Rite in the Rain®
ALL-WEATHER
**LEVEL**
№ 311

Beta-Chem Removal Assessment
and Removal Action

X9025140060/0061

Log Book #1

5-5-14 Beta-Chem

0630 STM O'Connor arrives @ office, prep for days activities

0745 STM O'Connor, Bryant Merriman, + Nick Weiderholt depart for EPA Warehouse

0800 Arrive @ EPA Warehouse, load vehicle and discuss site with EPA Doug Ferguson

0954 Arrive on site, conduct daily tailgate meeting

- Initial plans to scope site and collect video/photos
- Inventory chemical containers
- Collect swipe samples

Collect background readings with Ludlum 2241 ratemeter with 44-9 detector

41, 38.6, 40, 36.7, 33.9, 40.3

Check with Cs-137 source

Collect beta radiation readings inside building Room C: ~150 c/m - Floor

Door Frame - 280 c/m

Fume hood backing >4.5 Kc/m

Fume hood: 872 c/m - bottle, 250-450 c/m in hood Floor >600 cpm

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5-5-14 Beta-Chem

Ludlum 642 - response check ok

Back 0 - α 43 β

1200 Lunch

1230 End lunch, continue labeling and inventorying containers

- Prep wipesamples for lab

| | Sample Name | 3030 Reading α/β | Unit |
|---|---|---|---|
| 1430 | G2 PVC Intake | 0/2115 | 642 |
| 1435 | G1 Hood Frame | 0/588 | 642 |
| 1440 | G1 Hydrogen Cylinder | 0/237 | 642 |
| 1445 | G1 Argon Cylinder | 0/126 | 642 |
| 1450 | Container 20 | 0/108 | 642 |
| 1455 | Container 7R | 0/93 | 642 |
| 1300 | Container 19 | 0/48 | 642 |
| 1305 | Container 16 | 0/36 | 642 |

1630 Stop Unit # 634 V=418.6ft³ T=2:59:22

1635 Stop Unit # 633 V=415.5ft³ T=3:02:45

1720 STMs O'Connor, Wiederholt, and Merriman arrive @ Tt office

1805 Ship 8 wipe samples

1815 End day

Danny O.
5-5-14



5-6-14 Beta-Chem

0800 STMs O'Connor and Weiderholt arrive on site, prep for days activities

Conduct daily tailgate meeting

Continue inventory of chemical containers

1030 STM Merriman arrives @ Tt office pick up supplies

1100 STM Merriman arrives on site

Continue inventory

1210 Lunch

Continue inventory of containers within Facility

- Find several C-14 sources
- Put C-14 sources in rad area
- Also find tritium source ($^3H_2$)

Purchase 2 Fridges. Will transfer container from non-Functional Fridge to new Fridge. Several containers are marked as keep refridgerated

Complete inventory of containers in Fridge

Collect readings from bottles (cap & labels) with 44-9, everything seems contaminated 7500cpm

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5-6-14 Beta-Chem

RadeCo # 633 V=1000ft³ T=6:59:48

EPD readings - End day

STM O'Connor: 1.9

STM Merriman: 0.9

STM Weiderholt: ~~0~~ 1.0

1730 End day

Danny O.
5-6-14



5-7-14 Beta-Chem

0745 STM O'Connor arrives on site, prep for days activities

EPD beginning readings

STM O'Connor (571927) 2.0 mrem

STM Merriman (571959) 0.9 mrem

STM Wiederholt (571952) 0.0 mrem

Planned activities: Complete inventory of chemical containers. Continue assessment of C-14 on exterior surfaces of containers. Assess container contents for C-14

0800 STM Wiederholt and Merriman on site

Conduct daily tailgate meeting

STM O'Connor transfers containes # from old refridgerator to two new minifridges

STM Wiederholt & Merriman continue inventory

- Speak with Mike Dammann with Southwest Research Institute about analysis of carbon-14 via liquid scintillation of contents of containers. Will come up with 50 samples to provide for RFQ
- Speak with EPA NAREL John Griggs

