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BEFORE THE CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

IN THE MATTER OF RIALTO-AREA PERCHLORATE CONTAMINATION AT A 160-ACRE SITE IN THE RIALTO AREA	SWRCB/OCC FILE A-1824 CITY OF RIALTO AND RIALTO UTILITY AUTHORITY OPENING BRIEF Date: Currently Scheduled for May 8-10, 15-17, 2007

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CITY OF RIALTO AND RIALTO UTILITY AUTHORITY'S OPENING BRIEF

IN THE MATTER OF

PERCHLORATE AND TCE CONTAMINATION AT A 160-ACRE SITE IN THE RIALTO AREA (SWRCB/OCC FILE A-1824)

I. INTRODUCTION.

In compliance with the Second Revised Notice of Public Hearing in the above-entitled matter, the City of Rialto and Rialto Utility Authority (collectively, "Rialto") submit the following argument and documents, testimony and exhibits in support of the Cleanup and Abatement Order issued by the Santa Ana Regional Water Quality Control Board ("Regional Board"), Executive Officer, on February 8, 2005 ("2005 CAO") and the Draft Amended Cleanup and Abatement Order No. R8-2005-0053 ("2006 Draft CAO") issued to Goodrich Corporation ("Goodrich"), Pyro Spectaculars, Inc. ("Pyro") and Kwikset Corporation, Kwikset Locks, Inc., Emhart Industries, Inc. and Black & Decker, Inc. ("Emhart Parties") (collectively, "Named Dischargers") for water replacement, investigation and remediation of perchlorate and trichloroethylene ("TCE") in the Rialto area.

Based on the substantial evidence presented, Rialto respectfully requests that the Hearing Officer recommend to the full State Water Resources Control Board ("State Board") that the 2005 CAO be reissued and that the 2006 Draft CAO be adopted in full as proposed. The importance of a prompt cleanup and remediation by the Named Dischargers of perchlorate and TCE contamination at the subject property in Rialto cannot be overstated.

II. Environmental Setting.

A. The City and the Rialto-Colton Basin.

The City of Rialto is located near the foothills of the San Bernardino Mountains, in the County of San Bernardino. Rialto lies west of the City of San Bernardino, east of the City of Fontana and north of the City of Colton. It has a

population of about 100,000. Rialto's water department provides water service to almost 50,000 people, as well as schools, hospitals, parks, open space and businesses. The remaining population mostly is served by West Valley Water District, a County Water District, while a small number are served by Fontana Water Company, a division of San Gabriel Valley Water Company.[1]

Due to the City's demographics and the impact of the perchlorate discharge on the community, in 2003 the State Water Resources Control Board ("SWRCB") found the City to be an "environmental justice" community.[2] One of the SWRCB's environmental justice program goals is to integrate environmental justice considerations into the development, adoption, implementation and enforcement of SWRCB decisions.[3] Environmental justice means "the fair treatment of people of all races, cultures and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations and policies."[4]

Rialto lies within the South Coast Hydrologic Region, according to the Department of Water Resources.[5] Regional groundwater basins include the Chino Basin to the west of the City, the Bunker Hill Basin to the east of the City, the North Riverside Basin, a small portion of which lies beneath the southern half of the City, and the Rialto-Colton Basin, about half of which is beneath the north half of the City.[6]

The Rialto-Colton Basin is an elongated basin oriented northwest-southeast, and lies within the Santa Ana River Watershed. Rialto overlies about half of the

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1 Declaration of William Hunt ("Hunt decl.") p. 3.

2 SWRCB Res. 2003-0025 and staff report thereto.

3 SWRCB Environmental Justice webpage, http://www.swrcb.ca.gov/education/justice.html, visited April 5, 2007.

4 Gov. Code, § 65040.12, subd. (e).

5 California Department of Water Resources, Bulletin 118—Update 2003, "California's Groundwater" ["Bulletin 118"].

6 Bulletin 118, at pp 146-147; Hunt decl. at p. 3

Rialto-Colton Basin, while the City of Colton, to the south and east, and the City of Fontana, to the west, overlie smaller portions of the Rialto-Colton Basin.[7] The San Gabriel Mountains and Barrier J form the northwestern boundary of Rialto-Colton Basin while the badlands area to the south forms the southeastern boundary. The Rialto-Colton Fault forms the southwestern boundary of the basin and impedes flow into the Chino Basin for much of the length of the basin. In the southern portion of the basin, the Rialto-Colton Fault no longer acts as a barrier to groundwater flow and groundwater migrates into the Chino and Riverside Basins. The northeastern boundary of the basin is formed by the San Jacinto Fault and Barrier E, which separate the Rialto-Colton Basin from Lytle and Bunker Hill Basins.[8]

The California Regional Water Quality Control Board, Santa Ana Region ("RWQCB") has designated one of the beneficial uses of the Rialto-Colton Basin to be "Municipal and Domestic Supply (MUN),"[9] and has established water quality objectives of 200 ppm total dissolved solids (TDS) for the Rialto portion and 400 ppm TDS for the Colton portion of the Basin. Natural water chemistry in the Rialto-Colton Basin is of good quality. Groundwater in the Rialto-Colton Basin has TDS of approximately 175 to 250 parts per million (ppm), which is excellent.[10]

B. Operation of the Water System.

The principal goals of Rialto's water system are to serve safe, affordable and reliable water every day and to plan and build facilities to meet anticipated demand over the next 20 years in normal, dry and multiple dry years.[11]

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[7] Roadmap, fig. 2.

[8] Roadmap, at ES-3.

[9] Regional Water Quality Control Board, Santa Ana Region, "1995 Water Quality Control Plan, Santa Ana River Basin" [the "Basin Plan"].

[10] Declaration of Dan Stephens ("Stephens decl.") at p. 21.

[11] Water Code, §§ 10610 et seq. & 10910 et seq.; Roadmap at p. 27.

Historically, Rialto's water department has been able to meet these goals relying entirely on local water. Rialto has been able to do so due to the high quality, reliability and sufficiency of its local water resources. The local water sources on which Rialto has relied are the Rialto-Colton Basin, surface water and groundwater from Lytle Creek and the Lytle Creek Basin, and groundwater from the Bunker Hill Basin, an unadjudicated portion of the Chino Basin and the North Riverside Basin.

Rialto is within the State Water Project ("SWP") service area of San Bernardino Valley Municipal Water District ("SBVMWD"), and property owners within the City pay property taxes to SBVMWD based on assessed valuation to cover the debt issued to pay for the construction of the SWP. As Rialto landowners have been paying their assessments to SBVMWD, Rialto's water department is eligible to receive SWP water.

SBVMWD has the capability to deliver SWP water into Rialto. From 1982 to 1999, SBVMWD recharged about 37,000 acre-feet of water into the Rialto-Colton Basin using the Linden Avenue spreading grounds.[12]

Rialto does not currently have the facilities to take delivery of SWP water directly into its potable water system, in large part because Rialto has not had the need to do so. Taking delivery of SWP water would require the construction of local facilities, including a surface water treatment plant, connections from the SWP pipeline to the plant and from the plant into the City's water system, and related infrastructure.[13]

C. Adjudicated Rights.

Rialto has two wells – Chino 1 and Chino 2 – that produce water from unadjudicated portions of local groundwater basins. These wells are in an area

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[12] Hunt decl. p. 5

[13] Hunt decl. at p. 6.

commonly referred to as "No Man's Land". While there is some difference of opinion, it appears that the well Chino 1 draws from an unadjudicated portion of the Chino Basin and Chino 2 draws from the unadjudicated North Riverside Basin.[14]

Rialto's water rights in the Rialto-Colton Basin, Lytle Creek Basin and Bunker Hill Basin are all subject to one or more adjudication.[15] The adjudication most relevant to these proceedings applies to a portion of the Rialto-Colton Basin. A decree entered following entry of the 1961 stipulated judgment in *Lytle Creek Water and Improvement Company v. Fontana Ranchos Water Company, et al.* (SBSC No. 81264) (the "1961 Decree") establishes annual pumping allocations within a defined area that lies within the larger hydrologic basin. The 1961 Decree allows for unlimited pumping from the adjudicated basin in the water year when water levels are above a certain level (1002.3 feet above mean sea level) as measured by a protocol set forth in the 1961 Decree. Once the water table drops below that level, annual pumping is capped for the four purveyors which have succeeded to the interests of the original parties to the 1961 Decree – Rialto, City of Colton, West Valley Water District and Fontana Union Water Company. Rialto may pump 4,366 acre-feet in that water year, West Valley Water District may pump 6,104 acre-feet, Colton may pump 3,900 acre-feet, and Fontana Union Water Company may pump 930 acre-feet. The 1961 Decree further restricts pumping as the water table drops below a second level (969.7 feet). Below that level, allocations are reduced 1% for each foot of drop, to a maximum reduction of 50% of allocation.[16]

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[14] Hunt decl. at p. 8, Table 1.

[15] McPherson decl. at pp. 2-5

[16] McPherson decl. at pp. 3-4.

D. Detection of Perchlorate.

Until 1997, perchlorate was not considered to be a health problem when present in drinking water. In 1997, at the directive of the California Department of Health Services (which is the permit authority for public water systems), Rialto started testing for perchlorate. In October 1997, perchlorate was detected in the well Rialto 2 at 47 parts per billion ("ppb"), well above the then-applicable action level (now known as a notification level[17]) of 18 ppb. Rialto's response was to take the well out of service.[18]

Perchlorate was then detected in the well Chino 1 in September 2001, in well Rialto 6 in October 2001, in well Rialto 4 in November 2002, in well Chino 2 in November 2002, in well Rialto 3 in December 2004 and in well Rialto 1 in September 2005. Rialto has only one well remaining in the Rialto-Colton Basin in which perchlorate has not yet been detected: Rialto 5.[19]

Mapping conducted by Rialto suggests that the edge of the perchlorate plume is less than 1,000 feet away from well Rialto 5 and Rialto currently does not have good evidence on the direction of movement of the plume of perchlorate in this area.[20] So it is possible that all of Rialto's Rialto-Colton Basin wells could be contaminated by perchlorate in the near future.

E. Interim Response to Perchlorate Contamination.

Rialto developed a three-part strategy to investigate and respond to the discovery of perchlorate in the Rialto-Colton Basin and in the City's wells. It has filed cost recovery litigation in federal court against more than 40 potentially responsible parties ("PRPs"). The City has cooperated with the RWQCB's investigation against possible dischargers. The City has sought federal and state

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[17] Health & Safety Code, § 116455.

[18] Hunt decl., at p. 16

[19] Hunt decl., at p. 16, Table 4

funding to implement interim remedies and imposed a perchlorate surcharge on its own ratepayers to fund the investigatory, legal and expert work necessary to pursue the PRPs / possible dischargers.[21]

Funds received from the SWRCB's Cleanup and Abatement Account and from Prop. 50 have covered capital costs of installing wellhead perchlorate removal systems on wells Chino 1 and Chino 2. Pursuant to RWQCB Cleanup and Abatement Order No. R8-2003-0013 issued to the County of San Bernardino in January, 2003, as amended by RWQCB Replacement Water Order No. R8-2004-0072, issued to the County in September 2004 (collectively, the "County CAO"), the County has installed wellhead treatment at well Rialto 3.

Given the pumping restrictions imposed by the 1961 Decree, in order for the County to have the water rights necessary to operate the Rialto 3 treatment system under the County CAO, Rialto and the County entered into the Water Replacement Order Implementation Agreement and Water Rights Lease dated September 2005 (the "Water Replacement Order Agreement and Lease").[22] Under this agreement, Rialto has leased to the County 2,400 acre-feet of adjudicated Rialto basin rights, and given the County the authority to prevent Rialto from pumping from its other wells in the adjudicated basin. In return, Rialto receives the water pumped and treated by the County.

F. Losses Directly Attributable to Perchlorate.

The perchlorate contamination has had four broad types of impacts on the City: monetary, system management, planning and legal.

(...continued)

[20] Roadmap, Figure 6.

[21] Hunt decl., at pp. 15, 17-18.

[22] McPherson decl., Ex. J.

Responding to the perchlorate contamination has been expensive and draining on Rialto and will continue to be so until the various dischargers are ordered to pay Rialto's costs.[23]

Major categories of monetary impacts include uncompensated capital costs of wellhead treatment; operations and maintenance costs for wellhead treatment; energy costs associated with changed pumping strategies, including increased lift, increased hydraulic head and longer lateral movement of pumped water; and third-party fees, including attorneys, experts and consultants.[24]

Perchlorate contamination has had substantial impacts on the management of the water system as a whole. The lack of wellhead treatment on certain wells that draw from the Basin results in a lost quantity of water in the Basin. Although the Rialto-Colton Basin has been used for the storage of SWP water in the past, discussions with SBVMWD to renew the program are on hold because no public agency can afford to contaminate clean imported groundwater with perchlorate without a remedial plan in place. Nor can Rialto import water for percholation and recharge into the Rialto-Colton Basin without final adjudication of its federal court lawsuit, due to the risk of being named as a discharger.[25]

The current unavailability of the Rialto-Colton Basin for storage may frustrate the exercise of rights and benefits under the adjudication of the Water Rights Applications 31165 and 31370 of SBVMWD and Western Municipal Water District of Riverside County (collectively, "Muni/Western") to appropriate and store water from the Santa Ana River, which applications are set to be heard by the

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[23] See Water Code, § 13304, subd. (c)(1).

[24] Hunt decl., at pp. 15, 17-18.

[25] See Master Third Party Complaint and Counterclaims, *San Gabriel Basin Water Quality Authority v. Aerojet-General Corp.* (CD Cal. CV 02-4565 ¶ 71); Opposition to Water Purveyor's Motion to Dismiss First and Second Claims for Relief and First, Second, Fifth and Sixth Counterclaims for Relief, *San Gabriel Basin Water Quality Authority v. Aerojet-General Corp.* (CD Cal. CV 02-4565), (continued...)

SWRCB in May 2007.[26] In these two applications, Muni/Western has petitioned the SWRCB for diversion of up to 200,000 acre-feet annually of water from the Santa Ana River and certain tributaries for storage behind the Seven Oaks Dam and elsewhere. The environmental impact report and community report for this project identify the Rialto-Colton Basin, among other groundwater basins, as locations for storage of the appropriated water.[27]

The water rights lease to the County pursuant to the Water Replacement Order Agreement and Lease will stress the City's ability to meet summertime demand, because the County will be pumping from the Basin in a manner very different from historical patterns. Rialto used to meet demand during the winter months with water not from the adjudicated basin, allowing Rialto to pump most of its allocation from its most reliable supply during summer months when demand is highest. The County, by contrast, will pump 20 acre-feet a month year round. As the Replacement Water Order Agreement and Lease demonstrates, this pumping pattern results in the substantial possibility that the County will need to provide replacement water to Rialto on a regular basis.[28]

The inability to use certain wells results in lost flexibility in the management of assets, lost redundancy in case of asset failure, and overall reduced reliability. In cases of emergency Rialto has historically been able to rely on intertie agreements with neighboring water suppliers. As many of these suppliers, including West Valley Water District and the City of Colton, also rely heavily on the

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(...continued)
at 2.

[26] SWRCB, Notice of Public Hearing and Pre-Hearing Conference on Water Right Applications and Wastewater Change Petition, issued Feb. 16, 2007.

[27] Roadmap, at p. R-3.

[28] McPherson decl., Ex. J at pp. 5-8.

Rialto-Colton Basin, the ability of the City to rely on these providers to supplement the City's system in case of emergency is greatly diminished.[29]

In 2001 the California legislature tightly tied water supply planning to land use planning by amendments to the California Environmental Quality Act ("CEQA"), the Planning and Zoning Law and various provisions of the Water Code.[30] The City has been on the verge of a major economic renaissance due to the long-awaited completion of the Interstate 210 Freeway and the closure and re-use of the Rialto Municipal Airport. The City's ability to entitle the growth contemplated by these two events is dependent, however, on the ability of the City's water department to issue water supply assessments that find that the City will be able to meet aggregate demand over a 20-year planning period in normal, dry and multiple dry years.[31] The perchlorate contamination of the Rialto-Colton Basin calls into question the ability of the City to issue legally defensible water supply assessments.

Until the discovery of the perchlorate contamination, the City's adjudicated water rights and the informal periodic meetings of the pumpers' associations provided a forum for resolving disputes among competing pumpers and tended to limit the scope of disputes. Since 1997, comity among the regional water purveyors has deteriorated. Rialto currently faces major challenges to its legal rights in the Rialto-Colton Basin and in the Bunker Hill Basin.[32]

G. Cumulative Impacts To Rialto's Water System.

the impacts of the perchlorate contamination, when cumulated with the other obligations of Rialto and other impacts to the relocating of the City's supply, reduce

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[29] See, generally, Hunt decl.

[30] Senate Bills Nos. 221 and 610 (2001-2002 Reg. Sess.)

[31] Water Code, § 10910 et seq.

[32] McPherson decl.

the historic redundancy in the City's system to levels so low that the City may well be in violation of pending regulations governing public water systems.[33]

Under a contract that expires in 2008, the City is obligated to provide up to 1,500 gallons per minute ("gpm") to Marygold Mutual Water Company ("Marygold").[34]

When dry-year conditions exist in the adjudicated portion of the Rialto-Colton Basin, resulting in a cap on Rialto's pumping rights, Rialto is obligated to lease 1,600 acre-feet of its rights to Fontana Union Water Company ("FUWC") in that water year, pursuant to the Standby Water Lease dated May 2000 between Rialto and FUWC. Under the Replacement Water Order Agreement and Lease with the County, Rialto has leased 2,400 acre-feet annually of its adjudicated Rialto Basin rights. Rialto's total pumping rights in the adjudicated Rialto basin, in dry years, is at most 4,366 acre-feet. Leasing 4,000 acre-feet to third parties leaves Rialto with only 366 acre-feet annually at most. If water levels drop far enough that Rialto is facing percentage cutbacks in its 4,366 acre-foot entitlement, Rialto could face a situation where its water rights are exhausted.[35]

Rialto has adjudicated rights in the Bunker Hill Basin, which lies within the City of San Bernardino. As required by the Consent Decree entered in March 23, 2005 in *City of San Bernardino v. U.S.* (CV 96-8867), the City of San Bernardino has adopted a groundwater management ordinance. (City of San Bernardino Municipal Code, Chap. 13.25.) The issue of whether the City of San Bernardino, through the groundwater management, can lawfully restrict Rialto's exercise of its groundwater rights in the Bunker Hill Basin remains unresolved.

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[33] Hunt decl., at pp. 12-13.

[34] McPherson decl.

[35] McPherson decl., passim

H. Rialto Was Properly Given Party Status.

The Hearing Officer of the State Water Resources Control Board ("SWRCB") properly gave Rialto party status in this proceeding. The SWRCB has virtually unlimited discretion in determining who is a party: a party is "any other person whom the [SWRCB] determines should be designated as a party." (Cal. Code Regs., tit. 23, § 648.1, subd. (a).)

The SWRCB's discretion was properly exercised. The City is an environmental justice community. The bulk of the perchlorate and TCE plumes lie within the City's municipal boundaries. The presence of perchlorate and TCE in the Basin has had and continues to have significant direct and indirect impacts on the City's immediate and long-term water supply and imposed a substantial financial burden on the City's ratepayers and taxpayers.

III. STATE WATER BOARD PROCEEDING--EMHART RELEASE EVIDENCE

A. Summary Of Perchlorate Discharges By West Coast Loading Corporation.

1. West Coast Loading Corporation Discharged A Minimum Of 1,832 Pounds Of Potassium Perchlorate Making Photoflash Cartridges Under Contract No. 595.

West Coast Loading Corporation ("WCLC") used 45,874 pounds of potassium perchlorate to manufacture the Model M112 photoflash cartridges under contract 595. By its own estimate, 4% or 1,832 pounds of potassium perchlorate were lost in the manufacturing process. **There is substantial evidence in the record to support a finding that WCLC discharged 1,832 pounds of potassium perchlorate into the environment** to produce the M112 photoflash cartridges under contract number 595. (See page 15 et seq. below.)

2. WCLC Discharged A Minimum Of 1,730 Pounds Of Ammonium Perchlorate Drying It Under Contract With Grand Central Rocket Company.

WCLC dried at least 43,250 pounds of ammonium perchlorate at its Locust Street facilities in Rialto, using the same equipment and in the same manner as it handled the potassium perchlorate under contract 595. Based on the same 4% loss figure for perchlorate wastage in its process WCLC used under contract 595, **there is substantial evidence in the record to support a finding that WCLC discharged 1,732 pounds of ammonium perchlorate into the environment** drying ammonium perchlorate under contract with Grand Central Rocket Company. (See page 18 et seq. below.)

3. WCLC Discharged More Potassium Perchlorate Producing Ground Burst Simulators and XF-5a Photoflash Cartridges.

WCLC used 398 pounds of potassium perchlorate in the whistle composition, and 2,890 pounds of potassium perchlorate in the photoflash component of the 50,000 ground burst simulators it made for the military. It estimated 5%, or approximately 65 pounds of potassium perchlorate was lost in the process of making ground burst simulators. WCLC also used approximately 95 pounds of potassium perchlorate to manufacture 250 XF-5A photoflash cartridges, with an estimated loss of 5%, or just under 5 more pounds of potassium perchlorate. (See page 17 et seq. below.)

4. WCLC Discharged More Potassium Perchlorate In An Explosion At The Photoflash Cartridge Assembly Building Where Perchlorate Was Being Loaded Into Cartridges.

On April 12, 1955, an explosion occurred in WCLC's photoflash cartridge filling room, where a mixture of aluminum powder, **potassium perchlorate** and barium nitrate was being loaded into cartridges. WCLC wrote in a letter to its insurer that a possible cause of the explosion was accumulated dust from the filling

machine ignited by a spark. The building and equipment inside were completely demolished, and all of the photoflash cartridge mix in the building was discharged into the environment.

B. Background.

In or about 1951, Kwikset Locks, Inc. ("KLI"), a manufacturer of household door locks, established a defense products division to obtain government contracts for the production of munitions. In February 1952, KLI formed the West Coast Loading Corporation ("WCLC") to, in part, load and assemble munitions as a subcontractor to fulfill contracts obtained by KLI from the United States Government and the Department of Defense.

During 1952, WCLC (as a subsidiary of KLI) constructed a manufacturing plant at what is now referred to as 3196 North Locust Avenue, Rialto, California (the "Site"). From approximately 1942 through 1946 the Site was part of the Department of Defense's Rialto Backup Ammunition Storage Point, then vacant land until about 1952. During the period from 1952 to 1957, WCLC used the Site for the manufacture of explosive cartridges, photoflash cartridges, flares, ground burst simulators, and other pyrotechnic and incendiary devices, many of which contained perchlorate. (Davis DT 33:1-4; 978:9-17; 1143:11-1144:3 [E-1].) WCLC manufactured many of these products under subcontract to KLI for use by the military under KLI's contracts with the United States Government.

WCLC also processed chemicals, including ammonium perchlorate, at the Site for use by other government contractors in the manufacture of solid rocket propellant at other locations. WCLC also processed chemicals, including potassium perchlorate and ammonium perchlorate for the manufacture of flares and other products for non-defense purposes.[36]

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[36] Background section borrowed, in part, from Santa Ana Regional Water Quality Control Board's Draft CAO, ¶¶ 9-11.

C. Products Manufactured At WCLC Contained Perchlorate.

1. WCLC Manufactured Photoflash Cartridges Containing Perchlorate.

(a) Description of the Photoflash Cartridge.

A photoflash cartridge ("PFC") is an aluminum cartridge approximately 1.5 inches in diameter, and 7 inches in length, which is filled on top with photoflash powder, then hermetically sealed. PFCs are dropped from airplanes to assist in taking photographs. (Davis DT 33:23-34:13, Skovgard DT 16:9-17:3 [E-2].) Raymond Davis was the Production Superintendent for photoflash cartridges at WCLC. (Ex. 81; Davis DT 185 [E-3].) His job responsibilities included supervising production activities at WCLC, and starting up WCLC's Photoflash Department, which was created to fulfill its government contract for PFCs. (Davis DT 102:8-12, 185; Exs. 77, 81 [E-4].) In 1955, WCLC's photoflash operation employed about 25 people per shift, two shifts per day. (Davis DT 827:20-828:22 [E-5].)

2. WCLC Contracts to Produce M112 PFCs.

WCLC manufactured M112 and XF-5A photoflash cartridges for the United States Department of Defense. (Exs. 73; 73A; Gardner DT 45:4-8; 175-176 [E-6].)[37] WCLC produced PFC's under at least two contracts – numbers 595 and 3780. (Exs. 73, 378 [E-7].) Under contract 595 for M112 photoflash cartridges, WCLC manufactured and delivered approximately 347,000 PFC units, which called for the use of 45,874 pounds of potassium perchlorate. (Exs. 74, 74A; Davis DT 61:4-8; Gardner DT 45:4-8, 126:19-22, 127:2-10, 175:14-16, 176:8-11, Skovgard DT 317:23-319:4 [E-8].)[38]

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[37] Frank Herbert Gardner was a control chemist at the WCLC Site in Rialto. (Gardner DT 16.)

[38] Fred Skovgard was technical assistant to the plant manager and later chief chemist at the WCLC Site in Rialto (Skovgard DT 15-16.)

WCLC's "scrap allowance" for potassium perchlorate lost in the manufacturing process under Contract 595 was 4% of the total, and was estimated at 1,832 pounds. (Exs. 74A, 75; Skovgard DT 160:15-162:12; Davis DT 61:4-8, 94:2-95:6 [E-9].) WCLC's final inventory on contract 595 dated July 31, 1956, establishes that it had 556 pounds of leftover potassium perchlorate in storage at the C-1 bunker site. (Ex. 72 (SARWQCB018124-25 [E-10].) A Purchase Order with Western Electrochemical Company dated September 2, 1955, documents the order and delivery schedule for the 47,000 pounds of potassium perchlorate used by WCLC under Contract number 595. (KWK 00310 [E-11].)

WCLC documents specify that each M112 PFC contains 0.13125 pounds of potassium perchlorate, or 0.4375 pounds of photoflash powder. (KWK00288, Davis DT 62:8-65:17, 67:5-22; Ex. 74A; Skovgard DT 43:7-45:7 [E-12].) However, because of the 4% spillage rate for powder inevitably lost in the manufacturing process, WCLC estimated it would actually take 0.132 pounds of potassium perchlorate to make one M112 PFC unit. (Ex. 74,Davis DT 67:24-69:4 [E-13].)

3. XF-5A PFC Specifications.

WCLC also manufactured 250 XF-5A photoflash manufactured for the Navy under contract, number 3780, which required approximately 0.37 pounds of potassium perchlorate per cartridge. (Exs. 75 (SARWQCB 020211), 378 (KWK42323) [E-14].) WCLC's "spoilage" rate for potassium perchlorate lost in the manufacturing process for the XF-5A photoflash cartridge was approximately 3%. (Exs. 75 (SARWQCB020211), 378 (KWK42323) [E-15].)

