137}Cs is very low, about 1 in 10 million (1×10^{-7}). Consideration of realistic, site-specific use by future residents and open space users would result in even lower estimated risk from ^{90}Sr and ^{137}Cs .

The distributions of surface soil results for both ^{90}Sr and ^{137}Cs are generally consistent with the expected local background levels presented by EPA (EPA 1995) and when corrected for radioactive decay, considering the normal variability in individual environmental samples and in the distribution of normal background levels of radionuclides. There is one outlier result each for ^{90}Sr and ^{137}Cs that are not consistent with the normal background distribution. However, both locations are in steep and difficult-to-reach terrain, and would not be suitable for residential development. The potential extent of the ^{137}Cs at the elevated sample location is shown to be limited by lower concentrations in nearby samples. Soil sampling results were also examined to see if a consistent pattern could be distinguished of ^{137}Cs to ^{90}Sr activity ratios. No correlation could be determined, with activity ratios ranging from -158 to 58.

The concentrations of radionuclides in the trench samples are very low, and show no potential indication of buried radioactive waste in the fill area of the closed quarry.

Overall, the results demonstrate the property is safe for future residents and visitors. No further investigation or assessment is warranted at the property. This report recommends a no further action determination by DTSC.

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7.0 REFERENCES

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8.0 ACRONYMS AND DEFINITIONS

cesium-137 (^{137}Cs). A radioactive isotope of the element cesium. Cesium-137 has a half-life of 30.2 years and emits beta radiation. Its radioactive progeny is metastable barium-137 ($^{137\text{m}}\text{Ba}$), which has an energetic gamma radiation emission; $^{137\text{m}}\text{Ba}$ is included in radiation dose calculations for ^{137}Cs .

confidence limit: The lower or an upper boundary of a confidence interval. For example, the 95% upper confidence limit (UCL) is given by the upper bound of the associated confidence interval. (EPA 2010a)

detection limit: A measure of the capability of an analytical method to distinguish samples that do not contain a specific analyte from samples that contain low concentrations of the analyte. The lowest concentration or amount of the target analyte that can be determined to be different from zero by a single measurement at a stated level of probability. Detection limits are analyte- and matrix-specific and may be laboratory-dependent. (EPA 2010a)

MARSSIM. Multi-Agency Radiation Survey and Site Investigation Manual.

minimum detectable concentration (MDC). The level of radioactivity concentration which is practically achievable by an overall measurement method. It considers not only the instrument characteristics (background and efficiency) but all other factors and conditions which influence the measurement.

Nondetect (ND) or non-detect: Sample results which are reported by the laboratory as being less than the minimum detectable concentration (MDC) for that sample. EPA (EPA 2010a) defines nondetect as “censored data values” for purposes of analysis using the ProUCL code.

Nonparametric: A term describing statistical methods that do not assume a particular population probability distribution, and are therefore valid for data from any population with any probability distribution, which can remain unknown. (EPA 2010a)

Outlier: Measurements (usually larger or smaller than the majority of the data values in a sample) that are not representative of the population from which they were drawn. The presence of outliers distorts most statistics if used in any calculations. (EPA 2010a)

picocurie (pCi). A unit of radioactivity, corresponding to 0.037 radioactive disintegrations per second.

picocurie per gram (pCi/g). A measure of the concentration of radioactivity per unit mass, also called activity concentration. Used to measure the activity of ^{90}Sr and ^{137}Cs in soil.

preliminary remediation goal (PRG). Initial cleanup goals that (1) are protective of human health and the environment and (2) comply with applicable or relevant and appropriate requirements (ARARs). They are developed early in the process based on readily available information and are modified to reflect results of the baseline risk assessment. They are also used during analysis of remedial alternatives in the remedial investigation/feasibility study (RI/FS). Health-based radionuclide or chemical concentrations in an environmental media are associated with a particular exposure scenario. PRGs may be developed based on ARARs or exposure scenarios evaluated prior to or as a result of the baseline risk assessment.

strontium-90 (^{90}Sr). A radioactive isotope of the element strontium. Strontium-90 has a half-life of 29 years and emits beta radiation. Its radioactive progeny is yttrium-90, which also emits beta radiation and is included in radiation dose calculations for ^{90}Sr .

