

July 22, 2019

Mr. Chad Nishida Water Resources Control Engineer Site Cleanup Program Santa Ana Regional Water Quality Control Board 373 Main Street, Suite 500 Riverside, California 92501

Re: Preliminary Conceptual Site Model Addendum 1551 East Orangethorpe Avenue, Fullerton, California Geotracker Global ID# SLT8R2213999

Dear Mr. Nishida:

Roux Associates, Inc. (Roux Associates), on behalf of Arnold Magnetic Technologies Corporation (Arnold), submits this Preliminary Conceptual Site Model (PSCM) Addendum (Addendum) as requested in the Santa Ana Regional Water Quality Control Board (SARWQCB) June 14, 2019 *Comments on "Preliminary Conceptual Site Model" for Former Arnold Engineering Facility (a.k.a Fullerton Business Park North) at 1551 East Orangethorpe Avenue, Fullerton, Orange County (comment letter).*

In the comment letter the SARWQCB requested identification of areas of concern (AOCs) for environmental characterization based on historic information including reported operations/use, chemical use, and Site features. Table 1, Figure 1, and Figure 2 of this Addendum present AOCs and Site features. In addition to the AOCs, which are on-Site, off-site areas of concern (OAOCs) are included on Table 1 of this Addendum and can be seen on Figures 8, 9, and 11 of the PCSM.

The March 1, 2019 PCSM listed the chemicals of potential concern (COPCs) as tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), and 1,1,1-trichloroethane (1,1,1-TCA). In the June 14 comment letter, the SARWQCB requested that the COPC list be expanded to include other chemicals historically used at the Site. After reviewing historical records, the documents found which contain information concerning past chemical use by Arnold consist of hazardous waste manifests and an August 4, 1970 Fullerton Fire Department inspection report indicating the on-Site storage of chromic sulfuric acid. An expanded list of the COPCs based on the above-mentioned sources is shown on Table 2. Table 2 reflects COPCs from manifests using Arnold's generator ID (as required by SARWQCB) and sources of available information during Arnold's operations. As discussed in the PCSM, in 1993 Fullerton North Partners used Arnold's former Hazardous Waste Generator ID number. Therefore, Arnold was not the generator of waste on the 1993 manifests.

The comment letter requested that Section 6 "*Data Gaps and Recommendations*" of the PCSM be updated based on the defined AOCs. A July 1, 2019 Site walk was performed by representatives of Arnold, Universal Molding (Site owner), and the SARWQCB. Roux Associates' primary objectives during the Site walk were to observe the locations and condition of any remaining soil vapor probes, identify

Mr. Chad Nishida July 22, 2019 Page 2

indications of past site features, understand the current operations occurring at the Site, assess the interior layout of the building, and understand the physical limitations of ongoing operations on future investigation. A track-changes version of Section 6 showing the updates made based on new information obtained during the Site walk and inclusion of the AOCs and site features is attached as Appendix A.

The AOCs and Site Feature locations shown on Figure 1 and Figure 2 are approximate and based on various sources as listed on Table 1. As discussed further below, very few Site Features could be located/verified during the Site walk, and this is primarily attributed to current Site operations and substantial Site remodeling and/or alterations which have occurred in the more than three decades since Arnold operated at the Site, some made within the last decade. Some of the sources for the location of Site Features have unknown authors/origins; are undated; and/or, are partially illegible. Based on all of these factors, the level of approximation for each location varies significantly as discussed in the "Location" column of Table 1. Some Site Features have more than one source and the locations and information on the sources do not always match. Additionally, the two rounds of SVE at the Site (1995 and 2008-2011) and the SVE remedial efforts of Johnson Controls to the immediate north in (2006-2007) have reduced the mass of VOCs in the vadose zone; and altered the distribution of subsurface contaminants.

During the July 1, 2019 Site walk, conditions at the facility were observed to be very busy and congested inside and outside the building, making it very difficult to observe any remaining indications of historical features on floors/pavement inside and outside the buildings. The surficial expressions of only two soil vapor probes were observed. It is expected that these same congested conditions will persist until the operations are moved to a new location with a planned date in early 2020. On July 17, 2019 Roux Associates sent an email to the Site owners' legal counsel (Faegre Baker Daniels LLP) and their consultant (Ramboll) requesting a list of existing soil vapor probes. In reply to the request, Ms. Carol Serlin of Ramboll sent an email on July 17, 2019 which stated,

As far as we know, all the various types of wells have been destroyed with the exception that, during the site visit, several potential existing SVs were identified based on surface features. The locations identified corresponded to the following SVs: SV34 and SV35. In addition there was a surface cover near the location of SV6.

During the Site walk a Site owner representative (Mr. John Wall) stated that the majority of the equipment and materials in the eastern two-thirds of the building and most of the materials outside of the building will be removed within approximately 8-months. On July 17, 2019 legal counsel for the Site owner's legal counsel (H. Max Kelln of Faegre Baker Daniels LLP) provided the statement below concerning the planned move,

International Window Corporation ("IWC") is planning to move its operations offsite to a new location beginning around March to May 2020. IWC estimates that the move will take approximately three weeks to complete. Universal Molding Company ("UMC") intends to remain the property owner and keep its existing Paint Line operations on site. It currently does not have any plans to sublet IWC's space to another tenant, but will likely keep it vacant or use for miscellaneous storage.

If investigation work is ordered to proceed prior to the cessation of International Window's operations at the Site, observation of remaining surficial Site Feature indicators will be difficult at best; and, implementation of subsurface investigations will be problematic, time consuming and disruptive to the facilities operations.

Based on the current level of Site activity and congestion and the plans for equipment and materials relocation in the near future, it is recommended that a work plan be prepared for the shallow soil vapor investigation as described in the following updated Section 6 *"Data Gaps and Recommendations"* using the AOCs and Site Features in Table 1 and on Figures 1 and 2. After removal of the International Window

Mr. Chad Nishida July 22, 2019 Page 3

Corporation equipment is completed, a Site walk can be performed to refine proposed locations (relative to Site Features), and allow addition of any functioning soil vapor probes to the scope if they exist.

If you have any questions regarding the contents of this letter report, please do not hesitate to contact David DeVries by telephone at 562-446-8625 or by email at <u>ddevries@rouxinc.com</u>, or Jon Rohrer by telephone at 310-879-4921 or by email at <u>jrohrer@rouxinc.com</u>.

Sincerely,

ROUX ASSOCIATES, INC.