Each XF-5A PFC contains approximately 7 and 19 ounces of perchlorate and photoflash powder, respectively, but it takes a little more to make each cartridge because some powder is lost in the manufacturing process. (Davis DT 67:24-69:4 [E-16].) WCLC's chief chemist, Fred Skovgard, estimated one-third of the PFC's ingredients by weight were potassium perchlorate. (Skovgard DT 16:9-17:3 [E-17].) Actual WCLC specifications for PFC show each XF-5A cartridge was

precisely 30% potassium perchlorate by weight. (KWK00288, Ex. 75, Davis DT 90:24-91:10 [E-18].)

WCLC documents specify that each XF-5A contained 0.3636 pounds of potassium perchlorate, and 1.212 pounds of photoflash powder. (Ex. 75 [E-19].) However because of the 3% spillage rate for powder inevitably lost in the manufacturing process, WCLC estimated it would actually take 0.3745 pounds of potassium perchlorate, or 1.2508 pounds of photoflash powder to make one XF-5A PFC unit. (*Id.*)

4. WCLC Manufactured At Least 50,000 Ground Burst Simulators Containing Potassium Perchlorate.

WCLC made ground burst simulators, which contained potassium perchlorate. (Davis DT 39-40; Ex. 72 [SARWQCB018118 p. 1]; Gardner DT 126:19-22; 127:2-10 [E-20].) Ground burst simulators are devices that simulated an explosion or grenade. (Davis DT 39 [E-21].)

Ground burst simulators were tested south of the administration building on the Property in a field. (Ex. 1 [E-22].)

The ground burst simulator has both a "whistle component" and a "charge flash" component, each of which contain potassium perchlorate. (Gardner DT 144-145; Ex. 76 (KWK01282) [E-23].) The whistle component of WCLC's M115 Ground Burst Simulator was 67% potassium perchlorate, and 16 pounds 12 ounces of potassium perchlorate was used in every 25 pound batch of whistle composition. (KWK01292, KWK01293 [E-24].) The charge flash powder component of WCLC's M115 Ground Burst Simulator was 40% potassium perchlorate, and 10 pounds of potassium perchlorate was used in every 25 pound batch of charge flash powder. (KWK00748 [E-25].).

WCLC produced approximately 50,000 M115 ground burst simulators for the United States Department of Defense under its Contract number DA-11-173-ORD 473. (Ex. 76 (KWK01281- 284) [E-26].) The scrap allowance for potassium

perchlorate lost in the production process for each of the two components of the ground burst simulator was 5%. (Ex. 76 (KWK 01282) [E-27].) WCLC received a shipment of 8,500 pounds of potassium perchlorate from Western Electrochemical in February 1956, at about the same time it finished delivery under the photoflash cartridge contracts. (Ex. 131, authenticated by Melito at DT 402-403 [E-28].)[39] This was the same period during which WCLC was preparing to manufacture ground burst simulators. (See Bill of Materials for GBS contract, June 25, 1956 (KWK01282-01284) [E-29].) WCLC then received a 3,000 pound shipment of potassium perchlorate from American Potash & Chemical Corporation on July 24, 1956. (KWK42473 [E-30].) WCLC's Bill of Materials establishes it needed 398 pounds of potassium perchlorate for the whistle composition, and 2,890 pounds of potassium perchlorate for the charge flash to fulfill its contract for Ground Burst Simulators. (KWK00742 [E-31].) WCLC accounted for over 65 pounds of potassium perchlorate to be lost as scrap under the Ground Burst Simulator contract. (Id.)

5. WCLC Processed At Least 43,250 Pounds Of Ammonium Perchlorate For Grand Central Rocket Company.

WCLC dried ammonium perchlorate for Grand Central Rocket Company. (Gardner DT 88:13-16, 90:1-4, 243:13-22, 519:14-19 [E-32].) WCLC delivered at least 43,250 pounds of finished ammonium perchlorate to Grand Central Rocket Company, dried to a 0.03% moisture content. (KWK00784, 00786, 00788, 00790, 00792, 00794, and 00796; KWK00048-00063 [E-33].) The powder was placed on trays in racks, then wheeled through the open air into a steam-heated room. (Gardner DT 92:1-13 [E-34].) This was the same process WCLC used to dry its potassium perchlorate. (Gardner DT 92:1-13 [E-35].) The WCLC drying room was

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[39] John Melito worked as a "presser" and as the Chief Process Inspector at the WCLC Site from approximately 1951 through 1958. (Melito DT 15-17.)

wet mopped on weekends during the period when WCLC was drying ammonium perchlorate for Grand Central Rocket Company. (Gardner DT 98:8-13 [E-36].) Using the same 4% loss figure for the ammonium perchlorate that WCLC used for potassium perchlorate, **WCLC discharged 1,730 pounds of ammonium perchlorate** while fulfilling its contract with Grand Central Rocket Company.

6. 4.2" Illuminating Mortar Shells Were Made Using TCE.

WCLC manufactured 4.2-inch shells under Contract number 593 with the United States Department of Defense. (Allegranza DT 26:5-11, 27:23-28:21, Waters DT 20:12-22 [E-37].)[40] The shells are launched from mortar and used to light-up ground. (Davis DT 35:11-36:7 [E-38].) The shells include a parachute assembly to suspend the canister in the air above its target while it illuminates. (Ex. 122 (KWK3147) [E-39].)

The 4.2-inch shells were assembled constantly. (Allegranza DT 35:15-19; Ex. 72 [E-40].) Although 4.2-inch shells did not contain perchlorate, the use of TCE was prevalent in WCLC's manufacturing process for 4.2-inch shells.

D. WCLC's Process For Manufacturing Products Containing Perchlorate Resulted In Perchlorate Discharges.

In April, 1956, WCLC memorialized in writing a series of standard operating procedures ("SOP") it had been employing previously throughout the plant. (Ex. 79 (KWK01629-01736); Davis DT 107:19-108:1 [authenticated by Ray Davis at Davis DT 105] [E-41].) The SOPs governed procedures for virtually every operation at the WCLC facility, and company policy was that employees were to follow them strictly. (Davis DT 106 [E-42].) As plant superintendent, Ray Davis made sure the employees strictly followed the SOPs. (Davis DT 106-107 [E-43].)

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[40] John Allegranza was a materials handler in the 4.2" illuminating mortar shell assembly line at the WCLC Site in Rialto. (Allegranza DT 21.) Viola Waters was a "cardex clerk" and purchasing agent at the WCLC Site in Rialto. (Waters DT 13-15.)

Earlier, on January 3, 1954, Executive Vice-President and General Manager Gerald D. Linke and Safety Committee Chairman J.W. Rupert drafted and distributed Safety Regulations for handling Azides Styphnates and Similar Explosives. (Ex. 80 (KWK43835 [E-44].) Mr. Davis testified that these procedures were adhered to around the plant, generally, with respect to the safe handling of photoflash powder. (Davis DT 161-165 [E-45].) In accordance with the Safety Regulations, **photoflash powder was denatured in liquid in 15 or 55 gallon drums, and taken to the WCLC trench, where it was dumped on the bare ground.** (Davis DT 163 [E-46].) This process was used for spilled photoflash powder, and the mop water used to clean up dust during routine cleaning operations described in the SOPs. (Davis DT 163-164 [E-47].) **The trench had an earthen bottom and, after the photoflash powder-containing liquid was dumped into the trench, it would sink into the ground.** (Davis DT 165 [E-48].)

1. Spilled Potassium Perchlorate In The Storage Areas Was Discharged Onto The Bare Ground.

WCLC stored potassium perchlorate in 55-gallon fiber drums. (Gardner DT 183:7-16 [E-49].) WCLC owned or leased bunkers (or "igloos") located about 1 mile southwest of the Property where it stored the drums of potassium perchlorate until they were ready for use at the Property. (Gardner DT 113:1-10, 230:6-24; 506:9-18; Clayton DT 100:13-21 [E-50].)[41] Perchlorate stored on site and needed for processing would be brought to the "storage and curing" building, usually one barrel at a time, was kept separate from the other chemicals and had "potassium perchlorate" printed on the side. The potassium perchlorate brought to the "storage and curing" building was taken from the warehouse where greater amounts of perchlorate were stored. (Davis DT 366:4-367:20 [E-51].) The storage

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[41] Arnold Clayton worked as an assembler at the WCLC Site in Rialto. (Clayton DT 16.)

building where potassium perchlorate was kept was swept out from time-to-time, and the sweepings were denatured in water. (Davis DT 369 [E-52].) **The contaminated water was then taken out to and disposed of in the trench or on the bare ground.** (Davis DT 373 [E-53].)

2. Fugitive Perchlorate Dust From Drying And Screening Was Discharged Onto The Bare Ground.

WCLC SOP D-8 identifies Building Numbers 12 and 47 as the locations where potassium perchlorate was dispensed and dried, respectively. (Ex. 79 (KWK01677) [E-54].) Perchlorate was placed on trays in Building #12, then transported across the facility grounds, to Building #47, where it was dried. The SOP provides that "Work To Be Performed" for drying potassium perchlorate included:

- Receive from storage one barrel of Potassium Perchlorate;
- Get 13 trays from rack in Building #47, Room 3A;
- Take off snap ring and remove lid from barrel;
- Place screen on tray;
- With aluminum scoop fill tray level full;
- Break and rub through screen all lumps;
- Empty barrel completely;
- Place trays on truck and move to Building #47, Room 3A;
- Put trays in rack with date when filled;
- Dry 48 hours at 120 degrees;
- Laboratory shall check for moisture content;
- Keep all four racks in Room 3A currently filled.

(Exs. 79, 402 (KWK01677) [E-55].)[42]

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[42] Exs. 79 and 402 are identical, but only Ex. 79 is reproduced at the evidence Tab where each is cited hereinafter.

WCLC SOP D-8 provides that a 55 gallon barrel of potassium perchlorate was taken from Building #12 to Building #47, room 3A for screening. (Ex. 79 (KWK01722) [E-56].) All potassium perchlorate was loaded onto a screen with a scoop, then pushed through the screen to reduce particle size. (Davis DT 82:23-86:9; Ex. 75 [E-57].) The screened perchlorate was then loaded into several trays that slid into a rack. Each shift would screen the amount of potassium perchlorate needed for that particular shift. The racks would be transported for drying through the open air to Building #47 via a four-wheel hand cart. (Exs. 75, 79, 402 (KWK01677; 01722); Davis DT 82:23-86:9, 128:14-130:20, 132:6-133:1; Bland DT 37:6-40:20 [E-58].)[43]

The trays filled with potassium perchlorate were dried at 120 degrees in the drying room for at least 48 hours per SOP D-8. (Ex. 79 (KWK01677); Davis DT 88:7-89:7; Bland DT 26:6-20 [E-59].) Potassium perchlorate was screened a second time after drying. (Davis DT 142:11-144:7 [E-60].) A screen was placed over an empty barrel and the dried potassium perchlorate (in trays) was poured over the screens. (Davis DT 142:11-144:7 [E-61].) According to SOP S-2, the barrel of dried potassium perchlorate was then taken to Building #40, Room D. (Ex. 79 [E-62].) WCLC employees testified that the trays filled with potassium perchlorate, once dried, would be removed and placed in separate tray carts for transportation through the open air to the mixing room. (Bland DT 37:6-40:20 [E-63].)

WCLC employees followed the SOPs for drying and screening potassium perchlorate. (Skovgard DT 353:10-356:20 [E-64].) **The perchlorate drying trays were "hosed off" after each use with water just outside the drying buildings over the bare ground.** (Davis DT 146:25-147:24 [E-65].)

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[43] Gerald Bland was a materials handler at the WCLC Site in Rialto who loaded potassium perchlorate onto trays to be dried. (Bland DT 26.)

3. Fugitive Perchlorate Dust From Weighing Was Discharged Onto The Bare Ground.

Once screened (or "pulverized") the potassium perchlorate was taken to Building #40, Room D in accordance with SOP S-2, where it was weighed. (Ex. 79 (KWK 01733) [E-66].) SOP's for weighing photoflash powder W-1 and W-4 provide that "Work To Be Performed" for weighing potassium perchlorate included:

- Potassium Perchlorate will be stored in Room D only. One barrel;
- Check exact weight scale #22. Be sure red hand is on black arrow in center of dial;
- Place bucket on scale without lid and balance same as in Item #2 above;
- Open barrel, with aluminum scoop, weigh out 15 lb. 0+/-0 Potassium Perchlorate from barrel marked Potassium Perchlorate;
- Place lid on bucket and barrel and remove bucket to Room F;
- Wipe up, with wet rag, any material spilled on floor or table;
- Close door to Room D.

(Exs. 79, 402 (KWK01733, 1736); Davis DT 151-155 [E-67].)

Special safety requirements specified in WCLC's SOP for weighing photoflash powder included, among other precautions:

- *Mop floor at least four times each shift. Water wet mop;*
- Keep walls, lights, etc. dust free at all times.

(*Id.* (emphasis added).)

Screened, or "pulverized," potassium perchlorate was taken from the screening and drying room to the weighing room, where there was a scale and aluminum scoop. (Davis DT 149:25-153:6, Ex. 79 (KWK01733, 1736) [E-68].) Weighing was done to separate potassium perchlorate into smaller containers. (Davis DT 149:25-153:6; Ex. 79 (KWK01733, 1736 [E-69].) Photoflash powder **dust was generated in the weighing process**. (Davis DT 153 [E-70].) When

scooping potassium perchlorate and other chemicals in the weighing building, powder routinely fell onto the floor and was subsequently mopped up. (Pfarr DT 32:14-33:15; Davis DT 151-152 [E-71].)[44] The weighing building for potassium perchlorate was identified on Exhibit 82 as the WPB (or "weighing perchlorate building"). (Davis DT 207:3-14; Ex. 81, Davis DT 222:7-24 [E-72].) Photoflash powder was mopped up in the weighing room at least four times per shift. (Ex. 79, Davis DT 158-159 [E-73].)

WCLC employees followed the company's SOP by mopping the weighing room floor at least four times per shift, and eliminating all dust by wiping down equipment and processing areas with wet rags. (Davis DT 149:25-153:6; Ex. 79 (KWK01733, 1736) [E-74].) Photoflash powder that was spilled on the tables was wiped up with a wet rag. (Davis DT 155 [E-75].) The walls, windows, lights and light shades in the weighing building were also wiped with a wet rag after each shift. (Davis DT 151-152, 159 [E-76].)

The perchlorate dust generated in the weighing process was discharged to the bare ground at WCLC. (See page 30 et seq., below.)

4. Fugitive Perchlorate Dust From Blending (Or Mixing) Photoflash Powder Was Discharged Onto The Bare Ground.

WCLC SOP's B-1 and B-2 identify Building #40, Rooms A and F, as the two processing locations where photoflash powder was blended. (Ex. 79 (KWK 01669-70) [E-77].) After being weighed in Building #40, Room D, the bucket of potassium perchlorate was moved to Room F. (Ex. 79 (KWK01733) [E-78].) When needed, the buckets of chemicals in Room F would be taken to room A for mixing. Rubber and/or aluminum buckets were used to transport photoflash powders to and from the mixing room. (Davis DT 116:21-118:6; Ex. 79 (KWK01670); Gardner DT

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[44] Joane Pfarr checked and loaded products at the WCLC Site in Rialto. (Pfarr DT 26.)

185:24-186:2, 188:14-16, 195:21-24 [E-79].) WCLC's SOP B-2 provides that "Work To Be Performed" for blending potassium perchlorate in Room A included:

- Check power and air;
- Line up blender in closed position with white mark on drive shaft at motor;
- Air level must be in closed position;
- Take from Room F to Room A, one bucket each of Barium Nitrate, Potassium Perchlorate, and Aluminum Powder. Use East door in Room F;
- Unhook red marked container from blender and pour in Barium Nitrate and Potassium Perchlorate and replace on blender;
- Unhook blue marked container from blender and pour in Aluminum Powder and replace on blender;
- *Wipe up any spilled material with water wet cloth*;
- Take rubber buckets to Room F, closing door to Room A;
- Press start button and blend for not less than 7 minutes nor more than 10 minutes.

(Exs. 79 [emph. added], 402 (KWK01670) [E-80].)

Special safety requirements specified in WCLC's SOP for blending photoflash powder included, among other precautions:

- Do not pass safety wall when blender is running or vibrating; and
- *Mop floor after each batch is blended and wipe up all dust.*

(Exs. 79, 402 [emph. added] (KWK01670) [E-81].) Frank Gardner mixed batches of photoflash powder at WCLC. (Gardner DT 36:11-17 [E-82].) He testified that traces of photoflash powder were left on the mixers after each batch. (Gardner DT 62:7-15 [E-83].) Plant Foreman Ray Davis testified that 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 in the blending buildings in accordance with SOP B-2. (Davis DT 117, 119-121, 977:3-6 [E-84].)

Similarly, after the photoflash powder was moved from room A to room F in Building #40 (during the blending process), SOP B-1 required employees to "Mop floor in room F *at least four times* a shift, keep lights, walls, and motors dust free at all times." (Exs. 79, 402 (KWK01671) [E-85].) Ray Davis testified that he remembered that this room was mopped at least four times a shift, but more accurately after each batch was blended, in accordance with SOP B-1. (Davis DT 122:8-124:16 [E-86].) WCLC employees strictly adhered to the SOP for blending photoflash powder set forth in Exhibit 402. (Skovgard DT 353:10-356:20; Gardner DT 389:1-23, Ex. 381 [E-87].)

Employees would wring out the photoflash dust on the mops used to mop the blending rooms into buckets of water kept in the blending rooms. (Davis DT 119:9-120:16, 123-124; 973:16-974:18 [E-88].)

Rubber buckets were used to transport powders to and from the mixing room (Ex. 79 (KWK01670); Davis DT 116:21-118:6 [E-89]), but some employees also recall using aluminum buckets to transport the chemicals. (Gardner DT 185:24-186:2, 188:14-16, 195:21-24 [E-90].) Before mixing, the various chemicals that comprised photoflash powder—potassium perchlorate, barium nitrate and aluminum—were all weighed in different rooms of the same building, and then taken to the mixer behind a safety wall. (Davis DT 208:11-209:22 [E-91].) The chemicals were then poured by hand into the blender/mixer. (Davis DT 111:4-112:16; Gardner DT 59:6-13 [E-92].)

Photoflash powder was mixed in its own building, away from the three other mixing buildings at the WCLC Rialto facility.[45] (Davis DT 375:2-376:4 [E-94].)

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[45] The other three mixing buildings were identified on Ex. 111 as the "mixing buildings" where other chemicals utilized by WCLC were mixed for each

(continued...)

WCLC employees recall using a mixer with a diameter of 40 inches for photoflash powder, but also a blender that was mounted to a portable table. (Ex. 75, 79 (KWK01669); Davis DT 92:14-94:1, 109:11-110:9 [E-95].) The mixer for photoflash powder was a Kelly Patterson blender. (Gardner DT 54:4-7 [E-96].) The blender was in a separate room and was activated from behind a blast wall. (Gardner DT 187:9-188:4 [E-97].) On average, WCLC blended ten batches of photoflash powder per shift (and therefore, twenty batches a day based on two shifts). (Davis DT 493:19-494:12 [E-98].) Thus, to fulfill its contracts, WCLC was blending about 300 pounds of perchlorate per day.

The mixing/blending rooms were mopped at least four times during each shift to clean up any dust that got onto the floor. (Davis DT 122:8-124:16 [E-99].) Traces of photoflash powder were left on the mixer/blender after each batch. (Gardner DT 36:11-17, 62:7-15 [E-100].) As a result, the mixer/blender was cleaned after every single use, and the entire room would be wiped down with wet rags. (Davis DT 495:3-17; Ransom DT 145:18-146:15 [E-101].)[46]

The perchlorate dust generated in the blending or mixing process was discharged to the bare ground at WCLC. (*See* page 30 et seq., below.)

5. Fugitive Perchlorate Dust Generated During Unloading The Blender/Mixer Was Discharged Onto The Bare Ground.

WCLC SOP B-3 for unloading photoflash powder from the blender/mixer discussed immediately above specifies the following "Work To Be Performed":

- Stop motor from Room F and line up blender for discharge with line on drive shaft

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(...continued)
particular product. (Davis DT 375:2-376:4 [E-93].)

[46] Donald Ransom assisted in establishing the WCLC site in Rialto and assisted the Site Safety Engineer. (Ransom DT 86-87.)

- Go to Room A, place powder container on wooden block under discharge opening, and tie discharge cloth to discharge nozzle of blender, pull up tight with drawstring and tie;
- From Room F, turn air valve to vibrating position;
- Vibrate for 10 minutes. Turn air valve to load position;
- In Room A, disengage sack from blender leaving it fastened to powder container;
- Place powder in container on hand truck and deliver to Building #42.

(Exs. 79; 402 (KWK01669); Davis DT 110-112 [E-102].)

Special safety requirements specified in WCLC's SOP for unloading photoflash powder from the blender/mixer included, among other requirements:

- Mop floor and wipe all dust after each batch;
- Never have over 50 lbs. of material in Room A at one time.

(Exs. 79, 402 [emph. added] (KWK01669); [E-103].) Ray Davis testified that the blender was indeed wiped down with a wet rag and the floor was mopped after each batch was blended in accordance with the requirements of SOP B-3. (Davis DT 114 [E-104].)

The perchlorate dust generated in the process of unloading the blender or mixer was discharged to the bare ground at WCLC. (See page 30 et seq., below.)

6. Fugitive Perchlorate Dust From Loading Photoflash Cartridges Was Discharged To The Bare Ground.

Processed photoflash powder was weighed and loaded into cartridges. The weighing and loading building for photoflash powder is identified as WPHB ("weighing photoflash building") on Exhibit 82. (Davis DT 207:9-208:9; Ex. 82 [E-105].)

Photoflash powder was carried to the WPHB in aluminum buckets. (Davis DT 341:1-345:5 [E-106].) Powder was then poured into a hamper. A person

behind safety glass controlled a release to the hamper allowing a fixed amount of powder to flow to a second hamper which then flowed into the photoflash cartridge. (Davis DT 344:2-345:1 [E-107].) The cartridges were filled then the tops were crimped shut. They were then placed into a cardboard box and taken to the drying/curing room. (Davis DT 344:2-346:6. [E-108].)

The perchlorate dust generated from loading photoflash cartridges was discharged to the bare ground at WCLC. (See page 30 et seq., below.)[47]

7. WCLC Dripped Trichloroethylene Onto The Bare Ground During The Process Of Manufacturing 4.2 Inch Shells And In Its Cleaning Processes.

Trichloroethylene ("TCE") was used at the WCLC facility in Rialto, and specifically, TCE was used to clean the 4.2" shells. (Allegranza DT 39:12-21, 42:14-23, 46:9-48:2 [E-110].) The use of TCE to clean the 4.2" shells was directed by an on-site Army inspector. (Allegranza DT 63:13-67:7 [E-111].) Rags were moistened with TCE for cleaning continually throughout the day, which resulted in TCE dripping directly onto the bare ground. (Allegranza DT 71:11-25, 72:12-73:5 [E-112].) TCE was also used by WCLC employees to clean walls, floors and equipment. (Pfarr DT 60:16-62:10 [E-113].)

TCE was dispensed through spigots from drums held on their sides in cradles. These spigots sometimes leaked TCE onto the ground. (Davis DT 1178:9-1179:14; Allegranza DT 40:2-16, 41:7-22 [E-114].) TCE leaked onto the bare ground in sufficient quantities to stain it. (Allegranza DT 129:17-130:19, 54:14-23 [E-115].)[48]

WCLC employees were able to identify drums in historic photographs of the Property that looked similar to, and were stored in the same location as, the same

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[47] The loading process is described in slightly more detail in Exhibit 122 at KWK3148 (¶3) [E-109].)

drums they testified contained solvent during their employment. (Ex. 700; Allegranza DT 102:7-104:11 [E-116].)

E. Discharge Pathways For Perchlorate To The Bare Ground At WCLC.

1. WCLC's Clean-Up Of Perchlorate And Photoflash Powder Generated In Its Manufacturing Processes Resulted In Discharges To The Bare Ground.

Mixing and handling of potassium perchlorate and photoflash powders produced dust. (Davis DT 1012:5-10, 1014:3-14 [E-117].) In accordance with its SOPs, WCLC undertook substantial efforts to clean-up potassium perchlorate and photoflash powder that was spilled and discharged as dust during the manufacturing process. These SOPs were followed by WCLC's employees. (Ex. 71; Davis DT 25:14-24; Gardner DT 389:1-23 [E-118].)

The perchlorate drying trays were hosed off with water outside of the drying buildings, wherever a water spigot was located, and over bare ground. (Davis DT 146:25-147:24 [E-119].) The "DPB" building on Exhibit 82 was identified as the location of a faucet which supplied water to wash perchlorate and photoflash powder off the drying trays onto the bare ground. (Davis DT 206:1-10 [E-120].)

Chemicals regularly spilled on the production building floors as part of the transfer process from one container to another; and the chemicals would be swept up and desensitized (put in water) as necessary. (Davis DT 369:3-20; 372:23-373:5 [E-121].) The dust and powder accumulating on the mixers and blenders and as part of the production process was wiped down after every usage with wet rags. The mixers were cleaned after every single use—up to twenty times per day—with a wet rag that was used to wipe up all the powder. Soiled rags from wiping machines in the photoflash powder mixing room and other rooms were

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(...continued)

[48] See Allegranza DT (vol. 2) 8:7-9:13 for correction of TEC to TCE.

thrown in buckets filled with water (these wet rag storage containers were also described as earthen crocks). The rinse solution in these containers was dumped on the bare ground outside the buildings. (Davis DT 114:3-115:17, 496:19-498:21, 1060:2-24, 1091:19-24; Skovgard DT 118:17-120:12; Gardner DT 215:7-15 [E-122].) Drying trays were also wiped down with damp rags. (Gardner DT 529:1-18 [E-123].) Mop water was dumped onto the bare ground in sufficient quantities so as to create visible staining of the ground. (Davis DT 1090:8-15, Ex. 82, 658; Clayton DT 283:14-284:10, 289:1-4, 291:25-292:7 [E-124].) Dirty rag rinse water dumped on the bare ground also created visible staining of the ground. (Davis DT 1091:4-17, Ex. 82, 658 [E-125].)

Some of the rags used to clean-up perchlorate and photoflash powder were sent to the laundry, either onsite or offsite. It is estimated that twenty-five percent (25%) of the rag laundry was done onsite. The perchlorate-saturated water from WCLC's washing machine emptied onto bare ground at the facility in the maintenance area. (Davis DT 500:7-503:8, 1098:1-17, Ex. 659 [E-126].) In addition to cleaning equipment, the crews regularly cleaned potassium perchlorate and photoflash powder off the scales and wiped down the ceilings and walls of the buildings used in the manufacturing process of PFCs. All water used in the cleaning process to clean-up (and dissolve) potassium perchlorate and photoflash powder was thrown on the ground outside. (Davis DT 504:1-508:10 [E-127].)