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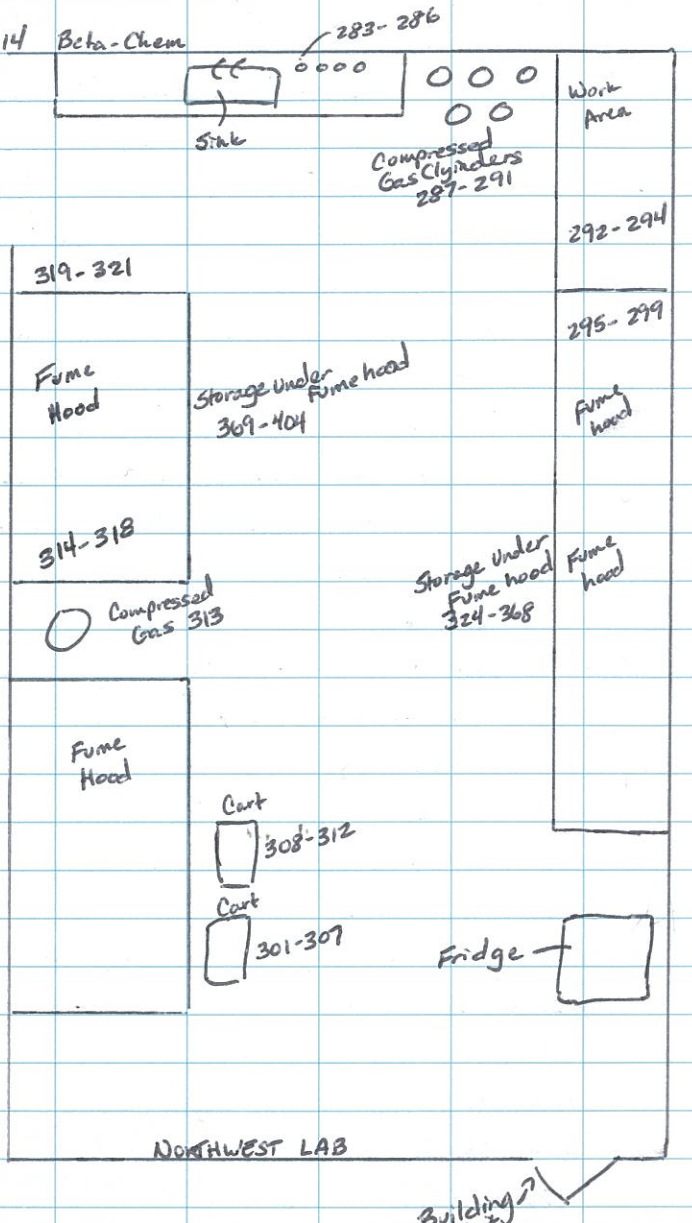
5-7-14 Beta-Chem



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Rite in the Rain.

5-7-14

about site and plan for sampling container contents

- Two possible Action Levels for container contents: 10CFR20 Appendix B

NRC release to sewer: 3E-4 µCi/ml

10% DL = 30 pCi/ml

NRC release to surface water: 3E-5 µCi/ml

10% DL = 3 pCi/ml

- Select 50 chemical containers for possible lab analysis

| Container # | | Contents | Room |
|---|---|---|---|
| 5 | (L) | Anhydrous Benzene - Flam liq | C |
| 8 | (L) | Hexane - Flam liq - ENV | C |
| 23 | (L) | Diisopropylamine - Corr - Flam Liq | E |
| 28 | (L) | Ethyl Acetate - Flam liq | E |
| 41 | (L) | Chloroform - Toxic | E |
| 57 | (L) | Dehydrated Alcohol - Flam | E |
| 73 | (L) | Toluene - Flam Liq | E |
| 104 | (L) | Ether - Flam Liq | E |
| 336 | (L) | Lactic Acid - Irritant | F |
| 333 | (L) | Sodium hypochlorite oxidizer 10-13% | F |
| 310 | (L) | Acetic Acid - Corrosive - Combustible | F |
| 312 | (S) | Magnesium Sulfate - Non Haz | F |
| 305 | (L) | 2-Propanol - Flam | F |

5-7-14



| # | | Contents | Haz | Room |
|---|---|---|---|---|
| 320 | (L) | Acetone - Flam Liq | | F |
| 369 | (L) | Chloroform - Toxic | | F |
| 339 | (L) | Phosphoric acid - Acid/Toxic | | F |
| 294 | (L) | Dehydrated Alcohol | | F |
| 224 | (S) | Aluminum Chloride - $H_2O$ reaq | | E |
| 151 | (L) | Petroleum Ether * Flam | | E |
| 581 | (S) | Silver Nitrite - Oxidizer | | E |

Email list to Mike Dammann list of chemicals

Contacts for dangerous goods shipping

David Brown - 619-525-7188

Michael Valerius 513-564-8355

Chris Tipton

Lawson Bailey 803-641-6326

Guy Cooley

STM O'Connor & Merriman collect samples from 20 containers identified for internal sampling

- EPA Hooper

#294 → β = BG  BG = 60 cpm

#151 → β = BG

#57 → β = BG

#28 → β = BG

#23 → β = BG

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5-7-14 Beta-Chem

#8 → β = BG

#310 → β = 50 cpm over BG

#333 → β = 850 cpm over BG

#339 → β = BG

#369 → β = BG

#305 → β = BG

#5 → β = BG

#104 → β = BG

#336 → β = BG

#305 → β = BG

#37 → β = 50 cpm over BG

#73 → β = BG

#324 → β = BG

#581 → β = BG

#312 → β = BG

1634 Stop RADeCo air monitor #633 953 ft³

T = 7:39:55

1700 Depart site. End day

Danny O.

