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CONTRA COSTA  
 HEALTH SERVICES

CONTRA COSTA  
 HAZARDOUS  
 MATERIALS PROGRAMS

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**COMPLAINT, INCIDENT, AND NOTIFICATION REPORT FORM**

C  I  N  
 CASE NUMBER: **230125-03**  
 Date Reported: 01/25/23 Received Time: 5:07 PM Reported By: IW Lead: IW  
 Incident Date: 1/25/23 Incident Time: \_\_\_\_\_ Assigned to: \_\_\_\_\_ Assigned Date: \_\_\_\_\_

**COMPLAINANT / REPORTING PARTY:**  
 Name: CONFIRE DISPATCH  RP is from Facility  Anonymous  
 Organization: CCCFFD Cal OES # (if applicable) 23-0746  
 Primary Phone Number: \_\_\_\_\_ Secondary Phone Number: \_\_\_\_\_  
 Email: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: 94525

**FACILITY / LOCATION OF INCIDENT:**  
 Name: \_\_\_\_\_ CUPA Facility I.D.: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_  
 Address: 702 EDWARDS ST Unit: \_\_\_\_\_  
 City: CROCKETT State: CA Zip Code: \_\_\_\_\_  
 Location Description: Residential building

**INITIAL INCIDENT DESCRIPTION:**  
 Crockett-Carquinez Fire requested assistance following two civilians and a police officer being sprayed with an unknown chemical from a spray bottle. Suspect in custody, contents of the spray bottle spilled to concrete.

**INCIDENT TYPE / DESCRIPTION:**  1  2  3  4  
(1 = Fire or Explosion, 2 = Spill or Release, 3 = Startup or Shutdown, 4 = Flaring)  

FACILITY	ISO / MCAR	TRANSPORTATION	MISCELLANEOUS
<input type="checkbox"/> Fire or Explosion <input type="checkbox"/> Spill or Release <input type="checkbox"/> Startup or Shutdown <input type="checkbox"/> Flaring <input type="checkbox"/> Upset	<input type="checkbox"/> Fatality (one or more) <input type="checkbox"/> > 24 hrs. Hospital, 3 or more people <input type="checkbox"/> Flammable Vapor Cloud > 5,000 lbs.	<input type="checkbox"/> Tank Truck <input type="checkbox"/> Railroad <input type="checkbox"/> On Water <input type="checkbox"/> Pipeline <input type="checkbox"/> Fuel Tank	<input type="checkbox"/> Storm Drain/Creek <input type="checkbox"/> Drug Lab <input type="checkbox"/> Disposal/Abandonment <input type="checkbox"/> Odor Complaint <input checked="" type="checkbox"/> Other: <u>EXPOSURE/SPILL</u>

Time Enroute to Scene: 17:43 Time Arrived On Scene: 18:09 Time Departed From Scene: 20:55

**REFERRED TO OTHER AGENCY:**



• Contra Costa Behavioral Health Services • Contra Costa Emergency Medical Services • Contra Costa Environmental Health & Hazardous Materials Programs •  
 • Contra Costa Health, Housing & Homeless Services • Contra Costa Health Plan • Contra Costa Public Health • Contra Costa Regional Medical Center & Health Centers •

<b>DTSC STATE FUNDING (If applicable):</b> CLU/ERER Number:	<b>STORMWATER STATUS (If applicable):</b> <input type="checkbox"/> Actual Discharge <input type="checkbox"/> Potential Discharge
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**AGENCIES ON SCENE OR NOTIFIED:**

Agency Type	Agency	O/N	Contact Person	Phone Number	Case Number
Fire Department	Crockett-Carquinez Fire Dept	O	Ass. Chief Crivello		23010538
Law Enforcement	Contra Costa Sheriff	O	Deputy Sheppard		23-961
Air District					
State OES					

**REPORT:**

1/25/23  
17:07 CCHS-HMP received the CONFIRE Dispatch page regarding 702 Edwards Street in Crockett.

17:11 I. Williams of CCHS-HMP contacted CONFIRE Dispatch by phone. Crockett-Carquinez Fire Department was requesting CCHS-HMP to respond to a possible acid exposure and spill in Crockett. A contact phone number for Assistant Chief Crivello on site was given.