Upper Confidence Limit (UCL): The upper boundary (or limit) of a confidence interval of a parameter of interest such as the population mean. (EPA 2010a)

LIMITATIONS

Information provided in this report by Dade Moeller & Associates Inc., is intended exclusively for the use of Runkle Canyon, LLC. The findings and conclusions discussed in this report are based on field samples collected by Stantec Consulting Services, Inc. and laboratory data provided by Teledyne Brown Engineering and our current understanding and interpretation of environmental regulatory agency regulations, guidance and policies. The professional services have been performed in accordance with practices generally accepted by other health physicists and environmental scientists practicing in this field. No other warranty, either expressed or implied, is made.

ATTACHMENT A. 2010 Runkle Canyon Sampling Locations

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FILEPATH: \\CADD-09\projects\2010\Regional Independent\KB Homes - Runkle Canyon\Historic Sample Locations\KB-SEMI-VALLEY_CASP_ZV-R1.dwg (Accessed Sep 18, 2010 at 14:28) Layout: Layout 2010s



LEGEND:

- PS-1 ● SURVEYED SAMPLE LOCATIONS (DM, 2010)
- N-1 ○ SURVEYED SAMPLE LOCATIONS (DM, 2010)
- QT-A-0.5 ▼ SURVEYED SAMPLE LOCATIONS (DM, 2010)



REFERENCE:
GOOGLE EARTH PRO
SIMI VALLEY, CA
LICENSE NUMBER: JCPMX84H47PH7HT


Stantec
2655 CAMINO DEL RIO NORTH, SUITE 302
SAN DIEGO, CALIFORNIA
PHONE: (619) 296-6165/296-6199 (FAX)

PREPARED FOR:
KB Homes
Runkle Canyon
Simi Valley, CA 93062

**RADIONUCLIDE 2010
SAMPLES LOCATION MAP**

FIGURE:

3

JOB NUMBER:
165802301

DRAWN BY:
JL

CHECKED BY:
RJO

APPROVED BY:

DATE:
06/02/2010

KB-SEMI-VALLEY_CASP_ZV-R1

ATTACHMENT B. Latitude and Longitude of Samples Collected during July 2010

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Latitude and Longitude of Samples Collected during July 2010