5-7-14



5-8-14 Beta-Chem

0730 STM O'Connor purchases ice & water

0740 Arrive on site, prep for days activities

RADeCo air Filter samples

Unit # 634 6/66 α/β

Unit # 633 7/84 α/β

C-14 DAC-Public is 15 cpm β per ft³

0750 STM Wiederholt on site

Conduct daily tailgate

Continue inventory of containers

0900 STM Merriman arrives on site

Container #780 readings with 44-9 pancake probe > 200 Kcpm

#639 > 150 kcpm

Segregate chemicals with elevated rad readings - Two C-14 sources observed

Receive lab results

- G2 PVC Intake 9,900 pCi
- G1 Hood Frame 3,400 pCi
- G1 Hydrogen Cyclinder 846 pCi
- G1 Argon Cyclinder 301 pCi
- Container 20 265 pCi
- Container 7R 209 pCi
- Container 19 35.3 pCi

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5-8-14 Beta-Chem

Container 16 → 18.6 pCi

Conversion Factor is 2.22 dpm/pCi

KDHE Linscence reg 6,000dpm/100cm²

(removable) → 2,700 pCi/100cm²

- Use 5.63 pCi/cpm conversion Factor for Ludlum 3030 reading (cpm) to pCi

Begin segregated chemicals by DOT Hazard class

1725 STM Merriman and Wiederholt depart site

1735 STM O'Connor departs site

1900 Work on inventory spreadsheet

2030 End day

Danny O.
5-8-14



5-9-14 Beta-Chem

0725 STM O'Connor arrives on site

Prep For days activities

0800 STM Wiederholt and Merriman arrive on site

EPD readings

STM O'Connor (571927) 5:2.3 mrem E:

STM Wiederholt (571952) 5:0.3 mrem E:

STM Merriman (571959) 5:0.2 mrem E:

- Will collect samples From unlabeled containers to HazCat

Crews begin collect samples in level B PPE

Will setup area outside the building to HazCat unknown samples

Prep supplies For soil sampling and contact TestAmerica lab in Earth City to confirm sample analysis as Carbon-14 via LSC, also confirm standard turnaround time

