CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER No. R2-2013-0032

ADOPTION of SITE CLEANUP REQUIREMENTS for:

MOONLITE ASSOCIATES, LLC, and
UNITED ARTISTS THEATRE CIRCUIT, INC.

for the property located at:

2640 El CAMINO REAL
SANTA CLARA, SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Regional Water Board), finds that:

1. **Site Location:** The Site is located at 2640 El Camino Real in Santa Clara (Figure 1). The Site is a 3,000 square foot tenant space located in the 14.34 acre Moonlite Shopping Center (Figure 2). The Moonlite Shopping Center is bounded to the west by Kiely Boulevard, to the east by Bowe Avenue and Saratoga Creek, to the north by El Camino Real, and to the south by an alley. Saratoga Creek is located immediately east of Bowe Avenue. El Camino Real is a large boulevard flanked by residential neighborhoods located one block to the north and south.

   The Site is presently occupied by Cosmo's Gifts, a retail store. Within the Moonlite Shopping Center there are several large tenant spaces and twenty-five additional smaller tenant spaces.

2. **Site History**: Moonlite Cleaners, a dry cleaning business that used the dry cleaning chemical tetrachloroethene (PCE), operated at the Site for 35 years, from 1962 to 1997. In 1961, the State Fire Marshal issued a permit for establishment of the Moonlite Cleaners dry cleaning facility and permitted the installation and use of dry cleaning equipment using PCE.

   United California Theaters, Inc., (now United Artists Theatre Circuit, Inc. [UATC]) developed the shopping center in 1960. UATC owned the shopping center, including the Site, from 1961 to 1975 and then continued as the master lessor until 1978. UATC owned and/or controlled the shopping center where the dry cleaner operated for 16 years, from 1962 to 1978. On September 5, 2000, UATC and affiliated entities filed for chapter 11 bankruptcy in the United States Bankruptcy Court for the District of Delaware. The court confirmed UATC's plan of reorganization.

   Moonlite Associates, LLC, (Moonlite Associates), the current property owner, has owned the shopping center, including the Site, since 1977. As such, Moonlite Associates owned the shopping center where the dry cleaner operated as a tenant for 20 years (1977 to 1997).

   Moonlite Cleaners used PCE in conducting its dry cleaning operations. These operations resulted in PCE discharges to soil and groundwater beneath the Site. There is substantial evidence that PCE discharges occurred during UATC's ownership and control of the Site from 1962 and 1978, and Moonlite Associates' ownership and control of the Site from 1977 to 1997.

The evidence that PCE discharges occurred during UATC's ownership includes the physical evidence of PCE at the Site and downgradient from it, the history of solvent usage beginning in 1962, common industry-wide operational practices, and the inefficiencies of older dry cleaning equipment from the 1960s. The August 29, 2013, Revised Cleanup Staff Report more fully discusses PCE discharges that occurred during UATC's ownership. Similarly, the physical evidence of PCE at the Site and downgradient from it, the history of solvent usage, the common industry-wide practices, and the inefficiencies of older dry cleaning equipment, provide evidence that PCE discharges occurred during Moonlite Associates' ownership of the Site when Moonlite Cleaners operated. PCE discharges continue to occur from the Site to offsite areas.

3. **Named Dischargers**: UATC is named as a discharger because it owned the Site during the time of the PCE discharges, had knowledge of the activities that caused the discharge, and had the legal ability to prevent the discharge, as more fully discussed in the August 29, 2013, Revised Cleanup Staff Report.

   Moonlite Associates is named as a discharger because it is the current owner of the property on which there was and continues to be discharge of waste, had and has knowledge of the activities that caused the discharge, and had and has the legal ability to control the discharge.

   UATC and Moonlite are hereafter collectively referred to as the dischargers.

   The previous owners and operators of the Moonlite Cleaners dry cleaning business are not named as dischargers because they are deceased.

   If additional information is submitted indicating that other parties caused or permitted any waste to be discharged on the Site where it entered or could have entered waters of the state, the Regional Water Board will consider adding those parties' names to this Order.

4. **Regulatory Status**: This Site is currently not subject to Regional Water Board order.

5. **Site Hydrogeology**: The topography of Santa Clara is predominantly flat, sloping gently to the north northeast towards the Guadalupe River and the San Francisco Bay. Locally at the Site, the topography slopes gently to the east, towards the adjacent Saratoga Creek, that flows to the north. The elevation of the Site is approximately 80 feet above mean sea level.

   The headwaters of Saratoga Creek originate in the Santa Cruz Mountains at 3,100 feet, approximately 10 miles to the southwest. Saratoga Creek is the principal drainage for the Saratoga Creek Watershed. The Santa Clara Valley Water District uses Saratoga Creek upstream of the Site to recharge groundwater in the reach between the city of Saratoga and Highway 280, approximately. Saratoga Creek currently is a gaining creek adjacent to the Site. Saratoga Creek joins San Tomas Aquino Creek before joining Guadalupe Slough, ultimately draining to San Francisco Bay.

   The sediment beneath the Site consists of ancestral Saratoga Creek stream channel sediment overlying older Late Pleistocene alluvial plain sediment. The ancestral Saratoga Creek sediment is fine to coarse grained channel deposits, with fine grained flood deposits outside the channels. The pattern of fine and coarse grained lenses of sediment observed at the Site

represent the deposits of the meandering ancestral Saratoga Creek flowing northward over alluvial plain sediment. The ancestral Saratoga Creek sediment has been encountered from approximately 5 to 50 feet below ground surface during investigations.

The depth to groundwater in Site monitoring wells is approximately 12 feet below ground surface. The calculated groundwater flow direction at the Site is northeast, with a gradient of approximately 0.005 feet per foot.

6. **Remedial Investigation**: Multiple onsite investigations have occurred since PCE was first detected in 2004. PCE has been detected above the Regional Water Board's Environmental Screening Levels (ESLs) in soil gas, indoor air and groundwater.

PCE has been detected in soil gas at concentrations up to 5,700,000 $\mu g/m^3$ beneath the Site, 2714 times higher than the commercial/industrial ESL of 2,100 $\mu g/m^3$. The extent of soil gas PCE contamination has not been delineated to the adjacent tenant spaces within the Moonlite Shopping Center, and is not delineated offsite to the east before the residences, to the south before the residences, or downgradient across El Camino Real. Further investigation is warranted to delineate the extent of soil gas contamination.

PCE has been detected in indoor air at concentrations up to 150 $\mu g/m^3$ within the Site, 71 times higher than the commercial/industrial ESL of 2.1 $\mu g/m^3$. Additional indoor air delineation may be needed following completion of soil gas delineation. An engineering control (soil vapor extraction) is presently mitigating vapor intrusion of PCE from beneath the building foundation into the retail shop currently operating at Site.

PCE has been detected in groundwater at concentrations up to 1,280 ug/L downgradient from the Site, 250 times higher than the drinking water ESL of 5 ug/L, with the downgradient extent delineated to approximately 1,600 feet northeast. Groundwater samples collected from boring B24 located in the residential neighborhood 1,200 feet northeast from the Site, contained concentrations of PCE at 120 ug/L.

PCE has been detected at concentrations up to 1,130 ug/L approximately 40 feet below ground surface (bgs) in monitoring well MW-5A (located 75 feet northeast of the Site). PCE has been detected at concentrations up to 22 ug/L at approximately 55 feet bgs in MW-4A (located about 375 feet northeast of the Site). It appears that the vertical extent of PCE contamination is less than 60 feet bgs at the Site.

Groundwater PCE contamination has been adequately defined by grab groundwater sampling but is not adequately monitored downgradient of Site monitoring well MW-4. MW-4 is the furthest downgradient monitoring well of seven Site monitoring wells and contains the highest concentrations of PCE at 799 ug/L as reported during the December 2012 monitoring event. Additional monitoring wells are warranted to adequately monitor the offsite PCE groundwater plume in the downgradient direction.

PCE has been detected in the adjacent Saratoga Creek at 49 ug/L, less than the ESL of 120 ug/L for protection of aquatic receptors.

No soil samples have been collected at the Site. Soil samples will be needed as part of curtailment activities to determine if concentrations of PCE in soil have been cleaned up to the soil cleanup levels.

7. **Risk Assessment**:

a. **Screening Levels:** A screening level evaluation was carried out to evaluate potential environmental concerns related to identified soil, soil gas, groundwater, surface water and indoor air impacts. The chemical evaluated in the risk assessment is PCE, the primary chemical of concern.

As part of the initial assessment, Site data were compared to ESLs compiled by Regional Water Board staff. The presence of chemicals at concentrations above the screening levels indicates that additional evaluation of potential threats to human health and the environment is warranted. Screening levels for groundwater address the following environmental concerns: 1) drinking water impacts (toxicity and taste and odor), 2) impacts to indoor air, and 3) migration and impacts to aquatic habitats. Screening levels for soil address: 1) direct exposure, 2) leaching to groundwater, and 3) nuisance issues. Screening levels for soil gas address impacts to indoor air. Chemical-specific screening levels for other human health concerns (i.e., indoor-air and direct-exposure) are based on a target excess cancer risk of $1x10^{-6}$ for carcinogens and a target Hazard Quotient of 1.0 for noncarcinogens. Groundwater screening levels for the protection of aquatic habitats are based on promulgated surface water standards (or equivalent). Soil screening levels for potential leaching concerns are intended to prevent impacts to groundwater above target groundwater goals (e.g., drinking water standards). Soil screening levels for nuisance concerns are intended to address potential odor and other aesthetic issues.

b. **Assessment Results:** The results of the screening level risk assessment are summarized in the table below.