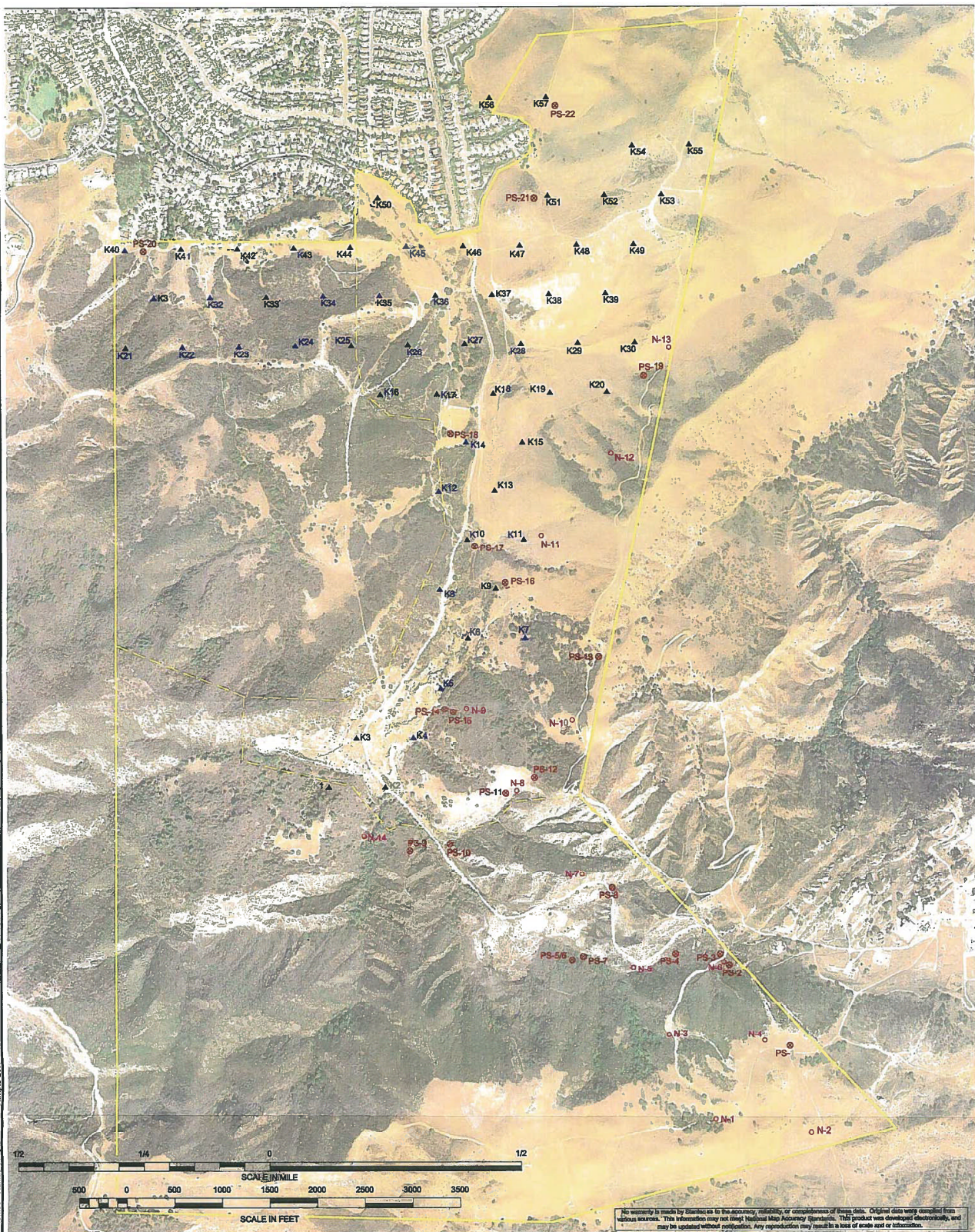
ID	Location	Type	Date	Latitude	Longitude
N-1	Runkle Canyon	Systematic	7/29/2010	34°13'26.82"	-118° 43'21.51"
N-2	Runkle Canyon	Systematic	7/29/2010	34°13'25.49"	-118° 43'09.51"
N-3	Runkle Canyon	Systematic	7/29/2010	34°13'35.623"	-118° 43'27.346"
N-4	Runkle Canyon	Systematic	7/29/2010	34°13'35.12"	-118° 43'15.43"
N-5	Runkle Canyon	Systematic	7/29/2010	34°13'42.439"	-118° 43'31.80"
N-6	Runkle Canyon	Systematic	7/29/2010	34°13'43.02"	-118° 43'20.56"
N-7	Runkle Canyon	Systematic	7/29/2010	34°13'52.055"	-118° 43'38.242"
N-8	Runkle Canyon	Systematic	7/30/2010	34°14'00.69"	-118° 43'46.43"
N-9	Runkle Canyon	Systematic	7/30/2010	34°14'09.133"	-118° 43'52.640"
N-10	Runkle Canyon	Systematic	7/29/2010	34°14'08.02"	-118° 43'39.57"
N-11	Runkle Canyon	Systematic	7/30/2010	34°14'27.10"	-118° 43'43.47"
N-12	Runkle Canyon	Systematic	7/30/2010	34°14'35.63"	-118° 43'34.77"
N-13	Runkle Canyon	Systematic	7/29/2010	34°14'47.037"	-118° 43'27.042"
N-14	Runkle Canyon	Systematic	7/30/2010	34°13'55.900"	-118° 44'05.434"
N-XX	Runkle Canyon	Systematic	7/29/2010	34°13'25.49"	-118° 43'09.51"
N-YY	Runkle Canyon	Systematic	7/29/2010	34°13'35.12"	-118° 43'15.43"
PS-1	Runkle Canyon	Biased	7/27/2010	34°13'34.580"	-118° 43'12.322"
PS-2	Runkle Canyon	Biased	7/27/2010	34°13'42.732"	-118° 43'19.910"
PS-3	Runkle Canyon	Biased	7/27/2010	34°13'43.873"	-118° 43'21.063"
PS-4	Runkle Canyon	Biased	7/27/2010	34°13'43.875"	-118° 43'26.580"
PS-5/6	Runkle Canyon	Biased	7/28/2010	34°13'43.176"	-118° 43'39.402"
PS-7	Runkle Canyon	Biased	7/28/2010	34°13'43.529"	-118° 43'38.022"
PS-8	Runkle Canyon	Biased	7/28/2010	34°13'50.691"	-118° 43'34.487"
PS-9	Runkle Canyon	Biased	7/29/2010	34°13'54.371"	-118° 43'59.721"
PS-10	Runkle Canyon	Biased	7/29/2010	34°13'55.069"	-118° 43'54.717"
PS-11	Runkle Canyon	Biased	7/29/2010	34°14'00.439"	-118° 43'47.748"
PS-12	Runkle Canyon	Biased	7/29/2010	34°14'02.037"	-118° 43'44.243"
PS-13	Runkle Canyon	Biased	7/28/2010	34°14'14.596"	-118° 43'36.300"
PS-14	Runkle Canyon	Biased	7/27/2010	34°14'09.091"	-118° 43'55.478"
PS-15	Runkle Canyon	Biased	7/27/2010	34°14'08.809"	-118° 43'054.388"
PS-16	Runkle Canyon	Biased	7/27/2010	34°14'22.265"	-118° 43'47.902"
PS-17	Runkle Canyon	Biased	7/27/2010	34°14'26.013"	-118° 43'51.790"
PS-18	Runkle Canyon	Biased	7/27/2010	34°14'37.573"	-118° 43'54.830"
PS-19	Runkle Canyon	Biased	7/28/2010	34°14'43.649"	-118° 43'30.869"
PS-20	Runkle Canyon	Biased	7/28/2010	34°14'56.310"	-118° 44'33.355"
PS-21	Runkle Canyon	Biased	7/28/2010	34°15'01.950"	-118° 43'44.497"
PS-22	Runkle Canyon	Biased	7/28/2010	34°15'11.505"	-118° 43'41.909"
PS-XX	Runkle Canyon	Biased	7/29/2010	34°14'02.037"	-118° 43'44.243"
PS-YY	Runkle Canyon	Biased	7/28/2010	34°15'01.950"	-118° 43'44.497"
QT-A-0.5'	Former Quarry Area	Trench A	7/28/2010	34°13'46.063"	-118° 43'49.204"
QT-A-4.0'	Former Quarry Area	Trench A	7/28/2010	34°13'45.936"	-118° 43'49.377"
QT-B-0.5'	Former Quarry Area	Trench B	7/28/2010	34°13'46.252"	-118° 43'49.037"
QT-B-4.0'	Former Quarry Area	Trench B	7/28/2010	34°13'46.074"	-118° 43'48.957"
QT-C-0.5'	Former Quarry Area	Trench C	7/29/2010	34°13'45.392"	-118° 43'49.119"
QT-C-4.0'	Former Quarry Area	Trench C	7/29/2010	34°13'45.353"	-118° 43'49.788"