17:14 Sheriffs Dispatch page received. I. Williams contacted Sheriffs dispatch by phone to verify response to Crockett incident.

17:15 I. Williams contacted Assistant Chief Crivello on site by phone. The information was relayed that an altercation resulted in one police officer, two civilians and a police dog being sprayed with a suspected acid from a spray bottle. Exposure included the face and eyes to the victims. The spray bottle was spilled during the altercation in the front of a residence. The spilled liquid appeared to be reacting with the concrete entryway/sidewalk. Suspect with the spray bottle was currently in custody. CCHS-HMP was requested to respond to help identify the liquid in the spray bottle and for decontamination of the scene. Medical decontamination including copious amounts of water/flushing was discussed, and any further information the suspect could supply about the chemical was requested by CCHS-HMP.

17:18 I. Williams activated the Incident Response Team. I. Williams, J. Pham, A. Ackerman, and G. Kierstead to respond in HM2 and HM4 to Staging area at Edwards Street and Bay Street in Crockett.

17:21 Assistant Chief Crivello updated I. Williams by text with a photo of the chemical spill, and that the suspect had stated that the chemical in the spray bottle was 31% HCL purchased at a pool supply store.

17:43 A. Ackerman and G. Kierstead departed office for scene in HM2.

17:48 I. Williams and J. Pham departed office for scene in HM4.

18:09 HM4 arrived at the staging area and checked in with Assistant Chief Crivello. The team observed the spray bottle spill area, directly on the steps and concrete to the entryways of 706 and 708 Edwards Street and at a mailbox concrete base (see photo log #1). The victims that were sprayed had already been decontaminated through extensive rinsing of the contacted areas of the body, including the police officer's eyes. The affected police officer had already been medically transported to the hospital.

**Additional Required Items: Bill of Lading, Request for Invoice, and Site Safety Plan**

Report Prepared by: I. WILLIAMS

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**REPORT:**

18:15 CCHS-HMP formulated with AC Crivello a two part plan- First, to take test samples from both the spilled spray bottle and a closed, kombucha glass bottle within a backpack on scene to try and verify the liquid contents. The suspect had stated to law enforcement that both containers were 31% HCL. Second, to thoroughly decontaminate all surfaces involved in the liquid spill/render the sidewalk, mailbox, and entry steps safe.

18:25 CCHS-HMP safety meeting held. Test sampling and cleanup to be conducted using fullface APR with vapor cartridges and gloves. I. Williams to be primary, J. Pham to support. Soda Ash (Sodium Carbonate), pH test strips, water and absorbent pads to be used to decontaminate the affected concrete.

18:13 - 18:42 Vehicle HM2 delayed due to air brake malfunction. CCHS-HMP equipment was shuttled to the scene with Crockett-Carquinez Fire vehicle.

18:45 - 19:20 Cleanup and sampling. PH test strips confirm liquid spill and liquid in spray bottle strong acid, 0-2pH. CCHS-HMP moved all uncontaminated items from the spill area, including potted plants and backpack away from the spill area. I. Williams uprighted the spray bottle and used a transfer pipette to collect a test sample. Team later noted that the test sample contained grit, possibly from the resulting reaction with the concrete. Team closed/capped the spray bottle and chemical absorbent pads were used to wipe down the spray bottle and used to soak up the standing yellow liquid and foam on the concrete and earthen material at the base of the mailbox. Chemical pads and the top layer of earthen material containerized in a 5-gallon bucket. Soda Ash applied to ground surfaces, and a hand broom was used to scrub the soda ash into the concrete and metal base of the mailbox for several minutes. A garden hose was used to rinse down the affected spill areas, followed by pH strip testing. The process was repeated three times, and the resulting pH strips indicated a neutral pH, 6-8. I. Williams used a transfer pipette to collect a test sample from the amber Kombucha bottle.

19:10 – 20:20 A. Ackerman and G. Kierstead worked to further identify the liquid in both test samples taken (Sampling Narrative and Sampling Summary).