A "damp" mop wetted from a bucket of water was used to clean-up photoflash powder after each mixing. (Davis DT 119:9-120:16; Skovgard DT 109:15-110:18, 118:17-120:12; Gardner DT 211:1-17 [E-128].) Mopping occurred in the mixing room, the screening rooms, the weighing room and the drying room at least four times per shift, two shifts per day, and therefore at least eight times per day. Mop water used to clean floors was always thrown on the ground outside the various buildings such as the SP building (the "Screening of Perchlorate" building identified on Exhibit 82). (Davis DT 122:16-124:16, 211:19-213:22, 354:18-355:21,

973:16-974:19 [E-129].) The finished PFCs were placed in aluminum cups which were cleaned in the same manner, and the wash-water was thrown outside the building in the same manner as with the other rooms. (Davis DT 544:8-546:19 [E-130].)

The concrete slab where WCLC spread the 43,250 pounds of ammonium perchlorate on racks to dry was mopped off every day. (Gardner DT 527:7-18 [E-131].) The oven room where the ammonium perchlorate was dried was also mopped daily. (Gardner DT 535:7-16 [E-132].)

White powder was visible on the ground around the "Batch Plant" (where illuminating flares were assembled) (Ex. 49 [E-133]), and WCLC applied water to the powder and raked it into the dirt. (Clayton DT 24:9-25:14; 57:11-58:6 [E-134].) Large amounts of the white powder that came from cardboard boxes were spread around the dirt outside the Batch Plant, and the powder was watered down to prevent it from blowing away. (Clayton DT 58:7-60:3, 63:8-64:25 [E-135].) Once watered down, the powder would dissolve and disperse into the ground. (Clayton DT 57:16-59:18 [E-136].) The powder covered an area about half the size of a basketball court, and was 1.5 to 2 inches deep. (Clayton DT 107:15-23, 228:20-25 [E-137]) The floors in the illuminating flare assembly area generated significant amounts of black dust that adhered to work surfaces, walls, the floor, tools; and the floors of the illuminating flare assembly area were mopped daily using a solution of water and a solvent with a very strong smell, like ammonia. (Clayton DT 26:18-27:8, 30:5-11 [E-138].)

2. Dissolved Perchlorate Was Discharged To The Bare Ground.

WCLC employees testified that mop water used to clean up perchlorate and photoflash powder was routinely thrown on the bare ground outside the various production buildings. (Davis DT 272:1-11; Pfarr DT 40:7-41:19; Clayton DT 31:13-

32:2, 103:16-104:4; Ashurst DT 58:4-59:12 [E-139].)[49] Similarly, laundry wastewater from cleaning of the rags used to wipe-up perchlorate and photoflash powder was discharged directly onto the bare ground at the WCLC facility. (Ex. 659; Davis DT 1098:1-17 [E-140].)

Dumping perchlorate-contaminated and photoflash powder-contaminated wastewater outside the various production buildings was so pervasive that water staining was visible from aerial photographs. Stained (or discolored) soil was identified around the back of the photoflash building precisely where mop water was routinely dumped. (Ex. 84; Davis DT 269-19-270:24 [E-141].) The "BD" and "FD" areas marked on Exhibit 111 were "back door" and "front door" locations where mop water contaminated with potassium perchlorate and photoflash powder, and water used to desensitize the spilled chemicals in the mixing rooms, was routinely dumped on the ground (four or more times per day). (Davis DT 373:20-23 [E-142].)

Perchlorate and photoflash wastewater—from mopping and dirty rag rinse water—was dumped onto the ground in sufficient quantities to cause staining of the soil. (Exs. 82, 658; Davis DT 1090:8-15, 1091:4-17 [E-143].) Indeed, WCLC employees were able to identify soil staining on aerial photographs in areas commonly used to dispose of perchlorate and photoflash wastewater, and attributed the staining dumping of such waste water based on the routine nature of the practice. (Ex. 115; Davis DT 441:24-442:18, 450:12-452:21 [E-144].) Building #47 is one location where perchlorate-contaminated mop water was thrown out on the bare ground at least eight times per day. (Davis DT 119:11-129:9 [E-145].)

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[49] William Ashurst was a machine operator at the WCLC Site in Rialto. (Ashurst DT 54.)

3. Fugitive Photoflash Powder And Dust Emissions.

Mixing and handling photoflash powder created photoflash powder dust. (Davis DT 1012:5-10, 1014:3-14 [E-146].) Arnold Clayton testified there was white-colored powder "around every place you stepped" on the bare ground outside the buildings where the photoflash powder was mixed. (Clayton DT 22:10-23:22 [E-147].) Water was applied to the ground to keep the dust from blowing around, which drained into the ground and stabilized the situation until more powder was deposited. (Clayton DT 57:16-59:18 [E-148].) The facility was generally very dirty from black and white dust being blown everywhere and onto everything. (Clayton DT 68:4-15, 102:4-19 [E-149].) Assemblers were concerned that the fugitive dust could impact their ability to breathe. (Clayton DT 260:18-23 [E-150].) The wind at the Property blew strongly enough to blow doors open and powder onto everything and, at times, even strong enough to cause rocks to roll. (Clayton DT 261:16-264:1, 285:8-24 [E-151].)

4. WCLC'S Perchlorate Wastewater Dumping Trench.

In addition to perchlorate and photoflash wastewater being dumped directly onto the Mohave desert soil outside the various production buildings, WCLC stored waste mop water from cleaning the production buildings (i.e., screening, weighing and mixing rooms) in 15 and 55 gallon drums, then transported them to and dumped them into a trench. (Exs. 71A, 80 (KWK43836); Davis DT 163:1-165:9, 184:7-185:2; Skovgard DT 347:3-350:11 [E-152].) At times, rags and gloves used to clean equipment during the production process were put into the mop buckets, the bucket water was then emptied onto the bare ground, and then the gloves and rags were taken to the trench for disposal. (Clayton DT 246:14-247:6 [E-153].)

The trench was bare earth, and approximately six-to-eight feet deep and 10 feet long. (Davis DT 184:7-185:2 [E-154].) The trench is identified on Exhibit 84 as "Trench." (Ex. 84 [E-155].) Various WCLC employees personally witnessed liquid, perchlorate-contaminated waste materials being poured into the trench. (Ex. 244;

Davis DT 262:9-265:11, 793:21-794:21, 799:8-15; Pfarr DT 53:15-54:19; Clayton DT 30:25-31:8 [E-156].) Residual powders and leftover materials in the trench were occasionally burned. (Davis DT 163:1-165:9, 803:6-804:2, 806:25-807:11 [E-157].) 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. (Clayton DT 82:14-83:13 [E-158].) Accordingly, there was ample time for the perchlorate-contaminated wastewater to leach into the bare ground before the debris was ignited.

After being emptied of the waste photoflash powder solution, the 15 and 55 gallon mop water drums were taken to the "Empty Drum" area to await disposal. (Davis DT 218-219; Ex. 82; Clayton DT 30:25-31:8 [E-159].) The empty drums were not covered or otherwise protected from rain. (Davis DT 220 [E-160].)

Spilled photoflash materials or photoflash material that adhered to cups and scoops used in the production process were sometimes wiped down by an employee wearing rubber gloves, after which the gloves were washed with water that was also disposed of in the trench, along with the rubber gloves themselves. (Davis DT 265:15-267:15 [E-161].) Employee observations are corroborated by WCLC's safety regulations for handling Azides, Styphnates, and photoflash powder. (Ex. 80, ¶¶ 10-12, 17 [E-162].) Solutions generated in this process were to be taken "to the disposal pit south of the plant site and drained into the ground." (Id., at ¶ 16.)

The water poured into the trench accumulated and seeped into the bare ground, and on occasion leftover dry residue would be burned. Scrap material was stored in water until it was time for "safe" disposal, at which time it would be poured into the trench. (Ex. 80, ¶ 33; Davis DT 184:7-185:2 [E-163].) Excess waste powder from the assembly process was also taken to WCLC's trench for disposal. (Davis DT 265:15-267:15; Clayton DT 32:3-33:8 [E-164].) Solvents were also disposed of in the WCLC trench. (Davis Ex. 71A, ¶ 10; [E-165].) Every few days,

a worker with a little hand-truck would come and pick-up waste material which included excess solvents to be dumped in the pit but the pit was only burned every six weeks or so. (Clayton DT 30:17-31:12, 82:22-83:13 [E-166].) The material picked-up and taken to the pit included waste material from illuminating flare assembly, such as used cleaning rags soaked in TCE. (Clayton DT 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 [E-167].)

F. Incidents (Fires And Explosions) That Resulted In A Discharge Of Perchlorate.

WCLC records indicate there were at least four explosions and/or fires resulting in losses for which WCLC made insurance claims in 1955 alone. (KWK3149-3152 [E-168].) The losses resulted from "incendiary and/or explosive action." (KWK3149 [E-169].) There were fires in Buildings 7, 47 and 34, resulting in claimed damages to buildings and equipment totaling approximately $22,000. (*Id.*)

Significantly, on April 12, 1955 there was an explosion in Building 42, which was used to load photoflash cartridges. The materials being loaded were "a mixture of; Aluminum Powder, Potassium Perchlorate, and Barium Nitrate, all finely divided." (KWK3150 [E-170].) The building and equipment inside were "completely demolished, four personnel [were] injured, and [there was] minor damage to buildings in the surround area." (Id.) The explosion in the photoflash loading building caused injury to several employees, and one woman was seriously injured. The explosion was caused by the rapid oxidation of photoflash powder in the photoflash loading "hopper." (Gardner DT 121:7-16 [E-171].) First, the photoflash powder in the hopper exploded, then the employee dropped a loaded cartridge, which also exploded. (Davis DT 350 [E-172].) The explosion blew out the back wall of the photoflash cartridge loading rendering it non-functional. (Davis

DT 347:22-352:7, 484:8-489:9 [E-173].) Needless to say, all of the chemicals in the building were lost, too.

Building 42 was rebuilt, and a new loading machine was installed that produced "little or no dust" which was characterized by WCLC as "in contrast with the design of the previous machine." (KWK3151 [E-174].) The procedure for cleaning the new loading machine, however, was the same, and "[a]t regular intervals, maintenance personnel enter the filling cubicle while the machine is shut down and by the use of damp rags, wash down all machine parts, walls, floors, etc. so that at no time is any significant [sic] dust present." (Id.)

IV. RE GOODRICH CORPORATION.

A. Summary Of Perchlorate Discharges By Goodrich Corporation At The Rialto Site (Up To 24,385 Pounds).

From 1957 to 1963, B.F. Goodrich Corporation ("Goodrich") tested and manufactured rocket motors at the 160-acre North Locust Street Site in Rialto, California (the "Site"). The principal component and oxidizer in Goodrich's rocket fuel ("propellant") was ammonium perchlorate. Goodrich propellants were typically seventy percent (70%) ammonium perchlorate by weight. Substantial evidence shows—through former Goodrich employee testimony and government documents—that Goodrich consumed upwards of 125,350 pounds of ammonium perchlorate in its six years of rocket motor *manufacturing*, and upwards of 75,000 pounds of additional ammonium perchlorate for its test programs at Rialto. (See pages 40-59, below.) Goodrich processed its perchlorate at the same facility, in the same buildings and in the same manner as West Coast Loading Corporation, which had a documented 3-5% "wastage" or loss figure for perchlorate from these processes. **Conservatively estimated, Goodrich discharged up to 24,385 pounds of ammonium perchlorate onto the ground at the Rialto Site.**

Goodrich's discharge of ammonium perchlorate into the environment occurred routinely at several steps in Goodrich's rocket motor manufacturing and testing processes. For example:

- Grinding and Mixing—Goodrich ground ammonium perchlorate into powder that "covered the room" which was swept up and dumped in Goodrich's burn pit, and washed out with water directly onto bare ground. Substantial evidence set forth in detail below will show that **as much as 5,860 pounds of ammonium perchlorate was discharged into the environment as a result of Goodrich's grinding and mixing operations**.
- Filing and Trimming—Goodrich filled rocket motors with propellant and trimmed the excess propellant containing ammonium perchlorate from both the "fore" and "aft" ends of the rocket motors. The trimmings were placed in water and dumped in Goodrich's earthen burn pit. Substantial evidence set forth in detail below will show that **as much as 6,275 pounds of ammonium perchlorate was discharged into the environment by Goodrich's loading and trimming operations**.[50]
- Salvaging of Rocket Casings—Defective rocket motors of all types were salvaged and reused by Goodrich "all the time." At least one hundred Sidewinder rocket motor casings were scraped clean of their propellant containing ammonium perchlorate using cutting tools and

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[50] A July 14, 2004 study by TRC, an environmental consulting firm, tested ash and debris left over after a fire in a building containing perchlorate was allowed to burn itself completely out. Surficial samples of debris left over from the fire tested perchlorate concentrations of up to 131,000 ug/kg. The presence of molten aluminum in the debris indicated that the fire temperature exceeded 1,220 degrees Farenheit (the melting temperature of aluminum). Thus, Goodrich's burns likely resulted in large quantities of ammonium perchlorate being left on the bare ground in its burn pit as ash and/or debris. (7/14/2004 (continued...)

high pressure water in just one documented rocket motor salvaging incident. The larger chunks of propellant were dumped into Goodrich's earthen burn pit, and the rest was left on the bare ground at the salvage area on the Site. Substantial evidence set forth in detail below will show **that Goodrich's rocket motor salvaging practices resulted in the discharge of upwards of 8,500 pounds of ammonium perchlorate into the environment.**[51]

- Testing and R&D—Goodrich tested hundreds of rocket motors containing ammonium perchlorate at the Rialto site. Each test motor typically contained approximately five percent (5%) of its propellant in the form of unburned residue after test firing (assuming the test motor functioned optimally and burned completely, which many did not). Leftover propellant residue was removed so the rocket casings could be reused, and was taken and dumped into Goodrich's burn pit. Substantial evidence set forth in detail below shows that **as a result of its testing and research and development programs, Goodrich discharged up to 3,750 pounds of ammonium perchlorate into the environment.**

As previewed above, and set forth in detail herein, the evidence overwhelmingly demonstrates that **Goodrich discharged in excess of 12 tons of**

(...continued)
TRC Study [G-1].)

[51] 2 Ammonium perchlorate is relatively inexpensive. (KWKA00452225 [ammonium perchlorate for the Loki rockets cost Goodrich 51 cents per pound] [G-2].) It was far more important for Goodrich to be concerned with the safety of its workers and keeping work areas clean from perchlorate build up than to recycle or reuse perchlorate. It was also more important that motor casings not be under-filled, in which case they would have to be washed out and re-cast, ("salvaged") than it was to conserve this inexpensive ingredient. The Sidewinder Salvage incident illustrated Goodrich's general approach to the use of perchlorate. If motors were improperly filled or the casting was cracked, the propellant would be removed and discarded, and the motor casings would be (continued...)

ammonium perchlorate into the environment at the Rialto Site during its six years of operations there.

B. Goodrich's 6-Year Rocket Motor Manufacturing And Research And Development Operations At The Site.

In 1957, Goodrich purchased the former West Coast Loading Corporation facility on the 160-acre North Locust Street Site in Rialto, California. The Site was already developed by West Coast Loading Corporation with the facilities necessary to handle and process perchlorate. Goodrich used many of the same buildings for many of the same purposes as West Coast Loading Corporation. Goodrich began its solid-propellant rocket motor testing and manufacturing operations at the Site in 1958, and continued its operations there through 1964.

Goodrich was in the business of "loading fuel into rockets in Rialto." [Polzien DT, 215:20-22 [G-3].)[52] Goodrich almost exclusively used ammonium perchlorate as the oxidizer for all rocket propellants tested and manufactured at the Rialto facility. (Polzien DT 19:11-21:13; see also Polzien DT 203:19-204:1; Sachara DT 198:15-21;[53] Graham DT 132:20-133:7;[54] Haggard DT, 49:18-50:17[55] [Haggard could not recall working with any other oxidizer besides ammonium perchlorate] [G-4].) With two minor exceptions, **all of Goodrich's rocket motors, both those it tested at the Site and those it manufactured for the United States Department**

(...continued)
washed out and reused.

[52] Ronald Polzien has a Bachelor of Science Degree in Aeronautical Engineering, and worked at the Goodrich Rialto facility as the rocket motor Test Supervisor for fourteen months, then as Goodrich's Design Engineer for sounding rockets for another year. (Polzien EPA DT, 16.)

[53] Eugene Sachara was the Senior Engineer at Goodrich's Rialto facility beginning in 1958.

[54] John Graham worked as a chemist for Goodrich at the Rialto site beginning in 1958.

[55] Jimmie Haggard was a production worker at the Rialto Goodrich facility from 1960 through 1963.

of Defense at the Site, used propellants containing ammonium perchlorate. (Polzien DT, 19-21; Haggard DT 49-50 [G-5].)

In addition to manufacturing Sidewinder and Loki rocket motors for delivery to the military, Goodrich conducted research and development for various ammonium perchlorate-based solid rocket propellant formulae at the Site, and also conducted quality control testing for the Sidewinder and Loki rocket motors. (Polzien DT 30:7-12 [G-6].) Goodrich constructed a special "test bay" at the Site for conducting research and development and rocket motor quality control testing. (Polzien DT, 26-27, Ex. 269 [G-7].) Goodrich also constructed a new, larger 150-gallon "mixer" building (Polzien DT 93, Ex. 288 [G-8]) for mixing large batches of solid, ammonium perchlorate-based rocket motor propellant to fulfill its government contract for Sidewinder missile motors (Polzien DT 201 [G-9]). In 1964, Goodrich ceased its operations at the Rialto Site, and subsequently leased its facility to Ordnance Associates, Inc. In 1966, Goodrich sold the facility to Century Investment Company.

C. Rocket Motors Containing Ammonium Perchlorate That Were Manufactured And Tested By Goodrich At The Rialto Site.

1. Goodrich Used Over 26 Tons Of Ammonium Perchlorate To Manufacture The Sidewinder Rocket Motor At The Site.

Goodrich manufactured and tested Sidewinder rocket motors containing ammonium perchlorate at the Rialto Site. (Polzien DT, 22:11-23:10; 233:13-24; Graham DT 96:11-16; Ex. 274 [photographs of Goodrich technicians working on Sidewinder rocket motors produced at the Rialto Site] [G-10].) Former Goodrich employees estimated that the Sidewinder rocket motor was approximately six feet long and six to eight inches in diameter. (Wever[56] DT, 347:7-24 [G-11].)[57]

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[56] Dwight Wever was both Safety Engineer and a program manager at the Goodrich Site in Rialto.

Goodrich's former Test Engineer estimated that each Sidewinder contained between 100 and 120 pounds of solid rocket propellant. (Polzien DT 748 [G-12].)[58] The Test Engineer's testimony corroborates data contained in official government documents obtained by Rialto, which establish that each Sidewinder rocket motor weighed 190 pounds, was 51.3 percent, or 97 pounds of propellant by weight and that the propellant was 75% ammonium perchlorate by weight. (Principles of Guides Missiles and Nuclear Weapons, Prepared by: Bureau of Naval Personnel NAVPERS 10184 (1959), pp. 60-65. [G-13].)

As a general rule of thumb, all of Goodrich's solid rocket propellant for all types of rocket motors manufactured in Rialto contained more than fifty percent ammonium perchlorate by weight as the oxidizer. (Sachara DT 129:13-24 [G-14].) For the Sidewinder rocket motor, Goodrich's Test Engineer estimated the propellant formulae (referred to as "C5-09") at seventy to eighty percent ammonium perchlorate. (Polzien DT 339-340, 935, 975, 1163, Ex. 267 [G-15].). Accordingly, based on Goodrich employee testimony from those who worked on testing and producing Sidewinder rocket motors manufactured at the Site each Sidewinder contained approximately 78 pounds of ammonium perchlorate (80% of 97 pounds).

Goodrich cast at least 723 Sidewinder rocket motors at the Rialto Site. Goodrich's former Test Engineer estimated that the military had ordered at least

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(...continued)

[57] Current published Navy specifications for the Sidewinder show a historical diameter of **five inches**. See http://www.navy.mil/navydata/fact_display.asp?cid=2200&tid=1000&ct=2 (April 2, 2007).

[58] The Regional Water Quality Control Board Advocacy Team conservatively estimated that each rocket contained approximately 64 pounds of propellant and, accordingly 45 pounds of ammonium perchlorate. The Hearing Officer is, however, entitled to rely on Test Engineer and rocket scientist Polzien's testimony that each rocket contained approximately 85 pounds of ammonium perchlorate as a person, which is corroborated by official Defense Department publications, who actually worked with and tested the Sidewinders on a regular basis.

500 Sidewinder rocket motors while he worked at Goodrich. (Polzien DT 234:8-11 [G-16].) However, official government documents show that Goodrich **delivered at least 319** Sidewinders rocket motors to the U.S. Navy, and "**cast" an additional 311** Sidewinder rocket motors that were **not delivered** because of defects. Thus, official government records establish that Goodrich loaded at least 630 Sidewinder rocket motors with ammonium perchlorate-based propellant at the Rialto Site.

ENCLOSURE (1) 1 December 1962

MOTOR LOADING

As reported last month, (October report dated 1 Nov 1962) 200 Mk 31 Mod 0 and 119 Mk 36 Mod 0 motors were delivered to NOTS and 311 (net Lot 3) Mk 36 Mod 0 motors were in the process of final assembly. The latter motors were cast in July through September and passed inspection criteria under the existing specifications. All indications were, at the last report, that final delivery of Lot 3 would occur during this month and that motors from this lot would be available (for scheduled OPTEVFOR tests) in December 1962 unless unpredicted delays occurred.

These delays have occurred during the month of November. The loading contractor (B. F. Goodrich, Rialto, California) experienced a new head end propellant grain cracking problem when he began final assembly of Lot 3 motors about 1 November 1962. The extent of this problem was not fully realized by the contractor and reported to both NOTS and NPP until after final re-inspection results available about 15 November 1962.

KWKA00452719-23, at KWKA004521, Benisek Decl., Ex. A [G-17].)[59]

Following the propellant grain cracking incident described in the above Navy memorandum, in early 1963, Goodrich cast thirty-six (36) additional Sidewinder motors as part of its attempt to remedy the cracking problem. (KWKA00452728-35; see also Wever DT 345:7-22 [G-18].).

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[59] The Regional Water Quality Control Board Advocacy Team ("Advocacy Team") posited in their submission that only 319 Sidewinders were manufactured. It is likely the Advocacy Team overlooked the 311 Sidewinder test motors that were "cast" at Goodrich with ammonium perchlorate containing propellant, but not delivered to the Navy because of the cracking problem noted in the official (continued...)

Finally, in addition to the three categories of Sidewinder motors loaded with propellant by Goodrich at the Rialto Site set forth above, Goodrich manufactured Sidewinder motors for both "quality control" and "qualification" testing at the Rialto Site. (Polzien DT 30-31 [G-19].). One Sidewinder rocket motor out of every batch was tested, and Sidewinder motors were cast in batches of (12) twelve (i.e., for every batch of (12) twelve motors, only (11) eleven would be delivered to the customer). (Wever DT 45:17-25 [G-20].) Accordingly, the 630 Sidewinder rocket motors Goodrich cast and/or delivered to the Navy were the product of at least (57) fifty-seven individual batches. Given that Goodrich tested one Sidewinder motor for each batch, Goodrich must have loaded at least (57) fifty-seven extra "test" Sidewinder motors with ammonium perchlorate-based propellant for quality control testing. Goodrich's Sidewinder rocket motor production can be summarized as follows:

Sidewinder Motors Filled With Perchlorate Based Propellant	
Delivered to U.S. Navy	319
"Cast" but not delivered	311
"Cast" to address propellant cracking	36
"Cast" for testing and qualifying	57
Total	723

In sum, as many as 723 Sidewinder rocket motors were loaded with solid rocket propellant containing ammonium perchlorate at Goodrich's Rialto facility. At 78 pounds of perchlorate in each Sidewinder rocket motor, **Goodrich would have consumed at least 56,394 pounds of ammonium perchlorate at the Site to manufacture and test Sidewinder rocket motors alone**.

(...continued)
government document.

2. Goodrich Used Over Eleven Tons Of Ammonium Perchlorate To Manufacture The Loki 1 And Loki Iia Rocket Motors At The Rialto Site.

(a) The LOKI 1 Rocket Motor.

Goodrich manufactured and tested LOKI 1 rocket motors at the Rialto Site.[60] The LOKI 1—also referred to as the 3.0" Rocket Motor Mk 1 Mod 0—utilized ammonium perchlorate in its propellant formula. (KWKA00452225-2228; Polzien DT 22:11-23:10]; Sachara DT 53:10-54:4; 126:10-128:16 [G-22].) Goodrich's Test Engineer estimated that the LOKI 1 propellant contained 70% to 80% ammonium perchlorate. (See e.g., Polzien DT, 22-23, 935, 975, 1163 [G-23].) However, an official United States Army report specifies that the LOKI 1, which utilized a "Thiokol" formula, contained 71.5% ammonium perchlorate by weight. (KWKA00451956-2027, at KWKA00451993 [G-24].)

Goodrich's official communications with the Bureau of Ordnance show that Goodrich estimated the need for 7,850 pounds of ammonium perchlorate to manufacture and deliver 600 LOKI 1 rocket motors, or approximately 13.08 pounds of ammonium perchlorate per LOKI 1 rocket motor:

[60] Exs. 271, 278, 279, 280, 281, 282, 283 and 284 are photographs of various Goodrich technicians handling Loki rockets at various stages of production at the Goodrich Site in Rialto [G-21].)

B.F.Goodrich Aviation Products
A Division of The B.F.Goodrich Company
Akron, Ohio

15 May 1959

ESTIMATED COST BREAKDOWN

BUREAU OF ORDNANCE, WASHINGTON, D. C. QUOTATION NOrd-246-59, REQUISITION NO. 4590-335-9 - LOKI 1 (T-2006) 0 ROCKET MOTORS

NOrd 246-59 LOKI 1

Item 2 - Delivery 600 Motors with GFE Cases

Material

Thiokol LP-33	4,020 Lbs.	$ 4,520
Ammonium Perchlorate	7,650 Lbs.	4,020
GMF	911 Ea.	895
Miscellaneous	5,100 Lbs.	705
Igniters		9,360
X-Ray		7,560
Bore Riders		10,200
Packing Cases		4,800
Head Seals, Nozzle Seals and Reduce fin size		2,820
Total Materials		$ 50,880

(KWKA00452225-28, at KWKA00452225 [G-25].). Goodrich's estimate of 13.08 pounds of ammonium perchlorate per LOKI 1 is very close to the confirmed 12 pounds of ammonium perchlorate necessary for each LOKI IIA. (See discussion *infra* re LOKI IIA). Given what is known about loss rates in the handling of perchlorate at the Goodrich Rialto facility, the additional 1.08 pounds of perchlorate per rocket was likely needed to both meet the demand for 600 rocket motors and account for the perchlorate lost in production processes.