Discuss sampling with EPA Ferguson and KDHE Conley

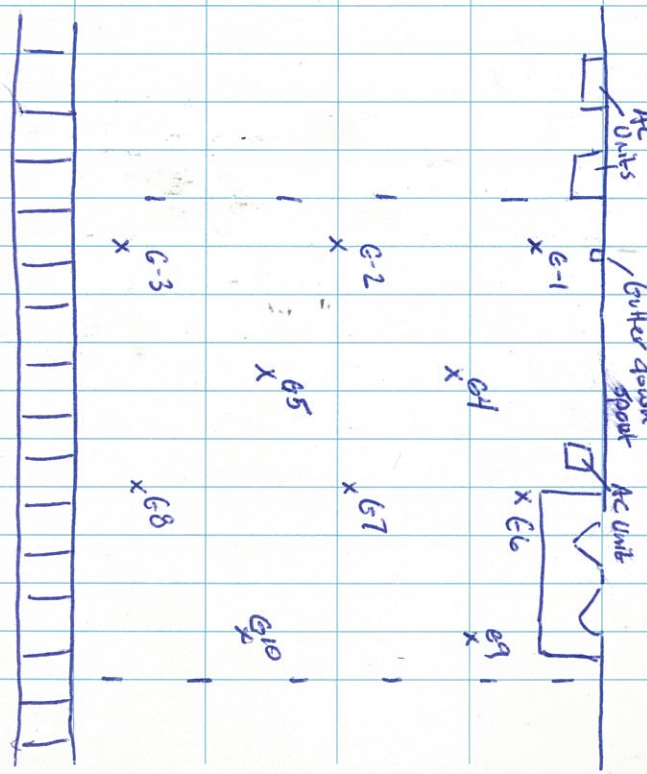
Sketch of soil sampling on next page

Rite in the Rain

5-9-14 Beta-Chem

Begin screening exterior soils with 44-9 pancak probe

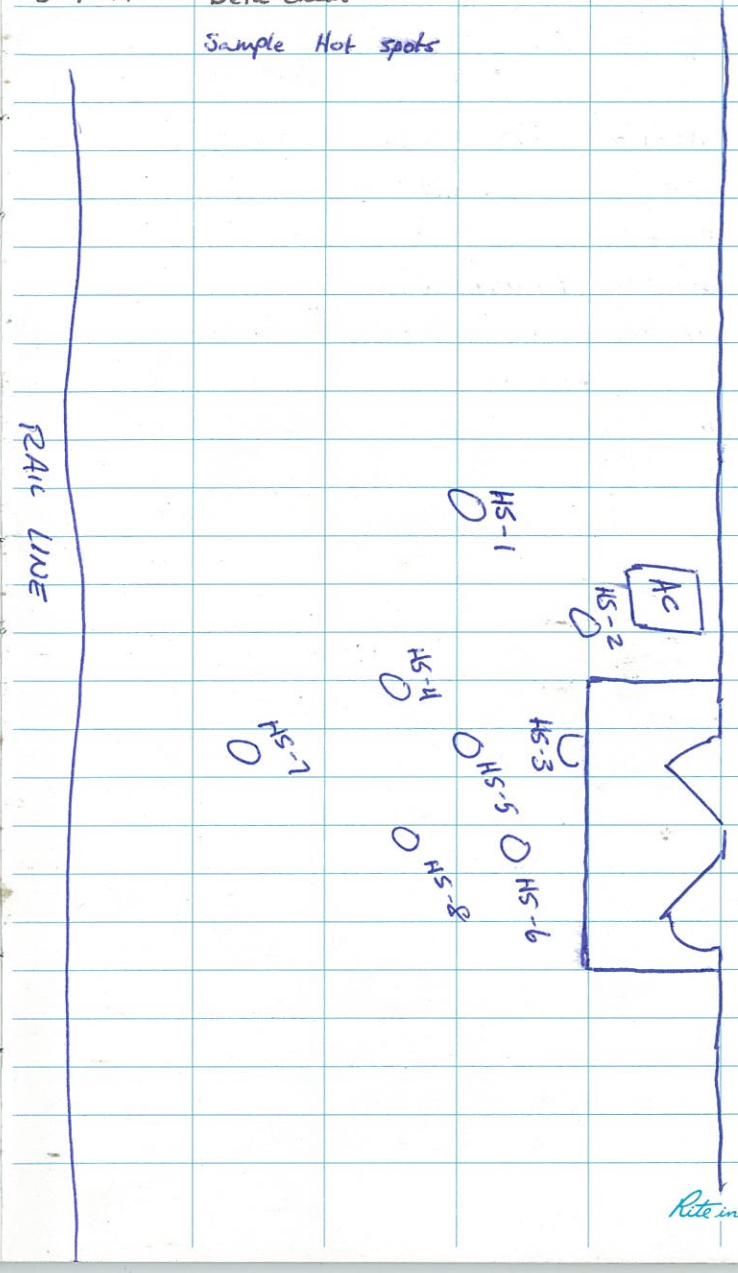
- Readings from concrete 160-200 cpm
- Kickplate ~300 cpm
- Soil adjacent to concrete pad > 100 cpm
- identify multiple areas of elevated activity
- Create grid to assess contamination from stacks






5-9-14 Beta-Chem

Sample Hot spots

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5-9-14 Beta-Chem

Screen soil samples with 3030

GPS + 3030 Readings

HS-1 → 38.94825, -94.752594

α: 0 β = 43 cpm

HS-2 → 38.94824, -94.7526

α: 0 β = 39 cpm

HS-3 → 38.94823, -94.7526

α: 0 β: 39 cpm

HS-4 → 38.94824, -94.7526

α 0 β 37 cpm

HS-5 → 38.94824, -94.7526

α 0 β 39 cpm

HS-6 → 38.94823, -94.75262

α 0 β 27 cpm

HS-7 → 38.94825, -94.75262

α 0 β 43

HS-8 → 38.94825, -94.75263

α 0 β 30 cpm

~~HS~~ G1 → 38.94828, -94.75254

α 0 β 35 cpm

G2 38.94829, -94.75255

α 0 β 48

G3 38.94831, -94.75257

α 1 β 52



5-9-14 Beta-Chem

G4 → 38.94827, -94.75257

α 0 β 37

G5 → 38.94829, -94.75259

α 0 β 33

G6 → 38.94826, -94.75258

α 0 β 37 cpm

G7 → 38.948269, -94.75259

α 0 β 51 cpm

G8 → 38.94828, -94.75262

α 0 β 35

G9 → 38.94824, -94.75262

α 0 β 27

G10 → 38.94827, -94.75264

α 0 β 36

Stop RADeCO # 633

V: 1178.1 ft³ T = 8:42:14

1740 Depart site

Danny O.