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ATTACHMENT C. Locations of 2007 and 2010 Surface Soil Samples

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F:\PATH\1\CA00-00\Projects 2010\Regional Independent\KB Homes - Runkle Canyon\Historic Sample Locations\KB-SEMI-VALLEY CASP_ZV-R1.dwg (as of Sep 08, 2010 at 8:39) Layout: 2007-2010



LEGEND:

- K1 ▲ SURVEYED SAMPLE LOCATIONS (DM, 2007)
- PS-1 ● SURVEYED SAMPLE LOCATIONS (DM, 2010)
- N-1 □ SURVEYED SAMPLE LOCATIONS (DM, 2010)



REFERENCE:
GOOGLE EARTH PRO
SIMI VALLEY, CA
LICENSE NUMBER: JCPMXB4H47PH7HT



PREPARED FOR:
KB Homes
Runkle Canyon
Simi Valley, CA 93062

JOB NUMBER:
185802301

DRAWN BY:
JL

CHECKED BY:
RJO

APPROVED BY:

FIGURE:

3

DATE:
09/02/2010

KB-SEMI-VALLEY_CASP_ZV-R1

ATTACHMENT D. Locations of 1998 – 2005 Surface Soil Samples



Linda S. Adams
Secretary for
Environmental Protection



Department of Toxic Substances Control

Maziar Movassaghi
Acting Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806



Arnold Schwarzenegger
Governor

December 17, 2010

Mr. Eric Hoffman, Authorized Member Representative
Runkle Canyon, LLC
10990 Wilshire Blvd., 8th Floor
Los Angeles, California 90024

APPROVAL OF DOCUMENTS RELATED TO THE EVALUATION AND CLEANUP OF RUNKLE CANYON PURSUANT TO THE JULY 22, 2010 RESPONSE PLAN, SIMI VALLEY, CALIFORNIA

Dear Mr. Hoffman:

The Department of Toxic Substances Control (DTSC), based on its review of information submitted by Runkle Canyon LLC, and after careful review and evaluation of the analytical results provided and DTSC's independently collected data, concludes that no further action is necessary with respect to the Runkle Property.