19:42 Dr. Liu of John Muir Medical contacted I. Williams by phone with regard to CCHS-HMP chemical testing results. CCHS-HMP field testing was ongoing at this time. CCHS-HMP agreed to phone back in 30 minutes with final field testing results.

**Additional Required Items: Bill of Lading, Request for Invoice, and Site Safety Plan**

Report Prepared by: I. WILLIAMS

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**REPORT:**

1/25/23

20:24 I. Williams contacted Doctor Liu at John Muir Hospital. Field testing of both samples confirmed a strong acid, consistent with HCL, but the team at this time could not rule out Sulfuric Acid or a mixture due to the presence of sulfates in the spray bottle sample. The chemical reaction of the spill with the concrete including the yellow foaming was consistent with HCL used for concrete etching.

20:25 Team worked to pack up all equipment.

20:37 Hazardous waste labeling and Bill of Lading completed.

20:50 HM4 Departed scene for office.

20:55 HM2 Departed scene for office.

21:20 – 22:00 HM4 and HM2 arrived at office. Evidence tape applied to the 5-gal bucket and the bucket was placed in the locked, corrosive shed. Vehicle rehab.

1/26/23

13:30 -15:30 A. Ackerman and N. Menge collected new test samples from the spray bottle and kombucha bottle for field testing. Please see attached Sampling Narrative and Sampling Summary for details.

**Additional Required Items: Bill of Lading, Request for Invoice, and Site Safety Plan**

Report Prepared by: **I. WILLIAMS**

***Sampling Narrative:***

When CCHS-HMP arrived on site there was a plastic spray bottle laying open on concrete with a yellow liquid surrounding it. Spray bottle contained is expected to be clear liquid initially but because the bottle laid open on the concrete, the liquid's reaction with materials it came into contact with may have contaminated the liquid in the spray bottle. CCHSHMP understands that the suspect at this point had reported that the liquid in the spray bottle was 31% hydrochloric acid.

CCHSHMP responders I. Williams and J. Pham took two samples initially, one from the spray bottle that contained grit- presumably from the contact and reaction with the concrete, and later an amber glass Kombucha bottle that contained a clear liquid.

The spray bottle sample was a pH 0, was a clear yellow, with some gritty material at the top of the vial.

The Kombucha bottle sample was a clear liquid that was also a pH of 0.

Solutions were tested for pH, via the Ahura First, and using a HazCat Kit.

At the end of the active response on Wednesday January 25<sup>th</sup>, 2023 at 9:53pm CCHSHMP (A. Ackerman, G. Kierstead, H. Pham, I. Williams) applied evidence tape to a 5gal bucket containing the spray bottle and Kombucha bottle and their contents. This bucket was placed into the locked corrosive locker located behind the Truck bay at 4585 Pacheco Blvd at 9:54pm.

On Thursday January 26<sup>th</sup>, 2023 at 1:34pm Inspectors A. Ackerman, G. Kierstead, and N. Menge unlocked the corrosive locker, verified the evidence tape was still in-tact, and then opened the bucket to perform further testing.

Further Testing included acid specific pH strips, utilizing the Ahura, and utilizing two separate HazCat Kits. Information regarding these tests and the equipment are included below.

***Sampling Summary:***

CCHS-HMP concluded initially and after more extensive testing that all solutions tested (spray bottle grit solution, spray bottle solution, and solution in the Kombucha bottle) are indicative of strong acids as evidenced by the very low pH.

Due to limitations of equipment used and the samples obtained, we cannot identify the exact strong acid utilized, or whether it may have been pure or a mixture, but sampling results are reported below. 31.45% Hydrochloric Acid (also Known as Muriatic Acid) can be bought from hardware stores for the purposes of concrete etching, cleaning, and for reducing pH for a swimming pool. The yellow reaction viewable from the initial photo (photo1674696162.jpeg) of the spray bottle on the ground may be consistent with a concrete acid etching process where a strong acid – is used to prepare the concrete surface for more effective adhesion with a surface coating, or to remove concrete laitance or concrete efflorescence. Hydrochloric acid is frequently used for this process, but other mixtures with hydrochloric acid is also used, as well as other strong acids. The reaction of the strong acid with the concrete is expected to have introduced contaminants from the concrete and any other surface the liquid touched into the spray bottle making definitive testing of the contents of the spray bottle using available tools more complicated.