Media / Constituent	Result of Screening Assessment*					
	Human health – direct	Leaching to ground water	Indoor air	Aquatic life	Drinking water	Nuisance
Soil Gas:						
PCE			X			
Groundwater:						
PCE			X	X	X	X
Indoor Air:						
PCE			X			
Soil:						
PCE		X^1				

* Note: an "X" indicates that ESL for that particular concern was exceeded

X^1 Assumed - no soil data has been collected at the Site

c. **Conclusions:** The dischargers have opted to forego a site-specific risk assessment and instead will address these screening level exceedances using a combination of remediation and risk management.

8. **Adjacent Sites**: A Chevron gasoline facility operated at 2798 El Camino Real on the northwest corner of the Moonlite Shopping Center (Figure 2) until approximately 1984. In 1985, three gasoline underground storage tanks (USTs) and one waste oil UST with associated conveyance pipes and dispenser were removed. Soil samples collected beneath the gasoline and waste oil USTs indicated that unauthorized releases of waste oil and gasoline had occurred. There is no reference to a release of chlorinated solvent, such as PCE, at this site. The County of Santa Clara, Department of Environmental Health, closed this case in 2007.

9. **Interim Remedial Measures**: A soil vapor extraction (SVE) system was installed in February 2010 beneath the Site and has been operating continuously since then. The SVE system consists of five horizontal extraction pipes and eight vertical extraction wells. The purpose of the SVE system is to provide vapor intrusion mitigation to indoor air and to remove PCE mass. Approximately 293 pounds of PCE have been removed as of December 2012.

   In March 2013, Moonlite Associates initiated an in-situ pilot study to evaluate the effectiveness and implementability of injecting a slurry of zero-valent iron (ZVI) and an electron donor (e.g., emulsified oil) to remediate contaminated groundwater at the Site.

   Further interim remedial measures need to be implemented at this Site to reduce the threat to water quality, public health, and the environment posed by the discharge of waste and to provide a technical basis for selecting and designing final remedial measures.

10. **Remedial Action Plan**: A remedial action plan including a feasibility study will be needed following completion of the pilot study that will determine the effectiveness of the ZVI injections.

11. **Basis for Cleanup Levels**

    a. **General**: State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge. This order and its requirements are consistent with Resolution No. 68-16.

       State Water Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. The cleanup levels established in this order are consistent with the maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses of such water, and will not result in exceedance of applicable water quality objectives. The groundwater cleanup levels in this Order are set at drinking water standards, which are greater than background concentrations. This order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

b. **Beneficial Uses**: The Regional Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Board, the Office of Administrative Law, and U.S. EPA, where required.

Regional Water Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels. Groundwater underlying and adjacent to the Site qualifies as a potential source of drinking water.

The Basin Plan designates the following potential beneficial uses of groundwater underlying and adjacent to the Site:

o Municipal and domestic water supply
o Industrial process water supply
o Industrial service water supply
o Agricultural water supply
o Freshwater replenishment to surface waters

The deeper aquifer is used for the above purposes, with shallow groundwater underlying the Site only expected to replenish Saratoga Creek; however, the aquitard separating the shallow groundwater from deeper groundwater in the vicinity of the Site is apparently not competent and/or compromised by deep, old production wells in the vicinity. This allows communication between the shallow and deep aquifers; therefore, the shallow groundwater beneath the Site is potentially used for the above purposes.

The existing and potential beneficial uses of Saratoga Creek include:

o Agricultural supply
o Fresh water replenishment to surface water
o Groundwater recharge
o Wildlife habitat
o Cold freshwater and warm freshwater habitat

c. **Basis for Groundwater Cleanup Levels**: The groundwater cleanup levels for the Site are based on applicable water quality objectives and are the more stringent of U.S. EPA and California primary maximum contaminant levels (MCLs). Cleanup to this level will protect beneficial uses of groundwater and will result in acceptable residual risk to humans.

d. **Basis for Soil Cleanup Levels**: The soil cleanup levels for the Site are intended to prevent leaching of contaminants to groundwater and will result in acceptable residual risk to humans.

e. **Basis for Soil Gas Cleanup Levels**: The soil gas cleanup levels for the Site are intended to prevent vapor intrusion into occupied buildings and will result in acceptable residual risk to humans. An attenuation factor of 0.001 was used from soil gas to indoor air.

f. **Basis for Indoor Air Cleanup Levels:** The indoor air cleanup levels for the Site are intended to prevent unhealthy levels of VOCs in indoor air as a result of vapor intrusion.

g. The remedial action plan may propose revised cleanup levels for Regional Water Board consideration.

12. **Future Changes to Cleanup Levels**: The goal of this remedial action is to restore the beneficial uses of groundwater underlying and adjacent to the Site. Results from other sites suggest that full restoration of beneficial uses to groundwater as a result of active remediation at this Site may not be possible. If full restoration of beneficial uses is not technologically or economically achievable within a reasonable period of time, then the dischargers may request modification to the cleanup levels or establishment of a containment zone, a limited groundwater pollution zone where water quality objectives are exceeded. Conversely, if new technical information indicates that cleanup levels can be surpassed, the Regional Water Board may decide that further cleanup actions should be taken.

13. **Risk Management**: The following human health risks are acceptable at remediation sites: a cumulative hazard index of 1.0 or less for non-carcinogens and a cumulative excess cancer risk of 10^{-6} to 10^{-4} or less for carcinogens. The screening level evaluation for this Site found contamination-related risks in excess of these acceptable levels. Active remediation will reduce these risks over time. However, risk management measures are needed at this Site during, and possibly after active remediation to assure protection of human health. Risk management measures include engineering controls (such as engineered caps or wellhead treatment) and institutional controls (such as deed restrictions that prohibit certain land uses).

The following risk management measures are needed at this Site:

a. A risk management plan to ensure that vapor intrusion mitigation systems (including the current SVE system) operate reliably and protect human health.

b. A deed restriction that notifies future owners of sub-surface contamination, prohibits the use of shallow groundwater beneath the Site as a source of drinking water until cleanup levels are met, and prohibits sensitive uses of the Site such as residences and daycare centers.

The remedial action plan may propose revised risk management measures for Regional Water Board consideration.

14. **Reuse or Disposal of Extracted Groundwater**: Regional Water Board Resolution No. 88-160 allows discharges of extracted, treated groundwater from site cleanups to surface waters only if it has been demonstrated that neither reclamation nor discharge to the sanitary sewer is technically and economically feasible.

15. **Basis for 13304 Order**: Water Code section 13304 authorizes the Regional Water Board to issue orders requiring a discharger to cleanup and abate waste where the discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.

16. **Cost Recovery**: Pursuant to Water Code section 13304, the dischargers are hereby notified that the Regional Water Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Regional Water Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this order.

17. **California Safe Drinking Water Policy:** It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet MCLs designed to protect human health and ensure that water is safe for domestic use.

18. **CEQA**: This action is an order to enforce the laws and regulations administered by the Regional Water Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to section 15321 of the Resources Agency Guidelines.

19. **Notification**: The Regional Water Board has notified the dischargers and all interested agencies and persons of its intent under Water Code section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.

20. **Public Hearing**: The Regional Water Board, at a public meeting, considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to sections 13304 and 13267 of the Water Code, that the dischargers shall clean up and abate the effects described in the above findings as follows:

A. **PROHIBITIONS**

1. The discharge of wastes or hazardous substances in a manner that will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.

2. Further significant migration of wastes or hazardous substances through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup that will cause significant adverse migration of wastes or hazardous substances are prohibited.

B. **REMEDIAL ACTION PLAN AND CLEANUP LEVELS**

1. **Implement Remedial Action Plan**: The dischargers shall implement the remedial action plan as required by Task 7.

2. **Groundwater Cleanup Levels**: The following groundwater cleanup levels shall be met in all wells identified in the attached Self-Monitoring Program:

Constituent	Level (ug/L)	Basis
Tetrachloroethene (PCE)	5	Drinking water MCL
Trichloroethene (TCE)	5	Drinking water MCL
cis-1,2-Dichloroethene (DCE)	6	Drinking water MCL
trans-1,2-DCE	10	Drinking water MCL

MCL = Maximum contaminant level

3. **Soil Cleanup Levels**: The following soil cleanup levels shall be met in all vadose-zone soil contaminated by releases from this Site:

Constituent	Level (mg/kg)	Basis
PCE	0.70	Leaching to groundwater
TCE	0.46	Leaching to groundwater
cis-1,2-DCE	0.19	Leaching to groundwater
trans-1,2-DCE	0.67	Leaching to groundwater

4. **Soil Gas Cleanup Levels**: The following soil gas cleanup levels shall be met in all vadose-zone soil contaminated by releases from this Site:

Constituent	Commercial or Industrial Level (µg/m3)	Residential Level (µg/m3)	Basis
PCE	2,100	210	Vapor intrusion
TCE	3,000	300	Vapor intrusion

5. **Indoor Air Cleanup Levels**: The following indoor air cleanup levels shall be met in occupied buildings contaminated by releases from this Site:

Constituent	Commercial or Industrial Level (µg/m3)	Residential Level (µg/m3)	Basis
PCE	2.1	0.41	Inhalation
TCE	3.0	0.59	Inhalation

C. **TASKS**

1. **WORKPLAN FOR ADDITIONAL SOIL GAS INVESTIGATION**

COMPLIANCE DATE: December 31, 2013

Submit a workplan acceptable to the Executive Officer to conduct an additional soil gas investigation to delineate the soil gas plume down to or below the appropriate residential or commercial cleanup level for soil gas. The workplan should specify investigation methods and proposed time schedule. Work may be phased to allow the investigation to proceed efficiently, provided that this does not delay compliance.

2. **COMPLETION OF SOIL GAS INVESTIGATION**

COMPLIANCE DATE: March 31, 2014

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 1 workplan. The technical report shall include recommendations for additional work to delineate soil gas contamination greater than the corresponding cleanup level, as warranted.

