Advocacy Team's Memorandum of Points and Authorities in Support of Proposed Amended Cleanup and Abatement Order No. R8-2005-0053, Including Details of Testimony

March 27, 2007

Introduction

Perchlorate has been detected in several hundred drinking water wells throughout California. Many of these wells are located in the Santa Ana Region. One area where perchlorate is present at significant concentrations in drinking water wells is in the area defined as the Rialto Groundwater Management Zone[1] (Attachment #1, RWQCB).

Available evidence indicates that a primary source, although not the only source, of the perchlorate in the Rialto Groundwater Management Zone is a 160-acre property in north Rialto, bounded approximately by Casa Grande Park Avenue on the north, Locust Avenue on the east, the extension of Alder Avenue on the

[1] The Santa Ana Regional Water Quality Board's amended Water Quality Control Plan (Basin Plan) defines the boundaries of the Region's groundwater management zones and the beneficial uses of the groundwater. In general, the groundwater management zones are "defined on the basis of: (1) separation by impervious rock formations or other groundwater barriers, such as geologic faults; (2) distinct flow systems defined by consistent hydraulic gradients that prevent widespread intermixing, even without a physical barrier; and (3) distinct differences in water quality."

west, and the extension of Summit Avenue on the south, in the City of Rialto, San Bernardino County (the Property) (Attachment 1, RWQCB slide w/aerial photo). Prior to 1942, the Property and surrounding parcels were largely vacant land. Aerial photographs from the 1930s show no evidence of agricultural uses of the Property, or adjacent areas, or any areas hydrologically upgradient of the Property overlying the Rialto Groundwater Management Zone (Attachment 1, aerial photo 1930). From 1942 to 1945, the Property was a part of the larger (2,800-acre) Rialto Ammunition Backup Storage Point that was operated by the United States military during World War II. Aerial photos of the Rialto Ammunition Backup Storage Point during the time of its operation are difficult to obtain, as it was a classified area where fly-over was not permitted. A photograph from 1953 clearly shows the configuration and boundaries of the former military site (Attachment 1, aerial photo 1953). After the war, the site was owned and occupied by various manufacturers of incendiary and explosive devices.

The Property is not the only source of perchlorate in the Rialto Groundwater Management Zone. Separate source areas exist on property currently owned by San Bernardino County, which is in close proximity to the Property. Perchlorate sources on County property have resulted in a plume of perchlorate emanating from that property that is adjacent to (generally southwest of) the perchlorate plume emanating from the Property. The County is currently conducting investigation and remediation of its plume as required by Cleanup and

Abatement Order No. R8-2003-0013, as amended by Order No. R8-2004-0072; therefore, perchlorate sources that are the responsibility of the County are not addressed in this report.

In 1952, the West Coast Loading Corporation (as a subsidiary of Kwikset Locks, Inc.) constructed a manufacturing plant on the Property and occupied the Property from 1951 through 1957, manufacturing explosives, flares and munitions that utilized perchlorate salts (Attachment 1, aerial photos 1955). The former B.F. Goodrich Company, now known as the Goodrich Corporation, owned the Property and operated a rocket motor research & development facility on the Property from 1957 through 1964, utilizing ammonium perchlorate as the oxidizer in most of its propellant mixtures (Attachment 1, aerial photo 1960). In 1979, Pyro Spectaculars, Inc. began operations at the Property and is still operating at the Property today. Pyro Spectaculars, Inc. is a fireworks company that assembled, stored and tested fireworks that contained perchlorate salts, and disposed of waste that contained perchlorate salts (Attachment 1, aerial photos 1981). From 1964 to 1987, several other tenants involved in pyrotechnics (fireworks) manufacturing occupied portions of the Property. However, those tenants no longer exist or are no longer viable companies, and there are no known successors that have any responsibility for those former operations. If new evidence comes to light that indicates that either successors to these companies exist, or these companies have insurance coverage that would form a

basis to name them to this Order, they could be added to this Order at a later date.

Based upon documents that have been produced under subpoena, as well as deposition testimony, historical property ownership records, business records, operational permits, waste disposal records and the results of soil and groundwater investigations, it is evident that the Goodrich Corporation, Pyro Spectaculars, Inc., Kwikset Locks, Inc., Emhart Industries, Inc., Kwikset Corporation, and Black & Decker Inc. are responsible parties for discharges of waste that have occurred at the Property.

On February 28, 2005, the Regional Board's Executive Officer issued Cleanup and Abatement Order No. R8-2005-0053 to Emhart Industries, Inc. and Black & Decker (U.S.), Inc. The Order was issued at that time to preserve the Regional Board's claim against Emhart Industries, Inc., which had filed for dissolution. The Order was amended by the Executive Officer on December 2, 2005. On October 27, 2006, the Executive Officer proposed additional amendments to the Order. The October 27th proposed Order names Goodrich Corporation, Pyro Spectaculars, Inc., Kwikset Locks, Inc., Emhart Industries, Inc., Kwikset Corporation, and Black & Decker Inc. Subsequent references to "the Order" in this document refer to the October 27th proposed Order.

Background

Basis for the Order

The Goodrich Corporation, Pyro Spectaculars, Inc., Kwikset Locks, Inc., Emhart Industries, Inc., Kwikset Corporation, and Black & Decker Inc. (the Dischargers), have caused or permitted, are causing or permitting, or threaten to cause or permit waste, i.e., perchlorate and/or trichloroethylene (TCE), to be discharged or deposited where it is, or probably will be, discharged into waters of the state.

Hydrogeology

The Property is situated on the alluvial fan deposits of the eastern San Gabriel Mountains, overlying the Rialto Groundwater Management Zone. The soil in this area consists of interbedded sands, gravel, cobbles and boulders. In dry weather years, the unsaturated zone in the vicinity of the Property extends to a depth of over 450 feet below the ground surface (bgs).

Groundwater underlying and immediately downgradient of the Property is within the Rialto Groundwater Management Zone. Numerous hydrogeologic studies have been performed in the Rialto Groundwater Management Zone by the United

States Geologic Survey (USGS) and others ((Attachment 2, USGS 1997 & 2001, GLA 2007, GeoSyntec 2006). Groundwater flow in the Rialto Groundwater Management Zone (also identified in reports as the Rialto-Colton Basin) is generally toward the southeast, and is controlled by several barriers and faults, some of which delineate the Basin boundaries. The Basin extends from Barrier J on the northwest to the Santa Ana River on the southeast. The Basin is bounded on the northeast by the San Jacinto Fault and on the southwest by the Rialto-Colton Fault. The beneficial uses of the groundwater in the Rialto Groundwater Management Zone, and the adjacent groundwater management zones, include municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply (Attachment 2, RWQCB). The presence of perchlorate in municipal drinking water supply wells in these groundwater management zones has resulted in the affected water purveyors bearing significant costs associated with wellhead treatment, loss of the usage of municipal wells, and providing a replacement water supply for their customers.

The USGS has identified four hydrostratigraphic units in the Rialto Groundwater Management Zone (Attachment 2, USGS 1997 & 2001), as follows:

- River-channel deposits

These sediments are present only in the southeastern portion of the basin, several miles downgradient of the Property;

- Upper water-bearing unit

In the vicinity of the Property, this unit is comprised of an approximately 240-foot

thick sequence of unsaturated soils, extending to surrounding areas.

- Middle water-bearing unit

The top of the groundwater table occurs in the middle of this unit (current depth to groundwater is approximately 420 feet bgs). Most of the Basin's municipal water production takes place in this zone. The soils are coarse to medium sand and interbedded silt and clay, extending from approximately 240 to 590 feet bgs in the vicinity of the property.

- Lower water-bearing unit

This unit consists mainly of interbedded sand and clay, and is approximately 400 feet thick in the vicinity of the Property, thinning to roughly 100 feet in the southern area of the Rialto Groundwater Management Zone.

In addition, a thick sequence of consolidated sediments underlies these four hydrostratigraphic units. Some of the local municipal supply wells have well screens that extend into these deeper, consolidated sediments.

The porous soil at the Property is very conducive to infiltration, and would allow contaminants that were spilled or disposed of at the ground surface to infiltrate and migrate toward the groundwater beneath the Property. Based on hydrogeologic investigations conducted in the vicinity of the Property by the USGS and GeoLogic Associates (as a consultant for the County of San Bernardino), the groundwater velocity in the Rialto Groundwater Management Zone is variable, ranging from an estimated 1 to 4 feet per day, on average

(Attachment 2, GLA 2007). In the USGS study area (an area northeast of the Property), the average estimated groundwater velocity is approximately 2 feet per day (Attachment 2, USGS 2001).

TCE and perchlorate are present in the groundwater at, and downgradient of, the Property as a result of the manufacturing and disposal activities of former and current occupants of the Property.

TCE

TCE is a chlorinated organic solvent that has been used in the United States commercially and in industry, primarily as a metal degreaser, since the early 1950s. TCE was the primary solvent used for vapor degreasing and metal cleaning until the late 1960s/early 1970s. In 1968, it was found to be a volatile organic chemical that contributed to photochemical smog, and in 1973, the National Cancer Institute determined that TCE was a suspected carcinogen. Because of these problems, the use of TCE was almost completely eliminated by the mid -1970s.

TCE is the most commonly reported organic groundwater contaminant in drinking water wells. TCE is partially soluble; when spilled or released to bare ground, it moves through underground soils, and is mobilized by groundwater. TCE has

commonly been found as a contaminant in the soil and groundwater at industrial sites, long after its use was discontinued. Because of TCE's affinity for organic matter in soil, once TCE is dissolved in groundwater, it has the characteristic of traveling slightly slower than the rate at which at groundwater travels through soil. TCE is very persistent in aerobic groundwater conditions, such as exist in the Rialto Groundwater Management Zone, and in such conditions, will generally remain in groundwater until it is removed via treatment.

According to the Agency for Toxic Substances and Disease Registry (ATSDR), the National Toxicology Program has determined that TCE is "reasonably anticipated to be a human carcinogen" and the International Agency for Research on Cancer has determined that TCE is "probably carcinogenic to humans" (Attachment 2, ATSDR). The California Department of Health Services (DHS) has established a drinking water maximum contaminant level (MCL) for TCE of 5 micrograms/liter (µg/l). MCLs are health protective drinking water standards to be met by public water systems. MCLs take into account not only a chemical's health risks, but also factors such as its detectability and treatability, as well as costs of treatment. DHS is required to establish a contaminant's MCL at a level as close as is technically and economically feasible to its PHG (see below), placing primary emphasis on the protection of public health.

Perchlorate

Perchlorate salts occur naturally, such as in the sodium nitrate deposits in the Atacama Desert in Chile, and perchlorate salts have also been manufactured, which occurred in the United States primarily at facilities in Henderson, Nevada. Perchlorate salts, such as ammonium perchlorate and potassium perchlorate, are highly soluble and readily dissociate in water to form perchlorate ions. Ammonium perchlorate is primarily used as an oxidizer in solid rocket fuel. Potassium perchlorate is used extensively in the pyrotechnics industry. Perchlorate has very little affinity for soil particles, and therefore, is considered to move at the same rate as water through soils. Once applied to soil, perchlorate will be readily transported to groundwater with any water that percolates into the soil (e.g. precipitation) and travels to groundwater. This transport would be accelerated by application of any additional water, such as through discharge of septic tank effluent, fire suppression water and wash water. The transport of perchlorate to groundwater will occur more quickly in the porous, coarse grained soil that occur at the Property, than it would in areas with less permeable, finer grained soil. Perchlorate is very stable in water and does not break down easily. It is very persistent in the environment and will remain in groundwater until it is removed via treatment.

According to medical studies, perchlorate can interfere with the function of the human thyroid. The California Office of Environmental Health Hazard Assessment (OEHHA) has established a Public Health Goal (PHG) for perchlorate of 6 µg/l in drinking water. PHGs are based exclusively on public health considerations, using the most current principles, practices, and methods of risk assessment. PHGs are intended to provide estimates of the levels of chemical contaminants in drinking water that would pose no significant risk to individuals, including the most sensitive subpopulations, consuming the water day in and day out, over an entire lifetime. Based on the PHG for perchlorate of 6 µg/l, the DHS has proposed a MCL for perchlorate of 6 µg/l. The current DHS Notification Level for perchlorate in drinking water is 6 µg/l. Notification Levels are health-based advisory levels established by DHS for chemicals in drinking water that lack MCLs. When chemicals are found at concentrations greater than their Notification Levels, certain requirements and recommendations apply. Requirements include requiring timely notification of the local governing bodies (*e.g.*, city council, county board of supervisors, or both) by water purveyors whenever a Notification Level is exceeded in a drinking water source. Recommendations include the water purveyor notifying its customers and consumers about the presence of the chemical and about health concerns associated with exposure to it.

The discharge of perchlorate and TCE at the property, as described in draft amended Cleanup and Abatement Order No. R8-2005-0053 (draft CAO),

creates, or threatens to create, a condition of pollution or nuisance, because it has interfered with, or threatens to interfere with, the use of groundwater for municipal and domestic beneficial uses.

Evidence of Waste Discharge by the West Coast Loading Corporation

Prior to 1942, the Property and adjacent land were largely vacant. Aerial photographs from the 1930s show no evidence of historical agricultural use at, or in the vicinity of, the Property (Attachment 1, aerial photo 1930). From 1942 to 1945, the Property was a part of the 2,800-acre Rialto Backup Ammunition Storage Point. The U.S. military vacated the land in 1949. Between 1949 and 1952, the Property was vacant land. In or about 1951, Kwikset Locks, Inc., a manufacturer of household door locks, established a defense products division to obtain government contracts for the production of munitions (Attachment 3). In February 1952, Kwikset Locks, Inc. formed the West Coast Loading Corporation (WCLC) to load and assemble munitions as a subcontractor to fulfill contracts obtained by Kwikset Locks, Inc. from the United States Government and the Department of Defense. During 1952, WCLC (as a subsidiary of Kwikset Locks, Inc.) constructed a manufacturing plant on the Property.

Available evidence (cited in detail below), including WCLC documents, Kwikset Locks, Inc. documents, and the testimony of former WCLC employees who worked at this facility between 1952 and 1957, establishes that WCLC:

- Manufactured explosive cartridges, photoflash cartridges, flares, ground burst simulators, and other incendiary devices at the Property, and many of these products were manufactured under subcontract to Kwikset Locks, Inc. for use by the military, under Kwikset Locks, Inc.'s contracts with the U.S. Government;
- Handled, weighed, dried, screened and transported perchlorate salts at the Property for use by a government contractor that manufactured solid rocket propellant;
- Handled, weighed, dried, screened and transported chemicals for the manufacture of cartridges and other products containing perchlorate for non-defense purposes;
- Received, stored and used various chemicals (including perchlorate salts and TCE, and other organic solvents) for its manufacturing activities at the Property;
- Created a written set of "standard operating procedures" (SOPs) for processing potassium perchlorate at the Property. The SOPs described procedures for handling, drying, screening, weighing, mixing, loading, transporting, and storing potassium perchlorate at the Property;
- Used water to clean spilled chemicals, including perchlorate salts, from the floors, utilizing rags, buckets and mops;
- Disposed of wastes containing perchlorate at the Property by discharging wastewater onto the bare ground in various areas of the Property, utilizing

septic tank disposal systems, and discharging waste to a burn pit (trench) at the Property.

Specific documentation of the thousands of explosive and incendiary devices manufactured by WCLC, and the thousands of pounds of perchlorate handled at WCLC, as well as descriptions of the SOPs and testimony of former WCLC employees, are included in the Evidence Record for the draft CAO. Key pages of evidence are attached as exhibits to this summary.

Manufacture and Storage of Photoflash Cartridges and Ground Burst Simulators

1. Photoflash Cartridges

WCLC's production contract records contain descriptions of the chemical mixtures in the cartridges and flare devices that were manufactured by WCLC at the Property. WCLC manufactured photoflash cartridges under at least two contracts – Nos. 595 and N 60921-3780 (also referred to as number 3780). (Attachment 4, WCLC contracts.)

a. Under contract 595 for the M112 photoflash cartridges, WCLC manufactured and delivered approximately 347,000 photoflash cartridge units, which called for the use of about 45,874 pounds of potassium perchlorate (Attachment 4, Davis 61:4-8; Gardner 45:4-8, 126:19-22, 127:2-10, 175:14-16, 176:8-11, Skovgard 317:23-319:4). WCLC's final inventory on contract 595 establishes it moved approximately 1,204

pounds of leftover potassium perchlorate into storage at WCLC's bunkers on the adjacent former RASP property on approximately May 10, 1956 (Attachment 4, SARWQCB018124-25). Approximately 650 pounds of potassium perchlorate were still on site at WCLC as of June 20, 1956 (Attachment 4, KWK00227; Davis 53:12-54:20).

b. WCLC manufactured XF-5A photoflash cartridges for the Navy under contract number 3780. The XF-5A photoflash cartridges contained potassium perchlorate. Although the quantity of XF-5A photoflash cartridges manufactured by WCLC is unknown, records indicate that these cartridges required approximately 0.37 pounds of potassium perchlorate per cartridge (Attachment 4, SARWQCB 020211, KWK42323).