***pH testing:***

Initially pH of the yellow solution was checked with a pH strip and was found to be in the 0-1 range or lower, which is the bottom of the range for those pH strips. The Kombucha bottle contents also had a pH of 0-1 or lower. pH strips used were ColorpHast pH -Indicator Strips pH 0-14, non-bleeding, Cat-9590 by EMD Chemicals, Associate of Merck KGaA

The next day on January 26, 2023 additional pH strips with a range of 0-2.5 showed that both the Spray Bottle contents and Kombucha bottle contents had a pH of 0 or lower. pH strips used were ColorpHast Indicator Strips pH 0-2.5, Cat 9580 by EM-Reagents/EM Science, Associate of Merck KGaA.

***Ahura testing:***

CCHSHMP utilized the Ahura First Defender RM by Thermo Scientific to evaluate the solution utilizing Raman Spectroscopy. This technology is not suited for identifying hydrochloric acid, or dilute solutions in water, but can identify Nitric and Sulfuric acids, as well as sulfates, phosphates etc. All samples tested were returned as 'No Match'. The spectra and suggested comparisons are included. The verification test of a rod of Polystyrene occurred on January 26<sup>th</sup> prior to testing and was accurate. The Kombucha samples from the 25<sup>th</sup> & 26<sup>th</sup> were very similar, and the Spray Bottle sample was similar to the Spray Bottle Grit sample.

***HazCat Kit testing:***

On Wednesday January 25<sup>th</sup> a HazCat (1.0) kit (HAZCAT Chemical Identification System), marked Homeland Security Grant#2003, Tag# HAZCAT-1 by HazTech Systems, Inc was used in conjunction with the Liquid Acids Chart – Chart version 1.2 (copyright 2002) to see if the specific acid could be determined. G. Kierstead and A. Ackerman performed this testing.

First the Oxidizer test was performed – wetting a potassium iodide paper with 3N Hydrochloric acid, and then putting sample on the paper. If a sample is an oxidizer, the paper turns a blue black, purple or blue. The paper did not turn colors for any sample tested. The Spray Bottle Grit sample and the Kombucha sample were both negative for oxidizer.

The next test indicated was the Organic/Inorganic Acid Gas Test. This test relies on equipment not readily available and was skipped as a negative test.

Next performed was a fluoride test. The solution did not change colors and was considered a negative test.

Next performed test was a sulfate test. The Sulfate tests for sulfate anions and this can be indicative of Sulfuric acid, or it can suggest that there are other compounds dissolved in the liquid such as calcium sulfate. Known interferences are Sulfites, oxalates, arsenates and borates. This test was done without filtering because the unknown solutions were not cloudy.

Adding the Sulfate Test solution to the Spray Bottle Grit sample produced a white precipitate which is generally considered positive. Both addition of Metal Analysis Test 1 and Ammonia, either in sequence or by themselves did not dissolve the precipitate – suggesting that Spray Bottle Grit solution may have contained sulfuric acid, but more precisely that it contained sulfates, oxalates, arsenates, and borates. This result was reproduceable and the reaction of the acid with the concrete cannot be ruled out as a source of these contaminants.

The Kombucha bottle sample had a negative sulfate test, so testing continued. Testing also continued for the Spray Bottle Grit sample due to the known probability of mixtures and expected probability of hydrochloric acid.

The chloride test tests for chloride anion, but also detects phosphates. Interferences include thiocyanates which can be tested for, and borates, cyanides, sulfites, citrates, nitrites, and oxalates also give a white precipitate in the chloride test.

For the Spray Bottle Grit sample, there was a white precipitate that formed, but it was not heavy, and a slight precipitate is considered a negative result due to chloride present in many solutions including tap water. Shaking the test tube for example made the precipitate disappear even without adding the Metal Analysis Test 4 (Ammonium hydroxide)/Ammonia. HazCat 2.0 Instructions suggest this may be indicative of Sulfite.