3. **WORKPLAN FOR ADDITIONAL INDOOR AIR SAMPLING**

COMPLIANCE DATE: April 30, 2014

Submit a workplan acceptable to the Executive Officer to conduct additional indoor air sampling following completion of Task 2 to delineate PCE and TCE in indoor air down to or below the corresponding cleanup level in indoor air. The workplan should specify investigation methods and proposed time schedule. Work may be phased to allow the investigation to proceed efficiently, provided that this does not delay compliance.

4. **COMPLETION OF INDOOR AIR SAMPLING**

COMPLIANCE DATE: July 31, 2014

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 3 workplan. The technical report shall include recommendations for additional work to delineate indoor air contamination greater than the corresponding cleanup level, as warranted.

5. **WORKPLAN FOR GROUNDWATER MONITORING WELLS INSTALLATION**

COMPLIANCE DATE: November 30, 2013

Submit a workplan acceptable to the Executive Officer to install additional groundwater monitoring wells downgradient of monitoring well MW-4 to monitor groundwater pollution down to or below the corresponding cleanup level in groundwater. The

workplan should specify investigation methods and a proposed time schedule. Work may be phased to allow the investigation to proceed efficiently, provided that this does not delay compliance.

6. **COMPLETION OF GROUNDWATER MONITORING WELLS INSTALLATION**

COMPLIANCE DATE: May 31, 2014

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 5 workplan. The technical report shall include recommendations for additional work to delineate groundwater contamination greater than the corresponding cleanup level, as warranted.

7. **REMEDIAL ACTION PLAN**

COMPLIANCE DATE: July 31, 2014

Submit a technical report acceptable to the Executive Officer containing:

a. Summary of remedial investigation
b. Summary of risk assessment (if applicable)
c. Evaluation of the installed interim remedial actions
d. Feasibility study evaluating alternative final remedial actions
e. Recommended final remedial actions and cleanup levels
f. Proposed risk management plan
g. Implementation tasks and time schedule

The remedial action plan shall include recommended remedial work that has a high probability of eliminating unacceptable threats to human health and restoring beneficial uses of water in a reasonable time. Reasonable time shall be proposed based on the severity of impact to the beneficial use (for current impacts) or the time before the beneficial use will occur (for potential future impacts).

Item d should include projections of cost, effectiveness, benefits, and impact on public health, welfare, and the environment of each alternative action.
Items a through d should be consistent with the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 C.F.R. § 300), CERCLA guidance documents with respect to remedial investigations and feasibility studies, Health and Safety Code section 25356.1(c), and State Water Board Resolution No. 92-49 as amended ("Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304").

8. **IMPLEMENTATION OF REMEDIAL ACTIONS**

COMPLIANCE DATE: January 31, 2015

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 7 workplan. For ongoing actions, such as soil vapor extraction or groundwater extraction, the report shall document system startup (as opposed to completion) and shall present initial results on system effectiveness (e.g., capture zone or area of influence). Proposals for further system expansion or modification may be included in annual reports (see attached Self-Monitoring Program).

9. **PROPOSED DEED RESTRICTION** (MOONLITE ASSOCIATES ONLY)

COMPLIANCE DATE: November 30, 2014

Submit a proposed deed restriction acceptable to the Executive Officer whose goal is to limit onsite occupants' exposure to Site contaminants to acceptable levels. If pollution at the Site has been cleaned up to residential levels and groundwater pollution has been cleaned up to less than MCLs, a request may be made to the Executive Officer to eliminate this task and Task 10. Otherwise, the proposed deed restriction shall prohibit the use of shallow groundwater beneath the Site as a source of drinking water until cleanup levels are met, and/or prohibit sensitive uses of the Site such as residences and daycare centers. The proposed deed restriction shall incorporate by reference the risk management plan. The proposed deed restriction shall name the Regional Water Board as a beneficiary and shall anticipate that the Regional Water Board will be a signatory.

10. **RECORDATION OF DEED RESTRICTION** (MOONLITE ASSOCIATES ONLY)

COMPLIANCE DATE: 60 days after Executive Officer approval of the proposed deed restriction

Moonlite Associates shall submit a technical report acceptable to the Executive Officer documenting that the deed restriction has been duly signed by all parties and has been recorded with the appropriate County Recorder. The report shall include a copy of the recorded deed restriction.

11. **RISK MANAGEMENT PLAN IMPLEMENTATION**

COMPLIANCE DATE: November 30, 2015, and every year thereafter

Submit a technical report acceptable to the Executive Officer documenting implementation of the Risk Management Plan over the previous 12-month period ending on June 30. The report should include a detailed comparison of Risk Management Plan elements and implementation actions taken. The report should provide a detailed discussion of any instances of implementation actions falling short of Risk Management Plan requirements, including an assessment of any potential human health or environmental effects resulting from these shortfalls. The report may be combined with a self-monitoring report, provided that the report title clearly indicates its scope. The report may propose changes to the Risk Management Plan, although those changes shall not take effect until approved by the Regional Water Board or the Executive Officer

12. **FIVE-YEAR STATUS REPORT**

COMPLIANCE DATE: October 31, 2019, and every five years thereafter

Submit a technical report acceptable to the Executive Officer evaluating the effectiveness of the approved remedial action plan. The report should include:

a. Summary of effectiveness in controlling contaminant migration and protecting human health and the environment
b. Comparison of contaminant concentration trends with cleanup levels
c. Comparison of anticipated versus actual costs of cleanup activities
d. Performance data (e.g., groundwater volume extracted, chemical mass removed, mass removed per million gallons extracted)
e. Cost effectiveness data (e.g., cost per pound of contaminant removed)
f. Summary of additional investigations (including results) and significant modifications to remediation systems
g. Additional remedial actions proposed to meet cleanup levels (if applicable) including time schedule

If cleanup levels have not been met and are not projected to be met within a reasonable time, the report should assess the technical practicability of meeting cleanup levels and may propose an alternative cleanup strategy.

13. **PROPOSED CURTAILMENT**

COMPLIANCE DATE: 60 days prior to proposed curtailment

Submit a technical report acceptable to the Executive Officer containing a proposal to curtail remediation. Curtailment includes system closure (e.g., well abandonment), system suspension (e.g., cease extraction but wells retained), and significant system modification (e.g., major reduction in extraction rates, closure of individual extraction wells within extraction network). The report should include the rationale for curtailment. Proposals for final closure should demonstrate that cleanup levels have been met, contaminant concentrations are stable, and contaminant migration potential is minimal.

14. **IMPLEMENTATION OF CURTAILMENT**

COMPLIANCE DATE: 60 days after Executive Officer approval of proposed curtailment

Submit a technical report acceptable to the Executive Officer documenting completion of the tasks identified in Task 13.

15. **EVALUATION OF NEW HEALTH CRITERIA**

COMPLIANCE DATE: 90 days after evaluation report required by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating the effect on the approved remedial action plan of revising one or more cleanup levels in response to revision of drinking water standards, maximum contaminant levels, or other health-based criteria.

16. **EVALUATION OF NEW TECHNICAL INFORMATION**

COMPLIANCE DATE: 90 days after evaluation report required by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating new technical information which bears on the approved remedial action plan and cleanup levels for this Site. In the case of a new cleanup technology, the report should evaluate the technology using the same criteria used in the feasibility study. Such technical reports shall not be required unless the Executive Officer determines that the new information is reasonably likely to warrant a revision in the approved remedial action plan or cleanup levels.

17. **Delayed Compliance**: If the dischargers are delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the dischargers shall promptly notify the Executive Officer, and the Regional Water Board may consider revision to this Order.

D. **PROVISIONS**

1. **No Nuisance**: The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in Water Code section 13050(m).

2. **Good Operation and Maintenance**: The dischargers shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.
3. **Cost Recovery**: The dischargers shall be liable, pursuant to Water Code section 13304, to the Regional Water Board for all reasonable costs actually incurred by the Regional Water Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the site addressed by this Order is enrolled in a State Water Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the dischargers over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.

4. **Access to Site and Records**: In accordance with Water Code section 13267(c), the dischargers shall permit the Regional Water Board or its authorized representative:

   a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.

b. Access to copy any records required to be kept under the requirements of this Order.

c. Inspection of any monitoring or remediation facilities installed in response to this Order.

d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the dischargers.

5. **Self-Monitoring Program**: The dischargers shall comply with the Self-Monitoring Program as attached to this Order and as may be amended by the Executive Officer.

6. **Contractor / Consultant Qualifications**: All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.

7. **Lab Qualifications**: All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Regional Water Board using approved U.S. EPA methods for the type of analysis to be performed. Quality assurance/quality control (QA/QC) records shall be maintained for Regional Water Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g., temperature).

8. **Document Distribution**: An electronic and paper version of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the Regional Water Board, and electronic copies shall be provided to the following agencies:

   a. City of Santa Clara, City Attorney's Office
   b. Santa Clara Valley Water District

   The Executive Officer may modify this distribution list as needed.

   Electronic copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be uploaded to the State Water Board's GeoTracker database within five business days after submittal to the Regional Water Board. Guidance for electronic information submittal is available at: http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal

9. **Reporting of Changed Owner or Operator**: The dischargers shall file a technical report on any changes in contact information, site occupancy or ownership associated with the property described in this Order.

10. **Reporting of Hazardous Substance Release**: If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the dischargers shall report such discharge to the Regional Water Board by calling (510) 622-2369.

    A written report shall be filed with the Regional Water Board within five working days. The report shall describe: the nature of the hazardous substance, estimated quantity

involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

This reporting is in addition to reporting to the California Emergency Management Agency required pursuant to the Health and Safety Code.