2. Ground Burst Simulators

WCLC manufactured ground burst simulators, which contained potassium perchlorate (Attachment 4, Davis 39-40; SARWQCB018118; Gardner 126:19-22; 127:2-10). Ground burst simulators were devices that simulated an explosion or grenade (Attachment 4, Davis 39.). Ground burst simulators were tested south of the administration building on the Property in a field (Attachment 4, exhibit 1). The ground burst simulators consisted of a "whistle component" and a "charge flash" component, each of which contained potassium perchlorate (Attachment 4, Gardner 144-145; and exhibit 76 - KWK01282). WCLC produced approximately 52,000 ground burst simulators for the United States Department of Defense under its Contract number DA-11-173-ORD 473 (Attachment 4,

exhibit 76, KWK01281- 284). The amount of potassium perchlorate used in each ground burst simulator is unknown. At about the time WCLC finished delivery under the photoflash cartridge contracts, in February 1956, WCLC received a shipment of 8,500 pounds of potassium perchlorate (Attachment 4, exhibit 131 authenticated by Melito 402-403). This was the same period during which WCLC was preparing to manufacture ground burst simulators (Attachment 4, Bill of Materials dated 6/25/56). Therefore, the 8,500 pounds of potassium perchlorate were likely used for the ground burst simulator contract. This amount of potassium perchlorate would have resulted in each ground burst simulator containing about the same amount of potassium perchlorate as each photoflash cartridge.

WCLC's Processing of Ammonium Perchlorate for Grand Central Rocket Company

Records indicate that WCLC dried a large amount of ammonium perchlorate for the Mentone-based Grand Central Rocket Company in March 1957 (Attachment 5, Gardner 88:13-16, 90:1-4, 243:13-22, 519:14-19.) WCLC delivered at least 43,250 lbs. of ammonium perchlorate to Grand Central Rocket Company, after drying the perchlorate to a 0.03% moisture content (Attachment 5). For the drying process, the ammonium perchlorate was placed on trays in racks at WCLC, and then wheeled through the open air into a steam-heated room (Attachment 5, Gardner 92:1-13). This was the same process WCLC routinely

used to dry potassium perchlorate for use in manufacturing its own products (Attachment 5, Gardner 92:1-13.). The drying room was wet mopped on weekends during the period when WCLC was drying ammonium perchlorate for Grand Central Rocket Company (Attachment 5, Gardner 98:8-13).

The WCLC contracts, production records and other records for the photoflash cartridges, ground burst simulators and the drying of ammonium perchlorate for Grand Central Rocket Company were obtained from WCLC's corporate successors, Kwikset Corporation, Emhart Industries, Inc. and Black & Decker Inc., under subpoena. Many of the documents were verified as authentic by former WCLC and Kwikset Locks, Inc. employees during deposition testimony. Additional facts regarding production of the cartridges and other devices at WCLC were also described by these former employees (Attachment 5, Davis 33:1-4; 978:9-17; 1143:11-1144:3/ Davis DT 102:8-12, 185; exhibits 77, 81/ Davis 827:20-828:22). The Advocacy Team finds these and other records (such as the WCLC SOPs - Attachment 5) to be compelling. It is evident from the records and witness testimony that WCLC manufactured thousands of explosive and incendiary devices, many of which contained perchlorate salts, at the Property Attachment 5, exhibits 73; 73A; Gardner 45:4-8; 175-176).

Scrap Allowance and Spoilage

The terms “scrap allowance” and “spoilage” were used in WCLC’s production contracts to identify the estimated percentages of chemicals that were expected to be lost during the production and manufacturing process of the various components (Attachment 6, Davis 71:17-72:7;Skovgard 157:11-162:8).

WCLC’s “scrap allowance” for potassium perchlorate lost during production of the M-112 photoflash cartridges under contract 595 was 4% of the total, estimated at 1,832 pounds (Attachment 6, Davis 71:17-72:7; exhibits 74A, 75; Skovgard 160:15-162:12; Davis DT 61:4-8, 94:2-95:6).

WCLC’s “spoilage” rate for potassium perchlorate lost in the manufacturing process for the XF-5A photoflash cartridge was approximately 3% (Attachment 6, Davis 94:18-95:6; exhibit 75 (SARWQCB020211); exhibit 378 (KWK42323)). The number of XF-5A photoflash cartridges produced at WCLC is unknown.

The scrap allowance for potassium perchlorate lost in the production process for each of the two components of the ground burst simulator was 5% (Attachment 6, exhibit 76 (KWK 01282)). This would have resulted in a total of at least 425 pounds of scrap potassium perchlorate from WCLC’s the manufacturing of the ground burst simulators.

Therefore, based on the contracts that are known to have existed, and the available information on production quantities for WCLC's M-112 photoflash and M-115 ground burst simulator, the potassium perchlorate that would have been considered scrap or spoilage from the manufacturing process, and would have been discharged as waste at the Property, was at least 2,257pounds (1,832 pounds + 425 pounds + spoilage amount from the XF-5A photoflash cartridges).

Processing, Handling and Spillage of Chemicals at WCLC

The scrap allowance and spoilage rate appeared to be based on the inevitable loss of potassium perchlorate that was expected to occur during the processing and handling of the potassium perchlorate. Numerous pages throughout the SOPs, and the "standard non-operating procedures" (Attachment 7) for chemical handling at the WCLC facility, which include requirements for sweeping up spilled powder, wiping spillage with wet rags, and wet-mopping of spills and powder deposited on various surfaces during processing, clearly indicate that chemical spillage did occur at WCLC.

Potassium perchlorate was stored in a bunker about one mile from the Property, transported in 55-gallon fiber drums (barrels) to another building at the Property for screening, transported to another building in trays loaded on a four-wheel hand cart for drying and screening again, transported in a barrel to another

building for weighing and mixing (blending), and transported in aluminum buckets to another building for loading of the cartridges. Handling of the potassium perchlorate and photoflash powders produced dust (Attachment 7, Davis 1012:5-10; 1014:3-14). Chemicals regularly spilled on the building floors as part of transferring the chemicals from one container to another (Attachment 7, Davis 369:3-20; 372:23-373:5.)

In the drying and screening rooms, potassium perchlorate was taken from the drums and placed on the screens and trays using an aluminum scoop. In the weighing rooms, potassium perchlorate was taken from the drums and placed into aluminum buckets using an aluminum scoop. The SOPs for weighing potassium perchlorate stated that any spilled material was to be wiped up with a wet rag. The SOPs also stated that the floors were to be mopped with a water wet mop at least four times per shift, and the walls, lights, etc. were to be kept dust free at all times. Powder routinely fell on the floor during the weighing process and was mopped up (Attachment 7, Pfarr 32:14-33:15; Davis 151-152).

The SOPs for the blending (mixing) process stated that spilled material was to be wiped up with a water wet cloth, and after each batch, the floor was to be mopped and all dust wiped up. Ten batches of photoflash powder were blended per shift (twenty batches a day based on two shifts a day) (Attachment 7, Davis 493:19-494:12). Employees adhered to the SOPs (Attachment 7, Skovgard 353:10-356:20; Gardner 389:1-23; exhibit 381). Dust was mopped from the

floors, spilled material was wiped up with a water-wet cloth and dust on the equipment was cleaned off with wet rags (Attachment 7, Davis 117, 119-121, 977:3-6). Employees would wring out the mops used to mop the blending rooms into buckets of water kept in the blending rooms (Attachment 7, Davis 119:9-120:16, 123-124; 973:16-974:18). Soiled rags from wiping machines in the photoflash powder mixing room and other rooms were thrown in buckets filled with water. After each batch, traces of photoflash powder were left on the mixer/blender (Attachment 7, Gardner 36:11-17, 62:7-15). The mixer/blender was cleaned with a wet rag and the floor was mopped after every use, and the entire room would be wiped down with wet rags (Attachment 7, Davis 495:3-17; Ranson 145:18-146:15).

Testimony and WCLC documents reveal that the storage, spillage and/or accumulation of perchlorate salts on equipment, walls, floors, and ceilings led to at least one significant explosion at the Property (April 12, 1955) (Attachment 7, Wilkins testimony and insurance records re: 1955 explosion).

In the April 1955 incident, the photoflash powder in the storage hopper exploded, and then an employee, startled by the initial blast, dropped a loaded cartridge, which also exploded (Attachment 7, Gardner 121:7-16; Davis 350; Wilkins testimony). The explosion blew out the back wall of the photoflash cartridge loading area, rendering it non-functional (Attachment 7, Davis 347:22-352:7, 484:8-489:9.) Employee testimony and photographs of the WCLC property indicate that WCLC rebuilt the photoflash building with a differently configured

blast wall, and continued the production of photoflash cartridges after the April 1955 explosion (Attachment 7,1955 aerial photographs). The photoflash building is still standing at the site today, and can be identified by the arcuate blast wall that was constructed after the explosion.

The occurrence of several fires and explosions at WCLC indicates that there were hazards associated with the use of perchlorate and other chemicals at the facility, and that accumulation of fugitive dust presented a serious and real danger at the site. The fires and explosions further emphasize the importance of WCLC's procedures for frequently wiping the equipment, walls and other surfaces with wet rags, and wet-mopping the floors to remove perchlorate salts.

Residual chemicals are often present at industrial sites where fires or explosions have occurred. It is reasonable to assume that some residue of perchlorate and other chemicals would have remained on the ground after the fires and explosions that occurred during WCLC's activities on the Property. (See later discussion of sampling results following a fire at Astro Pyrotechnics, Rialto - Attachment 27). The porous soil at the Property is very conducive to infiltration, and would allow perchlorate and other chemicals at the ground surface to infiltrate and migrate toward the groundwater beneath the Property. The use of fire suppression water during a fire or after an explosion would further expedite this process.

WCLC's Disposal of Waste on the Property

WCLC disposed of chemical-soiled rags, cans, wastewater and other wastes that contained potassium perchlorate and TCE at the site. Much of this disposal occurred as directed by WCLC's written procedures (Attachment 8, Davis 33:1-4; 978:9-17; 1143:11-1144:3.) The buckets of water that were kept in the buildings for mop water used to clean the floors in the buildings and for the storage of soiled rags used to clean potassium perchlorate and photoflash powder were routinely dumped on the bare ground outside the various buildings, such as the perchlorate screening building (Attachment 8, building is identified on Exhibit 82; Davis 122:16-124:16, 211:19-213:22, 354:18-355:21, 973:16-974:18; also Davis 119:9-120:16; Skovgard 109:15-110:18, 118:17-120:12; Gardner 211:1-17;. Davis 544:8-546:19). Other former employees also stated that the mop water was routinely thrown on the bare ground outside the various production buildings (Attachment 8, Davis 272:1-11; Pfarr 40:7-41:19; Clayton 31:13-32:2, 103:16-104:4; Ashurst 58:4-59:12; also Wilkins). This practice took place routinely throughout each work day, several times per shift (Attachment 8, Wilkins, Davis). Mop water was dumped onto the bare ground in sufficient quantities so as to create visible staining of the ground (Attachment 8, Davis 1090:8-15, exhibits 82, 658; Clayton 283:14-284:10, 289:1-4, 291:25-292:7).

WCLC also stored waste mop water in 15 and 55 gallon drums. These drums were then transported to and dumped into a trench (burn pit) on-site (Attachment 7, exhibits 71A, 80 (KWK43836); Davis 163:1-165:9, 184:7-185:2; Skovgard 347:3-350:11). The trench was bare earth, and approximately six to eight feet deep and 10 feet long (Attachment 8, Davis 184:7-185:2). Various WCLC employees personally witnessed liquid, perchlorate-contaminated waste materials being poured into the trench (Attachment 8, exhibit 244; Davis 262:9-265:11, 793:21-794:21, 799:8-15; Pfarr 53:15-54:19; Clayton 30:25-31:8). Scrap material was stored in water until it was time for "safe" disposal, at which time it would be poured into the trench (Attachment 8, exhibit 80, ¶ 33; Davis 184:7-185:2). Excess waste powder from the assembly process was taken to WCLC's trench for disposal (Attachment 8, Davis 265:15-267:15; Clayton 32:3-33:8). The rags and gloves used to clean equipment during the production process that were put into the mop buckets were taken to the trench for disposal (Attachment 8 Clayton DT 246:14-247:6). While waste materials, including perchlorate contaminated mop water and rags, were deposited in the trench about every third day, the trench was burned only about every six weeks (Attachment 8, Clayton 82:14-83:13). According to WCLC's "Safety Regulations for Handling Azides, Styphnates, and Similar Explosives" (in Attachment 8), the used sponges and cleaning rags, cleaning water and other waste liquids generated from operations, including mixing photoflash powder containing perchlorate, were to be "taken to the disposal pit south of the plant site and drained into the ground." The storage building where potassium perchlorate was kept was swept out from time-to-time,

and the sweepings were denatured in water (Attachment 8, Davis 369). The contaminated water was then taken out to and disposed of in the trench or on the bare ground (Attachment 8, Davis 373).

WCLC operated an on-site laundry (Attachment 8 Davis 500:7-503:8, 1098:1-17, exhibit 659). Some of the rags used to clean-up perchlorate and photoflash powder were sent to the on-site laundry. It is estimated that 25% of the rag laundry was done onsite. The waste water from WCLC's laundering of perchlorate-contaminated rags emptied onto bare ground at the facility in the maintenance area (Attachment 8, Davis 500:7-503:8, 1098:1-17, exhibit 659; Davis 1098:1-17; 504:1-508:10).

The perchlorate drying trays were hosed off with water outside of the drying buildings, wherever a water spigot was located, and over bare ground (Attachment 8, Davis 146:25-147:24). Also, the wash-water used to clean the aluminum cups that held the finished photoflash cartridges was thrown outside the building onto the bare ground (Attachment 8, Davis 544:8-546:19). Since the Property was not connected to a municipal sewer system, any disposal of chemicals to sinks, drains, and floor drains would have entered on-site septic systems and would have been discharged to the ground (Attachment 8, City of Rialto letter of 9/16/03).

Drums of organic solvents, including TCE, were stored at various locations at WCLC during its period of operation (Attachment 8, Allegranza testimony and exhibits 698 and 700). When the solvent was needed, a drum of the liquid was placed horizontally onto a metal or wooden “cradle”, and the liquid was then dispensed through a spigot. When solvent was being dispensed from the drums, it was common for some amount of solvent to drip or flow from the spigot into a metal can on the floor below the spigot. When the can became full, employees would pour the contents onto the bare ground outside of the building (Attachment 8, Allegranza 39:12-21, 42:14-23, 46:9-48:2; Allegranza 63:13-67:7; Allegranza DT 71:11-25, 72:12-73:5; Pfarr 60:16-62:10; exhibit 700; Allegranza 102:7-104:11).

Rags soaked in TCE were used to clean, by hand, at least one of the chemical mixers at WCLC. Employees took the solvent-soaked rags outside of the mixer building to wring excess TCE from the rags onto the bare ground. Eyewitness testimony from at least one former WCLC employee describes the on-site disposal and burial of empty solvent drums. It is reasonable to conclude that some residue of the solvent would have been in the drums, and that this residual solvent may have leaked onto the ground, and discharged or threatened to discharge into the groundwater below (Attachment 8, Davis 114:3-115:17,

496:19-498:21, 1060:2-24, 1091:19-24; Skovgard 118:17-120:12; Gardner 215:7-15;

529:1-18; Davis 1090:8-15, exhibits 82, 658; Clayton 283:14-284:10, 289:1-4, 291:25-292:7; 1091:4-17 Davis 1178:9-1179:14; Allegranza 40:2-16, 41:7-22; Allegranza 129:17-130:19, 54:14-23 Davis 369:3-20; 372:23-373:5).

TCE was used to clean the 4.2" shells (a type of flare produced by WCLC, which did not contain perchlorate) (Attachment 8, Allegranza 39:12-21, 42:14-23, 46:9-48:2). The use of TCE to clean the 4.2" shells was directed by an on-site Army inspector (Attachment 8, Allegranza 63:13-67:7). Rags were moistened with TCE for cleaning continually throughout the day, which resulted in TCE dripping directly onto the bare ground (Attachment 8, Allegranza 71:11-25, 72:12-73:5) TCE was also used by WCLC employees to clean walls, floors and equipment (Attachment 8, Pfarr 60:16-62:10).

Solvents were also disposed of in the WCLC trench (Attachment 8, Davis exhibit 71A, ¶ 10). Every few days, employees would use a hand-truck to pick up waste material, which included excess solvents, to be dumped in the pit (Attachment 8, Clayton 30:17-31:12, 82:22-83:13). The material picked-up and taken to the pit included waste material from the assembly of illuminating flares, such as used cleaning rags soaked in TCE (Attachment 8, Clayton 28:15-30:1, 32:23-33:8, 79:14-80:4, 80:10-20, 81:8-16, 81:17-20, 83:14-85:7, 85:13-86:5, 101:22-102:3.)

Evidence of Corporate Successorship and Legal Liability of Kwikset Locks, Inc., Emhart Industries, Inc., Kwikset Corporation, and Black & Decker Inc. for WCLC's Discharges to Waters of the State

KWIKSET LOCKS, INC., EMHART INDUSTRIES, INC.
KWIKSET CORPORATION, AND BLACK AND DECKER INC.
ARE LIABLE FOR WEST COAST LOADING CORPORATION'S
DISCHARGES AT THE RIALTO 160-ACRE SITE

I. INTRODUCTION

As demonstrated in the Advocacy Team's submission regarding West Coast Loading Corporation's (WCLC) discharges and as set forth in the Order, WCLC discharged perchlorate to the ground during its production, handling and storage operations at the Property. Despite the fact that those discharges occurred more than fifty years ago, they were in violation of California law in effect at the time. Having outlived its usefulness, WCLC was dissolved by its parent, Kwikset Locks, Inc. KLI itself was later purchased by another company, and was dissolved and became a "division" of American Hardware Corporation (AHC). The pattern of corporate takeovers continued over the years with AHC being acquired by yet another company, followed by further corporate dissolutions and purchases. It is the Advocacy Team's contention that the series

of corporate transactions resulted in Kwikset Locks, Inc. (KLI), Emhart Industries, Inc. (EII), and Kwikset Corporation being legally liable for the WCLC discharges.[2] Moreover, following the dissolution of EII in 2002 and the subsequent transfer of its assets to Black & Decker Inc. (BDI), those assets are by law subject to claims to address EII's, KLI's and WCLC's liabilities.