5-9-14

Rite in the Rain.

5-12-14 Bta-Chem

0730 STM O'Connor arrives on-site, prep for days activities

0750 STM Brown arrives on site

- Conduct site walk

Continue inventory of chemical containers

Field screen samples for Rad

#108 → BG

#109 → +1200 cpm

#823 → +140

#393 → +500

1200 Lunch

- Continue inventory of chemical containers
- Select 12 Flammable Liquids to Field screen with 44-9 probe

Containers

| | | |
|---|---|---|
| 69 | Methanol, Anhydrous | β : BG |
| 46 | Borane-tetrahydrofuran complex | β : BG |
| 62 | m-Xylene, anhydrous | β : BG |
| 375 | Cyclohexane | β : BG |
| 90 | Tetrahydrofuran, anhydrous | β : BG |
| 73 | Toluene | β : BG |
| 392 | Ethyl Alcohol | β : BG |
| 36 | Acetone | β : BG |
| 34 | Borane-tetrahydrofuran complex | β : BG |



5-12-14

| | | |
|---|---|---|
| 29 | Ethyl Acetate | β : BG |
| 140 | Alcohol, Dehydrated | β : BG |
| 385 ~~305~~ D.O. | ~~2-propanol~~ Pentane, anhydrous | β : 100 + BG |
| 393 | Ether, Anhydrous | β : 320 + BG |

Container 393 was Anhydrous Ammonia with hand written label of "Hot Waste"

- Will attempt to send in the following samples for C-14 via Liquid scintillation counting: 393, 385, 69, 62, 375, 90, 73, 392, 29

1730 End day

5-13-14

Danny O.

Rite in the Rain.

5-13-14 Beta-Chem

0800 STM Brown inventories containers
- HazCating unknown samples
- EPA Mike Davis attempts to locate PNU listed wastes
- Sampled unknowns
- STM O'Connor ships dangerous goods samples

Danny O.
5-13-14



5-14-14 Beta-Chem

0755 STM O'Connor arrives on site, prep for days activities
EPD Readings
STM O'Connor (571952): 0.0
STM Brown (571927): 0.0

0800 STM Brown arrives on site
Disposal company: 0.5 μCi/g or 500,000 pCi/g action level
- STM Brown continues HazCating
- FedEx Dangerous goods package not excepted from FedEx, STM O'Connor returns to office to correct issues
- Update inventory spreadsheet
Stop RADeCo Unit #
V=
T=

1700 End EPD
571952: 0.0
571927: 0.0

1740 STM O'Connor departs site

Danny O.
5-14-14

Rite in the Rain.

5-15-14 Beta-Chem

0750 STM O'Connor arrives on site

Prep for days activities

EPA 571952:0.1

Check RADeCo sample from yesterday

α:3 β:276

STM Brown continues work HazCating unknown chemicals

-Discuss package shipment with FedEx, package was shipped to local KC resident, coordinate with FedEx to have package shipped to GEL

EPA Ferguson complies list of like Flammable Liquids for composite sampling - Will field screen with 44-9

1230 Lunch

1300 Begin sampling 1st composite list (comp-1) - Ethers

Containers: 31, 32, 37, 45, 77, 90, 91, 95, 104, 372, 380, 383, 389, 395, 396, 397, 401

*Container 389 is green dense liquid

Begin sampling Comp-2 Hexanes

Containers 8, 9, 76, 81, 82, 113, 154, 292, 368, 375, 385, 437

Container 303 is empty (can not sample)



5-15-14 Beta-Chem

Screen composite samples with 44-9 Pancake probe

Comp 1: 10 Kcpm

586,906 pCi/ml

Comp 2: 8.1 Kcpm

475394

Collect Comp-3 sample from Benzenes

Containers 5, 30, 62, 63, 73, 83, 293, 394, 398, 474, 49

Comp-3: BG

44-9 Pancake probe is getting contaminated from exposure to rad contaminated evaporating solvents. Heating detector is the only way to sufficiently clean probe

1800 Depart site. End day

Danny O.
5-15-14

Rite in the Rain

5-16-14 Beta-Chem

0750 STM O'Connor arrives on site, prep for days activities

Update chemical spreadsheet

Collect Comp-4 sample from alcohols

Containers # 35, ~~48~~ D.O. 53, 57, 69, 84, 285, 299, 305, 315, 365, 374, 388, 392, 404.