11. **Periodic SCR Review**: The Regional Water Board will review this Order periodically and may revise it when necessary.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 11, 2013.

Digitally signed by Bruce H. Wolfe
Date: 2013.09.17 16:21:12 -07'00'

Bruce H. Wolfe
Executive Officer

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FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO: IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY
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Attachments: Site Vicinity Map
Site Location Map
Self-Monitoring Program
Staff Report

Figure 1: Site Vicinity Map

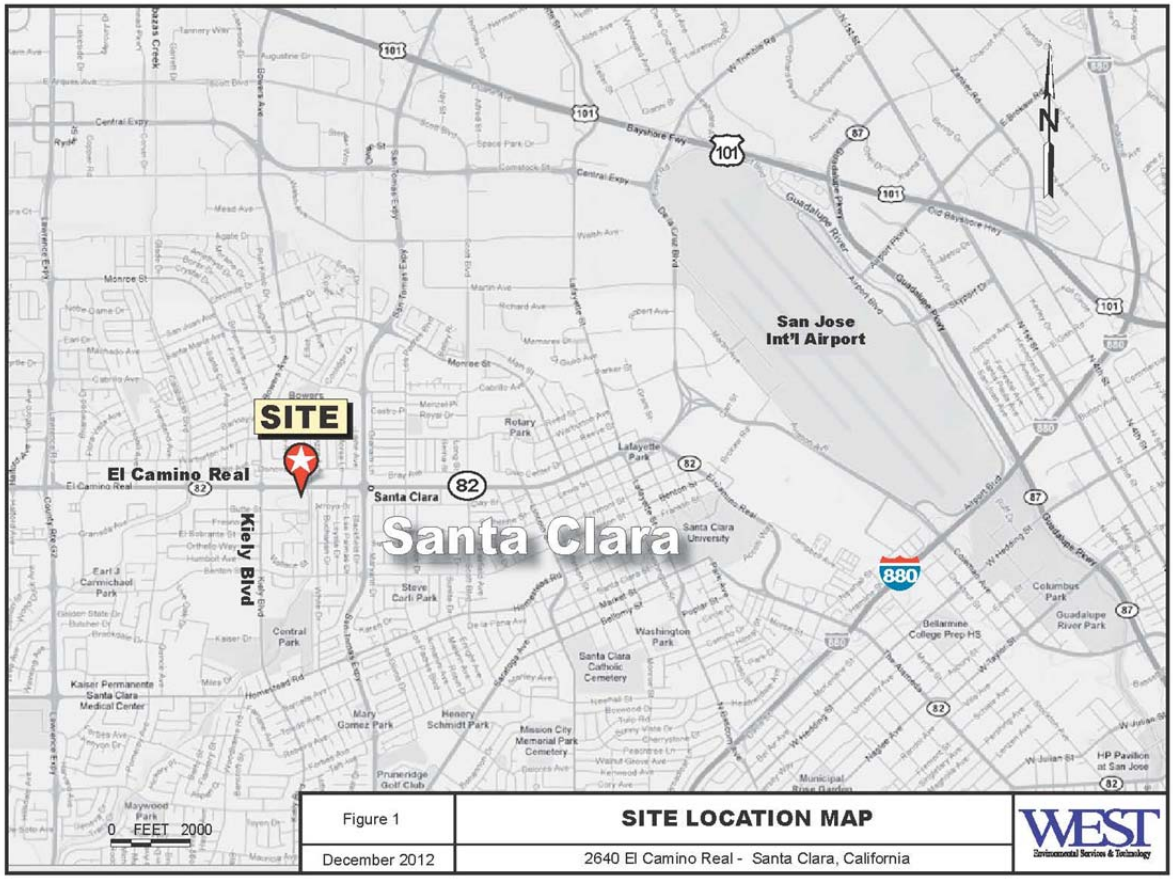
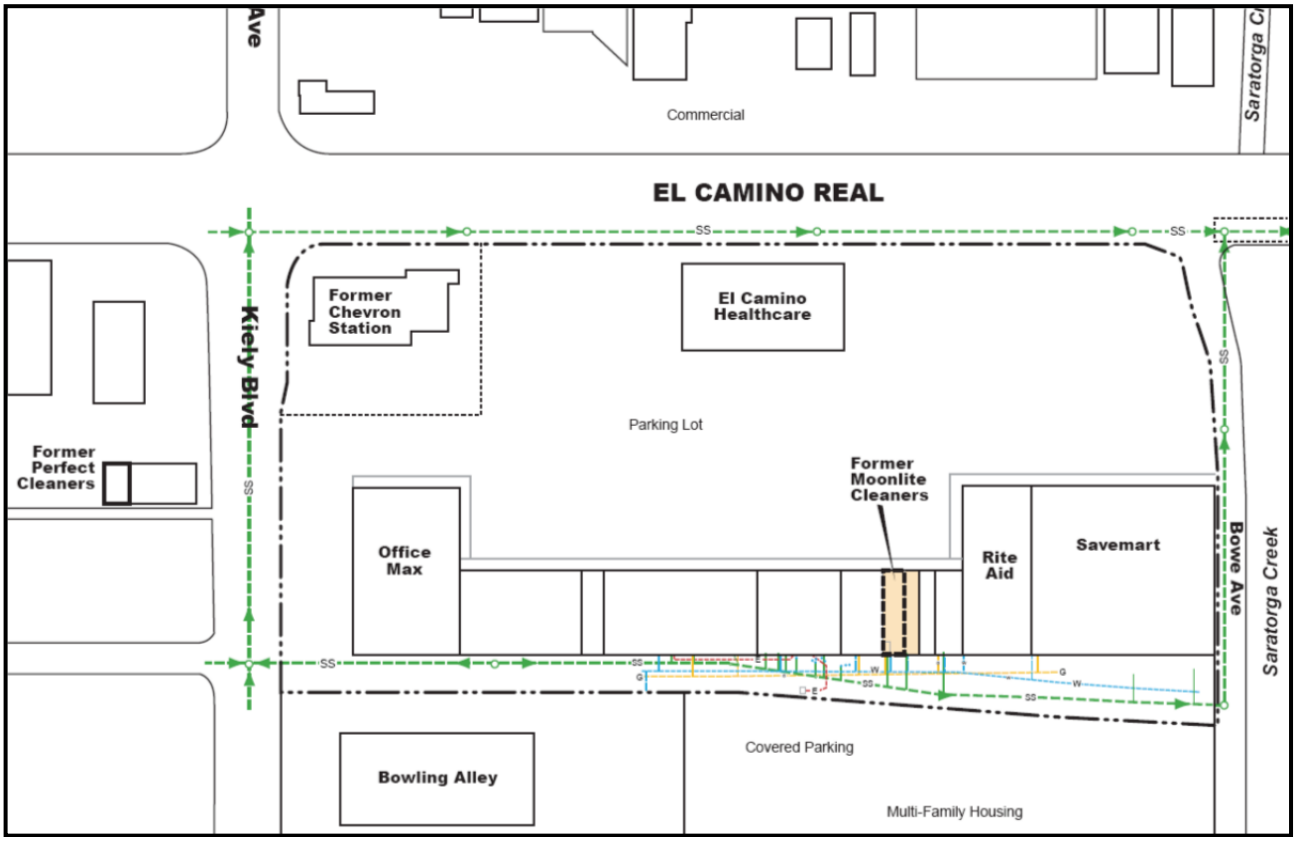


Figure 2: Site Location Map



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM for:

MOONLITE ASSOCIATES, LLC, and
UNITED ARTIST THEATRE CIRCUIT, INC.

for the property located at:

2640 El CAMINO REAL
SANTA CLARA, SANTA CLARA COUNTY

1. **Authority and Purpose**: The Regional Water Board requires the technical reports identified in this Self-Monitoring Program pursuant to Water Code sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Regional Water Board Order No. R2-2013-0032 (site cleanup requirements).

2. **Monitoring**: The dischargers shall measure groundwater elevations and surface water elevations quarterly in all monitoring wells and Saratoga Creek sampling stations and shall collect and analyze representative samples of groundwater according to the following table:

Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
MW-1	Q	8260B/5030B	MW-5	Q	8260B/5030B
MW-2	Q	8260B/5030B	MW-5A	Q	8260B/5030B
MW-3	Q	8260B/5030B	C1	SA	8260B/5030B
MW-4	Q	8260B/5030B	C2	SA	8260B/5030B
MW-4A	Q	8260B/5030B	C3	SA	8260B/5030B

Key: Q = Quarterly, SA = Semi Annually
8260B = EPA Method 8260B or equivalent
5030B = EPA Method 5030B or equivalent
C1, C2, C3 = Saratoga Creek sampling locations

The dischargers shall sample any new monitoring or extraction wells quarterly and analyze groundwater samples for the same constituents as shown in the above table. The dischargers may propose changes in the above table; any proposed changes are subject to Executive Officer approval.

3. **Quarterly Monitoring Reports**: The dischargers shall submit quarterly monitoring reports to the Regional Water Board no later than 30 days following the end of the quarter (e.g., report for first quarter of the year due April 30). The first quarterly monitoring report shall be due on October 30, 2013. The reports shall include:

   a. Transmittal Letter: The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall be signed by the dischargers' principal executive officer or his/her duly authorized representative, and

shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

b. Groundwater and Surface Water Elevations: Groundwater and Surface Water elevation data shall be presented in tabular form, and a groundwater and surface water elevation map should be prepared for each monitored water-bearing zone. Historical groundwater and surface elevations shall be included in the fourth quarterly report each year.

c. Groundwater and Surface Water Analyses: Groundwater and surface water sampling data shall be presented in tabular form, and an isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. Historical groundwater and surface water sampling results shall be included in the fourth quarterly report each year. The report shall describe any significant increases in contaminant concentrations since the last report, and any measures proposed to address the increases. Supporting data, such as lab data sheets, need not be included (however, see record keeping - below).

d. Groundwater Extraction: If applicable, the report shall include groundwater extraction results in tabular form, for each extraction well and for the Site as a whole, expressed in gallons per minute and total groundwater volume for the quarter. The report shall also include contaminant removal results, from groundwater extraction wells and from other remediation systems (e.g., soil vapor extraction), expressed in units of chemical mass per day and mass for the quarter. Historical mass removal results shall be included in the fourth quarterly report each year.

e. Status Report: The quarterly report shall describe relevant work completed during the reporting period (e.g., site investigation, remedial measures) and work planned for the following quarter.