The following discussion describes each step in the corporate succession. All references and citations pertaining to the discussion of corporate successorship are located in Attachment 30. Set forth below are the legal theories that apply to make each transaction a solid link of legal liability. The clear conclusion is that liability for WCLC's discharges did not vanish into thin air as a result of the various corporate machinations, as the named parties argue. Instead, the transactions created an unbroken chain of liability that burdens KLI, EII, Kwikset Corporation and BDI.

2. DISCUSSION

A. The State Board is authorized to issue a Cleanup and Abatement Order in this matter.

California Water Code Section 13304 authorizes the State and/or Regional Boards to issue a Cleanup and Abatement Order (CAO) to any party responsible for discharging, or threatening to discharge any waste into waters of the state where it creates or threatens to create a condition of pollution or a nuisance.

[2] Although it has been dissolved, KLI is named in the draft CAO on the basis of information that there may be in existence valid insurance policies available to address its liabilities. Similarly, although EII has more recently been dissolved, its assets have been transferred to BDI and may be available to address the same liabilities.

The Water Code likewise subjects the parties responsible for such discharge to liability to any government agency which incurs costs to cleanup or abate the effects of the discharge, supervising such cleanup or abatement, or taking other remedial action. Cal. Water Code §13304(c)(1).

The named parties may argue that, inasmuch as the WCLC discharges occurred long before the present version of the Water Code was adopted, those discharges cannot be in violation of the law. However, the law in effect during WCLC's existence, known as the Dickey Act, also made such discharges a violation of law. It has been consistently held by this Board that discharges that were in violation of the Dickey Act, continue to be a violation of California law. *Lindsay Olive Growers*, SWRCB Order No. WQ 93-17; *County of San Diego*, SWRCB Order No. WQ 96-2; *Aluminum Co. of America*, SWRCB Order No. WQ 93-9. The fact that the discharges occurred prior to the enactment of the present Porter-Cologne Act, does not render them beyond the reach of the Board. Moreover, since the discharged material continues to migrate in the soil and groundwater toward further wells, the discharge constitutes a continuing violation subject to the Porter-Cologne Act. (*Zoecon Corporation*, SWRCB Order No. WQ 86-2).

B. West Coast Loading Corporation's liability belongs to KLI, EII, and BDI.

To answer the question whether any entity in existence today is responsible for WCLC's discharges, we must examine each of the corporate

transactions that are involved and consider the legal consequences of each transaction. The Advocacy Team contends that each of the transactions described as "steps" below carries forward liability from the predecessor to the successor in a cumulative fashion with the result that the liability for WCLC's discharges rests with the most recent corporate purchaser or stockholder.

1. STEP ONE: KLI forms WCLC.

In 1952, KLI was engaged in the business of making residential locksets at its facilities in Anaheim, California. In February of that year, it formed WCLC as a wholly-owned subsidiary to conduct work at the Property. WCLC proceeded to engage in assembly and loading of military products for the U.S. Government. It engaged in that work for several years. KLI's responsibility for WCLC's liabilities is beyond dispute. As the parent corporation, it bears full legal liability for all of WCLC's debts.

2. STEP TWO: AHC acquires KLI.

The nature of this acquisition is key to understanding how liability for WCLC moved forward to the Emhart and BDI. The Advocacy Team expects that the named parties will emphasize this particular transaction as "breaking the chain" of succession from WCLC to the named parties. Consequently, we will go into some detail regarding this transaction.

On February 28, 1957, the Board of Directors of the American Hardware Corporation ("AHC"), a Connecticut corporation, approved a tender offer whereby AHC would acquire KLI through an exchange of AHC stock for KLI stock. As part of its negotiations, AHC anticipated liquidating KLI, acquiring all of KLI's assets

and liabilities, and operating KLI's business as a division of AHC. Prior to the acquisition, AHC executives toured the WCLC facility in Rialto and WCLC's documents were available for inspection. On May 1, 1957, AHC sent a letter to KLI shareholders inviting them to exchange their KLI stock for AHC stock. AHC declared the exchange offer successful on July 1, 1957 with nearly 100% of the stock exchanged. On that same day, AHC sent a letter to new AHC stockholders informing them that KLI would be operated temporarily as a corporate subsidiary, but would eventually be dissolved and operated as a manufacturing and sales division of AHC.

On or about July 3, 1957, contemporaneous with the exchange offer described above, WCLC merged into KLI and ceased to exist. According to a July 1, 1957 KLI Board of Directors resolution, quoted in KLI's Certificate of Ownership filed with the State of California, KLI assumed "all the liabilities and obligations" of WCLC, and "shall be liable therefore in the same manner as if it had itself incurred such liabilities and obligations." Pursuant to the merger of KLI and WCLC, KLI also took title to the 160 acres upon which WCLC operated.

The acquisition of KLI and its subsidiaries, including WCLC, by AHC was in fact and in law, a ***merger***. Numerous documents regarding the transaction have been produced. However, despite several requests, a June 1957 agreement between AHC and KLI entitled the "Form and Assumption Agreement" and the KLI "Plan of Dissolution" (both referred to in corporate minutes) have not been produced by the named parties. These documents would likely shed additional light on the precise nature of the acquisition of KLI by

AHC. Nonetheless, other contemporaneous documents, the testimony of surviving former KLI directors, and the conduct of corporate successors to AHC in honoring KLI liabilities make clear that the transfer from KLI to AHC was a merger. The facts also establish that AHC expressly assumed by contract all of KLI's and WCLC's liabilities, known and unknown, contingent and non-contingent, for discharges at the Property. The significance of the merger, of course, is that AHC became, by operation of law, liable for KLI's and WCLC's liabilities.

On July 19, 1957, KLI sold the 160-acre Rialto property to the B.F. Goodrich Company. KLI ceased its manufacturing activities in Rialto, but continued operating as a "division" of AHC, doing business in Anaheim, California, producing Kwikset's well-known product line of household door locks.

On or about April 11, 1958, AHC's Board of Directors declared that KLI should be dissolved, and KLI's Board of Directors adopted a plan of dissolution whereby all KLI assets would be transferred to AHC. AHC, the sole shareholder of KLI, commenced the dissolution of KLI on or about May 28, 1958.

As stated above, the key agreement by which AHC assumed the liabilities of KLI, the Form of Assumption Agreement, is missing. Accordingly, extrinsic or secondary evidence is admissible to prove the contents of this contract. *See* Cal. Evid. Code § 1521 (secondary evidence may be used to establish the contents of a writing); *Dart Industries, Inc. v. Commercial Union Ins. Co.,* 29 Cal.4th 1059, 1069 (2002) (lost documents may be proved by secondary evidence). Oral testimony to prove the contents of a writing is admissible where, as here, "the

proponent does not have possession or control of the original or a copy of the writing and ... [¶] ... [n]either the writing nor a copy of the writing was reasonably procurable by the proponent by use of the court's process or by other available means...." *Dart Industries, Inc.*, 29 Cal.4th at 1069 (citing Cal. Evid. Code. § 1523); *Cf.* Fed. R. Evid. 1004. In this case, the extrinsic evidence establishes that AHC expressly assumed all the liabilities of KLI.

The nature of the AHC purchase of KLI is discussed in the "Minutes of Regular Meeting of the Board of Directors, The American Hardware Corporation," dated June 5, 1958. During that meeting, the Directors took action related to the purchase of KLI. One action was to approve modification of a loan to secure the purchase of KLI. Another action taken by the Directors related to the dissolution of KLI. The minutes state, in part:

> WHEREAS, the Board of Directors of KWIKSET LOCKS, INC. ADOPTED A Plan of Dissolution to be effected by the distribution and transfer of all of the assets and business to this corporation as the owner and holder of all of the issued and outstanding shares of capital stock upon the condition that this corporation expressly assume and guarantee in good faith <u>to pay all debts, liabilities and obligations of KWIKSET LOCKS, INC. in existence on the date of such distribution and transfer of its assets and business, contingent or otherwise known or unknown</u>...(emphasis added)
>
> ***

> NOW, THEREFORE, BE IT RESOLVED, that the President or any Vice President, and the Secretary or Assistant Secretary of this corporation, be and they are hereby authorized and directed in the name of and on behalf of this corporation (a) to execute and deliver to KWIKSET LOCKS, INC., an appropriate form of assumption agreement expressly assuming all obligations and liabilities of KWIKSET LOCKS, INC., as aforesaid...

The AHC Directors minutes make clear that AHC expressly intended to assume responsibility for the obligations - known and unknown - of KLI. There exist additional historical documents that explain the nature of the KLI acquisition by AHC. The KLI Board of Directors also believed that AHC would address all of its liabilities.

In or about June 1958, KLI's Board of Directors executed and filed a "Certificate of Winding Up and Dissolution of Kwikset Locks, Inc., a California Corporation." This Certificate declares that KLI's Board of Directors declared that all of the liabilities of KLI had been provided for by AHC's assumption of "all debts and liabilities of said corporation remaining unpaid as of June 30, 1958."

On June 30, 1958, KLI was dissolved and a liquidating distribution of KLI's assets was made to its sole shareholder, AHC. AHC thereafter continued producing the Kwikset product line at the former KLI Anaheim facility. In the 1958 AHC Annual Report, Evan J. Parker, then-President of AHC, stated:

> "In order to simplify the corporate structure, Kwikset Locks, Inc. (a wholly-owned subsidiary) was dissolved as of June 30, 1958, and

all of its assets and liabilities transferred to the parent company. The manufacturing operations formerly conducted by Kwikset were continued as the Kwikset division."

Multiple documents from 1958 or shortly thereafter submitted under penalty of perjury to the Securities and Exchange Commission ("SEC") and the Internal Revenue Service ("IRS") confirm that all of KLI's assets and liabilities were transferred to AHC. For example, IRS Form 7004, "Application for Automatic Extension of Time," was submitted to the IRS on behalf of KLI by C. K. Nelson, Assistant Treasurer, on September 15, 1958. This document contains KLI's stated reason for the requested extension: "The corporation was ***merged*** with another corporation as of June 30, 1958." (emphasis added)

Yet another contemporaneous tax form, IRS Form 843, "Claim," dated November 28, 1961, was submitted on behalf of "KLI, Transferor" and "American Hardware Corporation, Transferor." In Schedule A, the following statement is contained in the second paragraph:

"Kwikset Locks, Incorporated was substantially a wholly-owned subsidiary of American Hardware Corporation as of January 1, 1958. On June 30, 1958, Kwikset Locks, Inc. was dissolved***. All the assets and liabilities*** were transferred to the parent corporation, and operations were continued as Kwikset Division of the American Hardware Corporation." (emphasis added)

These documents were signed under penalty of perjury and indicate that AHC realized certain tax benefits from KLI, took advantage of tax losses of KLI for the years 1952-1957, and accounted for depreciation of KLI equipment on AHC tax returns.

*These documents and others like them support only one conclusion: the AHC acquisition of KLI was a **merger**. This transaction resulted in AHC's liability for KLI's, and, by extension, WCLC's liabilities. That liability was then transferred forward to the other named entities by the series of corporate transactions that are described below.*

The conduct of AHC after the dissolution of KLI is further evidence that AHC assumed all of KLI's liabilities. AHC honored KLI's lockset return policy for the replacement of broken or defective locksets, regardless of when the lockset was purchased. Because it was unknown how many locksets purchased prior to June 30, 1958 would be returned after that date, the potential liability was an ***unknown future liability***.

AHC also continued the Kwikset Employee Pension Trust after the dissolution of KLI. Because it was unknown what future contributions would be required to maintain the Pension Trust, it is an unknown, contingent liability assumed by AHC. As will be seen, upon its acquisition of AHC, EII also continued the Kwikset Employee Pension Plan, and credited qualified retirees with benefits accrued as a result of their employment history that occurred even prior to 1958.

In addition, a Kwikset Corporation publication, entitled "Kwikset A Black & Decker Company Employee Handbook," contains the following passage:

> In 1957, Kwikset Locks, Inc. merged with the American Hardware Corporation of New Britain, Connecticut and subsequently became known as the Kwikset Division.

Interestingly, the Black & Decker website, as it appeared in 2002, indicated under "Company History" that *KLI was merged into AHC*. During the investigation of this matter by the Advocacy Team in 2002, this was pointed out to Kwikset's and EII's Counsel. Shortly thereafter, the website was changed to remove this statement (Jenkinson testimony; copy of pre 2002 webpage and copy of post 2002 webpage).

Moving on to the theories applicable to the facts surrounding AHC's acquisition of KLI and its subsequent conduct, AHC succeeds to KLI's liabilities under any of several legal theories, including express merger, *de facto* merger, express or implied assumption arguments, and evidence that the business operations were a mere continuation of the predecessor.

a. *AHC's Acquisition of KLI and Reorganization of KLI Into a Division Of AHC Constituted an Express Merger of AHC and KLI.*

Generally speaking, a merger is the absorption of one corporation by another which survives; retains its name and corporate identity together with the

added capital, franchises, and powers of the merged corporation; and continues the combined business. *Heating Equipment Mfg. Co. v. Franchise Tax Board,* 228 Cal.App.2d 290, 302 (1964). The surviving corporation steps into the shoes of the absorbed corporation and assumes all of its liabilities. Corp. Code §1107.

The evidence available regarding the nature of the AHC acquisition of KLI strongly suggests that the parties intended that it be an express merger.

b. AHC's Acquisition of KLI into a Division of AHC Constituted a *de facto* merger of AHC and KLI

Courts and agencies may invoke the equitable doctrine of "*de facto* merger" when no formal merger is effected but "all the indicia of a merger are present." *Malone v. Red Top Cab Co*., 16 Cal.App.2d 268, 273 (1936); *see also Ray v. Alad Corp*., 19 Cal.3d 22, 28 (1977); *Marks v. Minnesota Min. and Mfg*., 187 Cal.App.3d 1429 (1986). Under such circumstances, the law and equity may treat such a combination or transaction as it would a formal merger, including requiring the surviving corporation to step into the shoes and assume the liabilities of the absorbed corporation. *Id*.

The equitable doctrine of *de facto* merger is frequently invoked when a surviving corporation avoids merging with a target corporation and assuming all of its liabilities by instead acquiring and employing all of its assets. Generally, a purchaser of corporate assets takes those free of the selling corporation's liabilities. The California Supreme Court explained that *de facto* merger can

except such transactions from the general rule of successor non-liability and "has been invoked where one corporation takes all of another's assets *without providing any consideration* that could be made available to meet claims of the other creditors...." *Ray v. Alad Corp*., 19 Cal.3d 22, 28 (1977).

While *de facto* merger is "ordinarily applied" in corporate asset-purchase successor liability cases *(Ray v. Alad Corp*., 19 Cal.3d 22, 28 (1977)), the doctrine is certainly not limited to asset purchase cases. *See Marks v. Minnesota Min. and Mfg*., 187 Cal.App.3d 1429 (1986), (applying rule to purchase of target corporation's stock); *San Joaquin Ginning Co. v. McColgan*, 20 Cal.2d 254 (1942) (considering whether dissolution and distribution was a merger, consolidation, reorganization under tax statute.).

The doctrine applies when equity compels a court to ignore form for substance. As one court stated, "[I]t is immaterial in our opinion whether it is called a merger or a sale *cum onere*,[3] for section 361 by subdivision 7 [providing successor liability in statutory mergers] merely writes into the law the equitable rule that governs when no formal merger is effected." *Malone v. Red Top Cab Co*., 16 Cal.App.2d 268, 273-74 (1936).

Thus, in determining whether to invoke the equitable doctrine of *de facto* merger, it is immaterial whether the surviving corporation absorbed the assets and continued another's business as a result of an asset purchase or as a result of purchasing all its equity and thereafter causing the target's dissolution. If "all the indicia of a merger are present," either transaction may result in a *de facto*

merger, transferring all of the liabilities of the absorbed business to the surviving corporation. *Marks v. Minnesota Min. and Mfg*., 187 Cal.App.3d 1429 (1986). Application of the doctrine in stock purchase transactions is not antithetical to principles that recognize the distinction between a shareholder and the corporation. As the California Supreme Court has explained, "while a corporation is usually regarded as an entity separate and distinct from its stockholders, both law and equity will, *whenever necessary to circumvent fraud or protect the rights of third persons* disregard this distinct existence and treat them as identical." *Katenkamp v. Superior Court*, 16 Cal.2d 696, 700 (1940) (emphasis added).

As to the factors that merit or compel its application, the California Supreme Court explained, "[t]his exception has been invoked where one corporation takes all of another's assets without providing any consideration that could be made available to meet claims of the other's creditors or where the consideration consists wholly of shares of the purchaser's stock which are promptly distributed to the seller's shareholders in conjunction with the seller's liquidation." *Ray v. Alad Corp*., 19 Cal.3d 22, (jump cite) (1977).

The opinion of the California Supreme Court in *San Joaquin Ginning Co. v. McColgan,* 20 Cal.2d 254, 259 (1942) is instructive. In *San Joaquin Ginning Co*., the California Franchise Tax Commissioner appealed a judgment awarding plaintiff, a dissolved corporation, a tax refund on the ground that the plan and procedure adopted by the plaintiff to effect a dissolution was in reality a reorganization or merger of the plaintiff and its parent corporation within the

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3 What is taken *cum onere* is taken subject to an existing burden or charge.

meaning of the applicable statute, which would not entitle plaintiff to the refund. The Supreme Court reasoned that for plaintiff to prevail, it had to establish that the statutory dissolution and liquidation was in reality a change of substance as well as of form. Specifically, the Supreme Court held,

> If the procedure adopted effected a change only in the form of the corporate structure without any substantial change in the business operations and interests involved, it must be said to result only in a reorganization, consolidation or merger within the meaning and purpose of the provisions of the statute. *San Joaquin Ginning Co.,* 20 Cal.2d at 259.