Unable to sample containers 548, 549, 550 due to contents being solidified

-STM Brown continues field screening unknows

-Screen comp 4 with 44-9 pancake probe Comp-4: Background

Screen other HazCated unknowns

| Container # | 44-9 reading cpm over BG |
|---|---|
| 108 | BG |
| 111 | BG |
| 3 | BG |
| 284 | BG |
| 145 | BG |
| 616 | 50 Kcpm |
| 656 | |
| 107 | +30cpm |
| 402 | BG |
| 113 | BG |



5-16-14 Beta-Chem

| Container # | 44-9 Reading (cpm |
|---|---|
| 391 | 850 |
| 617 | BG |
| 296 | +40 - needs further investigation |
| 319 | BG |
| 104 | BG |
| 135 | ~BG |
| 382 | BG |
| 98 | BG |
| 334 | BG |
| 41 | BG |
| 1053 | BG |
| 381 | BG |
| 1054 | 746 Kcpm |

Attempt to weigh sample from #1054

Planchet - 3 grams, with sample 3.5 g

Sample is .5 grams

| | |
|---|---|
| 884 | BG |
| 294 | BG |
| 151 | ~BG |
| 57 | D.O. ~~3~~ 250 |
| 885 | 250 |

Rite in the Rain

5-16-14 Beta-Chem

Containers in RAD Fume Hood

1054, 639, 921, 883, 780, 847, 492, 922, 925

928, 923, 921, 927, 929, 66

~~4~~ 15 Containers marked as:

- Potassium Cyanid (C-14) 500mCi
- Barium Carbonate 1Ci
- Barium Carbonate 1Ci/vial
- Barium Carbonate 500mCi/vial

" " 284 µCi/mg

- Mesylate salt 58mCi/mmol
- Empty ~~58~~ 54 mCi/mmol

Barium Carbonate 1Ci

" " 1Ci

" " 2000mCi/vial

- 4 steel containers with unknown marking
- Standard set C-14 $10^5$ dpm

1400 Stop RADeCo Unit #634

V= T=

1430 End EPD

571952: 0.3

571927: 0.3

Danny O.

5-16-14



6-5-14 Beta-Chem

0730 STM O'Connor arrives on-site, prep for days activities

- Prep for field screening samples for internal rad contamination

| Container # | State | 44-9 reading (+BG cpm) |
|---|---|---|
| BG - 60-80 cpm | | |
| 154 | L | BG |
| 109 | L | + 250-300 |
| 311 | L/sludge | BG |
| 368 | L | > 10k cpm |
| 656 | S | ~ 10-20/BG |
| 847 | S | + 150k |
| 151 | L | ~ BG |
| 305 | L | ~ BG |
| 331 | L | BG |
| 360 | L | BG |
| 324 | L | BG |
| 391 | L (thick) | + 1000 cpm |
| 319 | L | BG |
| 381 | L | ~ BG |
| 37 | L | BG |
| 5 | L | BG |
| 581 | S | BG |
| 310 | L | + 20-30 |

Rite in the Rain.

6-5-14 Beta-Chem

| Container # | State | 44-9 reading (+BG cpm) |
|---|---|---|
| 939 | L | BG |
| 312 | S | BG |
| 28 | L | BG |
| 8 | L | BG |
| 988 | L | BG |
| 369 | L | BG |
| 339 | L | BG |
| 918 | L | BG |
| 999 | L | BG |
| 362 | L | 10 Kcpm |

- Attempt to find and segregate rad hot samples
- Update spreadsheet

1630 End work on project

Danny O.
6-5-14



6-6-14 Beta-Chem

0800 STM O'Connor arrives on site. Prep for day activities

Dose Meter 571952: 0.8 mrem

- Coordinate with Dave Brown for Dangerous goods shipment
- Organize rad areas
- Send out update emails

1130 Depart for Tt office

Prep equipment & supplies for next week

Prep DG samples for shipment

Danny O.
6-6-14

Rite in the Rain.

6-9-14 Beta Chem

0800 - Loading field supplies at office into rental vehicle. Brian Mohr going to EPA Cave to pick up more APR cartridges, pipettes, and tyveks.

0930 - STM Brown & Mohr onsite; unload field supplies in site office.

1000 - OSC Ferguson arrives onsite; unlock building. STMs Brown and Mohr begin inventorying remaining containers. Total inventory list up to 1108 containers

1200 - lunch

1245 - STMs Mohr & Brown begin hazcatting remaining unknowns.