5. **Violation Reports**: If the dischargers violate requirements in the Site Cleanup Requirements, then the dischargers shall notify the Regional Water Board office by telephone as soon as practicable once the dischargers have knowledge of the violation. Regional Water Board staff may, depending on violation severity, require the dischargers to submit a separate technical report on the violation within five working days of telephone notification.

6. **Other Reports**: The dischargers shall notify the Regional Water Board in writing prior to any Site activities, such as construction or underground tank removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for Site investigation.

7. **Record Keeping**: The dischargers or their agents shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Regional Water Board upon request.

8. **SMP Revisions**: Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the dischargers. Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

August 29, 2013
File No. 43S1090 (NMK)

Revised Cleanup Staff Report

This report provides the basis for the Water Board Cleanup staff's (Staff) recommendation to adopt Site Cleanup Requirements (SCR) naming Moonlite Associates, LLC, (Moonlite Associates) and United Artists Theatre Circuit, Inc., (UATC) as Dischargers, for the former Moonlite Cleaners site (Site) located at 2640 El Camino Real, Santa Clara, Santa Clara County. This report was revised in response to comments received on a publicly noticed Tentative Order and focuses on Staff's recommendation to name UATC and Moonlite Associates as dischargers based upon the following evidence:

- A dry cleaner using tetrachloroethene (PCE) operated at the Site for approximately 35 years, from 1962 to 1997.
- The Site is contaminated with PCE, as evidenced by indoor air, soil gas, and groundwater monitoring results.
- UATC owned the property from 1961 to 1975, and then continued as the master lessor until 1978.
- Moonlite Associates has owned the property from 1977 to the present.
- Both UATC and Moonlite owned the Site at the time of the PCE discharges, had knowledge of the activities which resulted in the discharges, and had the legal ability to prevent the discharges.

I. Background

The Water Board has provided regulatory oversight for this case since March 2009, at which time Moonlite Associates voluntarily enrolled in our cost recovery program. Moonlite Associates has been conducting the investigation and cleanup, and has requested the Water Board to name UATC as an additional discharger. Moonlite Associates does not object to being named as a discharger in the SCR. UATC objects to being named as a discharger.

This Staff Report provides the rationale for naming UATC as an additional discharger. UATC retained Erler & Kalinowski, Inc. (EKI) to assess the likelihood of a PCE release between 1962 and 1978 and submit a report detailing their findings. This Staff Report also provides a detailed response to this March 2013 EKI report and the basis for Staff's assertion that PCE discharges did occur during the time period in question.

II. Site Location

The Site is located at 2640 El Camino Real in Santa Clara (Figure 1). The Site is located in the Moonlite Shopping Center (Figure 2). The Moonlite Shopping Center is bounded to the west by Kiely Boulevard, to the east by Bowe Avenue and Saratoga Creek, to the north by El Camino

Real, and to the south by an alley. Saratoga Creek is located immediately east of Bowe Avenue. El Camino Real is a large boulevard, primarily used by commercial businesses and as an east to west thoroughfare, and is flanked by residential neighborhoods located one block to the north and south.

The former Moonlite Cleaners Site is an approximately 3,000 square foot tenant space and is presently occupied by Cosmo's Gifts, a retail store. The largest tenant spaces in the Moonlite Shopping Center are occupied by Save Mart Super Market, Rite Aid Drugs, Palo Alto Medical Group, Home Town Buffet, and Office Max. There are twenty-five additional smaller tenant spaces.

III. Site History

A. History of Owners and Operators

Multiple different dry cleaners using the name Moonlite Cleaners operated at the Site from 1962 to 1997.

UATC owned the shopping center from about 1961 to 1975, and then continued as the master lessor until 1978. UATC owned and, as master lessor, controlled the shopping center where the dry cleaner operated as a tenant for 17 years, from 1961 to 1978. On September 5, 2000, UATC and affiliated entities filed for chapter 11 bankruptcy in the United States Bankruptcy Court for the District of Delaware. The court entered an order confirming a plan of reorganization for UATC on January 25, 2001.

Moonlite Associates, the current property owner, has owned the Site since 1977. Moonlite Associates owned the shopping center during the time when the dry cleaner operated as a tenant for 20 years, from 1977 to 1997.

All previous owners and operators of the Moonlite Cleaners dry cleaning business are not named as dischargers because they are either deceased, or their current location is unknown. Cleanup Staff will send site history requirement letters to the individuals with known addresses whose contact information was recently provided. Once staff has reviewed the site history responses they will provide a recommendation to the Board about naming additional parties as dischargers.

B. Fire Marshal Permit and Dry Cleaning Equipment Used

On May 11, 1961, the State Fire Marshal issued a permit (Fire Marshal Permit) for establishment of a dry cleaner facility and installation of dry cleaning equipment at the Moonlight Shopping Center. On July 10, 1962, the City of Santa Clara Building Department issued a certificate of occupancy authorizing the operation of the dry cleaning business. This Fire Marshal Permit, the Building Department permit, the equipment used, and the discussion below, support that PCE was used at the Site beginning in 1962.

The Fire Marshall Permit indicates the following equipment was installed at the Site:

- Hoffman Master Jet Cleaning Unit

- Hoyt SF-130 Reclaimer
- Per Combo Filter-Still Cooker
- Vapor-Mat Model 800

The permit also refers to solvents and contains requirements for its proper handling, such as piping and ventilation. According to an employee of Hoffman/New Yorker, Inc. (personal communication with Richard Grecco, Hoffman New Yorker, February 2013,), a manufacturer and distributer of dry cleaning equipment for over 100 years, the Hoffman Master Jet Cleaning Unit and the Hoyt SF-130 Reclaimer are machines designed to be used only with chlorinated solvent dry cleaning fluids such as PCE, and not with petroleum hydrocarbon-based fluids such as Stoddard solvent. Additionally, according to Tom Mohr (personal communication with George Cook relaying message from Tom Mohr, February 6, 2013), the principal author of the Santa Clara Valley Water District *Study of Potential for Groundwater Contamination from Past Dry Cleaner Operations in Santa Clara County*, the Per Combo Filter-Still Cooker was only used for PCE. A 1979 operation manual for the Hoyt SF-130 Reclaimer also indicates the equipment is for the use of PCE only.

There are a number of ways in which PCE releases are known to occur while performing dry cleaning operations. Some of the release mechanisms are specific to the equipment used at the Site and some relate to general practices. For example, the Per Combo Filter Still Cooker cooked down the leftover PCE mixture from the dry cleaning process, during which the PCE mixture routinely boiled over on to the floor. This cooker also produced wet PCE-laden muck waste that was messy to dispose of and would result in dripping onto the floor. The Hoyt SF-130 Reclaimer's purpose was to reclaim as much PCE as possible for reuse. It never reclaimed 100% of the PCE and the remaining PCE mixture either went into a bucket or a drain. The Vapor Mat Model 800 (a sniffer) extracted PCE that was present in the air and produced PCE-laden wastewater that needed to be disposed of. In addition, Moonlite Cleaners' operation was not a closed system, meaning that wet PCE-laden clothes were manually transferred from the wash into the Hoyt SF-130 Reclaimer for drying (and PCE reclaiming, which underscores the amount of PCE still on the wet clothes). Such transfer inevitably led to PCE dripping onto the floor.

A 1975 Bulk Transfer Agreement confirms that the original equipment identified in the 1961 Permit was still located at the facility, and includes additional equipment which suggests that facility operations expanded since 1962. This original equipment and more transferred over to a new operator, which means the same 1961 equipment was still being used in 1975 (during UATC's ownership) and resulting in PCE discharges.

C. PCE Discharges Occurred During UATC's Ownership and Control

The Site investigations indicate that there were substantial discharges of PCE. These discharges of PCE are consistent with common industry-wide operational practices for dry cleaners that operated from the 1960s to the 1990s. The prevalence of dry cleaner discharges is discussed in the 2007 Santa Clara Valley Water District *Study of Potential for Groundwater Contamination from Past Dry Cleaner Operations in Santa Clara County* (Water District Study). Examples of common release mechanisms from dry cleaner operations include:

- PCE spilled onto the floor from dry cleaning equipment maintenance and operation, equipment failure, solvent transfer and storage, or drips from wet clothing with residual PCE;
- PCE spilled onto the floor then seeped through concrete or cracks and reached the soil and groundwater below;
- PCE soaked into concrete and then volatilizing into indoor air;
- Spent PCE dumped onto soil behind building;
- PCE-saturated spent cartridge filters stored behind building;
- Water containing PCE (e.g., from water/solvent separator) discharged to the floor drain with leakage from the sewer lateral to soil and groundwater; and
- PCE in soil and groundwater volatilizing and intruding into indoor air.

The concentrations and distribution of PCE in groundwater, soil gas, and indoor air at the Site (the highest PCE concentrations in soil gas and groundwater are beneath the Site and downgradient from the Site), indicate that the Moonlite Cleaners' dry cleaning operations were no different than the dry cleaners discussed in the Water District Study that discharged PCE.