Former employees estimated "a couple hundred" LOKI 1 rocket motors were manufactured by Goodrich in Rialto. (Haggard DT 17:19-18:5 [G-26].) More precisely, however, Goodrich had a contract with the Bureau of Ordinance to deliver 600 LOKI 1 rocket motors (KWKA00452114-18, at KWKA00452118 [G-27].) But, subsequent official government documents suggest Goodrich ultimately only delivered 330 LOKI 1 rocket motors under the contract because of motor defects. (See KWKA00452488-90, KWKA00452500-03, KWKA00452544-45, KWKA00452557-59 [G-28]).

Testing requirements were similar to those for the Sidewinder, and Goodrich's Test Engineer testified Goodrich tested at least one LOKI 1 motor per batch. (Polzien DT 30:23-31:23; 213:16-18; [G-29].) LOKI 1 motors were manufactured in batches of 20 to 25 motors. (Wever DT 159:2-15 [G-30].) Goodrich would have had to manufacture approximately 16 batches of LOKI 1 motors to deliver 330 motors to the U.S. military. Therefore, Goodrich would have cast and tested approximately 16 additional LOKI 1 rocket motors as a part of its contract to deliver 330 finished LOKI 1 motors.

Finally, Goodrich experienced certain propellant crack defect issues with the LOKI 1. Goodrich reported at least 22 LOKI 1 motors developed propellant cracking causing the motors to be undeliverable. (See KWKA00452271-77, at KWKA00452271 [G-31].) The propellant from the defective LOKI 1 motors was cut-out, and solvents were used to thoroughly clean the insides of the casings. (Bland DT 231:23-232:9 [G-32].)[61] **Goodrich loaded approximately 377 LOKI 1 rocket motors**.

(b) The LOKI IIA Rocket Motors.

Goodrich manufactured and tested LOKI IIA rocket motors at the Rialto Site. (Polzien DT 22:11-23:10 [G-33].) Ammonium perchlorate was the oxidizer used in Goodrich's LOKI IIA rocket motors. (Polzien DT 220:21-221:4; KWKA00452060-75 [G-34].) Each LOKI IIA rocket motor contained approximately 17 pounds of propellant, and was seventy percent (70%) ammonium perchlorate by weight. (KWKA00451993-2027, KWKA00452060-75, KWKA00452572-91; Ex. 267; Polzien DT 22-23; 935, 975, 1163 [G-35].) Accordingly, each LOKI IIA rocket

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[61] Gerald Bland originally worked for West Coast Loading Corporation in the photoflash cartridge department handling perchlorate (Bland DT 27), then at Goodrich he worked in the rocket motor curing area cutting "pipe" or "trim" from the cured motors (Bland DT 93-94).)

motor manufactured by Goodrich contained approximately 12 pounds of ammonium perchlorate.

Former Goodrich employees did not have a definitive recollection on the number of LOKI IIA rocket motors manufactured by Goodrich. However, a 1961 technical paper prepared by Earl Denison and Archie B. Japs of B.F. Goodrich and entitled "*Rocket Motors For Meteorological Studies*," documents that by December, 1961, Goodrich had already manufactured **1,000 LOKI IIA rocket motors** at the Rialto Site. (Earl Denison and Archie B. Japs, December 5, 1961, p. 2 [G-36].) Of these 1,000 LOKI IIA motors, 63 were static test fired by Goodrich. (*Id.*) The Goodrich company document further establishes that Goodrich had also manufactured an **additional 500 Mark 32 Mod O rocket motors** (the Navy's version of the LOKI IIA), and static test fired 100 of these motors. (*Id.*, at pp. 1, 5.). In sum, by December, 1961, Goodrich had loaded at least 1,500 LOKI IIA rocket motors at the Rialto Site.[62]

Goodrich's overall LOKI rocket motor production can be summarized as follows:

LOKI Motors Filled With Perchlorate Based Propellant	
Delivered LOKI 1s	330
Tested LOKI 1s	16
Defective LOKI 1s	22
Manufactured LOKI IIAs	1,000
Manufactured Mark 32 Mod 0 (Navy's version of LOKI IIA)	500
Total	1,868

Given that each LOKI 1 and LOKI IIA rocket motor required 12 pounds of ammonium perchlorate (not accounting for the 1.08 pounds lost in the production

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[62] The Regional Water Quality Control Board Advocacy Team's estimate on the number of Loki IIA's produced does not account for the 500 mark 32 Mod O (Navy version of the Loki IIA) rocket motors, which contained the same quantity of ammonium perchlorate as the regular Loki IIA rocket motors.

process), Goodrich consumed **at least 22,416 pounds, or over 11 tons of ammonium perchlorate to manufacture LOKI rocket motors at the Rialto Site.**

D. Goodrich Manufactured And Tested Numerous Other Rocket Motors Containing Ammonium Perchlorate.

In addition to the Sidewinder and LOKI rocket motors, Goodrich manufactured and/or tested the following rocket motors at the Rialto Site:

- The ATMOS;
- The ASP 1;
- The ASP 4;
- Spherical rocket motors;[63] and
- JATO (Jet Assisted Take-off) motors for use in testing propellants.

(Polzien DT 217:7-218:16; 22:11-23:10, 253:11-14, Exs. 272, 273 [photographs of Goodrich technicians in Rialto with a JATO test rocket motor containing 90 pounds of propellant]; 275, 276, 277 [photographs of Goodrich technicians with carts of spherical rocket motors manufactured in Rialto]; 285 [photograph of Goodrich technician with unknown type of rocket motor in Rialto]; 287 [photograph of ASP IV Rocket motor hanging from a pulley at the Goodrich Rialto site] [G-38].) Only a few ATMOS rocket motor were manufactured, but each motor contained an estimated 50 pounds of ammonium perchlorate. (Polzien 217:7-218:16 [G-39].)

Approximately twelve ASP 1 motors, and less then ten ASP 4 motors, were manufactured at Goodrich's Rialto Site. (Bland DT 188:15-189:9; Sachara DT 56:15-57:10 [G-40].) However, both models contained a "couple hundred pounds" of perchlorate-based propellant. (Polzien DT 89:13-91:10, 229:12-23; Sachara DT

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[63] Goodrich's Test Engineer believed, but could not recall with absolute certainty, that Spherical motors were loaded with ammonium perchlorate. (Polzien DT 253:11-14, 779:20-780:1 [G-37].) Former employees were unable to estimate how many Spherical motors were manufactured and/or tested.

53:10-54:4 [G-41].) Assuming each ASP contained the lower end of ammonium perchlorate concentration of 70%, each ASP would still contain approximately 140 pounds of ammonium perchlorate. At least four of the ASP rockets were test fired in Rialto. (Polzien DT 109:22-110:8 [G-42].) The JATO, or jet assisted take-off motor, contained 90 pounds of propellant, and Goodrich manufactured and tested at least 12 of these motors in Rialto. (Polzien DT 49:24-51:20, 557:5-8, Ex. 272 [G-43].) Again, assuming each JATO contained the lower end of ammonium perchlorate concentration of 70%, each JATO contained 63 pounds of ammonium perchlorate.

The following chart summarizes the quantities of these additional rocket motors and their respective amounts of ammonium perchlorate:

Miscellaneous Motors Filled with Perchlorate Based Propellant				
ATMOS:	5 motors x.	50 lbs perchlorate	=	250 lbs
ASPs:	22 motors x.	140 lbs perchlorate	=	3,080 lbs
JATOs:	12 motors x.	63 lbs perchlorate	=	756 lbs
TOTAL:				4,086 lbs

Accordingly, **Goodrich consumed an additional 4,086 pounds of ammonium perchlorate in its manufacturing and testing of the ATMOS, ASP and JATO rocket motors in Rialto**.

E. Goodrich Discharged Up To 24,385 Pounds Of Perchlorate To The Bare Ground At Its Rialto Site.

1. Goodrich Rocket Motor Salvaging Discharged At Least 4 Tons Of Perchlorate Into The Environment.

Goodrich was continually in the process of scraping out ammonium perchlorate-based rocket propellant from rocket motor casings in order to salvage them. (Bland DT 236:11-237:17 [employees were cleaning out rocket casings "all the time"] [G-44].) As discussed above, in October 1959, Goodrich discovered

propellant grain cracking in LOKI 1 rocket motors, requiring the salvaging of at least 22 motors. (See XXXXXXXXXsupra, Section III(B).) Similarly, in late 1962, Goodrich discovered propellant grain cracks in loaded Sidewinder motors. (KWKA00452719-723 [G-45].) Goodrich's Test Engineer estimated as many as 100 defective Sidewinder motors were "salvaged" on the Site in one incident. (Polzien 199:6-201:11; Ex. 267 [G-46].)[64]

Goodrich employees salvaged motors by using a cutting tool with a long shaft that reached through the length of the motor casing. (Wever DT 353:5-356-15, Polzien DT 146:25-147:23 [G-47].) Solvent was then used to clean-out any remaining perchlorate-based propellant from the casings. (Id.) Goodrich's Testing Engineer recalls witnessing salvage operations outside on a concrete pad. (Polzien DT 1203:25-1205:12 [G-48].) However, two former Goodrich employees who actually participated in rocket motor salvaging recalled scraping out propellant from motor casings over bare ground. (Bland DT 229:18-233:1; Haggard DT 119:4-13, 208:21-209:23, 211:18-212:5, 213:4-9 [G-49].) The perchlorate-based propellant scraped from the motor casings was either caught in trays, placed in buckets filled with water, or scattered on the ground. (Polzien DT 153:22-154:23; Haggard 115:7-116:24; 119:14-22; Wever DT 353:5-356-15 [G-50].) In some instances, perchlorate-based propellant scraped from Sidewinder motors was allowed to imbed in the bare ground next to the salvaging operations, creating a

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[64] The Advocacy Team estimated between 24 and 35 Sidewinders were salvaged. These figures were based mostly on the testimony of former Goodrich employees Dwight Wever, and to a lesser extent, Jimmie Haggard. However, Department of Defense documents show conclusively that 311 Sidewinder rocket motors were determined defective and not suitable for delivery. See KWKA00452719-23, at KWDA004521 [G-47]. Goodrich Test Engineer Polzien, who worked at the site and witnesses the incident, estimated as many as 100 Sidewinders were salvaged. Moreover, other Goodrich witnesses testified that rocket motor salvaging was taking place "all the time." Accordingly, the Advocacy Team's estimate is too low, and the Hearing Officer should conclude the more likely figure is 100 Sidewinder motors as estimated by Engineer Polzien.

"continuous" fuse effect. (Polzien DT 153:22-154:23 [G-51].) All large chunks of extracted propellant were eventually taken to Goodrich's burn pit for disposal. (Polzien DT 87:1-24; 153:22-154:23; Wever DT 353:5-356-15 [G-52].) The following chart summarized the amount of perchlorate-based propellant that was removed and sent to Goodrich's burn pit for disposal or spilled onto the bare ground during salvage operations:

Motors Salvaged with Perchlorate Based Propellant				
Sidewinders:	100 motors	x. 78 lbs perchlorate	=	7,800 lbs
LOKI 1s:	22 motors	x. 12 lbs perchlorate	=	264 lbs
TOTAL				8,064 lbs

In summary, **Goodrich extracted over 4 tons of perchlorate-based propellant from various rocket motor casings and dumped it into Goodrich's burn pit and/or onto the bare ground**. In many instances the perchlorate-based propellant was mixed with water before disposal, or simply left on the bare ground before being picked-up for disposal.

2. Goodrich's Production Process Created A Stream Of TCE And Perchlorate Waste That Was Discharged Onto Bare Ground.

(a) Processing - Drying And Grinding Of Ammonium Perchlorate.

Ammonium perchlorate arrived at Rialto in cardboard drums larger than 55 gallon drums. (Wever DT, 11-17 [G-53].) The grinding room had ovens, a grinder and two doors. The ovens were used to keep the oxidizer dried to a certain specification in preparation for grinding. (Haggard DT 89:4-92:17; Polzien DT 262:24-263:2 [G-54].) The perchlorate would then be removed with a scoop and poured into a hopper for grinding. (Haggard DT, 93:22-94:24 [G-55].) The grinder would take the coarse, salt-like ammonium perchlorate and grind it into a fine powder. (*Id.*) Ammonium perchlorate was "ground" to a specified particle size to

achieve particular burn rates. (Polzien DT, 268:3-18; Wever DT, 35:13-36:8 [G-56].)

Grinding ammonium perchlorate created a fine dust that would dissipate throughout the grinding room—"it covered the whole room." (Haggard DT 99:22-100:18 [G-57].) To clean-up the perchlorate dust, the room would be swept with a push broom and then mopped with water after every use of the grinder. (Haggard DT 101:18-104:22 [G-58].) The sweepings were taken away to the burn pit, and the floor (which according to Goodrich witnesses was still dusted with residual perchlorate) was washed down with water that was dumped directly onto the bare ground outside the grinding room. (Wever DT 40:14-42:23; 164:5-20 [G-59].) Goodrich's former production workers estimated that as much as two cups of perchlorate dust, which was mopped and washed down with water, still remained on the floor after each use of the grinding room. (Wever DT 44:23-45:11 [G-60].)

(b) Processing – Mixing Perchlorate Into Rocket Propellant.

Goodrich had two production mixers—a 100 gallon mixer and a 150 gallon mixer. (Wever DT 38:19-25; 246:15-19, Exs.102, 288 [G-61].)[65] After ammonium perchlorate (oxidizer) and fuel were mixed in the mixer, the resulting propellant was transferred into a "transfer pot." (Haggard DT 40:18-42:16 [G-62].) The transfer pot was placed below the mixing pot and a valve was opened on the mixing pot allowing the propellant to flow into the transfer pot. The consistency of the propellant was "thick" similar to "honey." (*Id.*) Mixing equipment was cleaned after every batch of propellant was mixed. (Polzien DT 272:4-22]; 1229:17-1230:11 [G-

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[65] Goodrich maintained a separate research and development mixer that generated solid rocket propellant waste. (Wever DT 269:11-271:23 [G-62].). As with the production slurry waste described herein, this propellant waste was always taken to Goodrich's burn pit for disposal. (*Id.*)

63].) Dust from the floor of the mixing room was "swept and mopped" as necessary. (Haggard DT 62:22-63:10 [G-64].)

After mixing, the leftover propellant was scraped out of the mixers with scrapers (similar to a spatula) before the mixers were cleaned. (Haggard DT 51:23-53:22 [G-65].) Workers used beryllium tools to scrape out as much propellant by hand as they could first. Excess propellant that was scraped out of the mixer was placed into buckets. (*Id.*)

The mixers required "perfect" cleaning before they could be used again. (Haggard DT 53:23-55:13 [G-66].) Some amount of propellant would be leftover even after hand scraping the mixers. (Id.) To achieve the "perfect" clean, **TCE was poured into the mixer where it was "sloshed around**." (Wever DT 58:6-59:21 [G-67].) The TCE/perchlorate-based propellant slurry was then poured into 55 gallon drums. (Id.) Wever specifically recalled using TCE mixing both the LOKI and Sidewinder propellants. (Wever DT 57:22-58:15 [G-68].). Gerald Bland also confirmed that TCE was used to clean the mixers and in its "final process building." (Bland DT 229:18-233:1; 233:20-235:5 [G-69].) TCE was kept at Goodrich's Rialto facility in 55 gallon drums (Bland DT 116:17-19 [G-70]), and production worker Wever estimates that Goodrich used as many as 10 such drums. (Wever 117:8-118:4; 321:9-23 [G-71].) All the waste from the mixing process, including leftover perchlorate-based propellant, TCE/propellant slurry and cleaning rags were subsequently disposed of in Goodrich's burn pit. (Wever DT 57:22-58:15, 280:2-281:12 [G-72].)

(c) Loading Rocket Propellant Into Casings.

The transfer pot containing the mixed perchlorate-based propellant was next taken to the oven room to fill LOKI, Sidewinder and other rocket motor casings. The transfer pot was lifted over the rocket casings (within the oven) and the propellant was allowed to drain into the casing. The same cleaning procedure and use of TCE was applied to the transfer pots. (Haggard DT 59:16-25 [G-73].) Prior

to filling, a "mandrel" was inserted into each rocket motor casing. The mandrel is a device that is inserted into the rocket, around which the propellant cures to form a circle or star (whatever the grain design may be for the rocket). After rockets were filled they were "cured" or baked. (Haggard DT 66:21-67:7 [G-74].) The oven room was swept with a broom and dustpan after every operation, and the sweepings were placed into a container and later taken to the burn pit. (Haggard DT 71:25-74:8 [G-75].)

(d) "Trimming" Perchlorate-Based Propellant From Loaded Rocket Motors.

After curing, rocket motors were allowed to cool and then were taken to the finishing building where the mandrel was removed. (Haggard DT 68:10-22; Wever DT 26:11-27:17 [G-76].) Goodrich rocket motors were overfilled to accommodate any shrinkage that occurred in the curing process. (Polzien DT 103:18-106:4 ["[W]hen rocket motors are loaded . . . they are overfilled so that when they're subs -- any shrinkage that occurs during the subsequent cure of the propellant is accommodated by the overfill. So, at the -- after the motor is cured, there is surplus propellant, a big lump of it sticking out the rear-end."] [G-77].) This excess propellant was often referred to by the Goodrich employees as "trim" or "pipe." (Polzien DT 106:15-108:2 [G-78].)

Goodrich rocket motors were trimmed with an exacto knife at both ends. (Haggard DT 74:24-77:22 [G-79].) The trimmings would be placed in a bucket containing water and left at the door for another crew to dispose of at the burn pit. (Id.) All rocket motors were trimmed because all rockets were overfilled to accommodate propellant shrinkage in the curing process. (Polzien DT 103:18-106:4, 1232:17-1233:24 [G-80].) In addition to trimming, the head of each rocket motor (LOKI rockets in particular) would be ground by a spinning cylindrical cone grinding device so that the head cone of the rocket would fit onto the motor. The solid propellant containing perchlorate ground in this way would be converted into a

substance similar to saw dust. (Bland DT 173:8-176:7 [G-81].) For Sidewinders rocket motors, Goodrich's Test Engineer comfortably estimated that five percent of total propellant weight was trimmed from the casings as a result of overfilling. (Polzien DT 139:17-141:22 [G-82].)

All "scrap" propellant and trimmings were disposed of in Goodrich's burn pit. (Polzien DT 1230:22-1231:4; Wever DT 26:10-27:17; 49:6-20 [G-83].) Scrap included everything removed from the rocket motor after curing, including excess perchlorate (oxidizer) or polymer that had spilled, the solvent used to clean the rocket casing, pipe or trim and the propellant ground into "sawdust." (Polzien DT 106:15-108:2 [G-84].)

(e) Goodrich's Production Process Resulted In The Environmental Discharge Of 2 Tons Of Ammonium Perchlorate Onto Bare Ground.

Goodrich consumed approximately 80,000 pounds of ammonium perchlorate in the manufacturing of Sidewinder, LOKI and other various rocket motors. (See pages 40-57, infra.) The various motor production stages described herein conclusively demonstrates a consistent pattern of production waste that accompanied the manufacturing of Goodrich's rocket motors (i.e., grinding, mixing, trimming, etc.). Applying a production waste factor of three to five percent (the same waste factor percentage used by WCLC and supported by the evidence herein), Goodrich necessarily discharged up to **4,000 pounds of perchlorate waste slurry directly into the environment.**[66]

[66] The Advocacy Team did not attempt to quantify the perchlorate discharged into the environment by Goodrich through the disposal of its production wastes at its burn pit.

F. Goodrich Rocket Motor Testing Was Responsible For Discharging Another 396 Pounds Of Perchlorate Into The Environment.

As discussed above, Goodrich typically tested at least one rocket per batch, whether Sidewinder, LOKI or other. (See page 48, infra.) Goodrich tested upwards of 57 Sidewinder motors, 16 LOKI 1 motors, 163 LOKI IIA motors, 12 JATO motors, and four ASP motors. Tested rocket motors typically did not consume 100 percent of their loaded solid rocket propellant. (Polzien DT 493:24-494:16 [G-85].) Goodrich's Test Engineer estimated that each tested rocket motor retained five percent of its loaded solid rocket propellant (called the "sliver"). (Polzien DT 500:6-501:11 [G-86].) Moreover, test rockets often "self-extinguished," leaving chunks of unburned propellant, which was not reused. (Polzien DT 217:7-218:16 [G-87].) Leftover propellant in tested rockets was cleaned out to permit the motor casing to be used again. (Graham DT 194:22-195:12, 217:7-218:16 [G-88].) All scrap propellant was taken to Goodrich's burn pit for disposal. The following charts illustrate the number of rocket motors Goodrich tested for quality control purposes, and the leftover propellant that was discharged into the environment:

Rocket Motors Tested for Quality Control	
Sidewinders	57
LOKI 1	16
LOKI IIA	163
JATO	12
ASP	4
Total	252

Amount of Perchlorate From Removal of Five Percent of Leftover Propellant						
Sidewinders 57 Motors	x.	68-78 lbs Perchlorate	x.	0.05%	=	194 – 222 lbs
LOKI 1s 16 Motors	x.	12 lbs Perchlorate	x.	0.05%	=	10 lbs
LOKI IIAs 163 Motors	x.	12 lbs Perchlorate	x.	0.05%	=	98 lbs
JATOs 12 Motors	x.	63 lbs Perchlorate	x.	0.05%	=	38 lbs
ASPs 4	x.	140 lbs Perchlorate	x.	0.05%	=	28 lbs
TOTAL:						**396 lbs**

Goodrich's quality control testing directly resulted in an additional 366 to 396 pounds of ammonium perchlorate being discharged into the environment.[67]

G. Goodrich's Unlined, Earthen Burn Pit.

The last stop for much of Goodrich's perchlorate and TCE waste slurry was Goodrich's unlined earthen burn pit, where perchlorate and TCE were dumped onto the bare ground to await ignition - sometimes for days. The pit was five to six feet deep, between 25 and 30 feet long, and had an earthen bottom. (Polzien DT 121:3-123:3, 126:12-127:3; Wever DT 331:17-332:7 [G-90].) All production waste, other than perchlorate and TCE slurry that was dumped on bare ground as described herein, was "exclusively" disposed of at Goodrich's earthen unlined burn pit. (Polzien DT 121:3-123:3 [G-91].) There was no cover or lining on the Goodrich burn pit to protect it from wind or rain, or to prevent seepage beneath the pit, and the surface of the pit was visibly "charred" and covered with residue. (Polzien DT 123:5-19; 275:19-276:4; 276:24-277:11[G-92].) The TCE and

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[67] The Advocacy Team did not attempt to quantify the amount of perchlorate Goodrich discharged into the environment in its testing and research and development activities. Rialto's testing figures herein only address "quality control testing" and do not include any quantification of Goodrich's "experimental testing" and "qualification testing." These two other forms of testing occurred regularly at Goodrich's Rialto facility (Polzien DT 203:13-18 [G- (continued...)

perchlorate waste slurry poured into the pit was frequently left overnight. (Polzien DT 128:22-130:15 [G-93].)

Production worker Wever explained that there were three general sources of waste material dumped into the burn pit: (1) leftover oxidizer residue and slurry from the grinding room; (2) leftover propellant and TCE slurry from the mixing room; and (3) leftover trim or pipe and slurry from the finishing room. (Wever DT 27:21-29:7; *see also* Polzien DT 121:3-123:3 [G-94].) Additionally, perchlorate-based propellant salvaged from defective rocket motors was dumped in Goodrich's burn pit. (Polzien DT 87:1-24, 153:22-154:23; Wever DT 353:5-356-15 [G-95].). As discussed previously herein, salvaged Sidewinders and LOKIs alone accounted for upwards of 8,000 pounds of perchlorate and perchlorate/TCE slurry being deposited in Goodrich's burn pit. Finally, the "sliver" and unburned propellant removed from tested rocket motors was also dumped in Goodrich's burn pit.

Goodrich followed the following standard operating procedure for disposing of propellant waste and slurry in the burn pit: (1) First, "scrap propellant" slurry from the mixing and trimming rooms was placed at the bottom of the pit; (2) Second, dry perchlorate powder was spread on top of the propellant waste slurry; and (3) Finally, rags, TCE and other solvents, and solvent/propellant slurry waste was poured over the top of the other waste. (Wever DT 61:23-62:20 [G-96].)

Production worker Wever located Goodrich's burn pit on Exhibit 40 (year 1960 photo) by circling the pit and identifying it as "BP." (Ex. 40; Wever DT 95:2-16 [G-97].) Goodrich's use of the burn pit was correlated with the rocket motor production cycle, but at a minimum, the pit was used after every propellant batch was made. (Polzien DT 125:2-126:1; Wever DT 60:14-17 [G-98].) Goodrich's burn pit was ignited at least once a week and sometimes three-to-four times per week if

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production was heavy. (Polzien DT 131:10-132:4 [G-99].) A typical burn lasted one to two minutes, and caused heavy black smoke (as opposed to test burns which burned white because combustion was more complete). (Polzien DT 133:24-134:24 [G-100].).[68]

V. RE PYRO SPECTACULARS, INC.

A. Summary Of Perchlorate Discharges By Pyro-Spectaculars, Inc. (1470 pounds.)

1. Pyro Spectaculars, Inc. Discharged Up To 800 Pounds Of Perchlorate By Disposing Of Aerial Display Fireworks Containing Perchlorate In The "McLaughlin Pit".

From 1979 through 1987, Pyro-Spectaculars, Inc. ("PSI") disposed of its damaged, defective and off-specification aerial display fireworks in a concrete swimming pool, commonly known as the McLaughlin Pit, built by Pyrotronics at 3196 North Locust Avenue in Rialto. Potassium perchlorate was one of the chemicals commonly found in the aerial display shells disposed of in the Pit. PSI disposed of about 15 or 20 aerial display shells in the Pit a month, and each shell contained about 800 grams of pyrotechnic content. The Pit was not protected from rain, and was observed overflowing onto the bare ground on a number of occasions. Accordingly, given the average number of shells per month disposed of in the Pit by PSI and the average percentage of perchlorate in its pyrotechnic composition, substantial evidence supports a finding that PSI discharged up to 800 pounds of potassium perchlorate onto the ground around the McLaughlin Pit. (See pages 65-72 below.)

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[68] As shown by the TRC Report from the Astro Pyrotechnics fire and the two NASA Studies cited in the portion of Rialto's brief addressing PSI's responsibility under the CAO, perchlorate does not completely combust in fire.

2. Pyro-Spectaculars, Inc. Discharged Over 550 Pounds Perchlorate By Burning Tons Of Defective, Damaged And Off-Specification Fireworks And Pyrotechnic Composition Wastes Containing Perchlorate In Its On-Site Burn Pit.