For the kombucha bottle sample, a much heavier white clotted precipitate appeared indicating chloride. Addition of ammonia dissolved most of but did not fully dissolve the precipitate though, so hydrochloric acid cannot be conclusively determined, but is expected to be part of the mixture. Other potential anions that give a white precipitate other than chloride and thiocyanate are borates, cyanides, sulfites, citrates, nitrates, and oxalates. Chloride or thiocyanate is indicated if the precipitate fully disappears when the solution turns basic. Follow up testing to rule out the presence of thiocyanates did not occur that day. CCHSHMP was unable to provide further testing on the Kombucha bottle that evening.

CCHSHMP did one final test on the Spray Bottle Grit sample before running out of sample which is the organic acid test, because the organic/inorganic acid gas test could not be completed. This was considered a null result because no color change was achieved. Instead, when the solid dissolved, a clear liquid remained on the top of the solution.

On Thursday January 26, 2023 CCHSHMP attempted to continue testing using samples taken directly from the spray bottle and another sample from the Kombucha bottle. The spray bottle appeared to be lightly yellow, lighter than the ground sample, but still visibly yellow. This is consistent with the bottle having been open next to the yellow liquid/foam that likely entered the bottle while it was laying on the concrete. This time a Hazcat 2.0 kit (Hazcat Basic KT2011 Chemical Identification System by Haztech Systems, Inc), CCHSHMP's kit labeled #2 was used in conjunction with the Hazcat Liquid Acids Chart dated 12/24/12.

The oxidizer test was again negative. Next would have been the carboxylate test, but it utilizes a Draeger Tube. A negative was assumed in this case and the team went to the Chloride test.

The chloride test from the Kombucha bottle sample on Thursday 1/26 produced a strong white precipitation that fully disappeared when Ammonium Hydroxide was added. This test was repeated to confirm results. This indicates Hydrochloric acid, thiocyanates, oxalates, sulfites, and borates. Notes on the test suggest that a white solid is formed with citrates, bitartrates, cyanides, nitrates, and some phosphates during the Chloride Test. Next the Thiocyanate test was performed which was negative – suggesting Hydrochloric acid was potentially present, but since the carboxylate test was not performed organic acids cannot be ruled out.

The Spray bottle had a strong white precipitate initially observed that mostly but did not entirely disappear with the addition Ammonium hydroxide. White that appears initially but remains when ammonium hydroxide is added may be indicative of an Iodide or Bromide, so the Bromide/Iodide Test was performed next. There is the possibility that the solution contained hydrochloric acid in a mixture that included another confounding contaminant that does not dissolve with addition of ammonium hydroxide and this line of testing would not be able to conclusively specify that.

The Bromide-Iodide Test resulted in a clear top layer and a purple-brown bottom layer which may suggest perborate with potential persulfate or chlorate anions present. In either case, this results in the Phosphate test being done next.

The phosphate test was performed next. At Step 3, observation 1- result b (any other result, no opaque white solution that forms immediately) was observed, so Silver Nitrate was added as indicated. The solution became a whitish cream color. Based on the Observations available for Observation 2, 2c was the most appropriate, so 6 drops of Nitric Acid were added, and the solution was shaken. The solution went clear at this point, suggesting the test was positive. Test results suggest that a low concentration of less than 10% phosphoric acid are indicated if we were directed her be the liquid acids chart.

Notes on the test suggest that the phosphate test is definitive for the inorganic phosphate anion, a common environmental contaminant found in fertilizers, detergents, and insecticides. Glyphosates will produce a positive in the test. Given the usage of a multipurpose spray bottle and the location of the spray bottle adjacent to spilled and potted plants and other soils/grass etc, we cannot rule out the possibility that phosphate contamination came from the bottle or the reactions of the liquid with the concrete and other surrounding contaminants when the bottle was open on the ground.

The sulfate-sulfite test was performed next, and both were found to be negative

Property Tested	Spray Bottle Grit	Spray Bottle	Kombucha Bottle
pH	0-1	0	0
Ahura	No Match	No Match	No Match
Oxidizer	Negative	Negative	Negative
Organic/Inorganic Acid Gas Test	N/A	N/A	N/A
Organic Acid Test	No Reaction	N/A	N/A
Fluoride Test	Negative	N/A	Negative