David J. DeVries, P.G. (CA), C.H.g Project Hydrogeologist

Jon Rohrer, P.G. (CA), C.H.g Principal Hydrogeologist

Enclosures:

Table 1 – Areas of Concern and Site Features

Table 2 – Chemicals of Potential Concern

Figure 1 – Site Features

Figure 2 – Areas of Concern

Appendix A – Updated PCSM Section 6 "Data Gaps and Recommendations"



- 1. Areas of Concern and Site Features
- 2. Chemicals of Potential Concern

Table 1 - Areas of Concern and Site Features 1551 East Orangethorpe Avenue, Fullerton, CA

Part Part Part Part Part Part Part Part	AOC	AOC Name	Location	Features *	Size	COPCs	Primary Source(s) of Information	
No. Note List of List	AOC-1	Course Line & Esteries During	Along pactors boundary of Site	1) Main sewer line**	8-inch diameter		2008 City of Fullerton; 1956 City of Fullerton	
Image: section degrades Description derivation derivati derivation der			Along eastern boundary of site	2) Round exterior drain	~3-ft in diameter	Unknown	Current aerial photos (Google Maps) and photos from 2007 site walk	
Accel Accel and Provision Information Provision Provisin Provision Provisin Provision Provision Provisio P				3) Rectangular exterior drain	~3 ft x 4 ft	Unknown	Photos from 2007 site walk	
AGC 2 Index 5 datern Degening 4rm Open Segues 4rm Segues 4rm Number 4000 COS D39 (Date 1000) AGC 2 Index 5 datern Edgening 4rm Open Segues 4rm Segues 4rm<			Control Dortion of the couthern half of huilding	4) Cold soak tank	NA	VOCs	1979 AQMD	
Image: Construction Constr	AOC-2	Indoor Southern Degreasing Area	Central Portion of the southern half of building,	5) Degreaser	NA	VOCs	1979 AQMD	
And A Answer Prices Area Answer Prices Area </td <td></td> <td></td> <td>locations approximate</td> <td>6) Clarifier (south, indoor)</td> <td>NA</td> <td>VOCs, metals, TPH</td> <td>1988 BCL(a) (page 1)</td>			locations approximate	6) Clarifier (south, indoor)	NA	VOCs, metals, TPH	1988 BCL(a) (page 1)	
AFAP				7) Clarifier (north, outdoor)	2,000 Gallons	VOCs, metals, TPH	1988 BCL(a); McCormick (unknown date)	
ACC 2 Openeting for the set of the				8) Clarifier (south, outdoor)	2,000 Gallons	VOCs, metals, TPH	1988 BCL(a)	
NAUA Notesian Process Area Operation of the process of the process Area Operation of the process of the process Area Operation of the process of the proces				9) Stripping area	NA	VOCs, metals	1979 AQMD; 1988 BCL(a); Unknown Author & Unknown Date - Facility Layout	
ND-F I 1 climit and instanting integration of the property of the pro				10) Chemical milling line (west)	NA	VOCs, metals	1979 AQMD	
AGCA IS 2000 control (1000 control (10000 control (1000 control (10000 control (1000 control (1000 c				11) Chemical milling line (east)	NA	VOCs, metals	1979 AQMD	
Access Nameses area Initial and outdate throuthable area of by bailing, location agrowting the problem is logerated. Image and outdate throuthable area of by infigures. Image and outdate throuthables area infigures. Image and outdate th				12) Spray booth	NA	VOCs	1979 AQMD	
ACC-3 Northestern Process Area Indide, Location approximate Indide approximate			Inside and outside the partheastern area of the	13) Clarifier(s) - north, indoor; one, or two parallel	NA	VOCs, metals, TPH	1988 BCL(a); 1988BCL(b); Unknown Author & Unknown Date - Facility Layout	
Burney Learning	AOC-3	Northeastern Process Area	Inside and outside the northeastern area of the	14) Degreaser	NA	VOCs	1963 Arnold Engineering	
Image: bis problem in the standard of t			building, locations approximate	15) Degreaser	NA	VOCs	1979 AQMD	
Image: bit is provided by the product of the substrate of the substr				16) Degreaser	NA	VOCs	1979 AQMD	
Image: Provide Figure Figu				17) Degreaser trough	May have contained three degreasers	VOCs	Unknown Author & Unknown Date - Facility Layout; 1974 Lester Paley; 1979 AQMD	
Image: And the state of the state				18) 1,1,1-TCA tank	550 Gallons	VOCs	1979 AQMD	
AC ⁴ AC ⁴ AC ⁵ A				19) Interior sewer lines	NA	VOCs, metals, TPH	1963 Arnold Engineering, McCormick (unknown date)	
AC-4 Northern outdoor area location of "Outside Plant - NE Corner of Building" with location and "No Plant To the former Annold fammable liquid storage NA VCs, metals 1970 FPD inspection report. AC-6 Northern outdoor area No Plant To the former Annold fammable liquid storage area NA VCs, metals 2018 Roux, figure 4D, appendix B-1 and appendix B-3 ACC-5 Joinson Controls leased area of building Approximately the northern third of the building 21 former Joinson Controls dy battery storage NA VCs, metals 2019 Roux, figure 4D, appendix B-1 and appendix B-3 ACC-6 Joinson Controls leased area of building Approximately the northern third of the building 25 Reported valut area NA VACs Plant Bas BCL(a) 2019 Roux, figure 4D, appendix B-1 ACC-7 Northwestern/Slitting area Inside and outgiet on thirwestern area of building 25 Reported valut area NA VCs 1990 FPD. 1998 ERL(b) ACC-7 Northwestern/Slitting area Outside no subtern portion of the west side 21 Woodmil/Eye Encounter flammable storage area (uddoor) NA VCs 1990 FPD. 1993 ERM ACC-8 Roling tower sump Outside the southern portion of the west side 20 Sumplicate for controls, Everest/Sundstrand, and Jonathan Manufacturing NA VCs. VCs.		Northern outdoor area	Outside northern area of building. Only the general location of "Outside Plant - NE Corner of Building" was provided for the chromic sulfuric acid tank location and "N of Plant" for the former Arnold flammable liquid storage area. Other locations are approximate.	20) Chromic sulfuric acid tank	1,600 Gallons	pH, metals	1970 FFD inspection report	
Image: Provide the former Annold Hammable liquid bradge area. Other locations are approximate. 221 promer Johnson Controls materials storage area. NA Unknown 2019 Roux, figure 4D, appendix B-1 and appendix B-3 ADC-5 Johnson Controls leased area of building Approximately the northern third of the building 241 Former Johnson Controls dy battery storage area. NA VCS 1990 FFD;1993 ERM ADC-6 Northwestern/Slitting area Incide and cusied northwestern area of building. Iocations approximate 251 Reported vauit area 251 Reported vauit area NA Unknown 2019 John Wall ADC-6 Northwestern/Slitting area Incide and cusied northwestern area of building. Iocations approximate 251 Reported vauit area 251 Reported vauit area NA Unknown 2019 John Wall ADC-7 Puthwestern/Slitting area Outside and inside the southern portion of the west side of 21 Woodmill/Eye Encounter flammable storage area (indoor) NA VCs 1990 FFD; 1993 ERM ADC-1 Adjacent soil vapor impacts Outside the southern portion of the west side of building, locations approximate 20 Honon Controls, Exerest/Sundstrand, and Jonathan Manufacturing VCs 1990 FFD; 1993 ERM ADC-1 Adjacent soil vapor impacts North and east of the Site Johnson Controls, Exerest/Sundstrand, and Jonathan Manufacturing VCs 1900 F	AOC-4			21) Former Arnold flammable liquid storage	NA	VOCs, metals	1970 FFD inspection report	