PSI operated a burn pit on its 3196 Locust Avenue Site. On at least two occasions, PSI burned "full truckloads" of pyrotechnic composition powders and off specification fireworks from its manufacturing division - Astro Pyrotechnics. PSI obtained permits to burn a document 11,000 pounds of pyrotechnic wastes, and most of PSI's burning was permitted for months at a time without documenting quantities. Perchlorate does not completely combust when burned, and a quantity of residual perchlorate is left over after a burn, even when the burn is extremely hot. Even if only 5% of PSI's documented 5.5 tons of pyrotechnic waste was left on the bare ground in its earthen burn pit as residual perchlorate ash, PSI discharged 550 pounds of perchlorate at its on site burn pit. (See pages 73-75 below.)

3. Pyro-Spectaculars, Inc. Discharged Perchlorate By Testing Thousands Of Aerial Display Fireworks Containing Perchlorate On The Bare Ground.

PSI tested aerial display fireworks at the Locust Avenue Site for twenty five years. Permit documents establish that PSI tested at least 2,770 aerial display fireworks containing perchlorate over the bare ground at the Site. After aerial display fireworks are fired above bare ground, they discharge residual perchlorate in amounts up to 560 parts per billion. Accordingly, even if only 5% residual perchlorate was left after a test firework was discharged, substantial evidence supports a finding **that PSI discharged well over 120 pounds of perchlorate to the bare ground at its on site test area**. (See pages 75-77 below.)

B. Background.

Pyro Spectaculars, Inc. ("PSI" or the "Company") is a public display fireworks operator, wholesaler and importer/exporter of aerial display fireworks. PSI, doing business for a time as California Fireworks Display Company, operated a facility at 3196 North Locust Avenue, Rialto, California, beginning in the late 1960's, as the display fireworks division of Pyrotronics, Inc. (Ex. 2988 at RIALTO390460; Hescox DT 47:3-49:12, 175:15-176:9 [P-1].)[69] In 1979, Pyrotronics sold its Pyro Spectaculars display division, including all of its inventory, equipment, trade names and fixtures, to a group lead by Robert Souza, then-manager of the Pyrotronics' display division, because the Pyrotronics owners determined insurance expenses associated with Class B aerial fireworks were too high. (Hescox DT 79:4-81:1, 314-316; see also Ex. 203 [Agreement for Sale and Purchase of Assets"] [P-2].) Thereafter, on March 28, 1979, Souza incorporated PSI as a distinct legal entity. The Company has operated a facility at 3196 North Locust where it imports, tests, stores, assembles and distributes aerial display fireworks, and where it stores and disposes of its wastes, continually since 1979.

C. PSI's Facility At The Site.

In 1979, when PSI began its existence as a distinct corporation, it continued to operate the Pyrotronics aerial display fireworks division under a lease with Pyrotronics at the precise location of Pyrotronics' display division's previous operational footprint, on three contiguous parcels, consisting of approximately 47 acres within the 160-acre, 3196 North Locust Parcel (the "Site"). The 47 acres on which PSI operates are the northwest half of the southwest quarter of Section 21, Township 1 North, Range 5 West, San Bernardino Baseline and Meridian in the

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[69] Harry Hescox was the Manager of Pyrotronics Locust Street facility at the time it opened in 1968, and became its President by the time it declared bankruptcy in about 1986. (Hescox DT 28-29.) Hescox continued to work at the Site as a consultant for American Promotional Events, Inc.-West through 1996. (Hescox (continued...)

County of San Bernardino, State of California (the Site). Mr. Wong Chun Ming of Hong Kong, China, is the current property owner of the site, and leases it to PSI. (See Hescox DT 219-231; Cartagena DT 70;[70] see also RIALTO304053-304057 [PSI 4/4/2003 letter to EPA]; Exs. 198-200 [PSI Lease with Pyrotronics] [P-3].) In addition, PSI is licensed by Wong Chun Ming to use additional portions of the property at 3196 North Locust, including a burn area it shares with American Promotional Events, Inc. – West, a neighboring consumer fireworks distribution business.

D. PSI'S Business Operations At The Site.

Since 1979, Pyro Spectaculars' operations at the Site have included importing pre-manufactured components for various aerial display fireworks, assembling aerial display fireworks, assembling fireworks set pieces, storing fireworks, testing fireworks, and the storage and disposal of pyrotechnic waste. Although PSI imported most of its aerial display shells, some number of Class B aerial shells historically were made at the Site. (Hescox DT 37:3-37:9 [P-4].)

Perchlorate is a common component of display fireworks. (Hescox DT 243:2-4, Souza DT 267:1-10 [P-5].)[71] It is used as an oxidizer in aerial display fireworks because it burns fast. (Hescox DT 243:2-4; Souza DT 45:4-18 [P-6].)

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[70] Margot Cartagena started working for Pyrotronics at the Site in 1980, and continued working there for 22 years, being employed by RDF Holding Company and later by American Promotional Events, Inc.- West. (Cartagena DT 20, 210.)

[71] James Souza is the current President of PSI, but began working at the Site and testing aerial display fireworks in September 1975, nearly four years before PSI incorporated in 1979. (Souza DT 23.)

E. PSI Stored And Handled Products Containing Perchlorate At The Site.

During its time of operations, PSI imported and stored hundreds of thousands of pounds of aerial display fireworks at the Site. For example, a PSI inventory list following its 1987 business year documents that it was storing over 180,000 pounds of different types of fireworks products, including 150,000 pounds of Class B and 30,000 pounds of Class C aerial display fireworks, at the Site in that year alone. (Ex. 2978; Souza DT 200:14-204:15 [P-7].) Potassium perchlorate is known to be a key component of and used as an oxidizer in aerial display fireworks, and is documented in PSI company records to be one of the ingredients in the aerial shells purchased by PSI and stored and handled at the Site. (Exs. 194, 195 [1984 letter from PSI confirming potassium perchlorate as ingredient in aerial display shells stored and disposed of on Site]; Moriarty DT 192:13-193:10 [P-8].)[72] The average pyrotechnic content of each aerial shell was about 800 grams. (Ex. 195, Rialto 336001 [P-9].) Many aerial display fireworks contain greater than 55% perchlorate by weight. (Exs. 1183, 1192 [P-10].)

The 160-acre site included a number of concrete, earth-covered bunkers. These bunkers were in the form of Quonset huts of cast concrete. They measured 26 feet wide by 81 feet long. (Carlton DT 75:13-23 [P-11].[73]) The bunkers were used to store between 20- and 50- thousand pounds of fireworks products. (Carlton DT 213:12-25; Ex. 2978 [P-12].)

Beginning in 1979, Pyrotronics leased bunker C-1 to PSI, and PSI used the bunker to store Class B aerial display fireworks. (See Ex. 953 [Letter from Apel to

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[72] W. Patrick Moriarty founded the Pyrotronics Corporation and developed its fireworks facility on the Site after purchasing the Site from Goodrich Corporation in 1968. (Moriarty DT 68-69.)

[73] Stuart Carlton was the plant manager and chief chemist for neighboring Trojan Fireworks and its Astro Pyrotechnics division from 1976 through 1988, then worked for PSI's Astro Division for approximately one year after it was acquired (continued...)

Rialto Fire Dept.]; Moriarty DT 35:17-25, 36:1-7, 36:24-25, 37:1-2; Souza DT 420:24-421:16 [P-13].) From time to time, PSI leased bunkers A-3, A-4, A-5, and E-2 to store aerial display fireworks and, as of June 24, 1989, PSI was simultaneously leasing bunkers C-1, B-1, and B-2 to store aerial display fireworks. (See RIALTO348854 [Letter from PSI to City of Rialto Fire Dept. re. bunkers] [P-14].) PSI President James Souza confirmed that, as of 1997, PSI was leasing bunkers C-1 and B-2 from the County of San Bernardino. Mr. Souza testified that Bunker B-2 is used to store aerial display fireworks shells imported from overseas, and bunker C-1 is used to store aerial display fireworks shells re-packaged at the Site for specific fireworks shows. (Ex. 2973; Souza DT 143:16-146:12 [P-15].)

F. PSI Discharged Perchlorate Into The Environment At The Site.

1. PSI Discharged Hundreds Of Pounds Of Perchlorate Onto The Ground Near The "Mclaughlin Pit."

(a) The McLaughlin Pit Was Constructed In 1971 By Pyrotronics.

In 1971, as an alternative to the open burning of perchlorate-contaminated pyrotechnic waste and damaged and/or off-specification perchlorate-containing fireworks, Pyrotronics built a water-filled, concrete-lined, rectangular-shaped disposal pit, approximately 20 feet wide, 25 feet long and 4-to-6 feet deep, located on the 3196 North Locust property, just south of what would become the 47-acre PSI Site (the "McLaughlin Pit"). (Hescox DT 105:9-17, 198:17-199:24 [P-16].) Harry Hescox, Executive Vice-President for Pyrotronics, was responsible for constructing the McLaughlin Pit, and testified that Pyrotronics built it to resolve the problem of disposing of defective and off-specification fireworks, and pyrotechnic waste, after the South Coast Air Quality Management District restricted open

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(...continued)
from Trojan. (Carlton DT 37, 50, 399.)

burning. (Hescox DT 197:22-200:25 [P-17].) The McLaughlin Pit is identified on Ex. 177 as "The Pond." (Exs. 177, 964, 3721 [P-18].)

The McLaughlin Pit was used from approximately 1971 through approximately 1987 by Apollo Manufacturing (the manufacturing division of Pyrotronics) and by PSI for the disposal of defective and off-specification fireworks containing perchlorate, and for the disposal of pyrotechnic waste containing perchlorate. (Hescox DT 200:20-23; Exs. 194, 195 [PSI Plant Manager's 1/17/1984 Statement that "materials **disposed of** in the pond by Pyro Spectaculars are various aerial shells" then listing "potassium perchlorate" as one of the chemicals "generally found in these shells"] [P-19].) Pyrotronics was authorized by the Santa Ana Regional Water Quality Control Board to discharge 3,000 gallons of manufacturing waste per day into the Pit. (Ex. 3551 [P-20].) The McLaughlin Pit was kept filled with water in order to desensitize the explosive properties of the pyrotechnic waste, and defective aerial display fireworks. (Apel DT 152:15-154:1, 295:11-296:23 [P-21].)[74] The Regional Water Quality Control Board restricted the Pit's "freeboard," or distance from the top of the filled water line to the top of the pit, to not exceed 12 inches.

2. PSI Used The Pit To Denature Or Neutralize Its Perchlorate-Containing Aerial Shells.

PSI used the McLaughlin Pit to dispose of its defective and off-specification aerial display fireworks, including aerial display fireworks containing perchlorate. (Hescox DT 197:22-200:25; Exs. 194, 195 [P-22].) Records from the 1979 to 1986 time period indicate that PSI typically disposed of cardboard aerial display shells containing potassium perchlorate in the McLaughlin Pit. (Exs. 194-195; Apel DT 150:25-151:4 [P-23].) For example, on January 4, 1984, Ralph Apel of Red Devil

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[74] Ralph Apel was the General Manager of Pyrotronics from 1980 through 1988. (Apel DT 24.)

Fireworks (a trade name for Pyrotronics' distribution division) wrote to Robert Souza at PSI requesting information about PSI's use of the McLaughlin Pit for the disposal of chemicals. (Hescox DT 197:22-200:25; Apel DT 157:6-158:23 [P-24].) The letter provided in relevant part:

Dear Bob:

There has been increasing concern with hazardous waste control and disposal in California. I have been receiving questionnaires about the amount and types of wastes that are generated at our plant. Since Pyro Spectaculars also uses the "pond" for disposal of shells and powders, I would like a letter from you describing the types of chemicals that could be disposed of in our pond, and the approximate quantity (lbs.) of waste per month put in the pond by Pyro Spectaculars.

San Bernardino is becoming more active in the monitoring of waste disposal. They will be sending an inspector out annually to inspect the site and our files. I want to be sure that I know what we are doing, and that we are doing it correctly.

Thanks for your help.

Yours very truly,

RED DEVIL FIREWORKS COMPANY

Ralph Apel
General Manager

(Ex. 194 [P-25].)

On January 17, 1984, Bill Lehman, the General Manager for PSI, responded with a letter to Mr. Apel stating that:

Apollo Manufacturing
Mr. Ralph Apel
3196 North Locust Avenue
Rialto, California 92376

Re: Hazardous Waste

Dear Ralph:

The materials disposed of in the pond by Pyro Spectaculars are various aerial shells. The amounts would vary from 0 per month up to about 15 or 20 per month at peak season (July-August).

Sizes would range from 3"-6" with occasional larger shells. The chemicals generally found in these shells are listed below, with an average shell, pyrotechnic content of 800 grams:

Charcoal	Barrium Nitrate
Sulphur	Gum
Aluminum	Strontium Carbonate
Magnesium	Carbon
Potassium Nitrate	Resinox
Potassium Perchlorate	Strontium Nitrate
MG and AL Alloy	

Very truly yours,

PYRO SPECTACULARS, INC.

Bill Lehman
Plant Manager

(Ex. 195; Hescox DT 201:7-204:17; Apel DT 159:24-161:14 [P-26].)

The aerial shells consisted of pyrotechnic composition filled into a cardboard outer casing. (Hescox DT 290:6-291:5; Souza DT 404:16-405:14; 450:7-11, CEL000023-000024[Material Safety Data Sheet ("MSDS") from Celebrity describing Appearance of Class B fireworks as cardboard or plastic casing around chemical components] [P-27].) Mr. Lehman further explained in his 1984 letter that PSI was disposing of aerial display fireworks shells in the Pit, and that those shells contained approximately 800 grams of pyrotechnic composition, which was, in part, made up of potassium perchlorate. (*Id.*) The statements in Mr. Lehman's letter have been corroborated by witnesses who personally witnessed PSI's aerial display fireworks shells in the McLaughlin Pit, and in some instances the aerial shells were actually seen "floating" in the water. (Hescox DT 360:4-362:21 [P-28].)

As described in PSI's letter, each shell contained on average 800 grams of pyrotechnic content (1.76 pounds). PSI's aerial display manufacturing division, Astro Pyrotechnics, manufactured aerial shells (or mines) containing perchlorate as early as 1977. (Souza DT 194:21-195:20, 279:6-15, 469:4-17; Carlton DT 300:14-302:13 [P-29].) Aerial shells are a collection of stars wrapped in paper, and sometime include a whistling device. (Souza DT 53:18-55:2, 55:25-56-16 [P-30].) The stars made by Astro contained approximately 55 percent potassium perchlorate. (Veline 57:10-60:12, 240:13-241:1, 300:23-302:2, 332:22-333:20; Ex. 1972 [P-31].)[75]. "Whistles" used to create sound effects in aerial display fireworks also contain perchlorate. (Carlton DT 171:10-18, 464:2-465:5 [P-32].) Accordingly, given that stars are the primary component of aerial shells and the stars contain 55 percent potassium perchlorate, PSI's aerial shells likely contain up to 400 grams of potassium perchlorate, or 0.88 pounds each. PSI estimated it disposed as many as 20 aerial shells per month in the McLaughlin Pit. (Ex. 195 [P-33].) Assuming PSI deposited on average ten shells per month, PSI would have discharged up to 100 pounds of potassium perchlorate per year (0.88 lbs x. 10 x. 12 months). **PSI's eight-year use of the Pit suggests PSI discharged upwards of 800 pounds of potassium perchlorate into McLaughlin Pit from 1979 through 1987.**

3. The McLaughlin Pit Regularly Overflowed, Spilling Perchlorate-Contaminated Water Onto The Bare Ground.

When first constructed, the McLaughlin Pit had a cover over it to prevent it from filling with rain and overflowing. Shortly thereafter, when the Pit caught on fire and the cover burned down, and it remained continually exposed to rain and wind. (Apel DT 152:15-154:1; Hescox DT 199:19-200:9 [P-34].) Because the McLaughlin

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[75] Robert Veline worked for Astro Pyrotechnics when it was an operating division of Trojan, and after it was acquired by PSI. (Veline DT 240:13-241:1, 300:23- (continued...)

Pit had to be kept full of water to a certain level to assure the perchlorate-contaminated wastes remained wet, and thus denatured and not susceptible to conflagration, when it rained at the Site, the water in the McLaughlin Pit often overflowed onto the bare ground. (Hescox DT 199:19-200:9 [P-35].) This was confirmed by Santa Ana Regional Water Quality Control Board staff, which inspected the Pit in 1983 and discovered the Pit "had no freeboard, and rainfall had caused a minor overflow (est. – 5 gallons)." (Ex. 3737 [P-36].) In the late 1980s, contaminated waste water was left standing in the Pit. (Hatch DT 89:10-92:8 [P-37].)[76] On rare occasion, the perchlorate-contaminated pyrotechnic waste was dredged from the McLaughlin Pit and disposed of off-site, including one occasion prior to March 4, 1985, when 3.9 tons of hazardous waste were dredged from the Pit. (Ex. 940; Apel DT 164:7-165:5; Hescox DT 201:7-204:17 [P-38].)

There is conflicting evidence about whether, in addition to overflowing on multiple occasions, the McLaughlin Pit also leaked through its concrete liner. As discussed further herein, substantial levels of perchlorate have been detected in the soil beneath the McLaughlin Pit at nearly all testing locations and depths. (Kleinfelder 2005 [P-39].) Prior to decommissioning the McLaughlin Pit, William McLaughlin took two (2) soil samples near the Pit, testing for various metals - but not for perchlorate. (Ex. 2955; McLaughlin DT 170:7-171:3, 54:24-57:23 [P-40].)[77] In fact, in the 1980s when the McLaughlin Pit was being closed, McLaughlin only performed one test at a depth below the bottom of the pit and downgradient (at approximately 10 feet). (Ex. 2955; McLaughlin DT 54:24-57:23 [P-41].) This

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(...continued)
302:2, 332:22-333:20).

[76] Detective Harry Hatch held a position with the San Bernardino County Sheriff's Arson Bomb Squad and was responsible for safety inspections at the Site. (Hatch DT 90.)

[77] William McLaughlin was an environmental remediation consultant hired to decommission the McLaughlin Pit and its namesake. (McLaughlin DT 48.)

single sample did not detect hazardous metals known to be in the McLaughlin Pit at levels that would be consistent with a leak in the concrete lining of the Pit. (Ex. 2955; McLaughlin DT 125:13-127:18 [P-42].) However, William McLaughlin was uncertain as to whether the negative test resulted from: (1) the Pit's absence of leakage; (2) the inadequacy of a single test to detect a leak from the Pit; or (3) the fact that the metals tested for were not sufficiently water soluble to actually dissolve and leach through the Pit's concrete lining. (Ex. 2955; McLaughlin DT 125:13-127:18, 133:17-134:2 [P-43].) Moreover, McLaughlin's single negative test sample does not controvert witness testimony that the Pit overflowed on multiple occasions. The solubility of perchlorate is substantially higher than that of the metals known to have been in the Pit, and overflow from the top of the Pit would have carried out perchlorate, but few, if any, of the heavier metals. (McLaughlin DT 175:16-177:2 [P-44].) McLaughlin's testimony theorizing that water overflowing the sides of the Pit could have been contaminated with perchlorate is validated by the presence of high concentrations of perchlorate in the soil beneath the McLaughlin Pit at nearly all testing locations and depths. (Kleinfelder 2005 [P-45].)

4. In 1987 The McLaughlin Pit Is Decommissioned.

In 1986, Pyrotronics declared bankruptcy. In 1987, as part of the bankruptcy liquidation process, Pyrotronics sold a portion of its real estate holding containing the McLaughlin Pit to Western Precast Products, Inc.("Western"). Western engaged the services of McLaughlin Enterprises to pursue decommissioning the Pit. Western simultaneously approached the City of Rialto for permission to develop its newly acquired property for use making concrete products. As part of the application process, Western disclosed to the City the existence of the Pit and its usage by the fireworks companies to dispose of fireworks. On March 3, 1987, the City issued a negative declaration for Western's development proposal, but required mitigation measures to clean-up the Pit. In particular, the City required that:

> Prior to any grading, construction or installation of equipment on Parcel 11, the applicant shall have completed a satisfactory cleanup program of the fireworks residual pit on Parcel 11 and shall have certified the satisfactory completion of that program in a report to the City Engineer. As part of that cleanup program, **the applicant shall obtain all necessary permits or approvals from local, state and or federal agencies as required**. (emphasis added)

(March 3, 1987 Environmental Assessment Review (Ex. B, Declaration of Eric W. Benisek [P-46].). At the time it was closed, in addition to the cardboard aerial shells and other pyrotechnic wastes, the McLaughlin Pit contained various military ordnance, including Korean War-era hand grenades, and military flares. (McLaughlin DT 51:1-24; Apel DT 137:12-18, 149:13-150:17 [P-47].) McLaughlin, who inspected the Pit on several occasions prior to its closure, observed numerous fireworks made from cardboard in the Pit that had changed shape from soaking in water. (McLaughlin DT 207:13-208:7, 222:25-223:10 [P-48].) McLaughlin characterized the decomposed cardboard fireworks in the Pit as "goo." (McLaughlin DT 163:20-164:20 [P-49].)

The McLaughlin Pit was decommissioned in December 1987. (Ex. 2962, McLaughlin DT 191:18-194:8 [P-50].) Red Devil Fireworks (Pyrotronics) obtained a permit from the South Coast Air Quality Management District to burn its and PSI's waste that remained in the Pit. (Ex. 2960; McLaughlin DT 181:12-183:1 [P-51].) The Air Quality Management District's permit authorized Red Devil and PSI to burn the up to 5.5 tons of hazardous waste estimated to remain in the Pit, but William McLaughlin estimated that 21,000 pounds (or 10.5 tons) of material was actually burned. (McLaughlin DT 181:12-183:1 [P-52].) The final burn occurred on December 7, 1987 (Ex. 2963 [P-53]), and the McLaughlin Pit was subsequently bulldozed and filled in. (Hescox DT 206:13-207:5 [P-54]) Following the burn, McLaughlin tested the remaining ash and found no traces of hazardous metals. McLaughlin presented his findings to the County of San Bernardino, which declared the Pit free of hazardous waste. (McLaughlin DT (vol. 1) 76:2-13, 179:21-180:2, (vol. 2) 15:21-16:23 [P-55].) **However, the ash has not tested for**

perchlorate and there is no evidence the ash was removed from the site. McLaughlin presented the County's certification letter to the City of Rialto's Planning Department to demonstrate compliance with the conditions of Western's approval's development permit. (*Id.*). The area where the McLaughlin Pit had been located was graded, and a concrete slab was poured over it for use as a foundation for structures and concrete pipe storage by the new owner of that property. (Hescox DT 205:13-206:4 [P-56].)

G. PSI Discharged Well Over 500 Pounds of Perchlorate By Burning Its Damaged And Defective Products And Wastes On The Bare Ground At The Site.

Perchlorate is a common ingredient in aerial display fireworks. (Hescox DT 243:2-4; Souza DT 45:4-18, 267:1-10; Ex. A [CEL000025-38, 000045-000060, 000067-00007, 000079-000080 [Celebrity Fireworks Company Material Safety DataSheets stating aerial display fireworks compositions contain potassium perchlorate] [P-57].)[78] The South Coast Air Quality Management District restricted the practice of "open burning" of pyrotechnic waste in North Rialto in 1971. Nonetheless, open burning continued to be conducted on some levels by Pyrotronics and PSI. After PSI's acquisition of the Pyro Spectaculars operating division of Pyrotronics, PSI continued to use Pyrotronics' earthen burn pit to dispose of fireworks waste. (Moriarty 194:20-195:7 [P-58].) In the late 1980s, PSI's manufacturing division, Astro Pyrotechnics, delivered a truckload full of "off spec" fireworks and waste pyrotechnic powder to Pyrotronics' earthen burn pit for disposal on the Site on at least two occasions. (Autote DT 278:5-298:8, 534:17-535:16 [P-59].[79]) In 1987, PSI obtained burn permits for the destruction of "700 lbs.

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[78] PSI was the largest shareholder in Celebrity Fireworks, and the Souza family and PSI officers and directors owned nearly all of its stock. (PYRO 000602-000074 [P-58].)

[79] Leo Autote made aerial display fireworks at the Astro Pyrotechnics division of (continued...)

of waste material" and "20 lbs. [of] stars" at the Locust Avenue Site. (Ex. 2977 at RFDW002443; Souza DT 176:11-177:19 [P-60].) PSI also had permits to burn "Pyrotechnic hazardous Waste Materials of unknown from February 8 through August 8, 1991, and from October 22, through April 21, 1992. (*Id.* at RFDW 002422, 002415.) PSI's "stars" typically contain perchlorate. (Carlton DT 301:25-302:13, 362:6-363:14; Veline DT 86:8-87:21 [P-61].) In December 1987, the Rialto Fire Department responded to an explosion at the PSI Site that was caused by PSI's burning of fireworks waste product in its burn pit. (Ex. 2986 [P-62].) Rialto Fire Department Records show that Astro Pyrotechnics, PSI's manufacturing division, burned or had permits to burn waste pyrotechnics at the North Locust Site from January through September 1988 (RFDW004344, RFDW004345, RFDW004342-004343, RFDW004334-004345, RFDW004319-004320, RFDW004321, RFDW004307 and RFDW004308 [P-63]), including up to two tons of pyrotechnic waste during May, 1988 and 1.5 tons in Sept. 1988 alone!! (RFDW004342, RFDW004307 [P-63].) Astro Pyrotechnics also obtained a permit to burn waste pyrotechnic materials at the North Locust Site between September and December 1990. (RFDW004730 [P-65].)

Between February and October 1988, PSI obtained at least five separate permits to burn more than 2,700 pounds of waste pyrotechnic material at the North Locust Site. (RFDW004359, RFDW004350, RFDW004346-004347, RFDW004324-004325, RFDW004302 [P-66].) In April 1988, PSI obtained a two-week permit from the Rialto Fire Department to burn an estimated 700 pounds of pyrotechnic waste at the North Locust Site. (Ex. 2977, Rialto345855 [P-67].) In 1991 and1992, PSI obtained two burn permits to destroy "Pyrotechnic Hazardous Waste Material" at the North Locust Site. (Ex. 2977 at RFDW002422,

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(...continued)
Trojan Fireworks from 1976 through 1989, then for Astro after it was acquired
(continued...)

RFDW002415 [P-68].) Pre-Fire Planning Inspection maps on file at Rialto Fire Department establish that PSI had a "waste burning area" in the southwest corner of its leased property at the North Locust Site between at least 1991 and 1996. (RFDW005431, RFDW003410, RFDW003402 [P-69].) PSI was constantly burning pyrotechnic waste at the Locust Street site from 1988 through 1996. At least 5.5 tons of that waste were documented to the Rialto Fire Department. **Even assuming only 5% of the burned pyrotechnic waste was leftover perchlorate, PSI discharged 550 pounds of perchlorate into its earthen burn pit.**

In 2004, one of PSI's Astro Pyrotechnic division buildings where potassium perchlorate was stored caught on fire and was allowed to completely burn itself out,. (TRC 7/14/2004 Report to Christian M. Carrigan [P-70].) The fire was hot enough to melt aluminum (in excess of 1,220 degrees F), but ash and debris tested after the fire tested as high as 131,000 parts per billion of residual perchlorate. (*Id.*, at 3.) Perchlorate does not completely combust in fires, and large quantities of perchlorate must have remained on the bare ground at the Site after PSI burned its damaged and defective aerial display fireworks and fireworks waste.