In addition, as discussed on pages 43 – 47 and 142 – 148 of the Water District Study, older dry cleaners used more solvent and released a greater percentage of the solvent used due to relative inefficiencies of the older equipment compared to newer equipment. The year during which a dry cleaner began operations is a useful indicator of the potential mount of PCE mass released. In general, the earlier a dry cleaner operated the more likely it is that larger quantities of PCE were released to soil and groundwater due to older equipment and common PCE handling and disposal practiced for that time period. For example, Table 13 on page 47 of the Water District Study shows how typical dry cleaners from the 1960s used much more PCE per pound of clothes cleaned and had a much higher leakage rate than a typical dry cleaner from the 1990s.

Thus, based on the physical evidence at the Site and downgradient from it (see Section VI below), the history of solvent usage at the Site beginning in 1962, the common industry-wide operational practices that led to PCE discharges in the 1960s and 1970s, and the inefficiencies of older dry cleaning equipment from the 1960s, the cleanup staff conclude that there is substantial evidence that PCE discharges occurred during UATC's ownership and control of the Site from 1962 and 1978 and afterwards when Moonlite Associates took ownership.

IV. Hydrogeology

The topography of Santa Clara is predominantly flat, sloping gently to the north northeast towards the Guadalupe River and the San Francisco Bay. Locally at the Site, the topography slopes gently to the east, towards the adjacent Saratoga Creek, that flows to the north. The elevation of the Site is approximately 80 feet above mean sea level.

The headwaters of Saratoga Creek originate is in Santa Cruz Mountains at 3,100 feet, approximately 10 miles to the southwest. Saratoga Creek is the principal drainage for the

Saratoga Creek Watershed. Santa Clara Valley Water District uses Saratoga Creek upstream of the Site to recharge groundwater in the reach between the city of Saratoga and Highway 280, approximately. Saratoga Creek currently is a gaining creek adjacent to the Site. Saratoga Creek joins the San Tomas Aquino Creek before joining the Guadalupe Slough, ultimately draining to the San Francisco Bay.

The sediment beneath the Site is ancestral Saratoga Creek stream channel sediment overlying older Late Pleistocene alluvial plain sediment. The ancestral Saratoga Creek sediment is fine to coarse grained channel deposits, with fine grained flood deposits outside the channels. The pattern of fine and coarse grained lenses of sediment observed at the Site represent the deposits of the meandering ancestral Saratoga Creek flowing northward over the alluvial plain sediments. These ancestral Saratoga Creek sediment has been encountered from approximately 5 to 50 feet below ground surface during investigations. The ancestral Saratoga Creek sediment was deposited in the same orientation as the present orientation of Saratoga Creek, and the north-trending ancestral stream channels of Saratoga Creek should influence the direction of groundwater flow to the north.

The depth to groundwater in Site monitoring wells is approximately 12 feet below ground surface. The calculated groundwater flow direction at the Site is northeast, with a gradient of approximately 0.005 feet per foot. The flow direction of groundwater at the Site is most likely controlled by north-trending Saratoga Creek, the north-trending ancestral Saratoga Creek stream deposits, the gently north sloping topography, the regional groundwater gradient, and deep production wells located in the vicinity.

Concentrations of PCE have been detected in groundwater down gradient of the Site to the north, from the northeast to the northwest. This distribution of contamination in groundwater is consistent with the controlling factors that influence the groundwater flow direction.

V. Investigation and Cleanup

Significant releases of the dry cleaning chemical PCE can be attributed to the former Moonlite Cleaners. PCE has been detected in indoor air samples, in soil gas samples, and in groundwater samples in quantities far exceeding Environmental Screening Levels (ESLs) for each media. PCE is day lighting in the adjacent Saratoga Creek. Other potential dry cleaning chemicals, such as Stoddard solvent, were not detected during the investigations.

The highest historical detections of PCE in groundwater, soil gas, and indoor air are in the immediate vicinity of or directly beneath the Site, indicating a discharge directly beneath the dry cleaner. This statement is supported by the following Site data:

- PCE has consistently been detected in groundwater immediately down gradient of the Site in MW3, MW4, MW4A, MW5, and MW5A. Recent groundwater monitoring results from June 2012 detected PCE in groundwater at 1,280 ug/L in MW4, over 200 times higher than the ESL of 5 ug/L.

- The highest soil gas concentration of PCE was detected immediately beneath the former dry cleaner at 5,700,000 ug/m3, over 2,000 times higher than the ESL of 2,100 ug/m3. Soil gas concentrations decrease with distance from the former dry cleaner.
- The highest indoor air concentration of PCE was detected in the former dry cleaner at 150 ug/m3 PCE, about 70 times higher than the ESL of 2.1 ug/m3. Indoor air concentrations of PCE in the adjacent tenant spaces decrease with distance from the former dry cleaner.
- The highest surface water concentration of PCE collected from Saratoga Creek was detected downstream of the former dry cleaner at 49 ug/L, approximately half of the ESL of 120 ug/L. Surface water samples collected upstream from the former dry cleaners have never contained any PCE.

The Site data clearly indicate that the highest concentrations of PCE are immediately beneath, down gradient, and downstream of the former dry cleaner, and decrease with distance away from the former dry cleaner. This pattern indicates that significant releases of PCE occurred at the former dry cleaner.

The very high PCE indoor air concentrations in the former dry cleaning location and the very high PCE soil gas concentrations immediately beneath the former dry cleaner indicate that PCE product was most likely spilled onto the concrete floor due to the sloppy nature of the dry cleaning equipment and processes. The PCE would have slowly seeped into the concrete floor, or through cracks or perforations in the concrete floor.

This release mechanism is consistent with the most common release mechanisms identified in the 2007 SCVWD Dry Cleaner Study, which cites a 2002 Florida Department of Environmental Protection dry cleaner study (Florida Study) as an excellent, comprehensive review of release mechanisms from dry cleaners. The Florida Study identified soil beneath the floor slab in the vicinity of the dry cleaning machines and distillation units as the area within dry cleaning operations most frequently contaminated by PCE. The SCVWD Dry Cleaner Study states that the Florida Department of Environmental Protection and Florida State University study (Florida Study) "...showed that more PCE mass is released as a result of solvent transfer, storage and operations than due to sewer line discharges." The SCVWD Dry Cleaner Study also notes that leaking sewer lines can be a release mechanisms.

Based on the high soil gas concentrations beneath the facility, there is a possibility that the sewer lateral immediately beneath the dry cleaning equipment (owned by UATC and Moonlite Associates) was also a source of contamination. However, these soil gas results do not indicate that a release occurred from the City sanitary sewer lines behind the facility. The highest PCE detected in soil gas concentrations beneath the slab was 5,700,000 ug/m3 PCE. The highest soil gas samples collected along the City sanitary sewer are less than 1,000 ug/m3 PCE, a significant difference of over three orders of magnitude, and can be attributed to the sanitary sewer gravel pack acting as a preferential pathway from the source area beneath the slab of the former Moonlite Cleaners.

In summary, the site history and the site data, taken together with the SCVWD Dry Cleaner Study, indicate that the primary release mechanism was PCE product spilled onto the concrete floor due to the sloppy nature of the dry cleaning equipment and processes. The PCE would have then slowly seeped into the concrete floor, or through cracks or perforations in the concrete floor, and then to the soil beneath the slab. A possible secondary release mechanism could have also been a leak from the sewer lateral immediately beneath the dry cleaning equipment.

A soil vapor extraction (SVE) system was installed in February 2010 beneath the former dry cleaner facility and has been operating continuously since then. The SVE system consists of five horizontal extraction pipes and eight vertical extraction wells. The purpose of the SVE system is to provide vapor intrusion mitigation to the tenants and to remove PCE mass. Approximately 300 pounds of PCE have been removed by the SVE system as of December 2012.

VI. Response to March 12, 2013, EKI Report

UATC retained Erler & Kalinowski, Inc. (EKI) to assess the likelihood of a PCE release between 1962 and 1978. EKI concluded in its March 12, 2013, report that there is no evidence of a pre-1978 PCE release for the following reasons.

- Modeled leakage of PCE-contaminated wastewater from a hypothetical leaking sewer pipe would take six years to reach groundwater, indicating a post-1978 release.
- Groundwater at the Site would have flowed to the northwest prior to the mid-1990s; therefore, if there was a pre-1978 PCE release, there would be evidence of a northwest-trending PCE groundwater plume, which does not exist.
- Groundwater flow at the Site shifted to the northeast in the mid-1990s, and since the current groundwater plume travels to the northeast, the PCE release that caused the groundwater plume happened in the mid-1980s or early 1990s.
- Groundwater levels at the Site were deeper during the pre-1978 period, therefore if a PCE release occurred pre-1978, it would have resulted in a deeper groundwater plume, which does not exist.

These conclusions are not technically supportable, as explained below.

A. <u>Sewer Leakage Model Doesn't Consider Primary Release Mechanism</u>

The EKI report assumes a continual leak of wastewater from a leaking sanitary sewer line as the driver for carrying PCE through soil to groundwater. Using this assumption, EKI's model predicts that the PCE would have reached groundwater in approximately six years as a result of the flushing of wastewater. Cleanup Staff disagree that this was the primary leak mechanism and assert that the extremely high PCE indoor air concentrations more likely indicate a release directly to the floor of the dry cleaner as discussed further in Sections III and V. PCE released on the floor of the dry cleaner would have seeped into the concrete floor, or through cracks or perforations in the concrete floor, and then to the soil beneath the slab. The PCE could have been bound up for years to decades in the soil immediately beneath the concrete slab and

above any sewer lines. This probable delay from the release of PCE to when PCE entered the groundwater raises questions as to the validity of EKI's age-dating of the groundwater plume.