Image: and set and outside approximate. 23) Woodmill/Eye Encounter flammable storage area NA VOCs 1990 FFD:1993 ERM AOC-5 Johnson Controls leased area of building Approximately the northern third of the building 24) Former Johnson Controls dry battery storage NA VACs 2019 Roux, figure 4D, appendix B-1 AOC-6 Northwestern/Slitting area Inside and outside northwestern area of building, location approximate 25) Reported vault area NA Unknown 2019 Roux, figure 4D, appendix B-1 AOC-7 Porthwestern flammable storage areas Outside northwestern area of building, location approximate 27) Woodmill/Eye Encounter flammable storage area (outdoor) NA VACs 1990 FFD: 1993 ERM AOC-7 Coling tower sump Outside the southern portion of the west side of building, location approximate 27) Woodmill/Eye Encounter flammable storage area (outdoor) NA VCs 1990 FFD: 1993 ERM AOC-8 Coling tower sump Outside the southern portion of the west side of building, location approximate 29) Sump NA VCs 1990 FFD: 1993 ERM AOC-1 Adjacent soil vapor impacts North and east of the Site Johnson Controls, Everest/Sundstrand, and Jonathan Manufacturing VCs, 1.4-dioxane 219 Roux; USEPA; DTSC; SARWQCB AOC-2 U				22) Former Johnson Controls materials storage (leased area)	NA	Unknown	2019 Roux, figure 4D, appendix B-1 and appendix B-3	
ACC5Johnson Controls Jeased are a of buildingApproximately the norther third of the building24 Jormer Johnson Controls dry battery storageNApH, metals2019 Roux, figure 4D, appendix B-1ACC-6Northwestern JiangInside and outside northwestern area of building, locations approximate25 Reported vault areaNANAVCA2019 John WallACC-7Pointwestern flammable storage areasOutside and inside the southern portion of the west side of building, locations approximate27 Woodmill/Eye Encounter flammable storage area (outdoor)NAVOCs1990 FFD: 1993 ERMACC-8Coling tower sumpOutside the southern portion of the west side of building, location approximate29 SumpNavOcs, metals1990 FFD: 1993 ERMACC-8Coling tower sumpOutside the southern portion of the west side of building, location approximateJohnson Controls, Everest/Sundstrand, and Jonathan ManufacturingNAVOCs1990 FFD: 1993 ERMACC-1Algrent soli vapor impactsNorth and east of the SiteJohnson Controls, Everest/Sundstrand, and Jonathan ManufacturingNorth approximately 1.5 millsRegional groundwater plumesVOCs2019 Roux; USEPA; DTSC; SARWQCBACC-2Ipgradient Groundwater ImpactsNorth and east of the SiteJohnson Controls (MW-1 & MW-2), AC Products, OCWD FAE-GW1, Everest/Sundstrand, and Jonathan ManufacturingVOCs2019 Roux; USEPA; DTSC; SARWQCBACC-2Inform and possible Adjacent Groundwater ImpactsNorth and east of the SiteJohnson Controls (MW-1 & MW-2), AC Products, OCWD FAE-GW1, Everest/Sundstrand, and IndinfacturingVOCs				23) Woodmill/Eye Encounter flammable storage area	NA	VOCs	1990 FFD;1993 ERM	
ACC-0 Northwestern/Slitting area Inside and outside northwestern area of building, locations approximate 25 Beported vault area NA Unknown 2019 John Wall ACC-7 Southwestern flammable storage areas Outside and inside the southern portion of the west 27) Woodmill/Eye Encounter flammable storage area (indoor) NA VCS 1990 FFD; 1993 ERM ACC-8 Cooling tower sump Outside the southern portion of the west side of building, locations approximate 29) Sump NA VCS 1990 FFD; 1993 ERM ACC-7 Adjacent soli vapor impacts Outside the southern portion of the west side of building, location approximate 29) Sump NA VCS 1990 FFD; 1993 ERM ACC-8 Joing tower sump Outside the southern portion of the west side of poly (ing. location approximate) 29) Sump NA VCS 1990 FFD; 1993 ERM ACC-7 Idjacent soli vapor impacts North and east of the Site Johnson Controls, Everest/Sundstrand, and Jonathan Manufacturing VCS, 1,4-dioxane 2019 Roux; USEPA; DTSC; SARWQCB ACC-2 Upgradient Groundwater Impacts North and east of the Site Johnson Controls (MV-1& MW-2), ACP Product, VCDD FAE-GW1, Everest/Sundstrand, and Jonathan Manufacturing VCS, 1,4-dioxane 2019 Roux; USEPA; DTSC; SARWQCB ACC-6 <td< td=""><td>AOC-5</td><td>Johnson Controls leased area of building</td><td>Approximately the northern third of the building</td><td>24) Former Johnson Controls dry battery storage</td><td>NA</td><td>pH, metals</td><td>2019 Roux, figure 4D, appendix B-1</td></td<>	AOC-5	Johnson Controls leased area of building	Approximately the northern third of the building	24) Former Johnson Controls dry battery storage	NA	pH, metals	2019 Roux, figure 4D, appendix B-1	
ACC-9Notlinestelliysituiting arealocations approximate26) Electrical transformer padNAPCBs, TPH1988 BCL(a), 1988 BCL(b)ACC-9Publisher flammable storage areasOutside and inside the southern portion of the west side of building, locations approximate27) Woodmill/Eye Encounter flammable storage area (outdoor)NAVOCs1990 FFD; 1993 ERMACC-8Cooling tower sumpOutside the southern portion of the west side of building, location approximate29) SumpNAVOCs1990 FFD; 1993 ERMACC-8Cooling tower sumpOutside the southern portion of the west side of building, location approximate29) SumpNAVOCs, metals1988 BCL(a)ACC-1Adjacent soil vapor impactsNot and east of the SiteJonson Controls, Everest/Sundstrand, and Jonathan ManufacturingVOCs, 1,4-dioxane2019 Roux; USEPA; DTSC; SARWQCBACC-2Upgradient Groundwater ImpactsVOCs impact extending approximately 1.5 miles upgradient (east)Regional groundwater plumesControls, CVPD FAC-GWL, Everest/Sundstrand, and Jonathan ManufacturingVOCs2019 Roux; USEPA; DTSC; SARWQCBACC-3Known and Possible Adjacent Groundwater ImpactsNorth and east of the SiteJonson Controls, CWP Cy, CAP Coducts, OCVD FAE-GWL, Everest/Sundstrand, and Jonathan ManufacturingVOCs2019 Roux; USEPA; DTSC; SARWQCBACC-3Known and Possible Adjacent Groundwater ImpactsNorth and east of the SiteJonson Controls, CWP Cy, CAP Coducts, CVCD FAE-GWL, Everest/Sundstrand, and Jonathan ManufacturingVOCs2019 Roux; USEPA; DTSC; SARWQCBACC-4Known and Possible A	10C 6	Northwestern (Slitting area	Inside and outside northwestern area of building,	25) Reported vault area	NA	Unknown	2019 John Wall	
AOC-7 Southwestern flammable storage areas Outside and inside the southern portion of the west 27, Woodmill/Eye Encounter flammable storage area (outdoor) NA VOCs 1990 FFD; 1993 ERM AOC-8 Cooling tower sump Outside the southern portion of the west side of building, location approximate 29, Sump NA VOCs 1990 FFD; 1993 ERM AOC-8 Cooling tower sump Outside the southern portion of the west side of building, location approximate 29, Sump NA VOCs, metals 1988 BCL(a) AOC-7 Adjacent soli vapor impacts North and east of the Site Johnson Controls, Everest/Sundstrand, and Jonathan Manufacturing VOCs, 1,4-dioxane 2019 Roux; USEPA; DTSC; SARWQCB OAC-7 Upgradient Groundwater Impacts North and east of the Site Johnson Controls (MW-1 & MW-2), AC Products, OCW PAE-GW1, Everest/Sundstrand, and Jonathan Manufacturing VOCs 2019 Roux; USEPA; DTSC; SARWQCB OAC-6 Known and Possible Adjacent Groundwater Impacts North and east of the Site Johnson Controls (MW-1 & MW-2), AC Products, OCW PAE-GW1, Everest/Sundstrand, and Jonathan Manufacturing VOCs 2019 Roux; USEPA; DTSC; SARWQCB OAC-6 Known and Possible Adjacent Groundwater Impacts North and east of the Site Johnson Controls (MW-1 & MW-2), AC Products, OCW PAE-GW1, Everest/Sundstrand, and Jonathan Manufacturing	AUC-6	Northwestern/slitting area	locations approximate	26) Electrical transformer pad	NA	PCBs, TPH	1988 BCL(a), 1988 BCL(b)	