H. PSI Discharged Perchlorate Into The Soil By Continuously Testing Tens Of Thousands Of Aerial Display Fireworks Containing Perchlorate-Over The Bare Ground For 25 Years.

PSI, as a division of Pyrotronics, and then as a separate legal entity, was engaged in extensive testing of aerial display fireworks at the Locust Avenue Site beginning in 1968. (Hescox DT 175:15-176:20 [P-71].) Rialto Fire Department business records show that PSI obtained permits to test aerial display fireworks shells, roman candles, and other fireworks continuously throughout the 1980's and 1990's. (Ex. 2977; Souza DT 163:18-200:10 [P-72].) Prior to 1979, PSI (then

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(...continued)
by PSI from 1989 through 2006. (Autote DT 56.)

California Fireworks Display) tested fireworks in approximately the center of Fire Zone 13 on Ex. 2968. (Ex. 2968; Souza DT 99:18-100:9 [P-73].) After 1979, PSI continued to conduct all its aerial display fireworks testing in the same area of Fire Zone 13. (Ex. 2968; Souza DT 103:7-104:17 [P-74].) PSI's aerial display fireworks typically contained potassium perchlorate. (Exs. 194, 195 [P-75].) Following tests, debris from the aerial shells would fall to the ground. (Souza DT 450:7-11 [P-76].)

PSI may claim it stopped testing aerial display fireworks between five and ten years ago (Souza DT 122:8-19 [P-77]), but, permits issued to PSI from the Rialto Fire Department to test aerial display fireworks clearly demonstrate that PSI continued to test aerial display fireworks at the North Locust Site to and through at least 2002. (Ex. 2977 at RFDW002404, RFDW5405 and RFDW2432 [P-78].) In 2001, PSI obtained a year-long permit to test pyrotechnic "devices as needed" at the North Locust Site. (Ex. 2977 at RFDW002404 [P-79].) In 2002, PSI obtained another year-long testing permit that allowed it to call and give Rialto Fire Department twenty-four hours notice before each fireworks test. (Ex. 2977 at RFDW002405; Souza DT 197:13-198:25 [P-80].)

Rialto Fire Department records also establish that Celebrity Fireworks, an entity wholly controlled by PSI also obtained permits to conduct testing at PSI's North Locust Site testing facility. Celebrity Fireworks was characterized by one employee as "a division" of PSI. (Autote DT 145:9-11 [P-81].) PSI was a shareholder of Celebrity and only 2 shareholders with a mere 18% stake in Celebrity were not PSI owners, officers, affiliates or their family members. (Souza DT 41:9-12; PYRO 000602-000607 at 000603 [P-82].) Celebrity Fireworks, created by PSI to manufacture aerial display fireworks, was located in the bunker complex at bunkers A-3, A-4 and A-5. Celebrity manufactured aerial shells at the site. (Souza DT 38:6-12, 39:9-17 [P-83].) PSI purchased about half of Celebrity's production. (Souza DT 39:22-24 [P-84].) PSI leased and sub-let the land where

Celebrity operated to Celebrity for its operations. (Souza DT 141:10-13, 393:25-394:7 [P-85].) **Between March 1985 and June 1987, Celebrity obtained permits to test fire more than 1,729 aerial display fireworks shells at PSI's North Locust Site test area.** (See Table [P-86].) Celebrity tested its display shells in the same area as PSI. (Souza DT 105:11-19 [P-87].) Celebrity also disposed of fireworks waste on the ground at the PSI site. (RFDW005360-005361 [grid map of PSI and APE property showing Celebrity Fireworks Waste site] [P-88].) Celebrity's fireworks contained potassium perchlorate. (Ex. A [CEL000025-38, 000045-000059, 000067-000073, 000079 [Celebrity MSDS sheets stating its fireworks compositions contain potassium perchlorate [P-89].)

Aerial displays of fireworks result in a discharge of residual perchlorate to the ground. (*See* 8/2005 Massachusetts Department of Environmental Protection Draft Report Evaluation of Perchlorate Contamination at a Fireworks Display, p. i of iii and following [maximum concentration of 560 parts per billion in soil beneath aerial display fireworks launch area in hours following launch event] [P-90].) PSI test fired a **documented** 2,779 aerial display shelf at its Locust Street Site, but most of its test firing was pursuant to a general permit. Even if only 5% of the approximately 400 grams of perchlorate in each shell fell to the ground, **PSI discharged at least 122 pounds of perchlorate onto the bare ground through its testing operations**. More likely, given the test quantities of aerial shells were only sporadically documented, PSI discharge of perchlorate from test operations was must higher.

I. <u>PSI Facility Accidents Caused Perchlorate To Be Discharged Into The Soil</u>.

In 1987, the A-4 bunker, which PSI leased to Celebrity and where it stored some of its aerial display fireworks, was destroyed when it was intentionally exploded by an employee committing suicide. (Apel DT 198:4-200:5, 320:8-321:1; Souza DT 387:13-409:7 [P-91].) The entire inventory in the A-4 bunker was

destroyed, including finished and unfinished aerial display fireworks. (Souza DT 387:13-409:7 [P-92].)

In September 9, 1996, a major fire occurred at a PSI storage and assembling warehouse at the North Locust Site that killed one employee (Jerry Fliedner), who was the head of the warehouse. (Ex. 673; Souza DT 184:16-185:15 [P-93].) Rialto Fire Department responded to the fire and used a "deluge" of water to put out the fire. (Ex. 673; Skaggs DT 84:17-86:23 [P-94].)[80] The warehouse contained aerial display fireworks, and the entire inventory was lost in the blaze.

VI. KWIKSET LOCKS, INC., KWIKSET CORPORATION, EMHART INDUSTRIES, INC. AND BLACK & DECKER INC. ARE LEGALLY RESPONSIBLE FOR THE DISCHARGES OF WEST COAST LOADING CORPORATION.

Over several years, West Coast Loading Corporation manufactured munitions and discharged hazardous perchlorate into the environment and waters in and around Rialto. Black & Decker Inc. ("BDI"), Kwikset Corporation ("KC"), Kwikset Locks, Inc. ("KLI"), and Emhart Industries, Inc. ("EII") (collectively referred to as the "Emhart Entities") are the corporate successors of West Coast Loading Corporation, and as such are "dischargers" under Water Code section 13304, and therefore are properly named in the Santa Ana Regional Water Quality Control Board's Clean Up and Abatement Order dated February 28, 2005.

As Rialto details herein, a series of corporate transactions occurred, beginning in 1957 and continuing almost through the present, that establishes conclusively that WCLC's liabilities were acquired by KLI, which then merged with the American Hardware Corporation ("AHC"). EII is responsible for all of AHC's

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[80] Charles Skaggs was a fire chief for the City of Rialto for nearly twenty years. (Skaggs DT 18-19.)

liabilities.[81] BDI was the sole shareholder of EII, and received a liquidating distribution of $716 million, which is available to respond to this environmental contamination. CS-2. The central issue for the State Board to determine is whether AHC acquired all, or some subset, of WCLC's liabilities when it acquired KLI. Since the answer, supported by an overwhelming weight of evidence, is all, then the environmental liabilities of WCLC for its perchlorate contamination in the Rialto area were assumed by AHC and have traveled upstream to now EII and BDI.

In simple terms, the then-existing corporate law that governed the 1957-1958 merger between KLI and AHC allowed for three possibilities when a corporation acquired another corporation:

1. the acquiring company could acquire only the assets of the company being acquired, and the debts and liabilities remained with the acquired company;

2. the acquiring company could acquire all known assets and liabilities of the acquired company; or

3. the acquiring company could acquire all assets and liabilities of the acquired company, both contingent and non-contingent, known and unknown.

All available evidence, including contemporaneous documents, draft documents, and testimony of the two surviving officers of KLI, indicates that AHC

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[81] CS-1. May 4, 2005 Order (1) Granting In Part and Denying In Part Defendant Emhart Industries, Inc.'s Motion to Dismiss; (2) Denying Defendant Kwikset Corporation's Motion to Dismiss; and (3) Granting Defendant Kwikset Locks Inc's Motion to Dismiss at p. 13; October 22, 2004 Order Granting Plaintiffs' Motion for Order Authorizing Service of Certain Dissolved and Suspended Corporate Defendants Through California Secretary of State; May 3, 2005 Minute Order Granting In Part and Denying In Part Plaintiffs' Motion for Order Granting Leave to Amend and File Third Amended Complaint (In Chambers). On June 29, 1964, AHC merged with Emhart Manufacturing Company, a Delaware Corporation. AHC was the surviving corporation in the merger and on June 30, 1964 changed its name to "Emhart Corporation." On May 4, 1976, Emhart Corporation underwent an internal corporate restructuring whereby Emhart Corporation changed its name to Emhart Industries, Inc. ("EII"). A new entity, Emhart Corporation was incorporated in Virginia to hold all of the shares (continued...)

merged with KLI and acquired all of KLI's liabilities, whether contingent, known or unknown. Furthermore, when analyzing the relevant transactions, courts or other adjudicators can attach liability to the parent company when the assumption of liability is:

1. expressly assumed;

2. impliedly assumed, by the acquiring company's conduct after the acquisition; or

3. a de facto merger or mere continuation of the acquired business occurred. In those cases, California law dictates that if AHC, which did not pay any consideration to WCLC's parent company (KLI) to acquire its assets and thereafter dissolved KLI, but continued KLI's business as a unit within itself, AHC is deemed to have assumed all of KLI's liabilities, just as though the AHC and KLI had effected a true statutory merger.

All three bases for liability will be presented herein.

While the evidence supporting a finding that AHC assumed all liabilities, including contingent environmental liability, is overwhelming, the Water Board may also infer that AHC assumed WCLC's liabilities based upon the fact that the Emhart Entities produced hundreds of thousands of documents surrounding the transaction at issue, but somehow have inexplicably lost and failed to produce the very agreement that defines the full extent of liabilities assumed by AHC.

Finally, Rialto submits, *infra*, that BDI's subsequent acquisition and virtual control of every aspect of the Emhart Entities eliminated the corporate distinctions between BDI and the Emhart Entities and as a consequence in and of itself rendered BDI liable for all of the liabilities of Emhart Industries, Inc., including the liabilities AHC and then EII bore for WCLC's activities in Rialto. Furthermore, BDI has stipulated in federal litigation proceedings that BDI is legally responsible for any judgment arising out of the Rialto contamination entered against EII. In any event and without regard to the prior rationale, when Emhart Industries, Inc. finally

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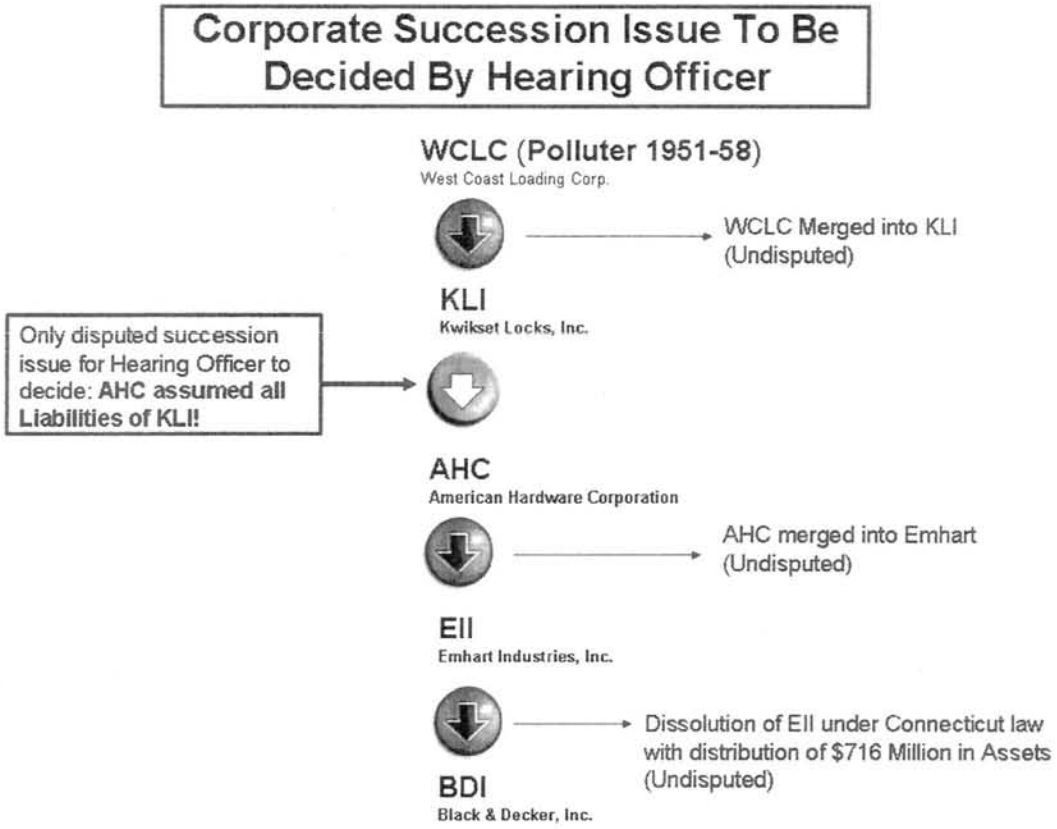
(...continued)
of EII. AHC is thus EII.

dissolved in 2002 and distributed its remaining assets, valued at $716 Million, to its sole shareholder BDI, controlling law rendered BDI liable for the clean up and abatement order up to the value of the assets that Emhart Industries Inc. distributed to it.

Rialto submits that upon review of the evidence, the Water Board will find more than sufficient basis for the Santa Ana Regional Water Quality Control Board to have named Emhart Industries Inc., Kwikset Corporation, Kwikset Locks, Inc. and Black & Decker Inc. in its February 28, 2005 Clean Up and Abatement Order.

A. Overview Of Corporate Timeline.



Kwikset Locks, Inc. ("KLI"), a California corporation, designed, manufactured, assembled and sold residential locksets, which KLI distributed nationally under the "Kwikset" trade name. KLI's office and manufacturing facilities were located in Anaheim, California. In February 1952, KLI formed West Coast Loading Corporation ("WCLC"), a California corporation, as a wholly-owned subsidiary to load and assemble munitions under government contract at a leased facility in the City of Rialto, California. See disposal brief related to WCLC, *supra*. From 1952 until at least 1957, WCLC used perchlorate in the assembly of munitions at the Rialto site. Refer to WCLC evidence, *supra*. It is undisputed that WCLC merged into KLI. CS-3; GRC-006209-GRC-006218.

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. CS-4; KWKA00122944-KWKA00122957. 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 made available for inspection. On May 1, 1957, AHC sent a letter to KLI shareholders inviting them to exchange their KLI stock for AHC stock. CS-5; KWKA00038478.. On July 1, 1957, AHC declared the exchange offer successful with nearly 100% of the stock exchanged. In the "Special Report" to its new stockholders, it informed them that AHC would temporarily operate KLI as a corporate subsidiary, but would eventually dissolve KLI and operate it as a manufacturing and sales division of AHC. CS-6; KWKA00183214-KWKA00183215.

On or about July 3, 1957, contemporaneous with the AHC/KLI stock exchange described above, WCLC merged with KLI. See CS-3. 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." CS-7; Rialto038172-Rialto038179. Pursuant to the KLI/WCLC merger, KLI also took title to the 160 acres site in Rialto where WCLC operated.[82]

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 its Kwikset household product line operations in Anaheim.

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[82] On March 10, 1957, WCLC exercised an option in its five-year lease and purchased the 160 acre Rialto site.

On or about April 11, 1958, AHC's Board of Directors declared its intent to dissolve KLI, and contemporaneously KLI's Board of Directors adopted a plan of dissolution whereby all KLI assets would be transferred to AHC. CS-8; KWKA0012300-KWKA00123002. AHC, the sole shareholder of KLI, commenced the dissolution of KLI on or about May 28, 1958.

In or about June 1958, KLI's Board of Directors executed and filed with the California Secretary of State a "Certificate and Winding Up and Dissolution of Kwikset Locks, Inc., a California Corporation." CS-9; Rialto038177-Rialto038179. Minutes of the Board of Directors of the American Hardware Corporation, dated June 5, 1958, authorized the directors to take the necessary steps to dissolve KLI. CS-10; KWKA00117575-KWKA00117587. Therein, 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's Board of Directors made a liquidating distribution of KLI's remaining assets to its sole shareholder AHC.

Contemporaneous documents regarding the winding up and dissolution of KLI, dated June 1958, include the "Form of Resolution to be Adopted by Directors of the American Hardware Corporation at Meeting Held June 5, 1958," and the draft "Minutes of Special Meeting of Board of Directors of Kwikset Locks, Inc." The Form of Resolution states in pertinent 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 its assets and balances to this corporation as the owner and holder of all of its issued and outstanding shares of capital stock upon the condition that this corporation expressly assume and guarantee in good faith 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 and otherwise, known or unknown**, expressly including but not limited to the obligations of said corporation secured by that certain Deed of Trust .... (emphasis added)

CS-11; Hutchison Deposition Exhibit 3350.

Unsigned minutes has similar language, in two excerpts:

> BE IT FURTHER RESOLVED, that the President or any Vice President and the Secretary of this corporation be and they are hereby authorized and directed to execute appropriate instruments of transfer to The American Hardware Corporation and to execute such other documents and do such other things as may be necessary or desirable to effect the distribution and transfer of all of the assets and business of this corporation to The American Hardware Corporation as of the close of business June 30, 1958, upon the condition, however, that The American Hardware Corporation execute and deliver to this corporation concurrently with such distraction an appropriate agreement assuming and agreeing to pay all then existing debts, obligations and liabilities of this corporation, **whether known or unknown**, as of such date;...
>
> ...
>
> BE IT FURTHER RESOLVED, that the dissolution and winding up of this corporation be effected by the distribution and transfer of all of its assets and business to The American Hardware Corporation as the owner and holder of all the issued and outstanding shares of capital stock of this corporation upon the condition that The American hardware Corporation **expressly assume and guarantee** in good faith to pay all debts, liabilities and obligations of this corporation in existence on the date of such distribution and transfer of its assets and business, **contingent or otherwise, known or unknown**, expressly including but not limited to the obligations of this corporation secured by that certain Deed of Trust... (emphasis added)
>
> CS-12; Hutchison Deposition Exhibit 3351.

Having acquired all of KLI's assets in the liquidating distribution, AHC continued producing the Kwikset product line at the former KLI Anaheim facility. In addition to the lockset lines, other "divisions" remained operational, including the powdered metals division and the sales and service division. CS-13; KWK00828-KWK00833. 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." CS-14; KWKA0009065-KWKA0009087 at KWKA0009069-KWKA0009070.

On June 29, 1964, AHC merged with Emhart Manufacturing Company, a Delaware Corporation. AHC was the surviving corporation in the merger and on

June 30, 1964 changed its name to "Emhart Corporation." CS-15; Rialto421114-Rialto421120; Rialto038196-Rialto0381199; Rialto038201-Rialto0380202. On May 4, 1976, Emhart Corporation underwent an internal corporate restructuring whereby Emhart Corporation changed its name to Emhart Industries, Inc. ("EII"). CS-16; Rialto038204. A new entity, Emhart Corporation was incorporated in Virginia to hold all of the shares of EII.

On or about December 13, 1985, EII filed Articles of Incorporation with the California Secretary of State incorporating Kwikset Corporation ("KCal"). At the first meeting of the KCal Board of Directors on December 31, 1985, the directors resolved to sell 1000 shares of KCal stock to EII in exchange for the assets of the Kwikset Division of EII. As a part of the capitalization of KCal with EII's Kwikset Division assets, KCal expressly assumed the liabilities of the Kwikset Division.

Black & Decker Inc. ("BDI"), a Delaware corporation and subsidiary of the Black & Decker Corporation, formed BDI, a wholly owned subsidiary, solely for the purpose of acquiring and merging with the Emhart entities. In March 1989 BDI acquired all of the stock of and then merged with the Emhart Corporation; Emhart Corporation became the surviving corporation and the merged entity retained its name. CS-17; Rialto421122-Rialto421129. As a result, Emhart Corporation became a wholly owned subsidiary of BDI.

Contemporaneous with BDI's acquisition of the Emhart entities, BDI formed a new corporation in Delaware. Thereafter, KCal merged with the newly formed Delaware corporation, the Delaware corporation became the surviving corporation and it changed its name to Kwikset Corporation ("KDel"). KDel is a wholly-owned subsidiary of BDI.

As part of a December 11, 2000 Plan of Reorganization of Emhart Corporation, Emhart Corporation was merged into its wholly-owned subsidiary EII. As a result, BDI became EII's new sole shareholder. Thereafter, on February 28, 2002, EII dissolved and made liquidating distributions of EII's remaining assets

having an estimated value of $716 million to its sole shareholder BDI. See CS-2 at 3:4-5. EII published notice of its dissolution in accordance with Connecticut law on March 12, 2002. See CS-2 at 2:22-23.

B. Regional Board Authority Pursuant to California's Water Code.

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 or for creating or threatening to create a condition of pollution or a nuisance. 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).

Moreover, Water Code section 13304(a) allows the State and/or Regional Boards to recover hazardous substance cleanup costs from parties that did not directly discharge waste, control the site of discharge or have authority to prevent the discharge so long as the parties created or assisted in creating a system that resulted in the unauthorized discharge or disposal of hazardous waste. *City of Modesto Redevelopment Agency v. Superior Court*, 119 Cal.App.4th 28, 37 (2004).

Finally, the State and/or Regional Boards have authority to issue CAO for discharges that preceded the enactment of Water Code section 13304, known as the Dickey Act. *See* March 27, 2007 Advocacy Team Submission, p. 30; *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. In addition, because the perchlorate continues to migrate into the soil and groundwater, the discharge constitutes a continuing violation subject to the Porter-Cologne Act. *Zoecon Corporation*, SWRCB No. WQ 86-2.

C. AHC Succeeded to WCLC's Water Code Section 13304 Liability.

In the course of operations, WCLC discharged hazardous perchlorate into the environment and waters around Rialto. The Emhart Entities are corporate successors to WCLC and are thus liable for WCLC's discharges based upon several legal theories, including (i) that EII assumed all of the liabilities, (ii) that EII acquired the liabilities through its de facto merger or (iii) that EII acquired the liabilities by the "mere continuation" of the predecessor.

D. AHC Assumed All of KLI's Liabilities Without Limitation.

1. The Documented and Testimonial Evidence Establishes that AHC Assumed All the Liabilities of KLI.

The acquisition of KLI and its subsidiaries, including WCLC, by AHC was in fact and in law, a merger. While numerous documents regarding these transactions have been produced, a June 1958 agreement between AHC and KLI entitled the "Form of Assumption Agreement" and the KLI "Plan of Dissolution" (both referred to in corporate minutes) have not been produced by the Emhart Entities. While these documents would likely illuminate the precise nature of the acquisition of KLI by AHC,[83] 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.

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

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[83] Indeed, the Board may infer that the lost, destroyed or hidden documents establish that AHC expressly assumed KLI's liability.

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.

2. The Certificate of Winding Up and Dissolution of KLI.

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." See CS-9 at Rialto038177.[84]

3. The Only Two Surviving Former Directors of KLI Confirm That EII 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

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[84] The Emhart Entities 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 the Emhart Entities rely, "does not prescribe [the] exclusive means of making adequate provision for debts and liabilities." *Id.* CS-18, CS-19. 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. Refer also to CS-11 and CS-12.

liabilities of KLI.[85] 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." CS-20; Parrett Deposition at 170:22-171:12.

4. 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). See CS-14. Again, as part of AHC's 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).

Moreover, AHC and its parent company, B.S.F. Company, together filed at least six[86] documents with the SEC, under penalty of perjury, which stated: "[a]s of June 30, 1958, Kwikset Locks, Inc. was liquidated and **all** its assets and liabilities were transferred to the Company." (emphasis added). CS-21-CS26; at DBH

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[85] 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 Rialto v. Department of Defense et al.*, Case No. ED CV 04-00079 SGL (SSx), a related federal district court case involving virtually the same parties and issues, and discovery from which is cited throughout this brief.

[86] Another document produced by the Emhart Entities' legal counsel entitled "American Hardware: Form 8-K" states: "As of the close of business June 30, 1958, Kwikset, all of whose outstanding capital stock was owned by the Registrant, was dissolved and liquidated and all its assets transferred to **and all its liabilities assumed by the registrant**." CS-27; at DBH 000814. (emphasis added); CS-28; Cordiano Deposition at 209:24-211:1. It is unclear whether this document was filed with the SEC, and thus under penalty of perjury.

000720; DBH 001243-DBH 001266; at DBH001118; at DBH 001056; at DBH 000993; at DBH 001168.

5. AHC's Filing with the Internal Revenue Service Confirms that It Assumed All the Liabilities of KLI.

In 1961, AHC filed a claim for a tax refund of KLI's corporate income taxes with the IRS. In its filing with the IRS, AHC stated that "[o]n June 30, 1958, Kwikset Locks, Inc. was dissolved. **All** the assets and liabilities were transferred to the parent corporation, and operations were continued as [sic] Kwikset Division of The American Hardware Corporation." (emphasis added) CS-29; KWK31923-KWK31926; KWKA00117271-KWKA00117274. Like the statements to the SEC, AHC filed this representation to the IRS under penalty of perjury. Other examples of tax refunds or credits sought by AHC for KLI's operations are attached as CS-30 and CS-31; KWKA00051944-KWKA00051947; KWKA00141516-KWKA00141517; KWK31809-KWK31814; KWKA00051779-KWKA00051784, and discussed *infra*.

6. The June 1958 Minutes of The AHC Board of Directors' Meeting State that the Company Expressly Assumed and Guaranteed to Pay All Liabilities "Contingent or Otherwise Known or Unknown".

The minutes from the June 5, 1958 meeting of the Board of Directors of AHC ("June 1958 Minutes") show that AHC assumed all conceivable liabilities of KLI:

> the Board of Directors of [KLI] adopted a Plan of Dissolution to be effected by the distribution and transfer of all of its assets and business to [AHC]. . .upon the condition that this corporation expressly assume and guarantee in good faith to pay all debts, liabilities and obligations of [KLI] in existence on the date of such distribution and transfer of its assets and business, contingent or otherwise known or unknown.

It is apparent from the face of this document that it predates the execution of the Form of Assumption Agreement as the Minutes authorize the officers "to execute and deliver to [KLI] an appropriate form of assumption agreement **expressly**

assuming all obligations and liabilities of [KLI] as aforesaid." (emphasis added) See CS-10. These minutes provide further insight of the Board of Directors' intent.