~~1700~~ 1630 - Finish hazcatting unknowns

1700 - shutdown Kodeko Air filter which was started ~ 10:30 am.

~~sta~~ Tidy up and lockdown building.

1710 - depart for day



6-10-14 Beta Chem

0730 ~~0800~~ - STM Brown arrives onsite ER is onsite. Doug Ferguson, OSC gives safety briefing and tour of site to ER.

0800 - STM Mohr arrives

0830 - STMs & ER begin screening flammable liquids for radiation and compatability. All flammable liquids that screen > 1,000 cpm are segregated.

1330 - finish screening flammable liquids for radiation and compatability by placing small amount of each into 5-gallon bucket.

1350 - lunch

1445 - ER bulking compatable flammable liquids into 55-gal drum.

- continue organizing chemical containers

1715 - tidy up & lockdown Bldg.

1730 - depart for day

Rite in the Rain.

5-21-14 Beta Chem

0800 STM Cosmo Canacari arrives on-site

~~0800~~ STM Merriman departs TT after picking up supplies

0830 STM Merriman arrives on-site. Site activities for today include inventory of new containers, identify hazardous class of materials and hazcat unknowns. OSC Ferguson on-site

1015 OSC Frey and EPA Hooper arrive on-site

1100 ~~EPA~~ Army Civil Support team on-site

1130 ~~1205~~ Lunch

1205 Return to site. Continue to inventory and hazcat

1530 Finish hazcat ~~for~~ the day. Continue to ~~ha~~ to collect inventory

1630 End of day

1645 START departs site.

5-21-14



5-22-14

805 STM Merriman arrives on-site. OSCs Ferguson and Mike Davis on site. Will continue to hazcat and inventory. Army Civil Support will be on-site to collect air samples.

810 STM Canacari on-site.

815 Army Civil Support on-site.

845 STM Merriman and OSC Davis go pick up supplies

1015 Begin to hazcat. Civil Support Team continues to collect samples.

1130 Lunch

1215 Continue to hazcat and inventory

1245 Army Civil Support Team not on-site.

1430 Continue to hazcat and inventory

1600 End of day.

5-22-14

Rite in the Rain

5-23-14 Beta Chem

0730 STM Canacari arrives on-site. Prep for the day.

0800 STM Merriman and OSC Ferguson arrive on-site. Will continue to hazcat and inventory.

1030 OSCs Frey and Davis on-site. Kansas Fire Marshall on-site

1115 Fire Marshall departed site

B. Merriman
5-23-14



5-27-14 Beta-Chem

0710 STM O'Connor arrives @ TT, pick up supplies. Depart for site

0800 STM O'Connor arrives on site. Discuss site activities with EPA Doug Ferguson

- Waiting on quotes from disposal companies for chemicals & rad contaminated building materials. Will finish updating inventory spreadsheet and segregating chemicals

Weather: 85°F and sunny, 20% chance of thunderstorms

- Work to update spreadsheet

276 samples field screened

1200 Lunch

Continue updating spreadsheet

EPA Hooper works to screen lab instruments for gross beta activity

- Begin drafting an RFP for Radioactive Waster Broker services

- Will include assessment of internal & exterior rad contamination

1715 Depart site

Danny Q.
5-27-14

Rite in the Rain.

5-28-14 Beta-Chem

0800 STM O'Connor arrives on site. Prep for days activities

- Continue working on spreadsheet
- Discuss rad brocker options with Tt Ted Faile and EPA Ferguson
- Will write RFP for internal and external rad assessment

1200 Lunch

- Continue looking up chemical hazard classes and segregating

1700 Depart site

Danny O.
5-28-14



5-29-14 Beta-Chem

0730 STM O'Connor arrives @ Tt. Drop off START vehicle and supplies

0845 Arrive on site. Prep for days activities.

- Continue working on looking up unknown chemicals on spreadsheet
- EPA Ferguson works on segragation of chemicals by hazard class
- EPA Ferguson attempts to contact Lenexa City Parks Department to gain access to Electric Park to collect reference samples
- Attempt to contact Ameriphysics

1645 Depart site.

Danny O.
5-29-14

Rite in the Rain.

5/30/14 Beta-Chem

0755 STM O'Connor arrives on site. Prep For days activities

- Update Task Order costs

TO 60: <$500 remaining

TO 61: $35,322.76 remaining

- EPA Ferguson gets permission to collect reference samples from electric park. Will collect samples today.