Image: Construction diplomment28) Woodmill/Eye Encounter flammable storage area (indoor)NAVOCs1990 FFD; 1993 ERMAOC - 8Cooling tower sumpOutside the southern portion of the west side of building, location approximate29) SumpNAVOCs, metals1988 BCL(a)OAOC-1Adjacent soil vapor impactsNorth and east of the SiteJohnson Controls, Everest/Sundstrand, and Jonathan ManufacturingVOCs, 1,4-dioxane2019 Roux; USEPA; DTSC; SARWQCBOAOC-2Upgradient Groundwater ImpactsVOCs impact extending approximately 1.5 miles upgradient (east)Regional groundwater plumesImage: Second Controls, CVCD FAE-GW1, Everest/Sundstrand, and Jonathan ManufacturingVOCs2019 Roux; USEPA; DTSC; SARWQCBOAOC-3Known and Possible Adjacent Groundwater ImpactsNorth and east of the SiteJohnson Controls (MW-1 & MW-2), AC Products, OCWD FAE-GW1, Everest/Sundstrand, and Jonathan ManufacturingVOCs2019 Roux; USEPA; DTSC; SARWQCBOAOC-4Off-Site OCWD groundwater data to the westWest and southwest of Site2009 grab samples FAE-GW-2, 3, 4A, and 4, and monitoring well FM-5VOCs2019 Roux; USEPA; DTSC; SARWQCB	AOC-7	Southwestern flammable storage areas	ble storage areas Outside and inside the southern portion of the west side of building, locations approximate	27) Woodmill/Eye Encounter flammable storage area (outdoor)	NA	VOCs	1990 FFD; 1993 ERM	
AOC-8Outside the southern portion of the west side of building, location approximate29 SumpNAVOCs, metals1988 BCL(a)AOC-1Adjacent soil vapor impactsNorth and east of the SiteJohnson Controls, Everest/Sundstrand, and Jonathan ManufacturingVOCs, metals2019 Roux; USEPA; DTSC; SARWQCBAOAC-1Ádjacent soil vapor impactsVOCs impact extending approximately 1.5 miles ugradient (east)Iohnson Controls (MW-1 & MW-2), AC Products, OCWD FAE-GW1, Everest/Sundstrand, and Jonathan ManufacturingVOCs2019 Roux; USEPA; DTSC; SARWQCBAOAC-2Ínorh and east of the SiteJohnson Controls (MW-1 & MW-2), AC Products, OCWD FAE-GW1, Everest/Sundstrand, and Jonathan ManufacturingVOCs2019 Roux; USEPA; DTSC; SARWQCBAOAC-3Known and Possible Adjacent Groundwater ImpactsNorth and east of the SiteJohnson Controls (MW-1 & MW-2), AC Products, OCWD FAE-GW1, Everest/Sundstrand, and Jonathan ManufacturingVOCs2019 Roux; USEPA; DTSC; SARWQCBAOAC-3Known and Possible Adjacent Groundwater ImpactsNorth and east of the Site2009 grab samples FAE-GW-2, 3, 4A, and 4, and monitoring well FM-5VOCs2019 Roux; USEPA; DTSC; SARWQCBAOAC-4Off-Site OCWD groundwater data to the westWest and southwest of Site2009 grab samples FAE-GW-2, 3, 4A, and 4, and monitoring well FM-5VOCs2019 Roux; USEPA; DTSC; SARWQCB				28) Woodmill/Eye Encounter flammable storage area (indoor)	NA	VOCs	1990 FFD; 1993 ERM	
Adjacent soil vapor impacts North and east of the Site Johnson Controls, Everest/Sundstrand, and Jonathan Manufacturing VOCs, 1,4-dioxane 2019 Roux; USEPA; DTSC; SARWQCB OAOC-2 Upgradient Groundwater Impacts VOCs impact extending approximately 1.5 miles upgradient (east) Regional groundwater plumes Impact Plumes VoCs 2019 Roux; USEPA; DTSC; SARWQCB OAOC-3 Known and Possible Adjacent Groundwater Impacts North and east of the Site Johnson Controls (MW-1 & MW-2), A C Products, OCWD FAE-GW1, Everest/Sundstrand, and Jonathan Manufacturing VoCs 2019 Roux; USEPA; DTSC; SARWQCB OAOC-4 Off-Site OCWD groundwater data to the west West and southwest of Site 2009 grab samples FAE-GW-2, 3, 4A, and 4, and monitoring well FM-5 VoCs 2019 Roux; USEPA; DTSC; SARWQCB	AOC - 8	Cooling tower sump	Outside the southern portion of the west side of building, location approximate	29) Sump	NA	VOCs, metals	1988 BCL(a)	
Adjacent soil vapor impactsNorth and east of the SiteJohnson Controls, Everest/Sundstrand, and Jonathan ManufacturingVOCs, 1,4-dioxane2019 Roux; USEPA; DTSC; SARWQCBOAOC-2Upgradient Groundwater ImpactsVOCs impact extending approximately 1.5 miles upgradient (east)Regional groundwater plumesCVOCs2019 Roux; USEPA; DTSC; SARWQCBOAOC-3Known and Possible Adjacent Groundwater ImpactsNorth and east of the SiteJohnson Controls (MW-1& MW-2), AC Products, OCWD FAE-GW1, Everets/Sundstrand, and Jonathan ManufacturingVOCs2019 Roux; USEPA; DTSC; SARWQCBOAOC-4Off-Site OCWD groundwater data to the westWest and southwest of Site2009 grab samples FAE-GW-2, 3, 4A, and 4, and monitoring well FM-5VOCs2019 Roux; USEPA; DTSC; SARWQCB								
OAOC-2Upgradient Groundwater ImpactsVOCs impact extending approximately 1.5 miles upgradient (east)Regional groundwater plumesVOCs2019 Roux; USEPA; DTSC; SARWQCBOAOC-3Known and Possible Adjacent Groundwater ImpactsNorth and east of the SiteJohnson Controls (MW-1 & MW-2), AC Products, OCWD FAE-GW1, Everest/Sundstrand, and Jonathan ManufacturingVOCs2019 Roux; USEPA; DTSC; SARWQCBOAOC-4Off-Site OCWD groundwater data to the westWest and southwest of Site2009 grab samples FAE-GW-2, 3, 4A, and 4, and monitoring well FM-5VOCs2019 Roux; USEPA; DTSC; SARWQCB	OAOC-1	Adjacent soil vapor impacts	North and east of the Site	Johnson Controls, Everest/Sundstrand, and Jonathan Manufacturing		VOCs, 1,4-dioxane	2019 Roux; USEPA; DTSC; SARWQCB	
OAOC-3 Known and Possible Adjacent Groundwater Impacts North and east of the Site Johnson Controls (MW-1& MW-2), AC Products, OCWD FAE-GW1, Everest/Sundstrand, and Jonathan Manufacturing VOCs 2019 Roux; USEPA; DTSC; SARWQCB OAOC-4 Off-Site OCWD groundwater data to the west West and southwest of Site 2009 grab samples FAE-GW-2, 3, 4A, and 4, and monitoring well FM-5 VOCs 2019 Roux; USEPA; DTSC; SARWQCB	OAOC-2	Upgradient Groundwater Impacts	VOCs impact extending approximately 1.5 miles upgradient (east)	Regional groundwater plumes		VOCs	2019 Roux; USEPA; DTSC; SARWQCB	
OAOC-4 Off-Site OCWD groundwater data to the west West and southwest of Site 2009 grab samples FAE-GW-2, 3, 4A, and 4, and monitoring well FM-5 VOCs 2019 Roux; USEPA; DTSC; SARWQCB	OAOC-3	Known and Possible Adjacent Groundwater Impacts	North and east of the Site	Johnson Controls (MW-1 & MW-2), AC Products, OCWD FAE-GW1, Everest/Sundstrand, and Jonathan Manufacturing		VOCs	2019 Roux; USEPA; DTSC; SARWQCB	
	OAOC-4	Off-Site OCWD groundwater data to the west	West and southwest of Site	2009 grab samples FAE-GW-2, 3, 4A, and 4, and monitoring well FM-5		VOCs	2019 Roux; USEPA; DTSC; SARWQCB	