DTSC's determination and conclusions are based on the following information:

Background Information

The Runkle Property is located at the southerly terminus of Sequoia Avenue in the City of Simi Valley, Los Angeles County, California 93065. The Runkle property is approximately 1592.7 acres and bounded to the north by existing single family residential homes; to the east by the Brandeis Bardin Institute and the Santa Susana Field Laboratory; to the south by the Mountain Recreation and Conservancy Authority; and to the west by single family homes and open space.

Several different efforts have been undertaken to assess the Runkle Property for environmental contamination, including radionuclides. Sampling efforts began in 1998 and are summarized in Section 2.0 of the final *Evaluation and Health Risk Assessment of Soil Sample Results for Runkle Canyon Pursuant to the Revised Response Plan* (Evaluation Report - Dade-Moeller, December 2010.) In summary, data collected prior to 2005 showed significantly different results than data collected after 2005.

Groundwater at the site was evaluated by the California Regional Water Quality Control Board. In April 2007, the RWQCB concluded that perchlorate or volatile organic compounds were not potential risks to human health or the groundwater resource in Runkle Canyon.

DTSC was not directly involved in the development or generation of any sampling at the Site until 2008. On April 23, 2008, DTSC and Runkle Canyon, LLC entered into a voluntary oversight agreement pursuant to the California Land Reuse and Revitalization Act (CLRRA, Docket Number HSA-CLRRA-07/08-160). DTSC reviewed information from the previous environmental reports relating to the subject property.

On Oct 17, 2008, DTSC provided comments, via letter, based on review of 41 characterization documents submitted by Runkle Canyon LLC, DTSC requested that Runkle Canyon LLC submit a Response Plan to DTSC for additional radiological sampling and sampling of a white crystalline material. DTSC also requested the Response Plan include a plan for removal of a tar-like substance found at the subject property. Based on the review and previous determination made by the RWQCB, DTSC determined that there was no need for further investigation of groundwater or surface water at Runkle Canyon.

A draft Response Plan (Dade Moeller, December 4, 2008) was submitted to DTSC and made available for public comment from January 14, 2009 through February 13, 2009. On January 28, 2009, DTSC held a public meeting regarding the Response Plan.

The Response Plan included three main components:

- Site summary, including a history of radionuclide sampling in Runkle Canyon, and a radiological health assessment
- Soil-Sampling Plan for Proposed Non-Residential Eastern and Southeastern Areas of Runkle Canyon (Appendix A of the Response Plan)
- Plan for Removal of the Tar Material from the Drainage Areas of Runkle Canyon (Appendix B of the Response Plan)

DTSC reviewed the Response Plan and, after careful consideration of the public comments, as well as review of analytical results from DTSC's own collection of samples, DTSC issued a letter dated July 22, 2010, concluding that no further action was necessary in regard to the white crystalline material and the surface water. DTSC required:

- Chemical sampling during trenching in the old quarry area, and
- Confirmation sampling following removal of the tar material, and
- Additional samples for analysis of radionuclides in order to determine whether environmental conditions at the site posed a health risk to future site occupants.

Chemical Analysis at Trench Area

The report entitled *Runkle Canyon Response Plan Soil Sampling - Chemical analysis* (Stantec, September 28, 2010) documents sampling performed in trenches near the old quarry in suspected fill material. Both DTSC and Stantec, Runkle Canyon LLC's contractor, collected soil samples to evaluate if the fill material contained chemical waste. The only chemicals detected were total petroleum hydrocarbon-motor oil range (TPH_o), and acetone. TPH_o was detected in five of six samples analyzed by Stantec, at concentrations near the detection limit. TPH_o was not detected in the DTSC splits of the same samples; however the DTSC detection limits were higher than the Stantec detection limits. The Regional Water Quality Control Board (RWQCB) environmental screening level for TPH_o is 2,500 mg/kg. The highest detection in the Stantec samples was 12 mg/kg, so it was far below any level of concern.