Specifically, the June 1958 Minutes broadly authorize AHC to "assume and guarantee in good faith to pay all debts, liabilities and obligations of [KLI] in existence on the date of such distribution. . .**contingent or otherwise known or unknown**." (emphasis added) Under California law, liabilities are "in existence" at the time the underlying act is committed, not when a subsequent cause of action is created or accrues:

> Of course, there is a clear and wide distinction between the creation of a liability and the accruing of a cause of action thereon;. . . A liability may be absolute or contingent; it may be unconditional or limited; it may be presently enforceable by action or there may be time given for its performance; but whatever its character, it is created by the consummation of the contract, act, or omission by which the liability is incurred.

GMS Props., Inc. v. Fresno County, 219 Cal. App.2d 407, 413-14 (1963) (quoting *Hunt v. Ward,* 99 Cal. 612, 615 (1893)); see also *Chambers v. Farnham*, 182 Cal. 191, 195-96 (1920); *Coulter Dry Goods Co. v. Wentworth*, 171 Cal. 500, 504-05 (1915) (quoting *Hyatt v. Anderson's Trs.*, 25 Ky. L. Rptr. 132, 74 S.W. 1094, 1096 (1903) ("[T]he word 'liability' is a very broad one, and the words 'liability existing at the time of such transfer'. . . mean the same thing as the words 'all contracts and liabilities of such corporation'. . .").

As of 1958, the acts and omissions giving rise to the contamination of WCLC's Rialto facility had the potential to form the basis for liability under California law. For example, the Dickey Act was established in 1949 "to provide means for the regional control of water pollution." Cal. Water Code § 13000 (1949). The Public Health Act, established in 1907, made it "unlawful to discharge . . . any sewage, garbage,...offensive, injurious, or dangerous to health, in any springs, . . . wells or other waters used or intended to be used for human or animal consumption; or to discharge...matter or substance upon the land...so as to cause or suffer such matter or substance to flow or be emptied or drained into such

waters." Public Health Code, 1906 Cal. Stat. 893-94. Additionally, as of 1958, California courts had recognized that water contamination constituted a nuisance. *See Lind v. City of San Luis Obispo*, 109 Cal. 340, 341-42 (1895); *Thompson v. Kraft Cheese Co. of California*, 210 Cal. 171, 173, 178-80 (1930); *The People v. The Truckee Lumber Co.*, 116 Cal. 397, 400-02 (1897); *City of Turlock v. Bristow*, 103 Cal. App. 750, 753-55 (1930).

Also instructive is the anticipated application of CERCLA liability to WCLC, which will be applied retroactively. CERCLA is expressly retroactive, and liability under CERCLA may be triggered by the past act of disposing of hazardous substances. 42 U.S.C. § 9607(a) ("any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of. . .shall be liable."). Contractual language as broad as that at issue here, which assumes all liabilities, "contingent or otherwise known or unknown" has been interpreted to include a conveyance of CERCLA liabilities. *See Sherwin Williams v. Arta Group, Inc.*, 125 F. Supp. 2d 739 (D. Md. 2001) (finding an agreement providing for "all other liabilities, obligations and commitments. . .whether known, unknown, contingent or otherwise" included CERCLA liabilities).

This reading of the meaning of the phrase "in existence" is supported by the Seventh Circuit in interpreting a contract with similar language:

> the word "incurred can be interpreted only as referring to the actions that would give rise to liability," and a more narrow reading of "incurred" would fail to give meaning to the phrase "any and all obligations and liabilities of any nature (whether accrued, absolute, contingent or otherwise).

GNB Battery Techs., Inc. v. Gould, Inc., 65 F.3d 615, 623 (7th Cir. 1995) (emphasis added); *see also N. Shore Gas Co.*, 152 F.3d at 652 n.5 (7th Cir. 1998) ("To hold that that [the contract in *GNB*] excluded CERCLA liabilities would have therefore 'eviscerated' many terms in the agreement."). Based on this reasoning, the Seventh Circuit concluded that "[t]he Agreement contemplated the transfer of

all. . .liabilities whether they were known or not, and whether they had been identified and responded to or not." *GNB Battery*, 65 F.3d at 623; *see also Philadelphia Elec. Co. v. Hercules, Inc.*, 762 F.2d 303, 309-10 (3d Cir. 1985) (finding 1978 contract assuming liabilities "as of the Closing Date" to include the assumption of "any liability [the dissolving corporation] may have had due to pollution of the. . .site.")[87]

Therefore, because WCLC operated a munitions facility in Rialto, California and used, stored, and disposed of potassium perchlorate, TCE and other chemicals as part of its manufacturing operations, the environmental contamination giving rise to liability under California law and CERCLA was "in existence" at the time AHC assumed all of KLI's liabilities.

Any other reading of the words "in existence" would render meaningless the words "contingent or otherwise known or unknown." In other words, if the liability had to be realized before June 30, 1958, then it could not be "contingent" or "unknown." By definition, the words "unknown" and "contingent" mean that the liability has not yet been realized; to render these words meaningless is contrary to California law. Cole, 81 Cal. App. at 637 ("A contract shall be so construed as to give force and effect, not only to every clause, but to every word in it. . . .").

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[87] Two courts from the Eastern and Western Districts of Michigan held that the language "in existence" serves to limit the liabilities assumed and therefore does not intend to include CERCLA liabilities. *Chrysler Corp. v. Ford Motor, Co.*, 972 F. Supp. 1097, 1108-10 (E.D. Mich. 1997); *United States v. Vermont Am. Corp.*, 871 F. Supp. 318, 321 (W.D. Mich. 1994). However these cases were decided using Michigan, not California law; and as demonstrated above, California courts find liabilities to exist at the time the underlying act is committed. *Chrysler Corp.*, 972 F. Supp. at 1101-1105; *Vermont Am. Corp.*, 871 F. Supp. at 320. In addition, the language in both of these cases is distinguishable from the language in the June 5, 1958 Minutes because in neither case did the contract provide for "unknown" liabilities. *Chrysler Corp.*, 972 F. Supp. at 1108; *Vermont Am. Corp.*, 871 F. Supp. at 321.

(a) 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).

7. 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 Mfg.*, 187 Cal.App.3d 1429, 1437-38 (1986); *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 to this Court, the District court in *Iron Mountain* reached this exact 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 CS-30, 31 and 32; Nelson Deposition at 293:24-300:8, 301:7-25, 302:1-303:11. 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. 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 6-30-57, the date Kwikset Locks, Inc. was acquired by American Hardware Corporation;" a "liability" that was clearly "unknown" on June 30, 1958. CS-33; Nelson Deposition at 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. *Id.* This is simply further evidence that AHC assumed "all the assets and liabilities" of KLI, whether known or unknown.

(a) 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 of 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. Refer to WCLC evidence, *supra*. 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 their tour of the WCLC facility.

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. CS-34; Parrett Deposition at 320:24-322:19.

(b) 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 (then existing Cal. Corp. Code §§ 4607-4619 (1958)) CS-35; (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 (then existing Cal. Corp. Code § 5202) CS-36; 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 (then existing Cal. Corp. Code § 5200) CS-37. 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. Then existing Cal. Corp. Code §§ 5204, 5205 CS-38; *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.' (then

existing 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 KLI. Indeed, outstanding creditors can sue the shareholders to satisfy their claims (at any time), up to the amount of the distributed assets. Then existing Cal. Corp. Code § 5012 CS-39. Moreover, creditors can sue the directors for willful or negligent distribution of the corporation's assets. Then existing Cal. Corp. Code §§ 825 & 826 (willful or negligent violations of Section 824 on illegal distributions) CS-40; *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. CS-41; Nelson Deposition at 869:7-18, 869:25-872:1. 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.[88] CS-42; Nelson Deposition at 891:15-895:24, 896:18-897:20, 900:7-903:2, 915:6-24, 917:19-919:9. 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. CS-43 Nelson Deposition at 44:4-6, 872:10-22, 873:5-19. Moreover, the unknown debts of the Company that pre-date June 30, 1958 were all honored by AHC. CS-44; Nelson Deposition at 333:3-335:2, 337:16-338:3, 748:16-751:1, 859:19-24, 925:3-927:14.

8. 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*

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[88] 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. CS-45; Steinmeyer Deposition at 202:18-203:3. 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.

Atascadero v. Merrill Lynch, Pierce, Fenner & Smith, Inc., 68 Cal. App.4th 445, 473-74 (1998)).

E. The Evidence Likewise Supports a Finding that AHC Impliedly Assumed all of KLI's Liabilities.

The evidence discussed above is equally applicable to a finding of implied assumption. In addition to the contemporaneous documents and the testimony of surviving officers, a number of other former KLI employees who worked at KLI and stayed on after AHC took over testified regarding the total lack of change after 1958: everything stayed the same. For example, Mr. Earl Robinson, who worked for Kwikset for more than 40 years testified:

> Q. ... If I was to go into the Kwikset facility on the day before Mr. Schoepe sold to American Hardware and I was to walk around and see the operation, and then I was to go there, let's say, a week later after Mr. Schoepe had sold the business, would I have seen any noticeable differences in the operation there?
>
> A. No. CS-46; Robinson Deposition at 64:12-19.

The same employees, the same machines, the same buildings, the same vacation property,[89] the same internal company newsletter with the "Kwikset" name and emblem: nothing changed after the 1958 takeover by AHC. See depo testimony of Robinson. CS-49; Robinson Testimony at 156:20-157:7. In fact, internally, AHC frequently referred to the transaction with KLI as a merger.

- KWKA00044427: the KLI ink (internal newsletter) headline for the issue dated June 19, 1957: "Kwikset and The American Hardware Corporation Merge on July 1st." CS-50.
- KWKA00416249: "What You Should Know About Kwikset: Kwikset, Division of Emhart Corporation: "By July, 1958, KWIKSET was merged into American Hardware and became an operating Division. CS-51.

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[89] CS-47; KWK44503-KWK44512; KWKA00023483-KWKA00023492; CS-48, Robinson Deposition 201:23-204:9.

- KWKA00044560: the May 18, 1960 KLI ink (internal newsletter) article entitled "Kwikset Marks 15th Year As a Lockset Producer" described the company's history: "...On July 1, 1957 Kwikset Locks, Inc. merged with The American Hardware Corporation of New Britain, Conn., one of the largest producers of residential and commercial hardware in the nation. One year later Kwikset became a Division of AHC, with Roy Bolt as General Manager of the Division." CS-52.

- KWK31644/KWKA00038562 May 16, 1957 correspondence from Robert Hutchison, Corporate Secretary to a third party, Mr. Carroll w. Prosser of Merrill Lynch, Pierce, Fenner & Beane, in which Mr. Hutchison writes: "Thank you for your letter of May 10, 1957 regarding the mailing of data concerning the proposed merger with The American Hardware Corporation." CS-53.

- Kwikset Employee Handbook, which presents at KWKA00045966 a "History of Kwikset" and states, "In 1957, Kwikset Locks, Inc. **merged** with the American Hardware Corporation of New Britain, Connecticut and subsequently became known as the Kwikset Division. At the time of the **merger**... (emphasis added). CS-54.

These few examples, of which there are many, indicate that AHC was representing to its employees, to third parties, to its shareholders and to official agencies under penalty of perjury, that the acquisition of KLI by AHC was a merger. The documents, testimony and conduct of AHC after 1957 described herein also support a finding that there was an implied assumption of all liabilities, including contingent environmental liabilities arising from WCLC's manufacturing operations, by AHC.

1. AHC Honored KLI's Lockset Return Policy – An Unknown, Future Liability.

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. CS-55; Nelson Deposition at 725:9-16, 726:21-727:17, 744:11-745:20. 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." CS-56; Nelson Deposition at 748:16-751:1. The controller of KLI and the Kwikset Division confirmed that AHC charged a liability to

its financial statements for this "unknown, future liability."[90] 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.

2. AHC Maintained the Kwikset Employee Pension Trust – An Unknown, Contingent Liability.

Similarly, 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 EII. CS-58; Nelson Deposition at 232:8-19, 232:20-233:16, 334:1-335:2, 337:16-338:3, 859:19-24: 861:1-6. AHC continued the Kwikset Employee Pension Plan, and paid pension benefits to qualified retirees – crediting their employment history prior to 1958. CS-59; Steinmeyer Deposition at 117:10-13; CS-60; Robinson Deposition at 24-26; 39-40; 61; 65; 71; 115. Thus, AHC clearly continued to assume unknown, contingent liabilities well after KLI's dissolution. The corporate trail up through Black & Decker is evident, as many KLI retirees continue to receive pensions from BDI. A number of documents indicating the legal maneuvering that AHC voluntarily undertook to maintain KLI's pension plan for KLI employees are attached as CS-61.

3. The Water Board May Infer That Documents Lost or Destroyed Establish That AHC Assumed All of KLI's Known And Unknown Liabilities.

As stated above, the Emhart Entities have failed to locate and produce the critical June 1958 agreement between AHC and KLI entitled the "Form of

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[90] 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. CS-57; Nelson Deposition at 1170:5-1173:13.

Assumption Agreement" and the KLI "Plan of Dissolution." The contemporaneous documents that were produced establish these two missing documents would likely have stated unambiguously the extent of KLI and WCLC liabilities that AHC assumed. The Emhart Entities' failure to preserve and produce these two critical documents amounts to spoliation of evidence and merits the Water Board inferring that the documents would have established that AHC assumed all of KLI liabilities, whether known or unknown.

"Spoliation is the destruction or significant alteration of evidence, or the failure to preserve property for another's use as evidence, in pending or future litigation." *Williard v. Caterpillar, Inc.*, 40 Cal. App. 4th 892, 907 (1995). California, unlike some states, does not recognize a separate tort for spoliation, but California has long acknowledged the appropriateness of an evidentiary inference that evidence which one party has destroyed or rendered unavailable was unfavorable to that party. *See* Evid. Code section 413; *Fox v. Hale & Norcross Silver Min. Co.*, 108 Cal. 369, 415 – 417 (1895); *Cedars-Sinai Medical Center v. Superior Court*, 18 Cal. 4th 1, 11 (1998).

Thor v. Boska, 38 Cal.App.3d 558 (1974), illustrates the principle. Plaintiff in Thor sued her physician for medical malpractice for failing to properly diagnose and treat a cancerous lump in her breast. During discovery, the physician failed to locate and produce his original clinical records of plaintiff's treatment, opting instead to produce what he claimed were verbatim, more legible copies of the original records created to assist plaintiff's new doctors. The Thor Court of Appeal held it was reversible error for the trial court to have excluded reference to the missing original records, observing: "The fact that defendant was unable to produce his original clinical record concerning his treatment of plaintiff after he had been charged with malpractice, created a strong inference of consciousness of guilt on his part." *Id.*, at 565.

Not unlike the Thor defendant physician, the fact that the Emhart Entities have failed to locate and produce the two documents out of so many others that would illuminate the extent of their liability for AHC's, and the later companies', liabilities creates the strong inference that those two document were unfavorable to them. Thus, for their failure to preserve those documents for use as evidence in this proceeding, the Water Board may infer the that the documents were unfavorable to the Emhart Entities in that they established that AHC assumed all of KLI's liabilities, whether known or unknown.

F. AHC's Acquisition and Reorganization of KLI Into a Division Of AHC Constituted a De facto Merger of AHC and KLI.

The foregoing establishes that AHC absorbed KLI and expressly assumed all of its liabilities, including those associated with WCLC's activities. AHC's express assumption of liabilities, however, is not the sole basis upon which the Water Board may hold the Emhart Entities liable. In fact, AHC "merged" with KLI and by that fact alone it thereby assumed all of KLI's liabilities. While AHC and KLI may not have effected a statutory merger, their "de facto merger" had the same legal effect.

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.

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 free of the selling corporations 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,[91] 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).

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[91] What is taken *cum onere* is taken subject to an exiting burden or charge.

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).

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, 28-29 (1977) (internal citations omitted).

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 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 type 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 1436.

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 the fairness" of transferring liability from the manufacturer to 3M's subsidiary. (*Id.* at 1437).

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. *Marks*, 187 Cal. App. 3d at 1438.

Similar to *Marks*, in *Arthur Spitzer et al.*, Order No. WQ 89-8 (SWRCB 1989), the State Water Resources Board held a transaction whereby petitioner/parent corporation acquired all of a dischargers 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 clean up and abatement order (CAO) that issued to the discharger/subsidiary. In Spitzer, the RWQCB Santa Ana Region had issued a COA to several dischargers to cleanup 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 the Order 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 Water 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 Water 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 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 Water 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 forgoing 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 Water 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.

G. 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.

Of significance, 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.

H. AHC's Dissolution of KLI and Transfer of All Assets to EII, While Knowing That WCLC's Activities Created a Nuisance That KLI Was Responsible for Abating, Constituted a Fraudulent Transfer.

Rialto has established infra that in acquiring KLI, AHC necessarily assumed all of KLI's liabilities, including liabilities for the contamination at Rialto. Nevertheless, assuming arguendo that AHC did not assume KLI's liabilities for the contamination at Rialto, then the transfer of all of KLI's assets to AHC for no consideration and without any provision for liabilities associated with the contamination constituted a fraudulent transfer to avoid obligations.

As detailed infra, AHC was aware of WCLC and its Rialto operations well before it decided to acquire KLI and its subsidiaries. Moreover, not only was AHC aware of WCLC's operations, but it was also on notice that WCLC's contamination of the Rialto facility would likely result in liability. (e.g., Cal. Water Code § 13000 (1949); Public Health Code, 1906 Cal. Stat. 893-94; *Lind v. City of San Luis Obispo*, 109 Cal. 340, 341-42 (1895); *Thompson v. Kraft Cheese Co. of California*, 210 Cal. 171, 173, 178-80 (1930); *The People v. The Truckee Lumber Co.*, 116

Cal. 397, 400-02 (1897); *City of Turlock v. Bristow*, 103 Cal. App. 750, 753-55 (1930). Possessed of this knowledge, AHC directors and executives effected a series of transactions to acquire, dissolve and absorb KLI in 1958. In so doing, either they assumed liability for the contamination or they attempted to structure the transaction to leave those injured by the contamination without any recourse. If the latter, the transfer of assets was most assuredly fraudulent.

Indeed, the California Supreme Court posited on an analogous hypothetical:

> Thus, if a corporation were to mass produce defective products and then dissolve to avoid liability, 'leaving a multitude of potential claims in its wake' [citations omitted], grave questions would be raised under the Uniform Fraudulent Transfer Act. (See Civ.Code §§ 3439.01, subd. (b) [which defines "claim" to include a right to payment whether contingent, unmatured, or disputed], 3439.04 [which defines transfer that are fraudulent as to then present and future creditors]

Pacific Scene, Inc. v. Penasquitos, 46 Cal.3d 407, 418 (1988).

Thus, where a corporation discharges significant quantities of hazardous substances into the environment and then dissolves – only to reconstitute itself as a unit of another entity – to avoid liability, leaving a multitude of potential claims in its wake, dare say the Supreme Court would agree that "grave questions" would be raised under the Uniform Fraudulent Transfer Act.

I. <u>BDI Assumed All of EII's Liabilities, Without Limitations, By Treating EII as its Mere Alter Ego Instead of a Separate Corporate Entity</u>.

The foregoing sections establish that AHC, renamed EII was the corporate successor of WCLC and as such is liable for its discharges in Rialto. BDI, as EII's sole shareholder, is also liable to the full extent of EII's liability for WCLC's activities because EII became the mere alter ego of BDI. In such circumstances, it is appropriate to pierce the corporate veil[92] and hold BDI liable for the acts of its subsidiary, EII.

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[92] "Alter ego" and "veil piercing" are generally interchangeable terms for the same principle.

Generally, a parent corporation is protected from liability for the acts of a subsidiary. *United States v. Bestfoods*, 524 U.S. 51, 61 (1998). "But there is an equally fundamental principle of corporate law, applicable to the parent-subsidiary relationship as well as generally, that the corporate veil may be pierced and the shareholder held liable for the corporation's conduct when, inter alia, the corporate form would otherwise be misused to accomplish certain wrongful purposes, most notably fraud, on the shareholder's behalf. *Id.* at 62. "Principles of corporate separateness 'have been plainly and repeatedly held not applicable where stock ownership has been resorted to, not for the purpose of participation in the affairs of a corporation in the normal and usual manner, but for the purpose of controlling a subsidiary company so that it may be used as a mere agency or instrumentality of the owning company.'" *Id. at* 62-63 (citing *Chicago, M. & St. P.R. Co., v. Minneapolis Civic and Commerce Assn.*, 247 U.S. 490, 501 (1918)).

In California, the test for piercing the corporate veil/alter ego liability generally requires: "(1) that there be such unity of interest and ownership that the separate personalities of the corporation and the individual [or subsidiary] no longer exist, and (2) that if the acts are treated as those of the corporation alone, an inequitable result will follow." *McLaughlin v. L. Bloom Sons*, 206 Cal. App. 2d 848, 851 (1962) (citing *Automotriz etc. De. California v. Resnick*, 47 Cal. 2d 792, 799 (1957)). Although essentially expressing the same concept, the rule as applied to parent and subsidiary (as opposed to individual shareholders) has been phrased slightly differently. Alter ego liability for a parent corporation is thought to be appropriate where "'the corporate entity is disregarded ... wherein it is so organized and controlled, and its affairs are so conducted, as to make it merely an instrumentality, agency, conduit, or adjunct of another corporation.'" *McLaughlin*, 206 Cal. App. 2d at 851-52 (citing *1 Fletcher, Cyc. Corporations*, pp. 154, 155).) The alter ego rule is founded in equity, and its application necessarily varies depending on the circumstances of each case. *McLaughlin* at 853.

In determining whether it is appropriate to pierce the corporate veil, courts look to several factors for guidance, however no single factor is determinative.[93] *Associated Vendors v. Oakland Meat Co.*, 210 Cal. App. 2d 825, 837 (1962). Among the several factors considered are: (1) the treatment by a shareholder of the assets of the corporation as his own; (2) the use by the shareholder and the corporation of the same office or business location and the employment of the same employees and/or attorney; (3) the disregard of legal formalities and the failure to maintain arm's length relationships among related entities. *Associated Vendors*, 210 Cal.App.2d at 838-840 (emphasis added).

The alter ego test essentially looks to whether a parent and subsidiary are legitimately distinct entities so that principles of fairness do not require that one be held responsible for the other. If they are not truly distinct, then it is only fair to pierce the corporate veil to avoid the perpetration of a fraud or a sham by an entity seeking to avoid liability. Several cases are illustrative of the type of control by a parent over its subsidiary which may give rise to alter ego liability.

In *Mathes v. National Utility Helicopters Ltd.*, 68 Cal.App.3d 183 (1977), the court pierced the corporate veil for purposes of imposing California jurisdiction over

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[93] *See also* Bancroft Whitney's California Civil Practice: Business Litigation, v. 1, § 5:15-5:18 (1992)(listing the following factors to determine whether to pierce the corporate veil: (1) commingling of funds and other assets and unauthorized diversion of funds or assets to non-corporate uses; (2) the treatment by an individual of the assets of the corporation as if they were his own; (3) the failure to obtain authority to issue shares or to subscribe to or issue shares; (4) the holding out by an individual that he is personally liable for the debts of the corporation; (5) the failure to maintain minutes or adequate corporate records, and the confusion of the records of the separate entities; (6) the same ownership of the two entities; (7) use of the same office or business location by both entities; (8) the failure to adequately capitalize the corporation; (9) the use of the corporation as a mere shell for an individual or instrumentalities' business venture; (10) the concealment and misrepresentation of the identity of the responsible ownership, management, etc.; (11) the disregard for corporate formalities; (12) the use of the corporate entity to procure labor, services, or merchandise for another person or entity; (13) the diversion of assets from a corporation by or to a shareholder or other person or entity; (14) the formation and use of a corporation to transfer to it the existing liability of another person or (continued...)

foreign parent companies in a case involving a helicopter crash in Indonesia. The defendants were National Utilities Helcopters, Ltd. ("NUH"), an Indonesian corporation, and its parent Utility Helicopters, Inc. ("Utility"), a California corporation. Utility was a wholly owned subsidiary of another defendant, Cordon International Corporation, a Delaware corporation ("Cordon"). The court found that "Cordon and Utility exercised such control over NUH as to justify treating NUH as a 'completely integrated subsidiar[y]' for purposes of jurisdiction [citation]." Id. at 190. It reached this conclusion based on the facts that: Officers and employees of Cordon exercised direct control over NUH's annual sales plan and budget; two members of NUH's board of directors were officers and directors of Cordon and Utility and they frequently changed NUH's general manager when NUH's accounting data were not satisfactory; and the salary checks for NUH employees were drawn in Cordon's offices in California. Id. at 190-91.

Similarly, in *Rollins Burdick Hunter of So. Cal., Inc. v. Alexander & Alexander Services, Inc.*, 206 Cal. App. 3d 1 (1988), a foreign grand-parent company (A & A Services) was found to exercise sufficient control over its California subsidiary (A & A California) for the exercise of jurisdiction in California based on an alter ego theory, despite the fact that its only connection to California was that its subsidiary was a California corporation. *Id.* at 11. In finding the two companies to be alter egos, the court relied on the following evidence:

> A & A Services approved A & A California's major budgets, including hiring and compensation, real estate purchases or leases, and purchases and sales of insurance businesses. A & A Services provided A & A California with guidelines whereby the latter was to invest nonfiduciary funds. A & A Services selected A & A California's public accountants and controlled all routine and spot audits of A & A California. Employees of A & A California were paid from outside California under a system set up by A & A Services and those employees were treated by A & A Services as its own employees. A & A Services also determined the compensation of all A & A

(...continued)
entity).

> California executives. A & A California's board of directors was made up entirely of employees of A & A Services or A & A Inc. A & A California never had a meeting of its board of directors and those directors received no compensation for their services. The chairman of the board of A & A Services came to California at least once a year where he met with employees of A & A California. During these visits the chairman, in order to further the business of A & A California, met with senior executives of major corporations which placed at least some of their insurance business with A & A California. He also met with senior executives of major corporations which did not do business with A & A California in order to solicit insurance business for A & A California." *Id.* at 11.

Based on these facts, the court found that "[e]very facet of business—from broad policy decisions to routine matters of day-to-day operations—appears to have been dictated by A & A Services."