Notes:

AOC = On-Site area of concern	1988 BCL(b) = September 2 1988 "BCLA Project Number 88-524" further investigations at the former Integrated Specialties site in Fullerton, California
OAOC = Off-Site area of concern	McCormick = Partially illegible schematic prepared by McCormick Construction Co. for Arnold Engineering Company, no date visible
ft = feet	Unknown Author & Unknown Date - Facility Layout = Author and date are unknown for this mostly legible schematic showing the northeastern addition inte
NA= Not available	south of the addition. Labeled as "Unknown Author-B, Unknown Date" in the PCSM references.
* = Refer to Figure 1 for locations of on-Site Features	1970 FFD Inspection Report = A one page August 4, 1970 Fullerton Fire Department Inspection Report signed by Inspector Edwin L. Hooper
VOCs = Volatile organic compounds	2019 Roux = 2019 Roux Associates Preliminary Conceptual Site Model (PCSM), March 1
metals = California Code of Regulations Title 22 Metals	2019 John Wall = Verbal information provided by site owner representative (Mr. John Wall) during 7/1/19 site walk. Mr. Wall did not know what the past u
TPH = Total petroleum hydrocarbons	1963 Arnold Engineering = Photo Etch Department, Drawing #7, December 15
PCBs = Polychlorinated biphenyls	1974 Lester Paley = Alteration and Addition Plan to Industrial Building for Arnold Engineering Company, January 15
1, 1,1-TCA = 1,1,1-Trichloroethane	1990 FFD = Woodmill Fullerton Fire Department Hazardous Materials Disclosure Form, January 19
BCL - BCL Associates, Inc.	1993 ERM = 1993 letter from ERM EnviroClean-West to Mosier and Company. RE: Waste Disposal Schedule for Fullerton North Partners, April 29
AQMD = South Coast Air Quality Management District	** 8-inch sewer composed of vitrified clay pipe flows north from Orangethorpe Avenue to the northern extent of the Site and continues to Kimberly Avenue
2008 City of Fullerton = 2008 City of Fullerton, Sewer System Map, Page 30, Grid 6-C	7.88 near the southeast and northeast corners of the Site's building respectively.
	USEPA = United States Environmental Protection Agency
1956 City of Fullerton = City of Fullerton, 1956. Plan and Profile. Sewer to Serve Ensign Carburetor. File 371-S.	DTSC = California Department of Toxic Substances Control
1979 AQMD = 1979 AQMD Field Report for Permit Application No. 03527A (Spray Booth)	SARWQCB = Santa Ana Regional Water Quality Control Board
1988 BCL(a) = August 1988 Focused Environmental Assessment of the Integrated Specialties, Inc. Site	

erior features and some of the main building features to the

se of vault was.

. The flow line depth from the top of manholes is 7.41 feet and

Table 2 - Chemicals of Potential Concern1551 East Orangethorpe Avenue, Fullerton, CA

	Number of	Date or date range		Waster Generator Named	Source of information		
СОРС	Manifests	of manifests	COPC Grouping	on Manifest	(if other than a manifest)		
					August 4, 1970 Fullerton Fire		
Chromic Sulfuric Acid	0	NA	pH, metals	NA	Department inspection report		
					February 26, 1973 SCAQMD		
Trichloroethene	0	NA	VOCs	NA	degreaser survey record		
Aliphatic Hydrocarbons	1	1983	TPH	Arnold Engineering			
Chlorinated Hydrocarbons	1	1983	VOCs	Arnold Engineering			
Surfactants	1	1983	NA	Arnold Engineering			
1,1,1-Trichlorethane	16	1984 - 1986	VOCs	Arnold Engineering			
Spent Ferric Chloride Etchant	11	1984 - 1986	Metals, pH	Arnold Engineering			
Metal Hydroxide sludge (Fe, Ni, Cu)	11	1985 - 1986	Metals	Arnold Engineering			
Acetone	2	1986	VOCs	Arnold Engineering			
Methyl Ethyl Ketone (MEK)	3	1986	VOCs	Arnold Engineering			
Resin	2	1986	VOCs	Arnold Engineering			
Alcohol	1	1986	NA	Arnold Engineering			
Flam. Waste Solid UN 1993*	1	1993	TPH	Fullerton North Partners			
Thinner	2	1986	VOCs, TPH	Arnold Engineering			
Chromates	1	1986	Metals	Arnold Engineering			
Methylene Chloride	2	1986	VOCs	Arnold Engineering			
Xylene	1	1986	VOCs	Arnold Engineering			
Hydrochloric Acid	7	1985 - 1986	рН	Arnold Engineering			
Naptha	3	1985 - 1986	VOCs	Arnold Engineering			
				Arnold Engineering (8), Fullerton North Partners (1),			
Oil or Petroleum Oil	10	1984 - 1986, 1993	ТРН	Integrated Specialties (1)			
Paint Solids	2	1993	VOCs, metals	Fullerton North Partners			
Enamel Paint/Lacquer	2	1993	VOCs, metals	Fullerton North Partners			
Fixer/Developer	1	1993	??	Fullerton North Partners			
Sodium Hydroxide	1	1993	??	Fullerton North Partners			

Notes:

COPC = Chemical of potential concern as listed on manifest or reference document NA = Not applicable SCAQMD = South Coast Air Quality Management District ?? = Grouping to be determined VOCs = Volatile organic compounds Metals = California Code of Regulations Title 22 Metals TPH = Total petroleum hydrocarbons Fe, Ni, Cu = Iron, Nickle, Copper

*Manifest with COPC shown as UN (United Nations) hazardous chemical classifcation did not list specific components