Acetone results detected in DTSC's samples were reported at estimated levels (highest 0.240 mg/kg) outside the laboratory calibration and were significantly below the risk screening levels of 61,000 mg/kg.

Analysis of metals concentrations did not indicate any elevated metals concentrations, arsenic concentrations ranged from non-detect (<2 mg/kg) to a high of 3.0 mg/kg.

Tar Removal Confirmation Samples

The report entitled *Results of Tar Removal Confirmation Samples* (GeoCon West Inc., September 29, 2010) documents the sampling performed once the tar material was removed and placed into drums for disposal. Six samples were collected and DTSC and GeoCon, the contractor for Runkle Canyon LLC received sample splits. Samples from the tar material prior to removal found benzo(a)anthracene (a polycyclic aromatic hydrocarbon) above the risk screening level of 0.15 mg/kg. Consequently, all the confirmation samples were analyzed for PAHs by the DTSC Environmental Chemistry Laboratory (ECL.) GeoCon also analyzed their six sample splits for PAHs. Of the six samples that DTSC analyzed, three samples had detections and three had no detections. Four different compounds were detected in the three samples with detections, although not all four were detected in all of the samples. The highest result four compounds detected were benzo(a)pyrene, chrysene, fluoranthene and phenanthrene. The concentrations were below the EPA respective risk screening level for non-carcinogenic PAHs.

Radiological Sampling

The report entitled *Evaluation and Health Risk Assessment of Soil Sample Results for Runkle Canyon Pursuant to the Revised Response Plan* (Evaluation Report - Dade-Moeller).

Fourteen sample locations were established using a Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) based sampling plan to evaluate the possible

presence of these radionuclides in the proposed eastern and southeastern open space areas of Runkle Canyon nearest to the Santa Susanna Field Laboratory (SSFL). A second set of 21 sample locations (revised from the July 22, 2010 proposed 22 locations) were selected by DTSC to evaluate the potential migration of radionuclides from the SSFL site onto Runkle Canyon, and to attempt to confirm the elevated radionuclide concentrations reported in the Foster Wheeler data set.

Two duplicate samples were also collected for each of the sample sets at randomly selected sample locations. In addition, six soil samples were collected from three sampling trenches dug in an area of fill associated with a closed aggregate quarry in Runkle Canyon. The distributions of results for both radionuclides are generally consistent with the expected local background levels. Results of samples taken from trenches dug in the fill area of a closed aggregate quarry show even lower levels of the two radionuclides.

The results of DTSC's collection and analysis of samples to evaluate the previous sampling efforts were presented in a report entitled *DTSC Radiological Sampling and Analysis Report - Runkle Canyon*. DTSC's report concludes the following:

- DTSC's results are significantly lower than the elevated levels of strontium or cesium seen in the Foster Wheeler - 1999 and Harding ESE - 2000 data.
- DTSC suspects but cannot confirm that the Foster Wheeler and Harding ESE results may have been an artifact of the sampling methodology, laboratory analysis or lack of stringent quality assurance and quality control measures. In any case, DTSC was not able to verify the Foster Wheeler and Harding ESE results.
- Comparing the 2010 DTSC and 2010 Runkle Canyon LLC results shows consistent and reproducible results.
- DTSC's evaluation of the entire 2005, 2007, and 2010 data sets do not show a pattern that indicates there was either an on-site source or off-site release from SSFL.

Conclusions

Based on DTSC's review of the Evaluation Report, and after careful review and evaluation of the analytical results, DTSC concurs with the report conclusions that the concentrations of ^{90}Sr and ^{137}Cs at the site do not pose a significant health risk under an unrestricted, residential land use scenario and hereby approves the Evaluation Report. DTSC concludes that no further action is necessary with respect to the subject property. This letter shall also serve as certificate of completion under §25395.97 of CLRRRA that all response actions have been satisfactorily completed.

Mr. Eric Hoffman
December 17, 2010
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As with any real property, additional or previously unidentified contamination at the Site may require additional investigation and cleanup. DTSC reserves the right to take or require action at the Site if new or different information becomes known or available.

If you have any questions regarding the above, please contact me at (916) 255-3717 or Mr. Rick Brausch at (916) 327-1186.

Sincerely,



Mark Malinowski, PG
SSFL Performance Manager

cc: via e-mail

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