The Supreme Court found compelling that the "dissolution and so-called liquidation" nevertheless resulted in a continuity of interests, to wit, the interests owned by the stockholders changed only in form but not in fact. There was no substantive change in interests to warrant the conclusion that something other than a merger, consolidation or reorganization had taken place. The Court observed:

> In the present case the continuity of interest after dissolution and so-called liquidation is beyond question. The same interests were represented in fact, if not in form, by the same stockholders before and after the transfer. Before the transfer and dissolution the stockholders of the parent corporation owned their interest in the subsidiary through the parent's holding of all the stock of the subsidiary. After the transfer their interest continued in the same measure as before through the direct ownership by

the parent of the subsidiary's properties. *San Joaquin Ginning Co.,* 20 Cal.2d at 263.

Thus, *San Joaquin Ginning Co.* instructs that a transfer of all assets of one corporation to another that merely changes corporate form but otherwise effects no substantial change in business operations is a merger, if not *de jure* then *de facto*.

In *Marks v. Minnesota Min. and Mfg*., 187 Cal.App.3d 1429 (1986), the Court of Appeals unraveled both an asset acquisition and a corporate dissolution and distribution of assets and concluded both transactions constituted de facto mergers and, in the case of the dissolution, a mere continuation of the business. In the initial transaction, the wholly-owned subsidiary of defendant Minnesota Mining and Manufacturing ("3M") exchanged 3M stock for all of the assets, including goodwill and the corporate name, of a company that had manufactured a defective product. Pursuant to the express terms of their agreement, the manufacturer distributed the 3M stock to its shareholders, promptly wound up and dissolved. Meanwhile, 3M's subsidiary adopted the manufacturer's trade name, signed employment agreements with all of the manufacturer's employees and thereafter carried on the manufacturer's business. After a time, 3M's wholly-owned subsidiary dissolved and made a statutory distribution of all of its assets to its sole shareholder, 3M, which continued the business as a division of 3M. Plaintiff sued 3M as the successor to and therefore liable as the original manufacturer.

Addressing the asset sale first, the *Marks* Court of Appeal noted several factors were analyzed in these types of situations:

> Courts have described five factors which indicate whether a transaction cast in the form of an asset sale actually achieves the same practical result as a merger: (1) was the consideration paid for the assets solely stock of the purchaser or its parent; (2) did the purchaser continue the same enterprise after the sale; (3) did the shareholders of the seller become shareholders of the purchaser; (4) did the seller liquidate; and (5) did the buyer assume the liabilities necessary to carry on the business of the seller? *Marks*, 187 Cal.App.3d at (jump cite).

The manufacturer's asset sale for 3M stock satisfied each of the five elements. The *Marks* Court concluded the asset-sale transaction was a *de facto* merger finding "the result of the transaction was exactly that which would have occurred had a statutory merger taken place. . ." As a consequence the Court was "convinced of the necessity and fairness" of transferring liability from the manufacturer to 3M's subsidiary. (*Id*.).

Moving next to the subsidiary's dissolution, the court acknowledged that the union of parent and subsidiary under some circumstances can result in termination of the subsidiary's liabilities, referencing *Potlatch Corp. v. Superior Court*, 154 Cal.App.3d 1144 (1984) where the subsidiary discontinued its business, sold its assets at auction, and dissolved. The Court, however, distinguished 3M's transaction from that in *Potlatch*. Indeed, the Court found significant that after the reorganization, 3M's former wholly-owned subsidiary

continued doing business under the same trade name now as a division of its corporate parent. The Court also posited that since 3M had been its sole shareholder, it was highly unlikely that 3M paid cash for its subsidiary's business. The Court therefore found "[a]ll the indicia of a merger" present and held the reorganization was also a *de facto* merger that transferred all of the former wholly-owned subsidiary's liabilities to 3M.

Similar to *Marks*, in *Arthur Spitzer et al.,* Order No. WQ 89-8 (SWRCB 1989), the State Water Resources Control Board held a transaction whereby petitioner/parent corporation acquired all of a discharger's stock and later dissolved the discharger/subsidiary but employed the discharger/subsidiary's assets was a *de facto* merger that subjected petitioner/parent to the same cleanup and abatement order (CAO) that issued to the discharger/subsidiary. In *Spitzer*, the Santa Ana Regional Board had issued a CAO to several dischargers to clean up soil and groundwater contaminated by perchloroethylene at a site where several dischargers had operated dry cleaning establishments. One named discharger, Aratex, had neither owned the site nor operated a business on the site. Instead, in 1984 it had purchased all of the stock of another named discharger, Fashion-Tex, who under the name New Fashion had operated a dry cleaning business on the site from 1966 through 1969. Sometime after Aratex purchased Fashion-Tex in 1984, and before issuance of the CAO in 1989, Aratex allowed Fashion-Tex to go out of business. Aratex petitioned for State Board review of the Regional Board's CAO contending it was not legally responsible for

the actions of Fashion-Tex which had occurred at least fourteen years prior to Aratex acquiring all of Fashion-Tex's stock.

On review, the State Board held the principle stated in *Ray v. Alad* – "that if one corporation acquires all the assets of another corporation without paying substantial consideration for the assets, the purchasing corporation is liable for the pre-purchase activities of the selling corporation [citation omitted]" – applied to Aratex's transaction. *Arthur Spitzer et al.,* supra, at 23. The State Board observed that Aratex had acquired control of Fashion-Tex's assets by paying possibly substantial sums to its stockholders but nothing to Fashion-Tex. Moreover, Aratex then permitted its wholly-owned subsidiary to go out of business leaving no corporate assets or ongoing business to pursue for the obligations of Fashion-Tex. The State Board held:

> If Aratex had, in good faith, purchased the assets from Fashion-Tex, cash payment should have been made to the corporation not the shareholders. Here, Aratex may have paid substantial consideration to [the two shareholders] for their stock, but they paid nothing to Fashion-Tex for its assets. In accordance with the principle articulated in *Ray v. Alad*, it would be inequitable to afford Aratex the protection of the corporate veil of Fashion-Tex. *Arthur Spitzer et al.,* at 24-25.

The State Board concluded that Aratex had thus stepped into Fashion-Tex's shoes and became responsible for Fashion-Tex's CAO liabilities.

The rule and rationale set forth in the foregoing cases compel the same conclusion here: the transactions that resulted in AHC acquiring all of KLI's assets without paying any cash to KLI effected a *de facto* merger of AHC and KLI. The conclusion is inescapable. As the Court of Appeals found in *Marks*, "all the indicia of a merger are present" here, i.e., the absorption of one corporation by another which survives and continues the combined business. Indeed, almost virtually identical to defendant 3M in *Marks* and petitioner Aratex in *Spitzer*, AHC acquired all of KLI's stock, allowed KLI to dissolve and distribute all of its assets, including its trade name and goodwill, to AHC, which thereafter operated KLI's business as a division of AHC. The absorption of KLI into AHC effected a change only in the form of the AHC/KLI corporate structure without any substantial change in the business operations. *San Joaquin Ginning Co. v. McColgan,* 20 Cal.2d at 259. Thus, as the State Board held in *Spitzer*, "in accordance with the principle articulated in *Ray v. Alad*, it would be inequitable to afford [AHC] the protection of the corporate veil of [KLI]." *Arthur Spitzer et al.,* at 24-25.

c. In Absorbing and Continuing KLI's Business, AHC Also Absorbed and Assumed All of KLI's Corporate Liability.

A corporation that purchases the principal assets of another corporation and thereafter continues the selling corporation's business can be found to have also

assumed the selling company's debts and liabilities. In *Ray v. Alad Corp*, the California Supreme Court instructed that a corporation acquiring another's assets is a mere continuation of the selling corporation, and therefore liable for its debts, where either or both (i) no adequate consideration was given for the predecessor corporation's assets and made available for meeting the claims of its unsecured creditors and/or (ii) one or more persons were officers, directors or stockholders of both corporations. *Ray v. Alad Corp*, supra, 19 Cal. at 29. Some courts consider the "mere continuation" doctrine to be just a subset of the *de facto* doctrine. As one court recognized, "[t]he crucial factor in determining whether a corporate acquisition constitutes either a de facto merger or a mere continuation is the same: whether adequate cash consideration was paid for the predecessor corporation's assets." *Franklin v. USX Corp*., 87 Cal.App.4th 615, 625 (2001). In *Marks*, the Court of Appeal found that the transfer by 3M's wholly-owned subsidiary of all of its assets to parent 3M, 3M's presumed failure to pay its subsidiary any cash for the assets, and the former subsidiary continuing to do its business as a division of 3M amounted to a mere continuation of the business. As a consequence, the transfer of the assets and business to 3M, also transferred therewith all of the corporate liability of 3M's former subsidiary. Significantly, the Court of Appeal held it was irrelevant whether the business 3M absorbed from its wholly-owned subsidiary resembled the original business that created the liability in question, expressly declining to follow such an approach. Instead, the Court held:

> The critical fact is that while there was more than one merger or reorganization, an analysis of each transaction discloses to us that its intrinsic structure and nature, unlike a sale of assets for cash, was of a type in which the corporate entity was continued and all liability was transferred. *Marks*, 187 Cal.App.3d at 1438.

Under the tests set forth in the California Supreme Court *Ray v. Alad* and applied in *Marks*, AHC's acquisition of all of KLI's assets for no consideration paid to KLI to meet the claims of KLI creditors, AHC's absorption and continuation of KLI business as a division of AHC, and KLI's stockholders becoming AHC stockholders satisfies the criteria to find a *de facto* merger. Moreover, as the Court explained in *Marks*, it is irrelevant that the KLI that AHC absorbed may not have been identical to the KLI when it incurred the liabilities at issue. Therefore, AHC's absorption and incorporation of KLI amounted to a mere continuation of the business, and thus, in absorbing KLI, AHC has also assumed all the liabilities of KLI.

Additionally, other contemporaneous documents, the testimony of surviving former KLI directors, and the conduct of corporate successors to AHC in honoring KLI liabilities make clear that the transfer from KLI to AHC was a merger and that AHC expressly assumed by contract all of KLI's and WCLC's liabilities, known and unknown, contingent and non-contingent.

The Certificate of Winding Up and Dissolution of KLI, executed on June 30, 1958 contemporaneously with the Form of Assumption Agreement, unambiguously states that the debts and liabilities of KLI were provided for

pursuant to an assumption agreement dated June 30, 1958 by which "the American Hardware Corporation assumed and became responsible for **all debts and liabilities** of said corporation remaining unpaid as of June 30, 1958." [4]

(i). The Only Two Surviving Former Directors of KLI Confirm That AHC Assumed All Liabilities

Both Mr. Robert Parrett and Mr. Robert Hutchison, the only two surviving former directors of KLI, have testified under oath that AHC assumed all the liabilities of KLI.[5] Specifically, Mr. Parrett, the former plant manager and director of KLI and a former officer of AHC, testified that it was his understanding that as part of the dissolution of KLI, AHC assumed all the liabilities of **KLI *"lock, stock and barrel."*** [Parrett 172:22-173:15; Hutchison 574:16-23, 575:18-576:1.]

(ii) AHC's Filings with the SEC Confirm That it Assumed All of KLI's Liabilities

In the 1958 Annual Report of AHC, filed with the SEC, the President of AHC admits that the corporation assumed all the liabilities of KLI: "[I]n order to simplify the corporate structure, Kwikset Locks, Inc. (a wholly-owned subsidiary) was dissolved as of June 30, 1958, and **all of its assets and liabilities** transferred to the parent company." (emphasis added). Again, as part of AHC's

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4 EII will undoubtedly argue that AHC only assumed the minimum liabilities required under the law at that time. While the minimum requirement under the California Corporations Code at that time was that "known debts and liabilities" must be provided for before dissolution, the uncontroverted evidence unambiguously shows that AHC's assumption of KLI's liabilities exceeded this minimum. Cal. Corp. Code §§ 5000-01 (enacted 1947). Indeed, California Corporations Code Section 5001 (enacted 1947), upon which EII relies, "does not prescribe [the] exclusive means of making adequate provision for debts and liabilities." *Id.* Thus, for a variety of reasons, including the desire to seamlessly continue the dissolved corporation's business, the acquiring corporation may choose to accept "all liabilities" as AHC did in this case. Cite also to draft documents (exhibits 3349-3351).

5 Robert Hutchison and Robert Parrett are the only two witnesses to the June 30, 1958 KLI dissolution, as they are the only surviving directors of either KLI or AHC from 1957 and 1958. They provided deposition testimony in the *City of*

financial statement in the 1958 Annual Report, the Corporation admits that "[o]n June 30, 1958, one year after acquisition, Kwikset Locks, Inc. was liquidated and **all its assets and liabilities were transferred to the Company." (**emphasis added).

According to a "Stipulation and Order Re: Black & Decker Inc., for the Limited Purpose of this Action" previously submitted to this Board by letter from Scott Sommer, counsel for the City of Rialto, dated February 12, 2007 to Thomas Howard, "as the sole shareholder receiving these [$716 million] in liquidating distributions upon EII's dissolution, BDI is statutorily responsible, pursuant to Connecticut law for any and all final judgments entered against EII, after exhaustion of all appeals, for claims brought before the March 12, 2005 bar date, up to the value of the liquidating distributions." (Attachment 30, BDI stipulation).

Prior to submitting these documents to the SEC, the filings were reviewed by several professionals working for AHC, including AHC's attorneys and accountants. Indeed, these professionals provided opinion letters regarding the legal and financial statements contained in these federal filings. [Legal counsel at Day Berry & Howard in Connecticut, who was familiar with the AHC corporate securities attorneys who provided the legal opinion in these securities filings, testified that they were "very, very careful lawyers." (Cordiano at 721:2-25.) Similarly, the former controller of KLI, Cleland Nelson, testified that AHC's accountants, Haskins & Sells, provided sophisticated counsel in connection with securities filings (Nelson 446:21-447:17).

Rialto v. Department of Defense et al., Case No. ED CV 04-00079 SGL (SSx), a related federal district court case

(iii). The Circumstances Surrounding the Transaction Provide Further Evidence That AHC Assumed All the Liabilities of KLI

Further evidence of the contents of the missing Form of Assumption Agreement can be found in the circumstances surrounding the dissolution of KLI. "[P]arol evidence is admissible to show the circumstances surrounding the transaction for the purpose of arriving at a determination of the meaning intended and understood by the parties." *Brookes v. Adolph, Ltd.,* 170 Cal. App.2d 740, 746 (1959) (quoting *Gibson v. De La Salle Inst.,* 66 Cal. App. 2d 609, 619 (1944)); Cal. Civ. Code § 1647 ("A contract may be explained by reference to the circumstances under which it was made, and the matter to which it relates."); *Euless v. Westphal,* 71 Cal. App. 611, 616 (1925).

(iv). The Actual and Intended Result of the 1957/1958 Transaction Between KLI and AHC is the Absorption of KLI Into AHC

In order to continue the business of KLI as a division, it logically follows that AHC must have assumed all of KLI's assets and liabilities. Otherwise, how could AHC continue to operate the business and manufacture locksets? Indeed, because AHC acquired all of KLI's capital stock and then a year later acquired all of its assets through KLI's dissolution (allowing it to continue KLI's operations as a division), AHC absorbed all of KLI into itself. Marks v. Minnesota Min. and

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involving virtually the same parties and issues.

Mfg., supra 187 Cal.App.3d 1429, (jump cite); see also *United States v. Iron Mountain Mines, Inc.*, 987 F. Supp. 1233, 1242-43 (E.D. Cal. 1997).

Faced with circumstances similar to those presented here, the District court in *Iron Mountain* reached an identical conclusion. In Iron Mountain, Stauffer Chemical Company ("Stauffer") obtained all the capital stock of Mountain Copper through a tender offer in 1967. *Iron Mountain*, 987 F. Supp. At 1236. At the time of this tender offer, Stauffer intended to later dissolve Mountain Copper and operate it as a division. Then, in 1968, Stauffer, as the sole shareholder, elected to wind up and dissolve Mountain Copper. As part of the dissolution process, Stauffer entered into an assignment agreement with Mountain Copper whereby Mountain Copper transferred all of its assets to Stauffer and Stauffer agreed to "assume all of the liabilities and contractual obligations of [Mountain Copper]." *Id*. Based on these facts, the District Court held that "the circumstances surrounding the dissolution of Mountain Copper and its subsidiaries and the execution of the two assignments support the conclusion that 'all liabilities' meant all liabilities, including environmental liability," despite the fact that the contracts were entered into prior to the enactment of CERCLA. Id. at 1242. The District Court further held that "through its acquisition of all of Mountain Copper's stock and the dissolution of the corporation, Stauffer absorbed all of Mountain Copper into itself." *Id*.

As described in detail above, the transaction between AHC and KLI mirrors the transaction at issue in *Iron Mountain*. Based on the reasoning in *Iron Mountain* it then follows that AHC did not acquire just some of KLI's business or

assets, **it acquired KLI in its entirety.** As a result, AHC had absolute control over KLI (and its subsidiaries). AHC's decision to absorb KLI in its entirety suggests that it knew it was assuming every aspect of KLI's business (including all of WCLC's statutorily merged liabilities). *Iron Mountain*, 987 F. Supp. at 1243.