- 1. Site Features
- 2. Areas of Concern



	224						0	
AOC	AOC Name	Features *	Size	The Site Feature locations shown on this figure are approximate and			0	
400-1	Commenting & Exterior Dealer	1) Main sewer line**	8-inch diameter	based on various sources as listed on Table 1. Few Site Features could be located/verified during the July 1, 2019 Site walk, and this is	83		and the second second	
AUC-1	Sewer Line & Exterior bruins	2) Round exterior drain	~3-ft in diameter	primarily attributed to existing Site operations and substantial Site	CANADA AND		And the other data and the part of the local data and the	-
		3) Rectangular exterior drain	~3 ft x 4 ft	three decades since Arnold operated at the Site, some made within	1000		A REAL PROPERTY AND ADDRESS OF TAXABLE PARTY.	
		4) Cold soak tank	NA	the last decade. Some of the sources for the location of Site			Concernment and Annual	
40C-2	Indoor Southern Degreasing Area	5) Degreaser	NA	Features have unknown authors/origins; are undated; and/or, are			CONTRACTOR	And in case of the
		6) Clarifier (south, indoor)	NA	partially illegible. Based on all of these factors, the level of	and the second se		for man the mainting and the star of the last the last the	THE OWNER WATER
		7) Clarifier (north, outdoor)	2,000 Gallons	approximation for each location varies significantly as discussed in			and the set of the set	
		8) Clarifier (south, outdoor)	2,000 Gallons	the "Location" column of Table 1. Some Site Features have more		and the second se		
		9) Stripping area	NA	than one source and the locations and information on the sources do			A Real Property lies and the local division of the local divisiono	And a state of
		10) Chemical milling line (west)	NA	not always match. Additionally, the two rounds of SVE at the Site	a state of			
		11) Chemical milling line (east)	NA	and the SVE remedial enorts of Johnson Controls to the immediate	0 0 0 0	3		
	Northeastern Process Area	12) Spray booth	NA	vadose zone and altered the distribution of subsurface contaminants			A DESCRIPTION OF TAXABLE PARTY.	
		 Clarifier(s) - north, indoor; one, or two parallel 	NA		and the second second second second second second second		Contraction of the second seco	_
OC-3		14) Degreaser	NA					
		15) Degreaser	NA	1	Title:			
		16) Degreaser	NA					
		17) Degreaser trough	May have contained three degreasers			SITE FEATU	IRES	
		18) 1.1.1-TCA tank	550 Gallons	1 1				
		19) Interior sewer lines	NA	1				
		20) Chromic sulfuric acid tank	1,600 Gallons	Ň				
	Northern outdoor area	21) Former Arnold flammable liquid storage	NA		1551	EAST ORANGETHO	RPE AVENUE	
0C-4		22) Former Johnson Controls materials storage (leased area)	NA	1 1		FULLERTON, CALIE	ORNIA	
		23) Woodmill/Eye Encounter flammable storage area	NA	1				
0C-5	Johnson Controls leased area of building	24) Former Johnson Controls dry battery storage	NA	1 💧	Prepared for: ARNOLD MAGN	NETIC TECHNOLO	GIES CORPORATIC	ЭN
00.0	N II / (2010)	25) Reported vault area	NA					
00-6	Northwestern/Slitting dred	26) Electrical transformer pad	NA			1	1	—
0C-7	Southwestern flammable storage areas	27) Woodmill/Eye Encounter flammable storage area (outdoor)	NA] 50' 0 50'		Compiled by: PDF	Date: 2019-02-10	FIG
		28) Woodmill/Eye Encounter flammable storage area (indoor)	NA					-
.oc -	ECooling tower sump	29) Sump	NA	1" 50'		Project Mgr: DDV	Project: 2189.0012L000	- '
			1 = 50			File: 2189-0012L000 SITE	FEATURES.DWG	1



100						1	3	
AOC	AOC Name	Features *	Size	The Site Feature locations shown on this figure are approximate and			0	1
AOC-1	Sewer Line & Exterior Drains	1) Main sewer line** 2) Round exterior drain	8-inch diameter	based on various sources as listed on Table 1. Few Site Features could be located/verified during the July 1, 2019 Site walk, and this is primarily attributed to existing Site operations and substantial Site			1111 - 1111	111.6
		3) Rectangular exterior drain	~3 ft x 4 ft	remodeling and/or alterations which have occurred in the more than				
		4) Cold soak tank	NA	three decades since Arnold operated at the Site, some made within				
AOC-2	Indoor Southern Degreasing Area	5) Degreaser	NA	Features have unknown authors/origins: are undated; and/or, are			COURSES IN LOUIS	222223
		6) Clarifier (south, indoor)	NA	partially illegible. Based on all of these factors, the level of	and the second se		permanent and sold and the state of the lot of the	of the local line line warm
		7) Clarifier (north, outdoor)	2,000 Gallons	approximation for each location varies significantly as discussed in			 An other state and the state of the state of	
		8) Clarifier (south, outdoor)	2,000 Gallons	the "Location" column of Table 1. Some Site Features have more	The second s	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
		9) Stripping area	NA	than one source and the locations and information on the sources do			A REAL PROPERTY OF THE PARTY OF	and the second s
		10) Chemical milling line (west)	NA	and the SVE remedial efforts of Johnson Controls to the immediate	a shirt of		• • • • • • • • • • • • • • • • • • •	
		11) Chemical milling line (east)	NA	north in 2002-2004 (2) have reduced the mass of VOCs in the	0 0 0 0			
		12) Spray booth	NA	vadose zone and altered the distribution of subsurface contaminants			· Property and the local division of the loc	
		13) Clarifier(s) — north, indoor; one, or two parallel	NA				1. Bearing to the second second second	and the second s
AOC-3	Northeastern Process Area	14) Degreaser	NA					
		15) Degreaser	NA		Title:			
		16) Degreaser	NA					
		17) Degreaser trough	May have contained three degreasers		AR	EAS OF CO	NCERN	
		18) 1.1.1-TCA tank	550 Gallons					
		19) Interior sewer lines	NA					
		20) Chromic sulfuric acid tank	1,600 Gallons					
A0C-4	Northern outdoor area	21) Former Arnold flammable liquid storage	NA		1551	EAST ORANGETHO	RPE AVENUE	
AUC-4		22) Former Johnson Controls materials storage (leased area)	NA			FULLERTON, CALIF	ORNIA	
		23) Woodmill/Eye Encounter flammable storage area	NA					
AOC-5	Johnson Controls leased area of building	24) Former Johnson Controls dry battery storage	NA]	ARNOLD MAGNETIC TECHNOLOGIES CORPORATION			
100-6	Northwestern /Slitting, area	25) Reported vault area	NA					
AUC-0	Normwesterny sinning dred	26) Electrical transformer pad	NA				T	
AOC-7	Southwestern flammable storage areas	27) Woodmill/Fye Encounter flammable storage area (outdoor)	NA	50' 0 50'	DOUV	Compiled by: PDF Prepared by: JWY	Date: 2019-02-10 Scale: 1" = 50'	FIGURE
	2	28) Woodmill/Eye Encounter flammable storage area (indoor)	NA			Designed Mars. DDV(Designate 0400 00401 000	1 2
AOC - 8	Cooling tower sump	29) Sump	NA	1"=50'		File: 2189-00121 000 SITE	FEATURES DWG	- Z

Updated PCSM Section 6 "Data Gaps and Recommendations"

6. Data Gaps and Recommendations

6.1 Historical Information Data Gaps

There are several historical data gaps primarily associated with pre-Arnold, Arnold and post-Arnold occupancies at the Site and in relation to near-Site operations.