B. Northwest-trending Plume Not Expected Based on Groundwater Depths

EKI infers from a review of groundwater data that groundwater at the Site would have flowed to the northwest prior to the mid-1990s; therefore, if there was a pre-1978 PCE release, there would be evidence of a northwest-trending PCE groundwater plume, which according to EKI does not exist. EKI's assertion that if a pre-1978 release occurred there should be remnants of a northwest trending groundwater plume, is dependent on (1) shallow groundwater existing beneath the Site, and (2) enough surface water in the losing Saratoga Creek to affect shallow groundwater and to cause a northwest trending plume.

B.1 Groundwater Too Deep in 1960s and 1970s to Cause Northwest-trending Plume
Staff disagrees with many aspects of EKI's analysis. The issue regarding a time lag between PCE releases and when PCE is present in groundwater is discussed above. Furthermore EKI's analysis of historic groundwater flow directions is flawed. There were many influences on the groundwater flow direction historically, including localized pumping from three nearby water supply wells located within one-half mile of the Site that were not taken into consideration. In addition, Saratoga Creek in the vicinity of the Site probably had little influence. Staff reviewed the USGS surface water discharge records for Saratoga Creek collected at the gage located approximately 0.5 mile southwest of Saratoga (around 9 miles upstream of the Site). The flow within Saratoga Creek was intermittent from 1962 to 1978, and depth to groundwater was very deep during this period (up to 200 feet approximately below ground surface). The only flow into the creek occurred from precipitation and minor surface runoff. In other words, Saratoga Creek only had flowing water when it was raining and it was likely a losing creek, meaning that some portion of the flow was discharging to the subsurface. Whereas today it is considered a gaining creek as groundwater is much higher and is recharging the creek.

Based on the intermittent flow in Saratoga Creek and the depth to groundwater during the 1960s and 1970s, it is highly unlikely that there was enough surface water in the creek to recharge shallow groundwater beneath the Site and alter flow direction. Therefore, PCE subsurface migration during the 1960s during UATC's ownership would not have been significantly affected by Saratoga Creek, and there should not be a northwest trending contaminant plume, which is the case. During the 1970s, after the SCVWD began actively recharging groundwater, subsurface water levels rose, but were still much deeper than today. Staff conclude that in the 1970s the creek would still not have significantly altered the groundwater flow direction to the northwest in the shallow aquifer. In the early 1990s as rising groundwater levels surpassed the surface water elevation in the creek, the northerly regional gradient shifted to the northeast near the creek, as is seen today.

B.2 Shell Data not Representative of Moonlite Site
EKI used time-series groundwater elevation data from a deep well to make inferences about groundwater elevations in shallow groundwater at the Site. The index well that EKI used is a deep well located approximately six miles to the southeast that appears to be a good proxy to describe historic groundwater elevations in the groundwater basin. However, the three deep production wells within on-half mile from the Site provide a closer representation of deeper groundwater conditions beneath the Site. EKI used 1990 to 2000 groundwater data from a Shell gas station 1000 feet away from the Moonlite Cleaners Site, and on the opposite side of Saratoga Creek, to estimate a northwest groundwater flow direction at the Moonlite Cleaners Site from the early 1960s to the mid-1990s. The time and distance involved in this comparison is too large and could lead to variations in the correlations of groundwater flow directions between the two sites. For instance, groundwater flow directions for the former Chevron USA station located on the Moonlite Shopping Center property flowed southwest from April 1990 until June 1991, which is opposite than what is predicted by EKI.

B.3 90 Degree Variation in Groundwater Flow Direction not Supported by Shell Data
EKI's depiction of a northwest trending groundwater plume in Figure 10 of the EKI report is not supported by the groundwater flow variations seen at the Shell gas station. Staff reviewed the groundwater flow directions from the Shell gas station contained in Attachment A of the EKI report and observed a roughly 45 degree variation in the groundwater flow direction from the time when Saratoga Creek was purportedly losing or gaining. This is less than the 60 degree variation EKI cites in Attachment A of the report, and less than the 90 degree variation EKI shows on Figures 10 and 11 for a hypothetical groundwater plume under losing-creek conditions compared to the present day groundwater plume under gaining-creek conditions.

B.4 PCE Plume Detected to the North
Using a 45 degree amount of variation in the groundwater flow direction from a losing to a gaining creek, the groundwater flow direction at the Moonlite Cleaners Site could have varied from its present northeast direction under gaining-creek conditions to a northerly direction under losing-creek conditions. This is consistent with the areal spread of groundwater contamination seen in the current groundwater plume with groundwater concentrations in northerly borings B2, B17, B18, and B32 at 27 ug/L PCE, 4.6 ug/L PCE, 18 ug/L PCE, and 96 ug/L PCE, respectively. Additionally EKI's depiction of a northwest trending groundwater plume in Figure 10 is not supported by the groundwater flow directions for the former Chevron USA station that was located on the Moonlite Shopping Center property and closer to the former Moonlite Cleaners than the Shell Station.

C. <u>Northeast-trending PCE Plume Partially Caused by PCE Discharges from the 1960s and 70s</u>

EKI infers from a review of groundwater data that groundwater flow at the Site shifted to the northeast in the mid-1990s, and since the current groundwater plume travels to the northeast, the PCE release that caused the groundwater plume happened in the mid-1980s or early 1990s. This conclusion is incorrect because the PCE could have been bound up for years to decades in

the soil immediately beneath the concrete slab and above any sewer line. This would cause a delay in PCE reaching groundwater. Therefore, PCE released during UATC's ownership and control from 1962 to 1978 would not have started to migrate in groundwater until the northeast gradient was established.

D. PCE Contamination is Found at Deeper Depths Beneath the Site

EKI infers from a review of groundwater data that groundwater levels at the Site were deeper during the pre-1978 period, therefore if a PCE release occurred pre-1978, it would have resulted in a deeper groundwater plume, which according to EKI does not exist. This is incorrect. Groundwater in boring B32 located 50 feet north of the Site contained 96 ug/L PCE at approximately 40 feet below ground surface. Groundwater monitoring well MW5A located 50 feet northeast of the Site contained 1,130 ug/L PCE at approximately the same depth. These concentrations of PCE at depth are immediately above a relatively thick clay layer that extends from approximately 40 to 60 feet bgs at B32 that would slow any further downward vertical migration of PCE regardless of the time of release.

VII. UATC is a Discharger under Water Code section 13304

Water Code section 13304 authorizes the Water Board to issue cleanup and abatement orders to any person who caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged into waters of the State and creates, or threatens to create, a condition of pollution or nuisance. Whether a person caused or permitted such waste discharges has been broadly construed by the State Water Resources Control Board (State Water Board) in numerous precedential orders to include owners and operators at the time of discharge. A prior landowner and lessees may be named as a discharger if it (1) owned or were in possession of the property at the time of discharge, (2) had knowledge of the activities which resulted in the discharge, and (3) had the legal ability to prevent the discharge. State Water Board Orders WQ 85-7, 86-15, and 93-13. In this case, UATC meets all the criteria to be named as a discharger as discussed below.

A. UATC Owned the Property during the Time of Discharge

As discussed previously, UATC owned the property from 1961 to 1975 and then continued as master lessor until 1978. During this time, Moonlite Cleaners used PCE in its dry cleaning business and discharged PCE to soil and groundwater, as previously discussed.

B. UATC had Knowledge of Activities that Resulted in the Discharge

UATC had knowledge of the activities that resulted in the discharge. As previously stated, on May 11, 1961, the State Fire Marshall issued a permit to Moonlite Cleaners for the establishment of a dry cleaning business, which required numerous interior and exterior building improvements such as the installation of a piping system and exhaust fans and ducts. In furtherance of this, on June 27, 1961, UATC obtained a building permit for Moonlite Cleaners. On July 10, 1962, UATC received, on behalf of Moonlite Cleaners, a certificate of

occupancy from the City of Santa Clara. UATC was therefore actively involved in the establishment of the dry cleaner site. Importantly, the Fire Marshall Permit put UATC on notice that the business had risks related to solvent handling not inherent in other businesses. The permit required all processes to take place only in the equipment approved by the Fire Marshall and required reclaimed solvent to be transferred only through an approved piping system. The permit also alerted UATC of the potential for "toxic concentration of vapor" developing around the cleaning equipment and the need for floor level ventilation or an approved "breathing mask." Thus, UATC had actual knowledge of the hazardous nature of solvent handling at the Site and the need for careful handling of solvents. Even if one accepts that UATC did not have actual knowledge, the historical record shows that UATC should have known of the use of chemicals at the Site and its dangers, including the potential for unauthorized discharges. As the State Water Board held, actual knowledge of contamination need not be shown where it is reasonable for a person to be aware of the dangers generally inherent in the activity. State Water Board Order No. 86-15.

UATC was more than a movie theater company. UATC was a large corporation that owned large commercial properties similar to the Moonlite Shopping Center, and rented space to commercial operations such as dry cleaners. For example, UATC also owned a shopping center at 39-49 El Camino real, Millbrae, California, where a dry cleaner also operated from approximately 1958 to 1989 and where a release of PCE has occurred. Given that UATC was a large property owner renting space to commercial operations, it should have known of the hazardous nature of PCE and other chemicals used by the many commercial operators at its multiple properties.

C. UATC had the Legal Ability to Prevent the Discharge

As the owner of the Site (as well as master lessor) and landlord to Moonlite Cleaners, UATC exercised ultimate control over the property and had the legal ability to prevent the discharge. UATC would have had several different leases with the several different operators at Moonlite Cleaners for operation of the dry cleaning business. These leases would have given UATC legal control over Moonlite Cleaners' activities and would have given UATC the legal ability to prevent the discharge.