Moreover, just as in *Iron Mountain*, by structuring the acquisition of KLI in this fashion, AHC was able to realize certain tax benefits from KLI. *See Iron Mountain*, 987 F. Supp. at 1243 (the parent corporation absorbed all of its subsidiary in an effort to realize certain tax savings). Mr. Cleland Nelson, former controller of KLI and the Kwikset Division, testified that years after the KLI dissolution, AHC took advantage of tax losses of KLI for the years 1952 through 1957.(See documents; Nelson 334:24-341:8, 342:7-25, 343:1-344:11). Indeed, as late as 1959/1960, AHC was accounting for the loss of depreciation of KLI's equipment for the years 1952 through 1957 on its own tax returns. [See June 2, 1959 Interoffice Correspondence at 1201-1206.] Under the direction of Mr. Rathgeber, AHC's Controller, in May of 1959, AHC booked a $29,901.42 federal income tax "liability" "applicable to the period prior to June 30, 1957, the date Kwikset Locks, Inc. was acquired by American Hardware Corporation; a "liability" that was clearly "unknown" on June 30, 1958 (Tax document; Nelson, 358:21-364:5). Since AHC assumed all of KLI's liabilities it was able to claim these losses after the dissolution. According to Mr. Nelson, these tax losses were **unknown** at the time of KLI's dissolution (Nelson *id)*. This is simply further evidence that AHC assumed "all the assets and liabilities" of KLI, whether known or unknown.

(v). AHC Was On Notice of Potential Liability Arising from WCLC's Rialto Facility

AHC was aware of WCLC and its Rialto operations well before it decided to acquire KLI and its subsidiaries. Indeed, AHC conducted extensive diligence of WCLC, including a visit to the Rialto facility in January of 1957 and a review of documents relating to WCLC's operations. This diligence must have revealed that WCLC stored, used, and disposed explosives and other chemicals at the Rialto facility. Indeed, WCLC was handling potassium and ammonium perchlorate and other chemicals at the Rialto facility in January and February of 1957 (Gardner., 231:17-232:13, 235:7-19 (in 1957 chemicals remained in the laboratory and WCLC was drying over 43,000 pounds of ammonium perchlorate)). Moreover, aerial photographs taken of the WCLC site in 1955 illustrate the chemical staining on the ground which executives from AHC would have seen during its tour of the WCLC facility (Attachment 7, aerial photographs 1955).

Not only was AHC aware of WCLC's operations, but it was also on notice that contamination at the Rialto facility could have resulted in liability. As discussed above, California law in 1958 clearly premised liability on environmental contamination. Likewise, AHC was on notice that it could be held liable retroactively for statutes enacted in the future. As of 1958, several federal statutes had been interpreted to be constitutionally applied retroactively. *See generally Fleming v. Rhodes*, 331 U.S. 100 (1947) (upholding the constitutionality of the retroactive application of the Emergency Price Control Act); *Welch v.*

Henry, 305 U.S. 134 (1938) (upholding constitutionality of retroactive tax statute); *Miller v. Howe Sound Min. Co. U.S.*, 77 F. Supp. 540, 545 (E.D. Wash. 1948) ("Section 2(a) [of the Portal-to-Portal Act, 29 U.S.C.S. section 252(a),] is expressly retroactive."). Accordingly, AHC was on notice of the possibility of future liability for existing contamination.

It was with this notice that the AHC directors and executives decided to merge WCLC into KLI under California Corporations Code Section 4124 in June of 1957. In addition, at the time AHC decided to dissolve KLI in 1958, the directors of KLI, including Mr. Parrett, were knowledgeable about WCLC's operations (Parrett D 653:24-655:19.

(vi) Under the California Statutes Governing Dissolution, AHC Would Have Assumed All of KLI's Liabilities

Under the statutory regime in effect in 1958, KLI had three options for effectuating its dissolution: (1) file a petition with the superior court to allow for court supervision of the winding up proceedings (Cal. Corp. Code §§ 4607-4619 (1958)); (2) begin the process of winding up the business, pay known debts and liabilities, distribute remaining assets to its shareholders and then petition the court for a declaration of dissolution (Cal. Corp. Code § 5202); or (3) simply conduct the winding up and dissolution process without court intervention, notify creditors in writing by mail, pay known debts and liabilities and distribute remaining assets to the shareholders (Cal. Corp. Code § 5200). It follows under

the California Corporations Code that the involvement of the Court provides the dissolving corporation, its directors and officers, and shareholders the most protection from creditors. Cal. Corp. Code §§ 5204, 5205; see also *Hartman v. Hollingsworth*, 255 Cal. App. 2d 579, 582-83 (1967) ("[A]ny order thereafter made would have discharged the directors 'from their duties and liabilities to creditors and shareholders.' (Corp. Code, § 5204)".) KLI elected not to involve the California courts in its dissolution process and simply filed a Certificate of Dissolution.

Under the dissolution method selected by KLI, and its sole shareholder AHC, no liability protection is provided to the shareholders or the former officers and directors of AHC. Indeed, outstanding creditors can sue the shareholders to satisfy their claims (at any time), up to the amount of the distributed assets. Cal. Corp. Code § 5012. Moreover, creditors can sue the directors for willful or negligent distribution of the corporation's assets. Cal. Corp. Code §§ 825 & 826 (willful or negligent violations of Section 824 on illegal distributions); see also *Hoover v. Galbraith*, 7 Cal. 3d 519, 523 (1972), *Willard v. Dobbins*, 191 Cal. 287, 288-93 (1923) (finding judgment creditors stated a prima facie case of improper dissolutions in violation of (then existing) Civil Code §309 by directors who distributed assets before all creditors were paid). Therefore, it follows that if the shareholders (in this case AHC) did not broadly assume all of the dissolving corporation's liabilities, the shareholders and directors of the dissolved corporation would remain at risk for the dissolved corporation's liabilities *indefinitely*. Cal. Corp. Code §§ 825, 826, 5012 (1958).

Because KLI's counsel, Maurice Jones, Jr., was a director of both KLI and AHC, it is difficult to believe that he would have structured the dissolution in a manner that left him open to personal liability. Additionally, Robert Parrett (a former director of KLI) and Cleland Nelson (the former controller of KLI) were never advised or formed the belief that they would have any individual exposure for the unpaid liabilities of KLI (Nelson, 395:7-18, 395:25-398:1). Only a blanket assumption of **all liabilities** by AHC would have enabled KLI to use the short form of dissolution, avoid a court proceeding, and still protect the officers and directors of KLI from any residual potential liability after the dissolution.

Finally, KLI's failure to provide actual written notice by mail to its known creditors prior to its dissolution, as required under California law, provides additional evidence that AHC assumed all liabilities going forward[6] (Nelson, 406:15-410:24, 411:18-412:20, 413:7-416:2, 417:6-24, 418:19-420:9). Indeed, there was no reason to provide notice to KLI's creditors because AHC intended to honor all of KLI's liabilities. According to Cleland Nelson, the former controller of KLI and the Kwikset Division, AHC honored every liability of KLI that arose during his tenure at the company, which ended in 1989 (Nelson 292:4-6, 398:10-22, 399:5-19).. Moreover, the unknown debts of KLI that pre-date June 30, 1958

[6] The Certificate of Winding Up and Dissolution states that KLI provided written notice by mail to its known creditors. This "form" recitation comes directly from corporations Code Section 4605. However, the deposition testimony of KLI's assistant treasurer and controller, Mr. Cleland Nelson, establishes, without doubt, that no such notice was provided to the literally hundreds of creditors (including all of its employees) of KLI between May 28, 1958 and June 30, 1958. *See* Steinmeyer, 1299:18-1300:3. Mr. Nelson's accounting department was the exclusive repository of the identities and addresses of all the creditors of the company at the time. Moreover, not one notice to creditors of KLI has ever been produced in the related litigation. Therefore, the simple recitation of the code section in the Certificate of Dissolution does not establish that creditors were actually provided written notice by mail.

were all honored by AHC (Nelson, 348:3-350:2, 351:16-352:3, 372:16-375:1, 386:19-24, 422:3-424:14).

(vii). The Subsequent Conduct of AHC Provides More Evidence that It Assumed All of the Liabilities of KLI

The conduct of AHC after the dissolution of KLI further evidences the fact that AHC assumed all the liabilities of KLI. Courts often examine acts subsequent to the formation of a contract to assist them in determining the contents of the agreement: "Parol evidence of 'subsequent acts and conduct of the parties' may be relevant to contract interpretation because it manifests the mutual intention of the parties about how their contract should be applied." *Fisher v. Allis-Chalmers Corp. Prod. Liab. Trust,* 95 Cal. App.4th 1182, 1192 (2002) (citing *city of Atascadero v. Merrill Lynch, Pierce, Fenner & Smith, Inc.,* 68 Cal. App.4th 445, 473-74 (1998)).

For example, AHC consistently honored all the liabilities of KLI, including future and unknown liabilities. For example, the Kwikset Division continued to honor KLI's return policy for the replacement of broken or defective locksets, regardless of when the lockset was purchased (Nelson, 367:9-16, 368:21-369:17, 370:11-371:20). Because it was unknown how many locksets purchased prior to June 30, 1958 would be returned in the future, the potential liability was an "unknown future liability." (Nelson, 372:16-375:1.). The controller of KLI and the Kwikset Division confirmed that AHC charged a liability to its financial

statements for this "unknown, future liability."[7] AHC's continued practice of honoring unknown, future liabilities based on KLI's lockset return policy evidences that fact that AHC assumed more than just KLI's *known* liabilities – it assumed all of KLI's *liabilities.*

Significantly, the evidence shows that AHC continued the Kwikset Employee Pension Trust after the dissolution of KLI. Because it was unknown what future contributions would be required to maintain the Pension Trust, it is an unknown, contingent liability assumed by AHC (Nelson, 323:8-19, 323:20-324:16, 349:1-350:2, 351:16-352:3, 386:19-24: 387:1-6). AHC continued the Kwikset Employee Pension Plan, and paid pension benefits to qualified retirees – crediting their employment history prior to 1958 (Nelson, 305:6-12; Steinmeyer., 1296:10-13). Thus, AHC clearly continued to assume unknown, contingent liabilities well after KLI's dissolution.

For all the reasons set forth, it is clear that any of several theories apply to make AHC a successor to KLI's and WCLC's liabilities.

3. STEP THREE: AHC merges with Emhart Manufacturing Company.

AHC merged with Emhart Manufacturing Company, a Delaware Corporation, on June 29, 1964. The surviving corporation in the merger was AHC, under a new corporate name, "Emhart Corporation," as of June 30, 1964.

Emhart Corporation would later change its name to Emhart Industries, Inc. ("EII"), on May 4, 1976.

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7 Mr. Nelson testified that AHC would have included on its books a judgment that resulted from WCLC's acts committed before the dissolution of KLI – even if AHC did not know at the time of KLI's dissolution, that WCLC had committed the underlying act (Nelson, 450:5-453:13).

4. STEP FOUR: EII forms Kwikset Corporation.

EII incorporated the new Kwikset Corporation in California in 1985 as a wholly-owned subsidiary, and capitalized it using the net assets of the Kwikset Division of Ell. Kwikset Corporation thus retains the name, product line, and assets of the former KLI and Kwikset Division (of AHC and later of EII). Moreover, Kwikset Corporation is the entity that has custody and possession of historical documents of WCLC, KLI, and AHC. Copies of the historical documents submitted regarding those companies were obtained from Kwikset Corporation.

5. STEP FIVE: BDI acquires EII.

EII was later acquired by Black & Decker Inc. in 1989 and directed its operations. In 2002, BDI caused the dissolution of EII. As the sole shareholder of EII, BDI received liquidating distributions upon EII's dissolution reportedly amounting to some $716 million. In its status as sole shareholder of EII, BDI is statutorily responsible for orders brought and enforced against EII.

III. CONCLUSION

The evidence demonstrates that at each step in corporate succession following WCLC's dissolution, the succeeding company assumed liability for the predecessor entity in an unbroken chain of legal responsibility. The public policy does not favor interpreting the transactions in the history of this matter in such a way as to leave the public responsible for the discharges of others. Instead, it favors imposing liability on those who profited from the activities carried on at the

Property. We ask that the State Board apply the theories explained herein to the various transactions and determine that KLI, EII, Kwikset Corporation and BDI are liable for the WCLC discharges.

Summary

WCLC processed large quantities of potassium perchlorate. As a result, potassium perchlorate waste was generated. It was estimated that this waste would have amounted to at least 2,245 pounds of potassium perchlorate. This potassium perchlorate waste was discharged to the bare ground at the site. The Emhart parties and Black & Decker are responsible for the liabilities associated with the contaminant releases that occurred as a result of the activities of WCLC.

Evidence of Waste Discharge by Goodrich Corporation

In 1957, B.F. Goodrich purchased the Property from KLI (Attachment 10, deed; aerial photograph 1959; see also Attachment 11). In 2001, B.F. Goodrich became Goodrich Corporation, making Goodrich Corporation (Goodrich) the successor to B.F. Goodrich. In 1957, the Property consisted of a number of buildings and other structures that were constructed by WCLC. Goodrich operated a propellant research and rocket production facility at the Property.

Available evidence (cited in detail below), including Goodrich documents and the testimony of former Goodrich employees who worked at this Rialto facility between 1957 and 1964, establishes that Goodrich:

- Manufactured at least ten different types of rocket motors at the Property, totaling more than 2,300 units over the period from 1957 to 1964;
- Conducted chemical processing operations that included the grinding of ammonium perchlorate;
- Mixed propellant that contained ammonium perchlorate;
- Used TCE to clean propellant from its mixing bowls and other equipment;
- Trimmed scrap propellant, containing ammonium perchlorate, from the rocket motor casings, and disposed of it on-site;
- Tested rocket motors at the Property in an on-site test bay;
- Maintained an on-site burn pit that was utilized to dispose of all production waste; and
- Conducted an on-site salvaging operation to remove propellant containing ammonium perchlorate from defective Sidewinder rocket motors.

Rocket Motors Manufactured By Goodrich

During its occupancy of the Property, from 1957 to 1964, Goodrich manufactured rockets for the Armed Services (Attachment 11, Polzien (vol.1), 19:11-21:13 ; Polzien (vol.2) 203:19-204:1; Haggard (vol. 1) 49:18-50:17; aerial photograph, 1960; see also Attachments 15-22 (specific rocket motors) and Attachment 26,

aerial photograph 1965, showing Goodrich 150-gallon mixer building at the Property). Testimony and records establish that Goodrich manufactured the following rocket motors:

- The LOKI I and LOKI IIA (Mark 32 Mod O rocket motor);
- The Sidewinder 1C (Mark 31 Mod O rocket motor);
- The ASP 1 and ASP 4;
- The Atmos rocket (Mod 24);
- The jet assisted take off rocket (JATO-TM-6);
- Spherical rocket motors, and;
- The TM-2 and the TM-5 test motors and other small-scale testing operations.

As part of the development, testing and production of solid rocket propellant and rocket motors, Goodrich used various chemicals at the Property, including TCE and ammonium perchlorate. Ammonium perchlorate was the exclusive oxidizer used for all rocket propellant manufactured by Goodrich at the Property, with only a few minor exceptions. The ammonium perchlorate accounted for about 70% by weight of the propellant manufactured by Goodrich. Records indicate that Goodrich received ammonium perchlorate in bulk form at the Property in 55 gallon (or larger) cardboard drums.

Grinding of Ammonium Perchlorate

Ammonium perchlorate was ground at the Rialto facility to tailor the particle size to a specific burn rate (Attachment 12, Polzien (vol.2) 268:3-18; Wever (vol. 1) 35:13-36:8). The grinder would convert the ammonium perchlorate from a coarse salt-like material to fine powder (Attachment 12, Haggard (vol. 1) 89:4-92:17). The grinding process would cause the perchlorate powder to dissipate throughout the grinding room to such an extent that the powder would cover the entire room. At the conclusion of every grinding session the grinding room would be swept with a push broom (Attachment 12, Haggard (vol. 1) 99:22-100:18; 101:18-104:22). The powder collected through sweeping was subsequently disposed of in Goodrich's burn pit. After sweeping, some amount of perchlorate remained on the grinding room floor (Attachment 12, Wever (vol. 1) 44:23-45:11). Former employees estimated that approximately two cups of ammonium perchlorate powder remained on the floor after sweeping. To collect this remaining perchlorate after sweeping, Goodrich employees would mop the grinding room floor with water. The water-perchlorate slurry was then poured directly onto the ground outside the grinding room. The discharge of perchlorate powder in Goodrich's burn pit and the discharge of water-perchlorate slurry to the ground would have resulted in the discharge of perchlorate to groundwater.

Propellant Mixing and Cleaning Process

Two 100-gallon mixers and a third 150-gallon mixer were used for preparing propellant that contained ammonium perchlorate (Attachment 13, Wever (vol. 1) 38:19-25 (vol. 2) 246:15-19). For each batch of propellant, the oxidizer was blended with the polymer fuel binder (for example, Hycar butadiene polymer was used in the Sidewinder propellant and polyurethane was used in the propellant for the Atmos Model 24). After the oxidizer and fuel were mixed in the mixer, the resulting propellant was transferred into a "transfer pot." The transfer pot was placed below the mixing pot and a valve was opened on the mixing pot that allowed the propellant to flow into the transfer pot (Attachment 13, Haggard (vol. 1) 40:18-42:16)

The mixing equipment at Goodrich, including the transfer pot, was cleaned after each use, sometimes several times a day (Attachment 13, Polzien (vol.2) 272:4-22; Polzien (vol. 6) 1229:17-1230:11). Workers used beryllium tools to scrape out the leftover propellant by hand The leftover propellant was placed into a bucket. The mixing room floor was swept and mopped, if necessary (Attachment 13, Wever (vol. 1) 58:6-59:21). TCE was then poured into the mixer to assist in cleaning. The TCE and propellant residues were then poured into a 55-gallon drum. It is estimated that Goodrich used as many as ten 55-gallon drums of TCE at the Property during the period from 1957 to 1964 (Attachment 13, Wever (vol 1), 117:8-118:4; 321:9-23 116:17-19). Each batch of the TCE/propellant slurry

that was removed from the mixing bowls during cleaning was disposed of in Goodrich's burn pit (Attachment 13, Wever (vol. 2) 280:2-281:12).