6.1.1 On-Site Historical Data Gaps

Very little to nothing is known about Ensign Carburetor's operations; and there are several indications that Eye Encounter/Woodmill Products were operating between 1988 and 1992, often without permits. Very little is known about the exact contents of, on-site conveyance and/or predischarge treatment of wastewater by Ensign Carburetor or Arnold Engineering or generation/discharge of wastewater by Eye Encounter/Woodmill Products.

In general, the key on-Site historical data gaps include:

- Predevelopment agricultural chemical use (orange orchards);
- Ensign Carburetor chemical use/handling and disposal;
- Arnold Engineering Pre-1970s layout/operations;
- Routing/disposition of Arnold-period wastewaters;
- Post-Arnold operations/chemical disposal, especially just before the 1992/1993 ERM cleanup;
- pre-1994, 1,1,1-TCA and potential other COPCs use by Eye Encounter/Woodmill;
- Johnson Controls storage duration and details on the northern portion of the Site;
- The effect of Johnson Controls SVE on on-Site soil vapor distribution, prior to Reynolds vapor investigation on the 1551 E. Orangethorpe Property;
- The possible degree to which Converse SVE operations may have drawn soil vapor contamination from the east (in the case of Converse southern-clarifier SVE and any soil vapor impacts emanating from hazardous waste disposal at 1601 E. Orangethorpe); and,
- The possible degree to which Reynolds SVE operations may have drawn soil vapor contamination from the east (soil vapor impacts emanating from hazardous waste disposal at 1601 E. Orangethorpe); and/or from the north (from Johnson Controls residual impacts, which had necessitated installation of passive vent wells).
- 6.2 -Post Remediation Residual On-Site Shallow Soil and Soil Vapor Conditions
- 6.2.1 Current Layout/Universal Molding/Window Entity Operations and Chemical Use

The current building layout and specific areas/details of operations at the Site are not completely understood and therefore are considered a data gap. In preparation for scoping of any field

sampling, an assessment of the current layout of the building interior and the current operations should be completed for logistical/access constraint and/or chemical use information purposes. The July 1, 2019 site-walk and receipt of records from the Site owners counsel has provided some information concerning the layout of current operations and the chemicals being used.

6.2.2 Existence/Functionality of Reynolds Soil Vapor Monitoring Network

The existence and accessibility of the former vapor monitoring and associated vapor extraction sampling points are unknown and therefore are a data gap. Prior to preparation of the work plan to sample any existing soil vapor locations, an assessment of the presence and condition of soil vapor monitoring, vapor extraction, and passive vapor wells to determine if former Reynolds sampling points are accessible/viable for sampling should be performed. This can be performed in conjunction with the building layout assessment recommended above. During the July 1, 2019 site-walk only two soil vapor probes were observed. The lack of more observable probes could be partially due to the copious amounts of materials and manufacturing facilities inside and outside the building. Therefore, in order to move forward it will be assumed that few, or no viable soil vapor probes remain.

6.2.3 Current Post-Remediation Shallow Soil Vapor Concentrations

As stated in the Distribution of COPCs in Soil Vapor discussion in the PCSMabove, soil vapor samples were collected between 2007 and 2011, prior to, during, and after three years of SVE below the northeastern portion of the building and after earlier SVE around the former southern clarifier. The soil vapor samples were collected from multiple depths (six locations to 60 feet bgs and most others to 15 or 25 feet bgs) and current soil vapor concentrations are not known.

The limited depths of previous soil vapor investigations and the lack of samples collected after 2011 is considered a data gap.- Therefore, it is recommended that soil vapor samples be collected from any existing/accessible sampling points to confirm current post SVE shallow vadose zone soil vapor conditions. Given the unknown status of the vapor monitoring network at the Site, a workplan for evaluating and sampling the existing vapor monitoring network will be prepared after an evaluation of the vapor monitoring network is conducted. Therefore, it is still recommended that a shallow soil vapor investigation work plan be prepared to assess soil vapor conditions from ground surface to 60 feet bgs in the area of Site features with VOCs as a COPC. During, or prior to the shallow soil vapor investigation a few deeper borings are recommended around the perimeter of the Site to obtain lithologic and contaminant data and provide a framework for subsequent deeper investigation, if needed. Soil and perched groundwater (if encountered) will be collected during the shallow soil vapor investigation.

Depending on the outcome of soil vapor confirmation samples from the existing monitoring network, a Human Health Risk Assessment (HHRA) may be performed, to evaluate the risk from potential soil vapor intrusion into the building at the Site. If the HHRA indicates that soil vapor intrusion may pose an indoor air risk greater than 1 x 10⁻⁴, a shallow soil vapor sampling work plan will be prepared to further assess current shallow soil vapor conditions from ground surface to 60 feet bgs by supplementing the existing shallow vadose zone monitoring network with additional data.

6.2.4 Indoor Air Concentrations and Variability

As discussed in the COPCs discussion in Section 3.8, indoor air sampling was performed at the Site on September 12, 2013 to assess potential soil vapor intrusion. The four COPCs (PCE, TCE, 1,1-DCE, and 1,1,1-TCA) were not detected in indoor, or outdoor air above the analytical laboratory practical quantitation limits and the PQLs were below USEPA RSLs.

Although the 2013 indoor air sampling results indicate that the air quality was acceptable and that <u>PCE, TCE, 1,1-DCE, and 1,1,1-TCACOPCs</u> were not detected, significant time has passed, sample collection locations and building conditions at time of collection are not documented, and modifications/disruptions to the building slab after that time are unknown. Given this, current indoor air conditions may present a data gap, depending on the results of the soil vapor confirmation sampling recommended in the previous section. As part of the soil vapor confirmation sampling recommended above, a HHRA may be performed to evaluate the risk from potential soil vapor intrusion into the building at the Site. If soil vapor data confirm potential risk greater than 1×10^{-4} due to potential vapor intrusion, an indoor air sampling work plan will be prepared, for up to three rounds of indoor air sampling, one with HVAC on and one with the HVAC off (shut-in); and one sampling event again with HVAC-on during different seasonal conditions.

6.2.5 Current Post-Remediation Shallow Soil Concentrations

Between 1988 and 1995 soil data were obtained primarily from the area of the southern clarifier prior to SVE. Soil samples were collected from two deep borings to total depths of 105 feet bgs and the remainder of the borings were installed to total depths of 15, 25 and 40 feet bgs. After the initial phase of SVE in 1995, confirmation soil samples were collected from three locations in the area of the southern clarifier (SP-1, SP-2, and SP-3) to total depths of 25 and 30 feet bgs. After 1995 additional areas of impact were assessed by means of soil vapor sampling and remediated using SVE below the northeast portion of the building.

The constrained locations, vertical intervals, and limited depth of investigation and/or confirmation soil samples collected from the area of the southern clarifier and below and outside of the northeastern portion of the building is considered a data gap. Additionally, soil samples have not been collected and analyzed after the 2008 to 2011 SVE operation. Guided by the outcome of the shallow soil vapor sampling of existing soil vapor probes, a To address these data gaps soil sampling and analysis approach will be incorporated into future investigation efforts.

6.2.6 Potential Lateral Vapor Migration from the North, East and West

Facilities with histories of VOC usage and known/suspected subsurface impacts are located directly north, east, and west of the Site. The possibility of lateral vapor migration from off-Site is a data gap. This data gap may be <u>partially</u> addressed in the shallow soil vapor <u>confirmation</u> sampling work plan discussed above.