On November 7, 1975, UATC concurrently sold the Site to Hanson Holding, Inc. and leased it back as a master lessor under a master lease agreement. See Tab 3 and 4 of March 11, 2011, Lori Gualco Letter to Nathan King. Under section 4.02 of that agreement, it specifically refers to existing leases between UATC and its tenants and affirms UATC's rights as landlord under those leases. In that section, UATC also represents that it supplied correct copies of those existing leases. Moreover, under the master lease agreement, UATC's initial rent as master lessor was $400,000 (in 1975 dollars) a year for the shopping center, so it is not credible to think UATC had no leases for the shopping center tenants given the magnitude of money involved. In addition, under the master lease agreement, UATC had full control of its sublessees as landlord. The State Water Board has held that the contractual position of a party as sublessor and lessee of a service station gave him enough legal control over the property to hold him responsible for

what took place there. In the Matter of John Stuart. The same is true here: UATC was in a contractual position to legally control what went on the Site. Thus, UATC had the legal ability to prevent the PCE releases at the Site.

IX. UATC Did Not Discharge its Cleanup Obligations as a Result of its Bankruptcy

UATC filed for bankruptcy in 2000 and emerged from Chapter 11 bankruptcy as a newly reorganized entity in 2001. An obligation to cleanup and ameliorate ongoing pollution is not a claim that is dischargeable through bankruptcy. (*In re Chateaugay* (2d Cir. 1991), 944 F.2d 997). Even if it were a claim that could be discharged through bankruptcy, the claim never arose in time for it to be discharged. The Regional Water Board was not aware of the Site and its contamination until 2009—almost a decade after UATC filed for bankruptcy. Under the "fair contemplation" test commonly used by bankruptcy courts, all future response costs and natural resource damages costs based on prepetition conduct gave rise to claims to the extent such claims could be 'fairly contemplated' by the parties at the commencement of the debtor's bankruptcy. (*In re National Gypsum Co*. (N.D. Tex 1992 139 B.R. 397; *In re Jensen* (9th Cir. 1993) 995 F.2d 925.) Knowledge, notification, investigation, cleanup activities, and incurring response costs are all indicia of "fair contemplation." (*In re Gypsum Co*. at 407.) None applies here since the Regional Water Board only became aware of the Site and the contamination nine years after the bankruptcy filing. In sum, UATC's cleanup obligation was not a claim that could be discharged and even if it could be, the claim never arose for it to be discharged by the bankruptcy proceeding and UATC remains liable for cleaning up the Site.

X. Conclusion

Based on a review of all relevant information Staff recommends that the Regional Water Board adopt Site Cleanup Requirements naming Moonlite and UATC as dischargers for the Site.

Attachments:

Figure 1: Site Vicinity Map
Figure 2: Site Location Map

Figure 1: Site Vicinity Map

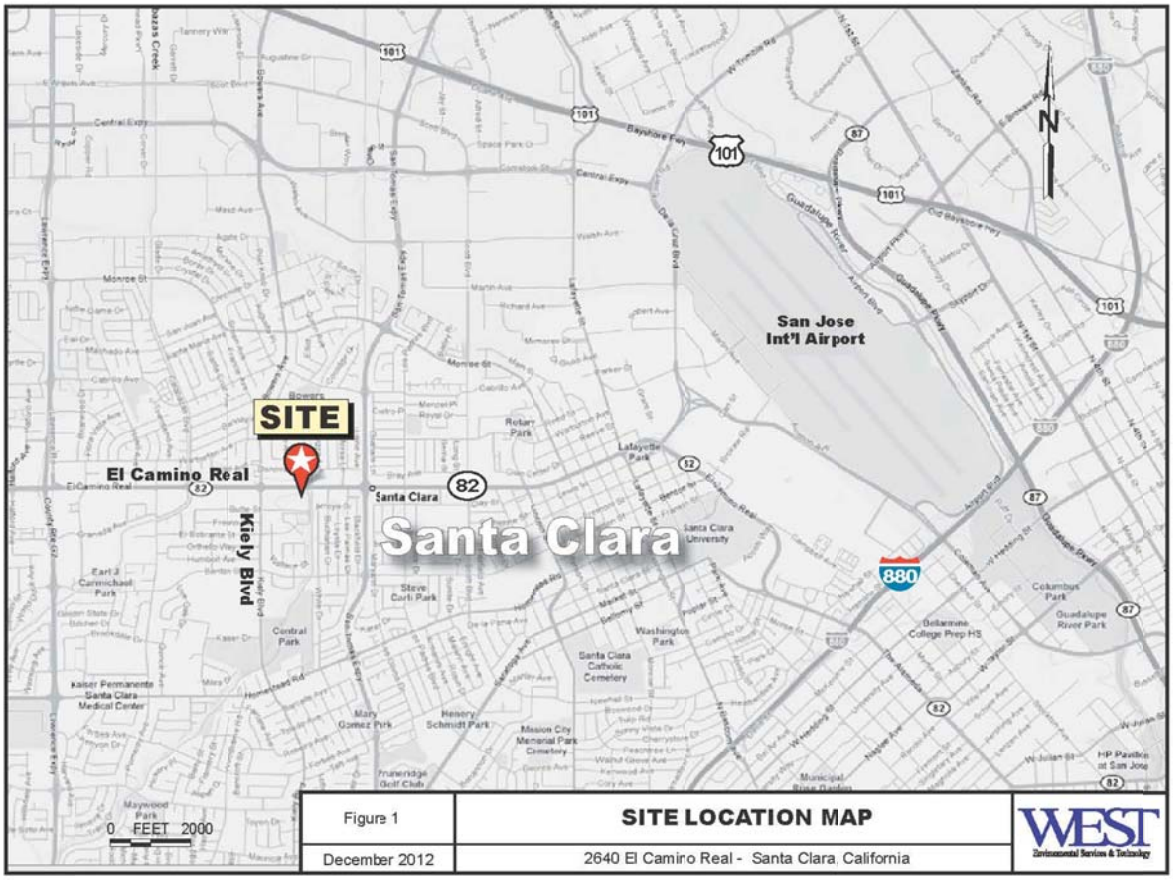
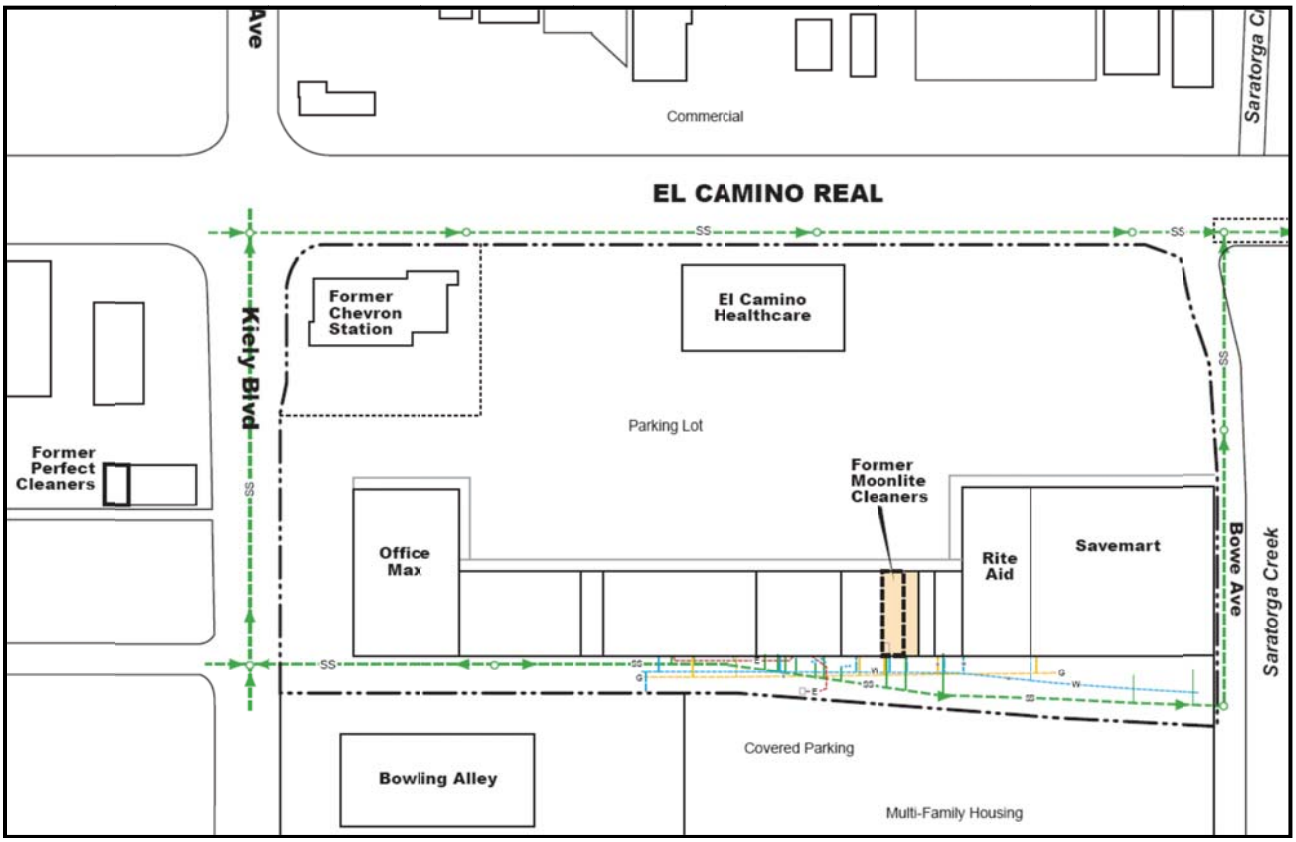



Figure 2: Site Location Map