In addition to production mixing, Goodrich's research and development facility mixed its own rocket propellant on the Property for test purposes. This test propellant likely contained perchlorate; the waste was disposed of in Goodrich's burn pit (Attachment 13, Wever 57:22-58:15).

Rocket Motors: Lining, Tooling, Loading and Finishing

All rocket motor casings were fitted with a special liner. After lining, the rocket casings were "tooled," meaning a mandrel was inserted into the rocket casing. A mandrel is a device that is inserted into the rocket and the propellant cures around the mandrel to form a circle or star (whatever the grain design may be for the rocket). Once the mandrel was in place, the rocket casings were lowered into ovens to await loading. The transfer pot containing the propellant was then lifted over the rocket casings and the propellant was drained into the rocket casings. Once loaded, the rocket casings were cured (or baked). After curing, the rocket motors were taken to a finishing building on the Property. (Attachment 14, Haggard (vol. 1) 68:10-22; Wever (vol. 1) 26:11-27:17; Haggard (vol. 1) 69:21-71:24).

At the finishing building, the mandrel in each rocket motor was removed (Attachment 14, Haggard (vol. 1) 68:10-22 ; Wever (vol. 1) 26:11-27:17). The rocket motors were then "trimmed," meaning excess propellant would be cut away with an Exacto knife (Attachment 14, Haggard (vol. 1) 74:24-77:22). The trimmings were placed in a bucket containing water, and taken to Goodrich's burn pit for disposal (Attachment 14, Polzien (vol.2) 273:21-275:6). After the rocket motors were trimmed, an outside vendor would x-ray the rockets to check for cracks in the propellant. Rockets that passed the x-ray procedure were taken to the painting building where they were painted and stenciled. The rocket casings were cleaned with solvents before painting (Attachment 14, Haggard (vol. 1) 74:24-77:22).

Number of Rocket Motors Manufactured

Loki I

National Archive documents suggest that at least 330 Loki I rocket motors were manufactured by Goodrich (Attachment 15, KWKA0042488-90, KWKA00452500-03, KWKA00452544-45, KWKA00452557-59).. Witness testimony indicates that Goodrich produced at least "a couple hundred" Loki I rocket motors (Attachment 15, Haggard (vol. 1) 17:19-18:5), or as many as 6 batches of 20 to 24 Loki I rocket motors per batch (Attachment 15, Wever DT 52:11-19; also 159:2-15). Also, it appears that Loki I motors were manufactured by Goodrich for the Navy as part of the Navy's High Altitude Sounding Projectile

(HASP) program, and were identified as 3.0 Mk 1 Mod O motors, not as Loki I motors. Therefore, the witnesses' Loki I production estimates for Goodrich Rialto are likely low, as their testimony was specific to estimates of production of only the Loki I rocket and not the HASP rocket.

Based on the bulk amounts of ammonium perchlorate Goodrich ordered for batches of Loki I rocket motors, it appears that each Loki I motor used 13 pounds of ammonium perchlorate (Attachment 15, KWKA00452225-28). This figure is very close to the confirmed 12 pounds of ammonium perchlorate utilized in the Loki IIA rocket motors (see below). It is therefore reasonable to conclude that Goodrich utilized at least 4,290 pounds of ammonium perchlorate in the manufacturing of the Loki I rocket motors.

Loki IIA

Goodrich began development and manufacturing of the Loki II in 1958. Approximately 1,000 Loki IIA rockets were produced at the Rialto facility between early 1959 and December 1961 (Attachment 16,; technical paper 12/5/61). Each Loki IIA rocket motor contained 17 pounds of propellant. ((Attachment 16, KWKA00452572-91 9/1/61).

Ammonium perchlorate was the oxidizer used in the Loki IIA propellant (Attachment 16, Polzien (vol.2) 220:21-221:4; KWKA00452060-75; KWKA00452108-10). Ammonium perchlorate made up approximately 70% by

weight of this propellant (Attachment 16, KWKA00451993-2027, KWKA00452060-75, KWKA00452572-91). thus approximately 12 pounds of ammonium perchlorate for each rocket motor. Based on approximately 1,000 LOKI IIA rockets, about 12,000 pounds of ammonium perchlorate were used in production of Loki IIA rockets at the Property.

Sixty-three of the Loki IIA motors were static tested at the Rialto site between 1958 and 1961. Two rocket motor malfunctions were recorded, one of which resulted in rupture of the rocket motor casing in the on-site test bay. An additional 12 Loki IIA test motors were fired from a previous Goodrich Rialto production batch, with a single test motor failure in the test bay. Failure of any rocket motor required cleanup of the residual (unburned) scrap propellant and disposal of the waste into Goodrich's on-site burn pits.

Sidewinder

The propellant for the Sidewinder missile contained ammonium perchlorate as the oxidizer (Attachment 17, Polzien (vol.1) 22:11-23:10; Polzien (vol.2) 233:13-24). Evidence shows that at least 347 Sidewinder motors were manufactured before Goodrich was forced to abandon the project (see below). Although 500 Sidewinders were ordered for production (Attachment 17, Polzien (vol.2) 234:8-11), at least 347 motors were cast, and as many as 650 motors may have been cast (Attachment 17, KWKA00452719-23). Government documents clearly

show that 311 motors were cast by the time propellant grain cracking problems were discovered in November 1962 (Attachment 17, same: KWKA00452719-23). Following the propellant grain cracking, at least 36 additional Sidewinder motors were cast in attempt to remedy the problem with cracking of the propellant (Attachment 17, KWKA00452728-35). Goodrich witnesses estimated that the number of manufactured Sidewinder motors was approximately 240. (Attachment 17, Wever 45:12-25, 51:18-24). One witness recalled that 20 batches may have been manufactured. This estimate was based on a specific recollection of his tracking the testing of one rocket motor from each batch. (Attachment 17, Wever 68:7-69:12).

The Sidewinder motor was approximately 6 feet long and 8 inches in diameter (Attachment 17, Wever 347:7-24). Based upon the dimensions available in photographs and diagrams of the Sidewinder missile, the calculated mass of propellant in the rocket motor was about 64 pounds per missile. Therefore, at approximately 70% by weight, there were approximately 45 pounds of ammonium perchlorate in each Sidewinder missile, requiring at least 10,800 pounds of ammonium perchlorate to produce 240 missiles, or up to 15,615 pounds of ammonium perchlorate to produce 347 missiles.

Jet Assisted Take Off Rocket (JATO)

The number of JATO rockets produced is not known. Sixty to 90 pounds of solid propellant were used in each JATO test rocket (Attachment 18, Polzien (vol.1)

49:24-51:20; in press release attached to exhibit 272, reference is made to 90 lbs of solid propellant). The ammonium perchlorate, which was the oxidizer ((Attachment 18, Polzien (vol.2) 232:19-233:1), made up approximately 70% by weight of this propellant, thus totaling 42 to 63 pounds of ammonium perchlorate for each JATO test motor.

Approximately 12 JATO motors were tested at the site by Goodrich, with at least two failing tests occurring in the test bay (Attachment 18, Polzien (vol.1) 48:13-21; JATO is Depicted in exhibits 272). Failure of any rocket motor required cleanup of the residual (unburned) scrap propellant and disposal of the waste into Goodrich's on-site burn pits.

ASP 1 and ASP 4

The ASP 1 rocket was a precursor of the ASP 4 rocket, and was larger than the ASP 4 rocket. At least one former Goodrich Rialto employee stated that each ASP 1 rocket contained "several hundred pounds of propellant" (Attachment 19, Polzien (vol.1) 89:13-91:10; Polzien (vol.2) 229:12-23), which is consistent with the ASP 1 being larger then the ASP 4. Propellant used in the ASP 1 was 70% by weight ammonium perchlorate. The quantity of ASP 1 and ASP 4 rockets produced and tested at the Property is not known, but at least one extremely large (2,000 pounds total weight) ASP rocket was tested in the static test bay at the Goodrich facility. Testimony indicates that four to five ASP 4 rockets were

tested by Goodrich at the Rialto facility (Attachment 19, Polzien (vol.1) 109:22-110:8).

One hundred to 200 pounds of propellant were used in each of the ASP 4 rockets produced by Goodrich at the Property (Attachment 19, Polzien (vol.1) 89:13-91:10; Polzien (vol.2) 229:12-23). Ammonium perchlorate made up approximately 70% by weight of this propellant, thus 70 to 140 pounds of ammonium perchlorate were used in each ASP 4 rocket motor.

Atmos Rocket

At least two Atmos rocket motors were made and tested at the Property. The Atmos rocket contained approximately 50 pounds of propellant, which contained ammonium perchlorate. At 70% by weight, there were 35 pounds of ammonium perchlorate in each Atmos rocket. Therefore 70 pounds of ammonium perchlorate were used in these rocket motors (Attachment 20, Polzien (vol.2) 217:7-218:16).

TM-2 and TM-5 ("test motors")

TM stands for "test motor" (Attachment 21, Polzien 208:22-23). Total production quantity estimates for the TM-2 and TM-5 are not available. These test motors contained approximately 15 to 20 pounds of propellant. Therefore, it is reasonable to conclude that 10.5 to 14 pounds of ammonium perchlorate were used in each TM-2 and TM-5 test motor.

Spherical Motors

Total production quantity and the amount of propellant or ammonium perchlorate in each spherical rocket motor is not known. Various Goodrich photographs show Goodrich had at least six spherical rocket motor casings on hand. At least one witness believed, but could not be certain, that ammonium perchlorate was the oxidizer used in these motors (Attachment 22, Polzien (vol.2) 253:11-14). Moreover, none of the Goodrich employees could recall a different oxidizer that may have been used in these spherical motors. Accordingly, given the foregoing, and the fact that ammonium perchlorate comprised the overwhelming majority of the oxidizer utilized by Goodrich in Rialto, it is reasonable to conclude that the spherical rocket motors also contained ammonium perchlorate.

Total

Based upon deposition testimony of former Goodrich Rialto employees, and the Goodrich contract and production records that are available, a minimum of 27,202 pounds of ammonium perchlorate would have been required for Goodrich to manufacture the quantities of the various rocket motors that were known to contain ammonium perchlorate.

Rocket Motor Testing

Ammonium perchlorate was the standard oxidizer used by Goodrich in Rialto (Attachment 23, Sachara DT 198:15-21). Goodrich performed three types of static rocket fire testing on the Property: (1) experimental testing, (2) quality control testing, and (3) qualification testing (i.e. production testing) Attachment 23, Polzien (vol.2) 203:13-18. Polzien exhibit 489 (5-13-05) Quality control testing was based on the requirements of specific contracts. Contract specifications from the government usually specified the number of tests required for each batch produced (Attachment 23, Polzien (vol.2) 213:1-15). Records and testimony indicate that as many as ten rocket motors were tested on a daily basis at the Goodrich facility. For example, one LOKI was tested per each batch produced (Attachment 23,, Polzien (vol.2) 213:16-18) and one or two Sidewinders were tested per each batch produced (Attachment 23, Polzien (vol.2) 213:19-22). It was not uncommon for at least one rocket motor to misfire or self-extinguish on a weekly basis. The misfired or self-extinguishing motors were then salvaged, and their propellant was removed and disposed of in Goodrich's burn pit (Attachment 23, Polzien (vol.2) 217:7-218:16). Residue from the tests was routinely swept up and taken to one of the burn pits along with the leftover propellant (Attachment 23, Polzien (vol.2) 206:12-15). On some occasions, residue and unburned propellant was rinsed from the concrete test

bay onto the bare ground using a water hose (Attachment 23, Polzien (vol.2) 207:7-14). The discharge of propellant to Goodrich's burn pit and the discharge of propellant to the ground would have resulted in the discharge of perchlorate to groundwater.

Goodrich's Burn Pits

Goodrich maintained at least two burns pit that were utilized to dispose of all production waste (Attachment 24, Polzien (vol.1) 121:3-123:3; Wever DT 331:17-332:7). The characteristics of the burn pits were as follows:

- The pits were earthen (unlined) (Attachment 24, Polzien (vol.1) 123:5-19; Wever DT 64:24-65:2), and the bottom was typically charred and contained leftover residue from previous burns (Attachment 24, Polzien (vol.2) 275:19-276:4);
- The pits were uncovered and exposed to the elements such as rain (Attachment 24, Polzien (vol.1) 123:5-19);
- The pits were approximately five to six feet deep and 25 feet to 30 feet in length (Attachment 24,Polzien (vol.1) 126:12-127:3 see also Attachment 31, ;field data/photos from excavations in pit areas C and D1 at the Property).
- Unburned scrap and TCE/propellant slurry were at times left overnight in the pit (Attachment 24, Polzien (vol.2) 276:24-277:11;Polzien (vol.1) 128:22-130:15).

The frequency of burns was related to Goodrich's production cycle (Attachment 24, Polzien (vol.1) 125:2-126:1; Wever DT 60:14-17). Burns occurred at least once per week and sometime three to four times per week (Attachment 24, Polzien (vol.1) 131:10-132:4). Each burn lasted one to two minutes, causing heavy black smoke (Attachment 24, Polzien (vol.1) 133:24-134:24). Water was routed to the burn pit by way of a pipe buried in the ground, with a nozzle in the pit. The water was routinely utilized to extinguish burning material. Residual smoldering materials were left in the pits to burn out.

In general, there were three routine sources of materials burned in Goodrich's burn pits: (1) The leftover ammonium perchlorate from the grinding room; (2) The leftover propellant and propellant/TCE slurry from the mixing room; and (3) The leftover trim (also known as "pipe") and propellant/TCE slurry from the finishing room (Attachment 24,Wever DT 27:21-29:7). Testimony indicates that all production waste involving propellant, ammonium perchlorate and TCE (Attachment 24, Polzien (vol.1) 121:3-123:3) was disposed of in Goodrich's burn pits. This included, for example, the propellant from defective rockets and leftover propellant from tested rocket motors (Attachment 24, Polzien (vol.1) 136:18-137:7). Goodrich's typical burn pit procedure involved first dumping the propellant scrap from the mixing and finishing room into the pit. Next, ammonium perchlorate waste from the grinding room would be spread over the propellant. Finally, cleaning rags, solvent, and TCE/propellant slurry was poured on top. It was not uncommon for these materials to remain overnight in the open pits.

(Attachment 24, Wever 61:23-62:20) Based on the physical characteristics of the burn pits and the manner in which the burn pits were operated, the discharge of wastes containing perchlorate to Goodrich's burn pits would have resulted in the discharge of perchlorate and TCE to groundwater.

Sidewinder Salvage Incident

During performance of its contract for 500 Sidewinder rocket motors, Goodrich discovered cracks in some of the motors' propellant. The Sidewinder rocket motors that developed cracks in their propellant grain were salvaged by removing the propellant with high-pressure water and solvent, so that the casings could be reused. Most of the propellant from the salvaged Sidewinders was removed and disposed of in Goodrich's burn pits (Attachment 25, Polzien 1203:25-1205:12 Polzien (vol.1) 87:1-24 Polzien (vol.1) 146:25-147:23). Some of the residual propellant was washed out on the concrete walkway and onto the bare ground at the Property (Attachment 25, Polzien (vol.1) 153:22-154:23; Sachara 70:13-74:23; Haggard 119:4-13; 208:21-209:23; 211:18-212:5; 213:4-9; Polzien exhibit 486-B; Wever 353:5-356-15).

Estimates from former Goodrich employees regarding the number of Sidewinders that were salvaged range from 24 to 100 rocket motors. The balance of the testimony indicates that the actual number of Sidewinder rocket motors salvaged is in the range of 24 to 36 (Attachment 25, Polzien (vol.1) 146:25-147:23; Polzien

1049:6-22; 45:12-25; Wever 69:24-70:5; Polzien 955:13-19; (vol. 1) 113:7-12; - - Polzien 199:6-201:11 Polzien 1159:8-1160:7). Using 64 pounds as the amount of solid propellant in each Sidewinder rocket motor, and a 70% content by weight of ammonium perchlorate, approximately 1,080 to 1,620 pounds of ammonium perchlorate were discharged either in Goodrich's burn pits or to the bare ground as a result of the Sidewinder salvage incident. The Sidewinder propellant cracking ultimately led to Goodrich's shutdown of the Rialto facility (Attachment 25, Wever 53:7-24). Goodrich vacated the Property in 1964.

Summary

Goodrich used large quantities of ammonium perchlorate in the manufacture of solid rocket propellant at the Property and used TCE for cleaning purposes in the manufacture of the solid rocket propellant. As a result, waste containing perchlorate and TCE was generated. Wastewater containing perchlorate was discharged to the ground outside of the grinding room, residual propellant containing perchlorate and TCE was discharged to the bare ground as a result of the Sidewinder salvage operation, and all other production waste that contained perchlorate and TCE, as noted above, was discharged to the earthen burn pits.

Evidence of Waste Discharge by Pyro Spectaculars, Inc.

After Goodrich shut down its Rialto operations, the Property was subsequently divided into numerous separate parcels at different times, with multiple landowners. Since 1964, several tenants involved in pyrotechnics (fireworks) have occupied portions of the Property. Most of these tenants no longer exist or are no longer viable companies.