6.3 Deeper Vadose Zone COPC Distribution

Other than the two soil borings BH-14 and BH-15 in the area of the previous southern clarifier, subsurface assessment below the depths of 60 feet has not occurred; and, is therefore considered a data gap. After the sampling of any existing shallow soil vapor locations and the implementation of any subsequent_implementation of shallow soil vapor confirmation sampling and the associated

<u>deeper borings around the perimeter</u>, the need to assess the soil and soil vapor below depths of 60 feet <u>in other areas of the Site</u> will be addressed. Specific items that may be assessed <u>in the deeper</u> <u>vadose zone</u> are listed below:

- The continuity of a fine-grained (silt and clay) layer present at approximately 60 to 95 feet bgs below the Site.
- The ability of the fine-grained layer to inhibit downward migration of COPCs.
- The potential presence of perched groundwater and presence of COPCs if perched groundwater samples can be collected.
- The geologic materials below the fine-grained sequence.
- The distribution of COPCs in soil and soil vapor in the vadose zone deeper than 60 feet bgs.
- The potential presence of deeper volatile COPCs in soil and soil vapor beneath the Site as a result of COPC soil vapor/groundwater migration from off-site sources, and extreme water level fluctuations.

6.4 COPCsVOCs and 1,4-Dioxane in Groundwater

Although the general regional groundwater flow direction is generally to the west, there have been extreme fluctuations in groundwater levels and resultant changes in localized groundwater flow directions. Compounding regional and recharge-related groundwater flow variability is that A.C. Products extraction well ACP-P03 operated from 2003 to 2011 and may have induced a southward component of flow in the Site vicinity.

Given the above dynamic groundwater setting and the lack of near-Site groundwater level monitoring data, there are three primary groundwater level/flow data gaps: 1) the historical depths to groundwater ranges beneath the Site; 2) the historical groundwater flow directions and gradients near, and beneath the Site; and, 3) the current/near-term groundwater level, flow directions and gradients.

As discussed in Section 3.7 and Sections 5.1 through 5.3 and in relation to OCWD groundwater monitoring well FM-5, detections of <u>VOCsCOPCs</u> in groundwater samples collected at off-Site locations upgradient and downgradient of the Site generally indicate that the concentrations are in the same order of magnitude upgradient and downgradient of the Site. This leads to three <u>VOCsCOPCs</u> in groundwater data gaps: 1) the magnitude, and mass flux of upgradient <u>VOCcOPC</u> groundwater contamination that has potentially migrated onto/beneath the Site; 2) the potential contribution (if any) from historical operations at the Site to regional groundwater impacts migrating onto the Site; and, 3) the source(s) of impacts and magnitude of contribution to groundwater <u>VOCsCOPCs</u> between the Site and OCWD monitoring well FM-5. If the soil and soil vapor assessment and confirmation sampling recommended in this PCSM indicate that groundwater impact is a potential concern, an iterative approach to groundwater evaluation considering all of the data gaps noted above will be developed.

Five off-site, facility-specific groundwater data gaps include:

- The distribution of 1,4-dioxane near/beneath the 691 ug/L detected in perched groundwater near Vista Paint;
- The distribution of 1,4-dioxane near/beneath the 48 ug/L detected in perched groundwater on the Kimberly Clark Facility;
- Given the above substantial detections of 1,4-dioxane east of Acacia Avenue (on both the north and south sides of Orangethorpe Avenue), the north/south lateral width of 1,4-dioxane impacts migrating westward in groundwater across Acacia, and beneath the Site and the source(s) of those impacts, upgradient of the Site;
- The source of TCE pulses/spikes and current center of mass for the TCE impacts observed at AC Products monitoring well MW-26s; and,
- The source of TCE detected in soil immediately near/at the location of OCWD monitoring well FM-5.
- 6.5 Regulatory Status of Key Nearby Facilities

As discussed in Section 5, there are several facilities in the near-site vicinity which have evidence of <u>COPC-VOC</u> use, and of releases to the vadose zone, if not to groundwater which do not appear to have been identified for additional evaluation as part of the DTSC/USEPA Screening and PA/SI process. Some of those facilities have had prior <u>COPC-VOC</u> and non-<u>COPC_VOC</u> oversight, while others have had no known subsurface investigation. Those facilities include from east to west:

- UOP, at 2100 E. Orangethorpe Ave. in Anaheim: which is not known to have ever have had any subsurface regulatory evaluation;
- Winonics, at 1257 S. State College: which was closed by the SARWQCB, but has evidence of recent vadose zone <u>VOCCOPC</u> impacts;
- Kimberly Clark, at 2001 E. Orangethorpe: which did have UST-associated evaluations, but no known evaluation of the laterally extensive <u>VOCCOPC</u> detections in soil vapor, or detection of all <u>VOCs and 1,4-dioxane</u><u>COPCs</u> at issue in groundwater at location KC-21;
- The alleged waste discharges in the vicinity of the Rosslyn entities to the formerly unlined drainage ditch on the north side of Kimberly Avenue, which was initially evaluated by the SARWQCB, or of 1,4 dioxane contribution to groundwater;
- Jonathan Manufacturing at 1101 S. Acacia: which had identified <u>COPC_VOC</u> soil impacts under OCHCA oversight, but no known additional investigation;
- Everest/Sundstrand at 1601 E. Orangethorpe: which is not known to have had any subsurface regulatory evaluation, but did have an outdoor TCE degreaser and confirmed impacts by OCWD soil and groundwater sampling;
- Johnson Controls at 1550 E. Kimberly: which was closed under DTSC-oversight with high levels of TCE in groundwater;

- Ringier at 1600 E. Orangethorpe: which did have OCHCA oversight for a solvent release, but minimal evaluations;
- Crown Cork and Nelco aspects/operations of the DTSC-overseen 1401/1411 E. Orangethorpe facilities; and,
- Moore Business Forms at 800 S. Raymond Avenue (with solvent dumping on the western portion of Johnson Controls), which was a former SARWQCB overseen facility.

6.6 Assessment of AOCs and On-Site Features

This assessment of AOCs is a new sub-section to the PCSM. During the preparation of the shallow soil vapor sampling work plan; and, if needed a subsequent deeper assessment work plan, the information presented in Table 1, Figure 1 and Figure 2 showing AOCs, Site Features, and associated COPCs will be used to guide sampling locations and laboratory analytical methods.₇

The AOCs and Site Feature locations shown on Figure 1 and Figure 2 are approximate and based on various sources as listed on Table 1. During the July 1, 2019 Site walk very few Site Features could be located/verified and this is primarily attributed to existing Site operations and substantial Site remodeling and/or alterations which have occurred in the more than three decades since Arnold operated at the Site. Some of the sources for the location of Site Features have unknown authors/origins; are undated; and/or, are partially illegible. Based on all of this, the level of approximation for each location varies significantly as discussed in the "Location" column of Table 1. Some Site Features have more than one source and the locations and information on the sources do not always match. Additionally, the two rounds of SVE at the Site and the SVE remedial efforts of Johnson Controls to the immediate north have reduced the mass of VOCs in the vadose zone; and altered the distribution of subsurface contaminants.

Table 1, Figure 1 and Figure 2 (with the exception of non-Arnold Site Features such as Johnson Controls and Eye Encounter/Woodmill), represent approximate locations of previous industrial operations during the time period Arnold Engineering owned or occupied the Site. In general soil samples selected for analyses such as metals and pH will be limited to shallow depths due to the limited mobility and migration tendencies of these types of impacts.