Similar to the parent and subsidiary companies in Rollins and Mathes cases, the evidence here indicates that BDI completely controlled EII, such that alter ego liability is appropriate. Both BDI and EII shared the same address for their headquarters. CS-62; Lutkus Deposition at 6 – 8.[94] More than merely sharing the building, Black & Decker (U.S.), Inc. owned the headquarters building, yet apparently none of the other entities paid it rent. CS-62; Lutkus Deposition at pg. 17. In addition, although EII and other Emhart Entities were located in this building, there apparently were no offices dedicated specifically to these entities. CS-62; Lutkus Deposition at 16 - 18. Furthermore, the "employees" of EII located in the headquarters building were all employees of BDI. CS-62; Lutkus Deposition at 53. Likewise, the officers and directors of EII were all paid by BDI. CS-62; Lutkus Deposition at 41. The top official at EII who directed the activities of EII was an executive Vice-President of the Black & Decker Corporation. CS-62; Lutkus Deposition at 54 - 55. Moreover, BDI sets the policy that governed EII's business

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[94] Theodore Lutkus was deposed in *Watkins v. Black & Decker (U.S.), Inc., et al.*, (U.S.D.C. S.D. Tex. 1994) Civ. Action No. G-94-692. At the time, he was both legal counsel for all of the Black & Decker entitles and also an officer for several Black & Decker organizations. Lutkus Depo., pgs. 4, 20-21, 37-40. The deposition testimony is not hearsay (see Evid. Code § 1291(a)(2)), and (continued...)

operations. CS-62; Lutkus Deposition at 18 - 20. Furthermore, BDI provided all of the insurance and workers' compensation coverage for EII. CS-62; Lutkus Deposition at 36. Indeed, in a particularly telling example, BDI and Black and Decker Corporation entered into an agreement with various insurance carriers that released the insurers from their policy obligations to BDI's subsidiaries, including EII, for various environmental claims.[95] Simply put, BDI controlled every aspect of EII. CS-62; Lutkus Deposition at 36.

Based upon these same facts, the United States District Court for the Southern District of Texas, denied BDI's objection to holding it liable for tort liability incurred by EII. In so doing, the Court held:

> "The Court finds that Black & Decker, Inc., Black & Decker (U.S.), Inc., Emhart Corporation and Emhart Industries, Inc. have ceased to be separate legal entities and are therefore all subject to each other's liabilities."

Watkins v. Black & Decker (U.S.), Inc., et al., (U.S.D.C. S.D. Tex. 1994) Civ. Action No. G-94-692, Order Denying Defendants' Motion For Summary Judgment, dated April 20, 1995, at page 11.[96] CS-63.

BDI clearly failed to maintain an arm's length relationship with EII. Thus, because several of the factors considered in determining alter ego liability were

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therefore Government Code section 11513(d) is inapplicable.

[95] The City obtained a copy of the Confidential Settlement Agreement and Release, dated November 23, 1998, in separate but related federal court litigation subject to a protective order that limits its use to that action. The City subsequently produced the Agreement to the RWQCB in response to its subpoena. BDI received notice and did not object either before the RWQCB or the federal court to its production to RWQCB and therefore has waived objection and impliedly consents to its use in this matter.

[96] While it appears the Texas litigation did not proceed to final judgment and therefore it is doubtful that the Board can afford preclusive effect to the Texas opinion, the opinion nevertheless is instructive and not hearsay (see Evid. Code § 1280). Even if the opinion is hearsay, it is still admissible.

present here, and it is clear that BDI's control over EII was pervasive, it is appropriate to pierce the corporate veil and hold BDI liable, without limitation, as EII's alter ego.

J. Because BDI was EII's Sole Shareholder and Recipient of EII's Remaining Assets on Dissolution, BDI is Liable for WCLC's Discharges Up to the Value of the Liquidating Distribution.

The corporate restructurings, name changes and mergers following AHC's merger with the Emhart Manufacturing Company did not abrogate the liability of AHC – later named EII – for WCLC's activities at the Rialto site. Consequently, when EII dissolved and distributed assets valued at approximately $716 million dollars to its sole shareholder, BDI, as a matter of Connecticut law, BDI became liable for WCLC's activities up to the value of that distribution.

1. EII Retained Liability for WCLC Activities at Rialto Throughout Its Corporate Existence.

The 1964 AHC merger with Emhart Manufacturing Company had no impact on EII's pre-merger liabilities. Under then existing, and current Connecticut law, the surviving corporation in a merger assumed all of the liabilities of the merging companies. Conn. General Statute 33-369 (1961). Consequently, the renamed Emhart Corporation retained its liability for KLI/WCLC's activities.

Moreover, EII's 1985 spin-off of its Kwikset division to affiliated company KCal in exchange for KCal's express assumption of all liabilities did not change EII's liability vis-a-vis third parties. It is hornbook law that an obligor cannot assign away and thereby absolve himself of his liabilities to third parties. *See* Cal. Civ. Code § 1457; Witkin Summary of California Law (10th Ed.), Contracts § 730 and cases cited therein; *Gateway Company v. DiNoia*, 232 Conn. 223, 233, 654 A.2d 342, 347-48 (1995); 6 AmJur 2nd, Assignments, §§ 165-66. Thus, while EII likely

has a contractual right to indemnity from KCal (later KDel),[97] EII nevertheless retained its liability for KLI/WCLC's activities.

The merger of EII's parent, Emhart Corporation, into a BDI subsidiary had no effect on EII in general or specifically related to its then existing liabilities. Thereafter, the merger of EII's parent, Emhart Corporation, once again served only to merge all of the liabilities of the merging companies into EII

Thus, beginning with EII's acquisition of KLI through to EII's dissolution, EII became and at all times remained liable for WCLC's activities at the Rialto site.

2. The Santa Ana RWQCB and The State Water Board Have A Valid Claim Against BDI Up to The Value of the Assetts EII Distributed to BDI Upon Dissolution.

EII dissolved in February 2002 pursuant to Connecticut General Statute 33-881 et seq. The Connecticut statutes provide that if a dissolving corporation publishes notice of the dissolution in accordance with requirements of Conn. Gen.Stat. 33-887, then a claimant with a claim that arises after the effective date of the dissolution must bring that claim within three-years "from the date of publication." The post-dissolution claimant may assert the claim against the corporation to the extent of undistributed assets (e.g., insurance), or against a shareholder to the extent of the shareholder's pro rata share of the claim or assets distributed. Conn. Gen. Statute 33-887(d).[98]

In response to the U.S Environmental Protection Agency's requests for information from EII and Black & Decker Corporation regarding the Rialto site, EII

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[97] Indeed, claimant against EII, to include the Board, may be third-party beneficiaries of the agreement with the concomitant right to enforce the agreement against KDel.

[98] In California, claims to abate a nuisance are not impacted by California's similar statute. California Courts have held the abatement of a nuisance is a ongoing part of the winding up process that is not subject to any limitations period. While Rialto does not know whether Connecticut follows a similar rationale, it is immaterial because a valid claim has been filed within the limitations period.

and Black & Decker Corporation have stated that upon dissolution, EII made liquidating distributions to its sole shareholder, BDI, having an estimated value of $716 million.[99] CS-64. They further claimed EII gave statutory notice of its dissolution on March 12, 2002. Thus, the statute allows post-dissolution claims asserted before March 12, 2005.

The Santa Ana RWQCB "commenced" a "proceeding to enforce the claim" within the meaning of the statute when it issued the CAO to EII on February 28, 2005, within the three-year bar date to assert claims. Therefore, the Board may pursue EII's sole shareholder BDI up to value of EII's assets distributed to BDI upon EII's dissolution, i.e., up to $716 million.

K. AN ORDER SHOULD ISSUE AGAINST THE NAMED EMHART ENTITIES.

For the foregoing reasons, the Board should conclude that Black & Decker Inc., Kwikset Corporation, and Emhart Industries, Inc. are the corporate successors of West Coast Loading Corporation, as such are "dischargers" under Water Code section 13304, and therefore are properly named in the Santa Ana Regional Water Quality Control Board's Clean Up and Abatement Order dated February 28, 2005.

VII. THE DISCHARGERS SHOULD BE REQUIRED TO PREPARE WATER REPLACEMENT PLANS AND WATER REPLACEMENT CONTINGENCY PLANS WHICH REPLACE ALL OF RIALTO'S LOSSES.

The draft CAO proposed by the Staff Advocacy Team orders the Dischargers to prepare both water replacement plans and water replacement contingency plans. (Draft CAO, Orders No. 1 &2.) The SWRCB should uphold the draft CAO and order the Dischargers to prepare both water replacement plans

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[99] CS-64; Letter from Robert D. Wyatt, Allen Matkins Leck Gamble & Mallory LLP to Clifford R. Davis, Civil Investigator, U.S. Environmental Protection Agency, Region IX, dated April 29, 2004 (attachments not included).

and water replacement contingency plans which make Rialto whole pending implementation of the final remedy.

A. Statutory Authority and Precedent Support the Issuance of the Plans.

Water Code section 13304 explicitly authorizes the SWRCB to require the Dischargers to prepare water replacement plans. "A cleanup and abatement order issued by the state board ... may require the provision of, or payment for, uninterrupted replacement water service ... to each affected public water supplier. ...As part of any cleanup and abatement order that requires the provision of replacement water, ... the state board shall request a water replacement plan from the discharger in cases where replacement water is to be provided for more than 30 days." (Water Code, § 13304, subds. (a) & (f).) Given the magnitude of the contamination in the Rialto-Colton Basin, the SWRCB can reasonably find that replacement water will be required for more than 30 days and that it can order the preparation of a water replacement plan.

SWRCB precedent authorizes the SWRCB to require the preparation of water supply contingency plans. (See *In re Permit 17593 (Application 24955) Regarding Draft Cease and Desist Order No. 262.31-11*, SWRCB Order WR 2005-0013; *In re Petitions for Reconsideration by Coast Action Group and Don McDonald Regarding Division of Water Rights Order WR 99-09-DWR*, SWRCB Order WR 99-011.) In both these proceedings, the SWRCB used its inherent authority to condition the issuance of water permits to require the permitee to prepare contingency plans to address possible shortfalls in the delivery of water contemplated by those permits.

The directive in the draft CAO that dischargers prepare contingency plans is for a similar purpose, and arises under the authority of the language in subdivision (a) that the replacement water be "uninterrupted." (Water Code, § 13304, subd. (a).) As discussed above, Rialto's current water supply portfolio is not stable. Given the impact of contamination on Rialto's system, the system is now especially

vulnerable to earthquake damages, firestorms, long-term drought, and well or system breakdown. A commitment to provide uninterrupted water service must necessarily include contingency planning.

B. The Water Replacement Plans and Water Replacement Contingency Plans Must Meet Minimum Standards.

Due to perchlorate contamination, Rialto's water system no longer meets minimum acceptable safety standards.[100] The water replacement plans and water replacement contingency plans must, at a bare minimum, allow Rialto to operate in accordance with the pending California Water Works Standards.

Rialto commits to working cooperatively with the RWQCB and the Dischargers in reviewing proposed water replacement plans and water replacement contingency plans. However, due to Rialto's Zero Tolerance Policy and the uncertain health effects of low doses of perchlorate, Rialto rejects outright any water replacement plan and/or water replacement contingency plan that proposes to blend perchlorate-contaminated water with non-contaminated water down to levels of non-detect. Any perchlorate-contaminated water must first be treated by a perchlorate removal system before Rialto will accept it.

C. The Ultimate Remedy Must Direct The Dischargers To Clean Up The Rialto-Colton Basin To Background Water Quality.

The analysis of impacts to Rialto due to perchlorate contamination demonstrates the importance of the Rialto-Colton Basin to Rialto. As Rialto's single most critical water supply, the Rialto-Colton Basin must be restored to its full range of beneficial uses.

1. Determination of Cleanup Standard.

The SWRCB has established a through and lengthy process for establishing the appropriate cleanup level which the Dischargers will be mandated to achieve.

The principal guidance document governing the SWRCB's issuance of a CAO to the Dischargers is the "Water Quality Enforcement Policy," (the "Enforcement Policy").[101] The goal of the Enforcement Policy "is to create a framework for identifying and investigating instances of noncompliance, for taking enforcement actions that are appropriate in relation to the nature and severity of the violation, and for prioritizing enforcement resources to achieve maximum environmental benefits." (Enforcement Policy, at 1.)

According to the Enforcement Policy, in issuing cleanup and abatement orders the RWQCB is to comply with "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304,"[102] (the "Cleanup Policy"). The Cleanup Policy states that the policies and procedures described in the Cleanup Policy shall apply to all investigations, and cleanup and abatement activities, for all types of discharges subject to Water Code section 13304. (Cleanup Policy, at p. 4.)

Two key provisions of the Cleanup Policy govern cleanup standards. First, the Cleanup Policy directs the SWRCB, in issuing cleanup and abatement orders, to require actions for cleanup and abatement to conform to the "Statement of Policy With Respect to Maintaining High Quality of Waters in California,"[103] (the "Anti-Degradation Policy"), and conform to the RWQCB's Basin Plan. (Cleanup Policy, at III.F.) Second, the Cleanup Policy directs the SWRCB, in issuing cleanup and abatement orders, to

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[100] Hunt decl., at pp. 12-13.

[101] SWRCB Res. No. 2002-0040, Cal. Code Regs. tit. 23, § 2910

[102] SWRCB Res. No. 92-49, Cal. Code Regs. tit. 23, § 2907

[103] SWRCB Res. No. 68-16. SWRCB policies issued prior to 1992 are exempt from submittal to the Office of Administrative Law and do not appear in the California Code of Regulations. (Gov. Code, § 11353.)

> [e]nsure that dischargers are required to clean up and abate the effects of discharges in a manner that promotes attainment of either background water quality, or the best water quality which is reasonable if background levels of water quality cannot be restored, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible; in approving any alternative cleanup levels less stringent than background, apply Section 2550.4 of [Title 23 of the California Code of Regulations] ...; any such alternative cleanup level shall: 1. Be consistent with maximum benefit to the people of the state; 2. Not unreasonably affect present and anticipated beneficial use of such water; and 3. Not result in water quality less than that prescribed in the Water Quality Control Plans and Policies adopted by the State and Regional Water Boards.

(Cleanup Plan, § III.G.)

Simply put, the Cleanup Plan requires the SWRCB to consider three main points: the total values involved in the cleanup, the section 2550.4 criteria, and whether a maximum benefit finding can be made for a cleanup level other than background water quality.

2. Total Values.

A fair consideration of the total values involved leads to the conclusion that background level is the appropriate cleanup level. The total values involved in determining the appropriate cleanup levels for the Rialto-Colton Basin include legislative findings and laws affecting water planning, public debate on the health effects of perchlorate, the RWQCB's Basin Plan, regional plans developed by regional water agencies, and the City's own water planning.

3. Legislative Policies.

Every cleanup standard must comply with the Constitutional direction that "the water resources of the State be put to beneficial use to the fullest extent of which they are capable." (Cal. Const., Art. X, § 2.)

Consistent with that constitutional directive, the California legislature has declared that groundwater planning, including the cessation of or reduction in the extraction of groundwater to permit the replenishment of such ground water by the

use of water from an alternate nontributary source, is a reasonable beneficial use of ground water. (Water Code, §§ 1005.1-1005.4.)

The Legislature has further directed every urban water supplier, which includes the City of Rialto, to prepare water management plans that ensure the appropriate level of reliability in its water service sufficient to meet the needs of its customers during normal, dry, and multiple dry water years over a 20 year planning window.[104] In the UWMP Act, the Legislature directs urban water suppliers to "actively pursue the efficient use of available supplies."[105]

In 2001, the Legislature tightly tied water planning to land use planning by passing two bills, Senate Bill 221 and Senate Bill 610.[106] These bills, which made changes to the California Environmental Quality Act, Public Resources Code section 21000 et seq. ("CEQA"), and the Subdivision Map Act, Government Code section 66410 et seq. (the "Map Act"), significantly restrict new development in excess of a certain magnitude unless the urban water supplier can demonstrate that an adequate water supply exists to meet the demand of the new development.

In 2005, the Legislature has recently revised the Planning and Zoning Law, Government Code section 65000 et seq., to require public agencies providing water services to adopt policies that grant priority to new development that includes housing units affordable to lower income households.[107]

The Legislature has recently adopted the California Global Warming Solutions Act of 2006, Health & Safety Code section 38500 et seq. (the "Global Warming Act"). In the Global Warming Act, the Legislature found that global warming presents a serious threat to the economic well-being, public health,

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[104] Water Code, § 10610 et seq. [the "Urban Water Management Planning Act" or "UWMP Act"]

[105] Water Code, § 10610.4, subd. (c)

[106] Senate Bills 221 and 610 (2001 Legis. session) ["SB 221/610"].

[107] Gov. Code, § 65589.7, enacted by Senate Bill 1087, 2005 Legis. Session.

natural resources, and the environment of California. The Legislature further found that potential adverse impacts of global warming include a reduction in the quality and supply of water to the state from the Sierra snowpack.

Taken in total, the Legislature has directed water agencies to do more than ever to increase the reliability and flexibility of water supplies. For Rialto, this means being able to recharge surplus water in the Rialto-Colton Basin and extract it without incurring the cost of needing to remove perchlorate.

4. Perchlorate Health Risks.

Neither the US Environmental Protection Agency ("EPA") nor the State of California have adopted enforceable standards on the quantity of perchlorate in drinking water that is safe.

The EPA is still in the early stages of issuing a regulatory standard. So far, date it has only issued, in 2005, a reference dose for chronic oral exposure ("RfD") of 0.0007 mg/kg/day. It did so in 2005. The determination of a RfD is not an enforceable standard.

The Office of Health Hazard Assessment ("OEHHA") determined in 2004 that the public health goal ("PHG") for perchlorate was six parts per billion ("ppb") in drinking water. The Department of Health Services has proposed setting the PHG as the Maximum Contaminant Level ("MCL") but has not yet finalized the regulation.

In December 2006, a study (the "Ginsberg Study") sponsored by the National Institute of Environmental Health Sciences, a federal agency within the National Institutes of Health, concluded that perchlorate in drinking water should be kept below 1.3 ppb to keep 90% of all infants below the RfD, and that EPA needed to reconsider the RfD itself due to possibly unanticipated consequences of low doses.

Rialto continues to operate its water system without knowing what level of perchlorate in drinking water is safe.

5. The Regional Water Quality Control Board's Duty.

The Basin Plan sets a clear water quality objective for perchlorate; it states: "All waters of the region shall be maintained free of substances in concentrations which are toxic, or that produce detrimental physiological responses in human, plant, animal or aquatic life." (Basin Plan, at 4-14.)

According to the Ginsberg Study, perchlorate may be safe at about 1 ppb in drinking water, but the safe level may actually be lower. The most accurate laboratory test for perchlorate approved by the EPA detects perchlorate reliably only at 2.5 ppb or higher.

The Basin Plan, therefore, mandates cleanup to background levels.

6. Regional and Municipal Plans.

The Santa Ana Watershed Project Authority ("SAWPA") is a joint powers authority formed of five member agencies: SBVMWD, Eastern Municipal Water District, Inland Empire Utilities Agency, Orange County Water District, and Western Municipal Water District. One of SAWPA's programs is to create a sustainable Santa Ana River Watershed supporting economic and environmental vitality and an enhanced quality of life. To implement this program, SAWPA has engaged in a multi-year watershed planning process resulting in the publication of a series of reports and plans, the most recent of which is the Integrated Watershed Plan, 2005 Update (the "2005 IWP"). The 2005 IWP includes at least one significant project to use the Rialto-Colton Basin for artificial recharge. (2005 IWP, Table 3-1, at p. 76.) More generally, the 2005 IWP contemplates that all groundwater basins within SAWPA's jurisdiction will be used more actively for recharge.

As mentioned above, in January 2007, SBVMWD and Western Municipal Water District jointly published the Final Environmental Impact Report for their applications to appropriate surplus water in the Santa Ana River. One site contemplated for the storage of appropriated water is the Rialto-Colton Basin.

SBVMWD is in the process of preparing an Integrated Regional Groundwater Management Plan, with completion expected in the fall of 2007 (the "draft IRGMP"). The project list for the draft IRGMP includes, in addition to the projects described in SAWPA's 2005 IWP and the Seven Oaks Dam EIR, further projects for the development and use of storage space in the Rialto-Colton Basin.

All relevant regional planning processes contemplate using the Rialto-Colton Basin for storage. The presence of perchlorate in any detectable amount, especially given the uncertainties surrounding the health effects of perchlorate, interferes with those plans.

7. Summary of Analysis of Values.

All the values of the Rialto-Colton Basin point in the direction of remediation of perchlorate to background levels. There is no applicable value that approves of leaving a contaminant in the Rialto-Colton Basin at levels that could cause adverse health effects.

8. Section 2550.4 Criteria.

For impacts to groundwater, the nine listed factors in section 2550.4 of title 23 of the California Code of Regulations to be considered in determining the cleanup level are:

(a) the physical and chemical characteristics of the waste in the waste management unit;

(b) the hydrogeological characteristics of the facility and surrounding land;

(c) the quantity of ground water and the direction of ground water flow;

(d) the proximity and withdrawal rates of ground water users;

(e) the current and potential future uses of groundwater in the area;

(f) the existing quality of ground water, including other sources of contamination or pollution and their cumulative impact on the ground water quality;

(g) the potential for health risks caused by human exposure to waste constituents;

(h) the potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

(i) the persistence and permanence of the potential adverse effects.

(Cal. Code Regs., tit. 23, § 2550.4(d).)

Rialto is submitting extensive evidence on these nine factors. (Stephens decl.; McPherson decl.; Hunt decl.) This evidence establishes that the Rialto-Colton Basin is a core component of Rialto's water supply, and a core component of regional water planning. The factors again argue in favor of ordering the Dischargers to remediate the perchlorate discharges to background levels.

9. Maximum Benefit.

In the Memorandum entitled "Questions and Answers; State Water Resources Control Board Resolution 68-16 'Statement of Policy With Respect to Maintaining High Quality of Waters in California'", published February 16, 1995 (the "Anti-Degradation Memo"), the SWRCB provides guidance on the determination of maximum benefit in that context. Cleanup levels in groundwater should at least achieve the water quality objectives, but should be more stringent if achievable using best practicable treatment or control. (Anti-Degradation Memo, at pp. 14-15.) The factors to be considered in making a maximum benefit finding, thereby allowing cleanup to a level other than background, include: (1) past, present, and probable beneficial uses of the water; (2) economic and social costs of the discharge compared to the benefits; (3) environmental aspects of the discharge

and (4) implementation of feasible alternative treatment or control methods. (Anti-Degradation Memo, at p. 5.)

The Anti-Degradation Memo specifically notes that with regard to economic costs, the RWQCB is to consider costs both to the discharger and the affected public. Cost savings to the discharger, standing alone, are not adequate justification for a maximum benefit finding; the discharger must demonstrate that the savings are necessary to accommodate important social and economic development. (Anti-Degradation Memo., at p. 5.)

Concerning social costs, the RWQCB is to consider whether the lower water quality resulting from cleanup to a level other than background can be abated through reasonable means. (Anti-Degradation Memo., at p. 6.)

The Dischargers cannot bear their burden of proof to make a maximum benefit finding for a level of cleanup other than background. As discussed above, the Rialto-Colton Basin is a key component of the water supply for 50,000 people. The Dischargers have not proposed any alternative use of the funds necessary to clean up to the Rialto-Colton Basin to background levels that would accommodate social and economic development. Nor have the Dischargers ever proposed implementing a feasible alternative treatment or control method.

10. Conclusion.

In order to allow cleanup to a level other than background, the SWRCB and/or RWQCB as applicable must consider the total values applicable to the use of the Rialto-Colton Basin, consider the factors in section 2550.4 of title 23 of the California Code of Regulations, and apply the Anti-Degradation Policy.

All the values associated with the Rialto-Colton Basin argue for cleanup to background level, as do the section 2550.4 factors. The Dischargers cannot demonstrate that maximum benefit exists at a cleanup level other than background. The Dischargers must be ordered to clean up to background level.

VIII. COSTS INCURRED BY RIALTO.

It is not within the scope of this proceeding to engage in the damages incurred by Rialto, which are properly the subject of a civil action. Water Code Section 13304(c)(1). However, under Water Code Section 13304(a), the State Board is authorized to "require the provision of, or payment for, uninterrupted replacement water service, which may include wellhead treatment, to [the] affected public water supplier". Rialto lacks the resources and funding to install water treatment on many of the most affected wells downgradient of the Goodrich/Black & Decker site, such as Rialto No. 1, Rialto No. 2, Rialto No. 4, and Rialto No. 6. Rialto respectfully submits that the cost to install and operate wellhead treatment on these wells is properly charged to the Dischargers under the CAO. Rialto's water treatment and water replacement activities to date have involved Chino No. 1 and Chino No. 2, which are necessarily pumped because the wells downgradient from the Goodrich/Black & Decker site are unavailable due to Perchlorate contamination, and recharge into the contaminated aquifer is inhibited.

Rialto's costs for capital, operation and maintenance, and related expenses on Chino No.1 and Chino No. 2 are set forth in the Declaration of Peter Fox, and are summarized as follows.

Well Site	**Description**		**Amount**
Chino Well #1	Construction	$	1,087,000.00
Chino Well #1&2	Misc. Cost	$	50.00
Chino Well #1&2	Misc. Cost	$	8,084.33
Chino Well #1&2	Misc. Cost	$	19,376.55
Chino Well #1	Construction		5,370.24
Chino Well #1	Lease of Site		16,000.00
Chino Well #2	Construction		809,140.42
	TOTAL	$	1,945,021.54

Declaration of Hunt, page 2:14 and Ex. A

Further expenditures on Chino No. 1 and Chino No. 2 of $310,601.78 itemized on the Declaration of Hunt, page 2:1-4 and Ex. B.

Staff costs related to Chino No. 2 of $17,778.10 itemized on the Declaration of Hunt, page 2:5-8 and Ex. C.

Expenditures related to Chino No. 1 for staff costs and other expenses of $68,736.65 itemized on the Declaration of Hunt, page 2:9-12 and Ex. D.

Expenditures for water leased from Colton of $166,500 Declaration of Hunt, page 2:13-17 and Ex. E.

Expenditures to obtain water from Riverside-Highland Water Company of $87,916.15 Declaration of Hunt, page 2:18-22 and Ex. F.

Depending on the scope of work ordered against the Named Dischargers, imposition of other costs may be necessary and appropriate under Water Code Section 13304(a).

In accordance with Section 13 of the draft CAO, Rialto is prepared to submit information with the other water purveyors as may be directed by the Hearing Officer.

IX. PHYSICAL EVIDENCE: ONE LOKI MISSILE MANUFACTURED BY GOODRICH.

Rialto is in possession of an intact LOKI missile manufactured by Goodrich, found in Rialto and currently held in an evidence room at the City of Rialto. The Named Dischargers were notified of this custodian in a submission from Rialto on April 10, 2007. The existence of the missile has been generally known to the parties for a considerable time.

Rialto intends to allow the inspection of the missile during the discovery and at any other convenient time by the parties, but for obvious reasons could not serve the physical evidence on the parties on April 12, 2007. The missile will be produced at the time of hearing.

X. CONCLUSION.

This proceeding is of critical importance to Rialto, which is facing the worst financial and health crisis in its history. Rialto and its citizens respectfully submit that substantial evidence exists for entry of the CAO against the Named Dischargers.

Dated: April 12, 2007

Respectfully submitted,

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By _____
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