In 1979, Pyro Spectaculars, Inc. (hereinafter Pyro Spectaculars), was formed as a California Corporation (Attachment 26). Pyro Spectaculars established operations in 1979 on three contiguous parcels, consisting of approximately 47 acres, within the Property. The 47 acres on which Pyro Spectaculars operated was in the northwest half of the southwest quarter of Section 21, Township 1 North, Range 5 West, San Bernardino Baseline and Meridian in the County of San Bernardino, State of California (the Site). The current lessor and property owner of the 47 acres is Mr. Wong Chun Ming of Hong Kong, China (Attachment 26, deed)..

Available evidence, including Pyro Spectaculars documents and City of Rialto records, cited in detail below, and the testimony of former and current employees who have worked at this Rialto facility between 1979 and 2007, establishes that, since 1979, Pyro Spectaculars' operations at the Property have included:

- importing pre-manufactured components for various fireworks;

- assembling fireworks displays and assortment packages;
- storing and testing fireworks; and
- storing and disposing of pyrotechnic waste.

Pyro Spectaculars continues many of these same activities at the Property today.

Historical records of Pyro Spectaculars' product inventory indicate that many different fireworks products were stored, tested and disposed of at the Property by Pyro Spectaculars. Potassium perchlorate is known to be used as an oxidizer in fireworks (Attachment 26, Hescox exhibits 194 and 195) Further evidence clearly indicates that fireworks products and waste materials from Pyro Spectaculars' operations contained potassium perchlorate.

Fires and Explosions Associated with Handling of Fireworks by Pyro Spectaculars at the Property

Records indicate that there were several major fires and explosions at the Property, as well as numerous minor fire incidents, during the time that Pyro Spectaculars was operating at the Property (Attachment 27,RFDW007919-23/Rialto351325-29RFDW002601; 2634-35/Rialto346013; 346046-47; RFDW008389-92/Rialto351795-98). For example, on September 9, 1996, a major fire occurred at a Pyro Spectaculars storage and assembling warehouse. The fire killed one employee who was the head of the warehouse. (Attachment 27 Ex. 673; Skaggs 84:17-86:23; J. Souza (vol. 1) 184:16-185:15). The Rialto

Fire Department responded to the fire and used a “deluge” of water to put out the fire (Attachment 27, exhibit 673; Skaggs 84:17-86:23). The warehouse contained aerial displays, and the entire inventory was lost in the blaze. Water was used for fire suppression during this incident, and many other fire and explosion incidents at the Property. The water would have extinguished the flames and prevented further combustion of the flammable materials, while also mobilizing the remaining perchlorate salts in the flammable materials, thus moving the salts into the soil and toward the groundwater table.

Residual chemicals are often present at industrial sites where fires or explosions have occurred. For example, in 2004 there was a fire at Astro Pyrotechnics (a subsidiary of Pyro Spectaculars), which was located on a 5-acre site less than 1 mile south of the 160-acre Property. A technical report, prepared on behalf of the City of Rialto, (Attachment 27, TRC report re: fire at Astro Pyrotechnics, Rialto) indicates that perchlorate and/or perchlorate-containing chemicals survived the fire, with temperatures of at least 1,220 degrees F, and remained in the soil and fire debris after the fire burned itself out. The surficial soil and ash at the site contained residual perchlorate concentrations up to 44,200 micrograms per kilogram. Samples of fire debris in drums at the site had perchlorate concentrations as high as 131,000 micrograms per kilogram, in spite of the intense heat of the fire.

It is reasonable to assume that some residue of perchlorate and other chemicals would have remained on the ground after the fires and explosions that occurred during Pyro Spectaculars' activities on the Property. The porous soil at the Property is conducive to infiltration, and would allow perchlorate and other chemicals at the ground surface to infiltrate and migrate toward the groundwater beneath the Property. The use of fire suppression water during a fire or after an explosion would further expedite this process.

Pyro Spectaculars' Testing of Fireworks at the Property

Beginning in 1968, California Fireworks Display was engaged in extensive testing of aerial display fireworks at the Property. (Attachment 28, Hescox 175:15-176:20.) Pyro Spectaculars, Inc. continued these operations after its formation in 1979. Rialto Fire Department business records show that Pyro Spectaculars, Inc. obtained permits to test aerial shells, roman candles, and other fireworks throughout the 1980s and 1990s. (Attachment 28, exhibit 2977; J. Souza (vol.1) 163:18-200:10). Prior to 1979, California Fireworks Display tested fireworks in approximately the middle of Fire Zone 13 (Attachment 28, exhibit 2968. J. Souza (vol.1) 99:18-100:9). After 1979, Pyro Spectaculars, Inc. continued to conduct all its aerial display shell testing in the same area of Fire Zone 13 (Attachment 28, exhibit. 2968; J. Souza DT (vol.1) 103:7-104:17 Souza (vol.1) 99:18-100:9.f.). Other witnesses identified testing taking place in Fire Zone 6 (Attachment 28, exhibits 2968, 994; Cartagena 74:1-18). The aerial display shells that were

tested on-site by Pyro Spectaculars typically contained potassium perchlorate. (Attachment 28, exhibits. 194, 195).

Residual chemicals, including perchlorate salts, are known to be present at other U.S. locations where aerial fireworks displays have been conducted repeatedly over time (Attachment 28, Massachusetts DEP draft report, 2005). It is reasonable to conclude that residual perchlorate would have been present on the ground surface at the Property after the testing of fireworks by Pyro Spectaculars and others. Moreover, such testing took place over several decades, on areas of bare ground. The porous soil at the Property is conducive to infiltration, and would allow perchlorate salts at the ground surface to infiltrate and migrate toward the groundwater beneath the Property.

Pyro Spectaculars' Disposal of Pyrotechnic Waste in Earthen Pits

Prior to 1971, it was the practice among the various pyrotechnic companies (and their predecessors, such as Goodrich) that conducted business at, and adjacent to, the Property to utilize several earthen pits for the disposal of unusable, defective and excess fireworks, chemicals and other waste (hereinafter collectively referred to as pyrotechnic waste). The waste was taken to the earthen pits, which were located south-southwest of what would become Pyro

Spectaculars' 47-acre site, and burned. (Attachment 29, aerial photo with overlays showing location of pits; 1988 hazardous waste records).

Although the practice of "open burning" of pyrotechnic waste in North Rialto was restricted after 1971 (Attachment 29, Hescox testimony vol 1, pages 198-199 re: AQMD), Rialto Fire Department records indicate that, due to the hazards involved with long-term storage of pyrotechnic waste at the various facilities that operated on and adjacent to the Property, some burning of pyrotechnic waste in North Rialto was permitted to continue. Records indicate that Pyro Spectaculars periodically burned its pyrotechnic waste after 1971, and as recently as 1996. (Attachment 29 also 1987 RFDW003301-02).

Aerial photographs indicate that the earthen burn pits located south-southwest of Pyro Spectaculars' 47-acre leased Site were not backfilled until approximately 1987 (Attachment 29, aerial photographs). The pits appear to have been used for disposal, and possibly for burning of waste, as late as 1986. It is reasonable to conclude that, like the other pyrotechnic companies that operated on the Property, Pyro Spectaculars likely used these earthen burn pits beginning when Pyro Spectaculars began operating at the Property in 1979 until 1986 when the pits were backfilled. The waste placed in the burn pits by Pyro Spectaculars would have contained perchlorate.

The McLaughlin Pit

In 1971, as an alternative to the open burning of waste, the Apollo Manufacturing Company (a division of Pyrotronics Corporation) built a concrete-lined, rectangular shaped disposal pit (pond), approximately 20 feet wide, 25 feet long and 4 feet deep, located on property south of what would become Pyro Spectaculars' 47-acre site. ((Attachment 30, Hescox; Apollo inspection records; aerial photo 1978). .The concrete-lined pond, which later came to be known as the McLaughlin Pit, was used from 1971 to 1987 by Apollo Manufacturing Company, Red Devil Fireworks, California Fireworks Display, Astro Pyrotechnics (a division of Pyro Spectaculars, Inc.), and other local fireworks companies, including Pyro Spectaculars, Inc., as a disposal pit for pyrotechnic waste ((Attachment 30, Hescox ; disposal records). Records show that the waste that was discharged to the pond contained perchlorate. Of the companies that discharged to the pond, only Pyro Spectaculars still exists.

On September 27, 1971, Apollo Manufacturing Company submitted a Report of Waste Discharge to the Regional Board for the proposed discharge of 150 gallons per day of wastes from the manufacturing of fireworks to the concrete evaporation pond. According to a letter from Apollo dated September 27, 1971, Apollo's disposal pit was expected to contain the following pyrotechnic waste products: potassium nitrate, sulfur, dextrin, charcoal, steel, aluminum and clay. On October 5, 1971, the Regional Board's Executive Officer sent a copy of

tentative waste discharge requirements for the discharge to eleven interested agencies for their review and comment. The cover letter stated that the existing method of burning waste powder was to be replaced with a liquid method to satisfy burning prohibitions administered by the San Bernardino County Air Pollution Control District. The cover letter also stated, "The liquid method will consist of an evaporation pond in which the wasted powder will be deposited. The charcoal will be removed from the water surface, the saltpeter will go into solution, and the inert ingredients will settle to the bottom of the pond." Saltpeter is another term for potassium nitrate. A summary sheet for the proposed discharge, prepared by Regional Board staff, stated the proposed discharge was "Liquid wastes from the manufacturing of fireworks which contain high concentrations of nitrate."

On November 24, 1971, the Regional Board adopted Waste Discharge Requirements, Order No. 71-39, for Apollo's proposed discharge of fireworks waste to the concrete pond. These requirements stated that there shall be no discharge of waste to surface waters or to areas which would allow percolation of waste, the ultimate disposal of wastes in the pond shall be to an approved disposal site, and neither the treatment nor the disposal of wastes shall cause a pollution or nuisance. The requirements included a monitoring and reporting program that required submittal of quarterly reports. The quarterly reports were to include the daily average flow to the pond, the depth of waste in the pond and notification of the intended transfer of waste in the pond to a final disposal site.

In a letter dated November 16, 1977, Regional Board staff notified Apollo that, as a result of the Regional Board's adoption of a new Water Quality Control Plan in 1975, the waste discharge requirements for Apollo needed to be revised. On December 30, 1977, Apollo submitted a revised report of waste discharge. This report stated that Apollo was discharging up to 3,000 gallons (per time period not specified) of industrial waste to the pond and up to 3,000 gallons (per time period not specified) of sanitary waste to a septic tank subsurface disposal system. On May 12, 1978, the Regional Board adopted revised waste discharge requirements, Order No. 78-96, for Apollo. These requirements stated that the discharge of wastes to the impervious evaporation pond was prohibited when the freeboard was less than one foot and that all industrial wastes hauled from the facility shall be hauled by a State registered hauler and disposed of at an appropriate site. The requirements also contained numeric effluent limitations for filterable residue, chloride and boron, for the discharge of sanitary wastes to the septic tank subsurface disposal system. The monitoring and reporting program required recording the estimated daily discharge of sanitary and industrial wastes, recording the weekly freeboard in the impervious pond on a weekly basis, analyzing a sample of the effluent to the septic tank for filterable residue, chloride and boron once a year, and submitting a report on all of the above once a year.

In a Regional Board inspection report dated January 24, 1985, it was noted that Apollo had not used the pond in 18 months and that Apollo wanted to remove the material from the pond so the pond could be demolished. On April 2, 1985, Regional Board staff sent a letter to Apollo stating that, as a result of revised State regulations that became effective in November 1984, all dischargers that operate existing landfills, surface impoundments or waste piles (i.e. waste management units) must have groundwater monitoring systems which comply with the revised regulations. The April 2, 1985 letter requested Apollo to submit a groundwater monitoring proposal by May 28, 1985. All other dischargers in the Santa Ana Region that operated waste management units were sent a similar letter. In a letter dated April 26, 1985, consistent with the January 24, 1985 inspection report, Apollo notified the Regional Board that the pond was no longer being used and that Apollo intended to close the pond. The letter also stated that the sludge in the pond was transported to an approved site and that Apollo was in the process of getting permission to burn the solid waste that remained. As a result, Regional Board staff did not pursue submittal of a groundwater monitoring program from Apollo.

In an August 11, 1987 letter, Regional Board staff accepted a plan for conducting soil sampling, and analysis of the soil samples for heavy metals, to determine if the pond had leaked. The plan was to drill two 20-foot deep borings immediately adjacent to the pond, at an angle toward the pond so that soil samples could be collected beneath the pond. In September 1987, due to drilling complications,

only one boring was drilled to a depth of 11.1 feet, with one sample collected at a depth of several inches below the bottom of the four foot deep pond and another sample collected at a depth of about 5 to 6 feet below the bottom of the pond. The analytical results did not show any elevated concentrations of heavy metals, and the results were consistent with background soil samples that were taken. In September 1987, the contents of the pit were burned, the ashes hauled away, and the pit was covered. In February 1991, the Regional Board rescinded the waste discharge requirements for Apollo.

The waste discharge requirements that the Regional Board adopted in 1971 and 1978 and the soil sampling beneath the pond that was conducted in 1987 did not address perchlorate. During the time that these activities took place, perchlorate was not considered to be a groundwater contaminant of concern in the Santa Ana Region, or anywhere else. Also, perchlorate salts were not listed in Apollo's report of waste discharge. There were no drinking water standards or drinking water advisory levels for perchlorate. Perchlorate was not known to exist in groundwater, since an analytical method capable of detecting perchlorate in groundwater was not developed until 1997. Therefore, perchlorate was not known at that time to regulatory agencies, or others, as a threat to the beneficial uses of the groundwater. The waste discharge requirements adopted for Apollo, the associated monitoring and reporting program, and the closure of the pond, were consistent with how other waste discharges were addressed at that time that were considered to pose similar threats to water quality.

While Apollo Manufacturing, as a subdivision of Pyrotronics, was the discharger of record for the waste in the pond (McLaughlin Pit), documents from the period of 1979 to 1986 indicate that Pyro Spectaculars, Inc. typically placed some of its pyrotechnic waste into the McLaughlin Pit . ((Attachment 30,January 1984 correspondence: AP 00455 – AP 00456 describes perchlorate in the waste). As a general practice, water was added to the waste in the pit to keep the waste submerged, and thus eliminate the potential for explosion or ignition. This pyrotechnic waste remained submerged in the McLaughlin Pit for extended periods of time. ((Attachment 30, Hescox (vol. 1) pages 199-201; (vol II) pp356-358; January 1984 correspondence).

Evidence clearly shows that Pyro Spectaculars' waste contained potassium perchlorate. Perchlorate salts are highly soluble and dissociate in water to form perchlorate ions. Therefore, the standing water in the McLaughlin Pit would have contained perchlorate.

The McLaughlin Pit overflowed on at least one occasion during rainy weather, and the wastewater flowed over the concrete sidewalls onto the adjacent bare ground. Apollo was notified on several occasions by Regional Board staff that sufficient freeboard must be maintained to prevent overflow of the pond. Overflow of the pond nonetheless did occur (Attachment 30, Board staff inspection report ; Hescox (vol 1) pp 198-201).

It is reasonable to conclude that the wastewater that overflowed from the pond percolated into the highly permeable gravelly soil adjacent to the McLaughlin Pit, allowing perchlorate to infiltrate into the soil and migrate to groundwater.

In September 1987, the waste remaining in the McLaughlin Pit was burned; the pit was then backfilled with soil, compacted, and permanently closed. Staff from the Rialto Fire Department, the local environmental health agency, and the Regional Board participated in reviewing and approving plans for (1) the removal and destruction of the remaining pyrotechnic waste in the pond, and (2) the backfilling and closure of the pond. (Attachment 30, closure of Apollo/McLaughlin Pit). Soon thereafter, the area where the McLaughlin Pit was located was graded, and an extensive concrete slab was poured for use as a foundation for structures and concrete pipe storage by the new owner of that property. (Attachment 30, aerial photographs, 1988, 2003)

Rialto Fire Department records indicate that, as recently as 1996, Pyro Spectaculars continued the practice of burning some of its pyrotechnic waste at its 47-acre site. (Attachment 30, Pyro 000242 and 000244) Since there was no longer a lined pit in North Rialto, it is reasonable to conclude that the burning took place either in an existing earthen burn pit, or on open ground at or near the Property.

Summary

Pyro Spectaculars processed large quantities of fireworks at the Property. Many of these fireworks contained perchlorate salts. Perchlorate salts would have been discharged to the ground from the fire suppression activities that took place at the Property and by the disposal of waste to the McLaughlin Pit, which has been determined to be a source of perchlorate in groundwater (see below).

Soil and Groundwater Investigation Data – Evidence of Pollution Emanating from the Property

Environmental assessment activities at and in the vicinity of the Property began in 2003, and have included soil investigations (borings and trench excavations), soil gas investigations, and installation and sampling of groundwater monitoring wells. These field activities have been carried out by Goodrich, EII, Pyro Spectaculars and other occupants of the Property, continuing through late 2006.

1. Results from analysis of soil samples that were obtained during trench excavations and drilling of wells and boreholes indicate that perchlorate is present in the soil at several areas within the northern portion of the Property where WCLC, Goodrich and Pyro Spectaculars operated, as well as in

several areas linked to the former disposal and burn pits in the southern portion of the Property (Attachment 31, photographs and data tables)

- Soil investigations in the northern portion of the Property found that perchlorate was present in the shallow soil (less than 25 feet below ground surface (bgs) at various locations associated with the manufacturing and salvaging activities of Goodrich and WCLC.
- Soil investigations in the southern portion of the Property found that perchlorate was present up to 6,800 micrograms per kilogram (μg/kg) in the shallow soil (less than 25 feet below ground surface) at the location of Goodrich's former earthen burn pit. During recent field investigation activities, waste material was encountered during excavation of a trench at one of Goodrich's former pit sites, designated as field location "D1". The excavated waste appeared to be binder or polymer material for solid rocket propellant. Other waste material, ash and debris were also observed in the Goodrich D1 trench excavation.
- Another Goodrich burn pit, field location C, is located next to the former Goodrich test bay. Perchlorate at location C1 was detected up to 760 μg/kg in shallow soil (less than 10 feet bgs). Based upon aerial photographs and field data, areas C and D1 disposal pits were used by Goodrich.
- A soil investigation at the McLaughlin Pit found that perchlorate was present in both the shallow and deep soil. The perchlorate concentration was a maximum of 205,000 μg/kg in shallow soil

samples (less than 20 feet bgs) collected from trenches excavated along the McLaughlin Pit boundaries and a boring that was advanced through the bottom of the McLaughlin Pit.

- A follow-up soil boring was advanced through the bottom of the McLaughlin Pit. Soil samples were collected every 20 feet for the entire depth of the borehole until groundwater was encountered at a depth of approximately 435 feet bgs. Perchlorate was present in every soil sample, extending from the surface all the way through the vadose zone to the groundwater. Perchlorate was present at a maximum concentration of 190,000 µg/kg in the shallower soil samples (20 to 180 feet bgs) to a maximum concentration of 1,500 µg/kg in the deeper soil samples (200 to 435 feet bgs). TCE was not detected, with the exception of one sample at 300 feet bgs (8.7 µg/kg).
- Soil samples collected at 20 foot intervals from two of five well bores drilled by EII/Pyro Spectaculars that were closest to the McLaughlin Pit, found that perchlorate was present throughout the soil column to groundwater.

2. Nine groundwater monitoring wells have been installed at the Property to characterize water quality and flow direction. Groundwater samples collected from these wells confirm that perchlorate and TCE are present in groundwater underlying the Property (Attachment 31., photographs, site area descriptions, data tables).

a) Four monitoring wells (PW-1 through PW-4) were installed by Goodrich:

- PW-1, located upgradient, along the northern boundary of the Property, generally does not contain perchlorate or TCE (perchlorate was detected in PW-1 in October 2005 and January 2006 at 6.3 and 1.6 µg/l, but was not detected prior to or subsequent to these detections).
- Perchlorate concentrations in PW-2, located within the southern portion of the Property, have ranged from approximately 40 to 10,000 µg/l. TCE in PW-2 has ranged from 40 to 390 µg/l.
- Perchlorate concentrations in PW-3, located near the southeast, downgradient corner of the Property, have ranged from 28 to 80 µg/l. TCE in PW-3 has ranged from 7.4 to 52 µg/l.
- Perchlorate concentrations in PW-4, located along the eastern boundary of the Property, have ranged from 1.1 to 5.5 µg/l. TCE in PW-4 has ranged from 1.4 to 3.8 µg/l.

b) Five monitoring wells (CMW-01 through CMW-05) were installed by Pyro Spectaculars and EII (Attachment 31, photographs with site description, well locations and data tables). Three of the wells (CMW-01 through CMW-03) were installed in the vicinity of the McLaughlin Pit. Two of the wells (CMW-04 and CMW-05) were installed upgradient of the McLaughlin Pit, between the northern (former manufacturing) and southern (former disposal) areas of the Property.

- Perchlorate and TCE have been detected in CMW-01, located immediately downgradient of both the McLaughlin Pit and Goodrich's former earthen disposal/burn pit (field area C), at concentrations as high as 770 µg/l and 87 µg/l, respectively.
- Perchlorate and TCE have been detected in CMW-02, located cross-gradient from the McLaughlin Pit and just downgradient of Goodrich's former earthen disposal/burn pit (field area C), at concentrations as high as 80 µg/l and 356 µg/l, respectively.
- TCE was detected in CMW-03, located approximately 330 feet upgradient (northwest) of the McLaughlin Pit, along a fence that divides the northern and southern areas of the Property, at a concentration of 5.3 µg/l.
- Perchlorate and TCE have been detected in CMW-04, located immediately downgradient of Buildings #1 and #10, where Goodrich's salvaging of Sidewinder rocket motor casings took place, at concentrations as high as 54 µg/l and 47 µg/l, respectively.
- Perchlorate and TCE have been detected in CMW-05, located immediately downgradient of the former 150-gallon solid propellant mixer room, which was used by Goodrich and various fireworks companies, at concentrations as high as 260 µg/l and 100 µg/l, respectively.

3. Groundwater samples obtained from five deep, off-site, downgradient, multi-port (Westbay™) monitoring wells (PW-5 through PW-9) installed by Goodrich, confirm that perchlorate and TCE are migrating from the Property (Attachment 31 map and photographs with well locations and data). The wells were installed from as close as 0.9 miles and up to 3.2 miles from the Property ((Attachment 31 map and photographs with well locations and data; Geosyntec 2006 well construction details). Each well has five to seven sampling ports at various depths. The sampling ports range in depth from 355 to 820 feet bgs.

    - PW-8 is located approximately 4,500 feet (0.9 miles) downgradient of the Property, at West Valley Water District's Well No. 22 property. Concentrations of perchlorate have ranged from 46 to 140 µg/l, and concentrations of TCE have ranged from 9.8 to 22 µg/l, with the highest concentrations found at a depth of approximately 445 feet bgs.
    - PW-5 is located approximately 9,500 feet (1.8 miles) downgradient of the Property. Concentrations of perchlorate have ranged from non-detect to 1,200 µg/l, with the highest concentration found at a depth of 560 feet bgs. TCE concentrations have ranged from non-detect to 25 µg/l, with the maximum concentration found at 515 feet bgs.
    - PW-6 is located approximately 1,000 feet southwest of PW-5. The highest concentration of perchlorate found in PW-6 was 1.9 µg/l at a depth of 445 feet bgs. TCE was not detected in PW-6.

- PW-7 is located approximately 11,500 feet (2.2 miles) downgradient of the Property. The maximum concentrations of perchlorate and TCE found in PW-7 were 7.7 µg/l and 0.56 µg/l, respectively, at a depth of 500 feet.
- PW-9 is located approximately 17,000 feet (3.2 miles) downgradient of the Property, at the City of Rialto Well No. 6 property. Perchlorate and TCE are present in the groundwater to a depth of 815 feet bgs. Perchlorate concentrations have ranged from non-detect to 260 µg/l, and TCE concentrations have ranged from non-detect to 5.1 µg/l, with the highest concentrations found at a depth of approximately 485 feet bgs.

Soil and groundwater investigations conducted to date lead to the following conclusions:

- Perchlorate is present in shallow soils in the northern portion of the property where WCLC and Goodrich conducted operations;
- High levels of perchlorate are present in soils underlying a burn pit utilized for waste disposal by Goodrich;
- High levels of perchlorate are present in soils underlying the McLaughlin Pit, which was utilized for waste disposal by Pyro Spectaculars;
- Soil investigation underlying the McLaughlin Pit indicates that the McLaughlin Pit is not a source of TCE;

- Discharges of perchlorate and TCE at the Property have affected groundwater, as evidenced by negligible levels of perchlorate and TCE in groundwater upgradient of the Property and high levels of perchlorate and TCE in groundwater underlying and downgradient of the Property;
- Perchlorate and TCE have been detected in groundwater monitoring wells on the Property located downgradient of the McLaughlin Pit used by Pyro Spectaculars, a burn pit used by Goodrich, the Sidewinder salvage operation conducted by Goodrich, and the 150-gallon propellant mixer room used by Goodrich;
- The presence of high levels of perchlorate and TCE in PW-5 (located directly downgradient of the Property), with very low levels of perchlorate and TCE in PW-6 and PW-7 (both located generally cross-gradient of PW-5), suggests that defined plumes of perchlorate and TCE are present in groundwater downgradient of the Property;
- Perchlorate and TCE discharged at the Property have migrated a significant distance in groundwater, and are present in a groundwater monitoring well (PW-9) located approximately 3.2 miles downgradient of the Property (the maximum extent of groundwater investigation that has been conducted to date).

Impacts on the Municipal Water Supply

Sixteen municipal water supply wells downgradient of the Property, in the Rialto and Riverside - B Groundwater Management Zones, contain perchlorate above a detection limit of about 1.0 µg/l (Attachment 32, map). These wells belong to the West Valley Water District (WVWD), the Cities of Rialto and Colton, and the Arrowhead Medical Center. These wells are Rialto No. 1, Rialto No. 2, Rialto No. 4, Rialto No. 6, Chino No. 1 (City of Rialto), Chino No. 2 (City of Rialto), WVWD No. 11, WVWD No. 16, WVWD No. 17, WVWD No. 18, WVWD No. 22, WVWD No. 42, Colton No. 15, Colton No. 17, Colton No. 24 and the Arrowhead Medical Center Well. Six of these wells (WVWD No. 22, Rialto No.1, Rialto No. 2, Rialto No. 6, Chino No. 1 and Chino No. 2) also contain TCE, above a detection limit of 0.5 µg/l. The West Valley Water District, Arrowhead Medical Center and the Cities of Rialto and Colton have limited or ceased the use of these municipal water supply wells as a result of the presence of perchlorate and TCE in the wells.

These sixteen wells are located from as close as 0.9 miles to about 6.0 miles from the Property. The concentrations of perchlorate and TCE in these wells generally decrease in relation to the well's distance from the Property. Sampling during the past twelve months, or the most recent sampling in the event a well was not sampled during the last twelve months, has shown that five of these

sixteen wells have exceeded the public health goal for perchlorate of 6 µg/l on at least one occasion. These wells are Rialto No. 2, Rialto No. 4, Rialto No. 6, Chino No. 1, and WVWD No. 22. The remaining eleven wells contain perchlorate, but have not exceeded the public health goal of 6 µg/l during the past twelve months. Only one of the sixteen wells, WVWD No. 22, has exceeded the MCL for TCE during the past twelve months. Five of the sixteen wells contain TCE, but have not exceeded the MCL for TCE during the past twelve months.

Seven of the sixteen wells (Chino No. 1, Chino No. 2, Colton No. 15, Colton No. 17, Colton No. 24, WVWD No. 42, and WVWD No. 18) were previously put back into operation after having perchlorate treatment systems installed. Most of the capital costs for construction of these systems were provided by Goodrich ($3 million, as a result of an interim settlement agreement with the Regional Board and the water purveyors), the State Water Resources Control Board's Cleanup and Abatement Account ($2.25 million), Proposition 50 (about $3 million), and Regional Board supplemental environmental project funds ($135,000). The remainder of the capital costs, and ongoing operational costs, are being borne by the water purveyors and the residents of the local communities.

Eight of the sixteen wells (Rialto No. 1, Rialto No. 2, Rialto No. 4, Rialto No. 6, Arrowhead Medical Center Well, WVWD No. 11, WVWD No. 17 and WVWD No. 22) are not currently operating. The Arrowhead Medical Center well was shut

down, and the Arrowhead Medical Center was connected to a local municipal water supply system. WVWD No. 22 was abandoned, and WVWD No. 17 is currently being used. Rialto No. 1, Rialto No. 2, Rialto No. 4, Rialto No. 6 and WVWD No. 11 are not pumping as a result of the presence of perchlorate and/or TCE in the wells.

One of the sixteen wells that contain perchlorate, WVWD No. 16, is currently operating (the average perchlorate concentration in this well is about 2.0 µg/l). Therefore, of the sixteen wells downgradient of the Property that contain perchlorate, seven have perchlorate treatment systems installed, eight are not operating and one is operating without perchlorate treatment.

One municipal water supply well, WVWD Well No. 33, located downgradient of the Property near Rialto Well No. 4, does not contain perchlorate. WVWD Well No. 33 is located approximately 700 feet southwest of Rialto Well No. 4, which has been impacted by perchlorate.

The presence of both perchlorate and TCE in PW-9, at a concentration of 260 µg/l and 5.1 µg/l, respectively, clearly indicates that the perchlorate and TCE discharging from the Property have advanced farther than 3.2 miles from the Property. The presence of both perchlorate and TCE in Chino No. 2, located about 4.5 miles from the Property, indicates that the perchlorate and TCE discharging from the Property have advanced farther than about 4.5 miles.

Although TCE is not present in the Colton No. 15, Colton No. 17, Colton No. 24, WVWD No. 42, and WVWD No. 18 wells, located up to about 6.0 miles from the Property, these wells do contain perchlorate. Because of the differing physical and chemical characteristics of perchlorate and TCE, perchlorate travels faster and disperses farther laterally and vertically in groundwater than TCE. Therefore, it would be expected that the migration of TCE discharged from the Property would lag behind that of perchlorate discharged from the Property. This is consistent with perchlorate being detected and TCE not being detected in the Colton No. 15, Colton No. 17, Colton No. 24, WVWD No. 42, and WVWD No. 18 wells.

The geology, hydrogeology and aquifer characteristics of the Rialto and Riverside-B Groundwater Management Zones have been extensively researched and documented by various parties. (Attachment 32, USGS 1997 and 2001, GLA 2007). Based on the geology, hydrogeology and aquifer characteristics of these groundwater management zones, and the above information, the presence of perchlorate and TCE in the sixteen municipal wells cited above is consistent with being a result of waste discharges by the Dischargers during the time that the Dischargers were at the Property.

Based on the information provided above, the Dischargers have caused or permitted, are causing or permitting, or threaten to cause or permit waste, i.e., perchlorate, to be discharged or deposited where it is, or probably will be,

discharged into waters of the state, specifically the Rialto and Riverside - B Groundwater Management Zones, and has created, or threatens to create a condition of pollution or nuisance. Goodrich and WCLC and its legal successors have caused or permitted, are causing or permitting, or threaten to cause or permit waste, i.e., TCE, to be discharged or deposited where it is, or probably will be, discharged into waters of the state, specifically the Rialto and Riverside - B Groundwater Management Zones, and has created, or threatens to create a condition of pollution or nuisance.

The Dischargers have discharged waste that has affected public water supplies. The sixteen municipal water supply wells described above that contain perchlorate, and the WVWD Well No. 33 that does not contain perchlorate, have been affected or are threatened to be affected by wastes discharged by the Dischargers.

Section 13304 of the California Water Code states that a cleanup and abatement order may require the provision of, or payment for, uninterrupted water service, which may include wellhead treatment to each affected water supplier

OEHHA established its public health goal of 6 µg/l based upon the level of perchlorate in drinking water that would pose no significant health risk to individuals consuming the water on a daily basis over a lifetime. OEHHA is required to base its public health goal exclusively on public health considerations,

without regard to cost impacts. Because OEHHA is the State agency responsible for such health risk assessments, it is appropriate to use the public health goal as the applicable level for determining wells requiring replacement drinking water supply. Since five of the municipal water supply wells described above contain perchlorate exceeding the public health goal of 6 µg/l, in accordance with the California Water Code, it is appropriate to order the provision of, or payment for, uninterrupted replacement water service, which may include wellhead treatment, to each affected water supplier. This is consistent with the State Water Resources Control Board's recent Olin decision.

In the future, if sufficient evidence is available to conclude that any of the wells described above as unaffected, or any other wells not cited above, have been affected by wastes discharged by the Dischargers, the Advocacy Staff would propose an amendment to this order or a separate order in accordance with 13304 of the California Water Code.

Section 13267(b) of the California Water Code provides that:

"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging,

or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region, shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

As described in the Order, existing data and information show that the Dischargers have discharged, or are discharging, waste within this Regional Board's jurisdiction. There is a need for additional groundwater investigation and continued groundwater monitoring, in order to more fully delineate the lateral and vertical extent of the perchlorate and TCE and to complete a remedial investigation/feasibility study for the purpose of selecting an effective long-term remedial action plan. Therefore, in accordance with Section 13267 of the California Water Code, it is appropriate to order the Dischargers to furnish technical reports that delineate the extent of the perchlorate and TCE in the affected groundwater management zones that resulted from waste that has been discharged, or is being discharged, by the Dischargers.

In accordance with Section 13304(c) of the California Water Code, the Dischargers are liable to the WVWD and the Cities of Rialto and Colton to the

extent of the reasonable costs actually incurred in cleaning up the waste, abating the effects of the waste, supervising cleanup or abatement activities, or taking other remedial action. The Dischargers are also liable to the State Water Resources Control Board for cleanup costs from the State Water Pollution Cleanup and Abatement Account that were provided to the WVWD and the Cities of Rialto and Colton.

Based on the authorities provided by Water Code Sections 13267 and 13304, the Order would require the Dischargers, jointly and severally, to:

- Conduct soil and groundwater investigations at and downgradient of the Property (as authorized by Section 13267). These investigations are necessary both to further delineate sources of perchlorate and TCE at the Property and to better define the downgradient extent of the plume of perchlorate and TCE in groundwater.
- Based on investigations conducted on the Property, submit an interim remedial action plan for cleanup of soil and groundwater at or adjacent to the Property, and implement that plan once approved (as authorized by Section 13304).
- Based on investigations conducted downgradient of the Property, conduct a feasibility study and submit a remedial action plan for cleanup of groundwater downgradient of the Property, and implement that plan once approved (as authorized by Section 13304).

- Submit a replacement water plan for specified water supply wells that exceed the PHG for perchlorate, and implement that plan once approved (as authorized by Section 13304).
- Reimburse cleanup costs incurred by the Cities of Rialto and Colton, West Valley Water District, and the State Board (as authorized by Section 13304).
- Since the Order would require actions of the Dischargers jointly and severally, it does not apportion responsibility among the Dischargers, which would be left to the Dischargers themselves.

Recommendation

The Regional Board's Advocacy Staff recommends that the State Board Hearing Officer recommend that the State Board affirm Cleanup and Abatement Order No. R8-2005-0053, and thereby require that the Dischargers provide relief by completing appropriate investigation and remedial action, supplying replacement water for the affected wells cited in the Order, and providing cost reimbursement to the affected water purveyors for cleanup costs.