0840 Receive invoice from Test America for soil samples $1,440

Finish chemical lookup

- identify 29 containers requiring ~~Add~~ screening

locate most bottles, some empty and some rad contaminated

- Prep soil sampling equipment

1200 Arrive @ Electric Park to collect reference samples

1205 BG1: 38.95930, -94.76922

44-9 reading 90-100 cpm

1211 BG-2: 38.95918, -94.76921

44-9 reading 100-110 cpm

1214 BG-3: 38.95901, -94.76923

44-9 readings: ~110 cpm

1217 BG-4: 38.95922, -94.76948



5/30/14 Beta-Chem

44-9 reading: 100-110 cpm

1220 BG-5: 38.95934, -94.76950

44-9 readings ~100 cpm

1300 Lunch

- Continue trying to locate unknown containers.

EPA Mahler and Hooper inventory rad containers

Danny O.

5-30-14

Rite in the Rain.

6/11/14 Beta Chem

0800 STM Cox & Mohr arrive on-site, conduct daily Health & Safety meeting with OSC Ferguson

0900 STM Cox & Mohr attempt to classify hazard classes of samples on site

1200 Lunch

1230 STM Penny Cox leaves site; STM Cody McLauty arrives and offloads supplies

1300 Mohr & McLauty identify and locate flammable chemicals in fridge, then test them for radiation using pancake probe

1400 Mohr & McLauty attempt to classify hazard classes of samples on site

1730 Start departs site

6/11/14



6/12/14 Beta Chem

0700 - STM Mohr arrives @ ERA Warehouse to pick up supplies (TVA 1000 and calibration gases)

0745 STM Cody McLauty arrives @ site and continues attempting to identify and classify samples

0800 STM Mohr arrives on site and attempts to classify hazard classes of samples; ER begins draining compressed gas cylinders on site

1200 Lunch

1230 STM Mohr & McLauty continue to classify hazard classes of samples; Mohr and McLauty updated inventory and spreadsheet

1700 Clean up and lock down site

1730 End of Day

6/12/14

Rite in the Rain.

6/13/14 Beta Chem
0700 arrived @ EPA Warehouse (STM Mohr) to pick up supplies for day's activities
0745 STM Mohr + STM Canacari arrive @ site
0800 OSC Ferguson arrives @ site, conducts Health and Safety meeting
0830 Made preparations to conduct field screening of samples, checking for radiation, ERs begin draining gas cylinders
0900 setup glove box and prepared to check samples for radiation inside box
1100 began checking samples in glove box for radiation
1230 Lunch
1300 Continued using glove box to check samples for radiation
1630 STM Mohr + Cancari leave site - End of Day
6/13/14



6-16-14 Beta-Chem
0720 STM O'Connor arrives @ Tt. Complete expense report. load vehicle
0815 Arrive @ Field site. Review site activities with EPA Ferguson
- Majority of Flammable Liquids have been bulked into 55-gallon drum
- Crew will continue venting hydrogen and nitrogen tanks
STM O'Connor + EPA Ferguson locate remaining Flam. Liqs
Complete compatability study. Following containers ready for bulking
26, 728, 422, 1112, 438, 1115, 1111, 39, 1114, 526, 501, 384, 437, 428, 94
- Field screening with 44-9 probe indicates elevated activity on container #459
1237 hydrogen tank #290 completely vented
#161, 978, acetylene tanks have also been vented
#162 compressed Nitrogen Tank
Identify more containers for Flam Bulking

Rite in the Rain

6-16-14 Beta-Chem

1065, 215, 40, 1069, 23, 729, 742

Segregate NazCated chemicals by Hazard class

1510 Conduct compatability study for bulking of Flammable Liquid

The Following containers were added to Flammable Liquids Drum

23, 742, 729, 711, 215, 476, 1074, 854, 690, 40, 29

1715 Depart site. End day

Danny O.
6-16-14



6-17-14 Beta-Chem

0725 STM O'Connor arrives on site, prep for days activities

Review Flammable Liquid data to confirm everything has been bulked

Find 45 chemicals listed as Flammable Liquids, attempt to find chemicals

1710 Depart site

Danny O.
6-17-14

Rite in the Rain

KS1407

Rite in the Rain®
ALL-WEATHER
**LEVEL**
№ 311

Beta-Chem Site
Removal Assessment + Removal Action
X9025140060/0061

Log Book #2

6-18-14 Beta-Chem

0735 STM O'Connor arrives on site, Prep
For days activities
-Update Spreadsheet.
Empties: 171
Gas vented: 13
Flammable Liquids bulked: 133
Discuss possible contains to bulk
with Flammable Liquids
Bulk- Container # 111, 436, 464, 471, 821
Container # 420 Screening with 44-9
probe indicates rad 1.4k cpm

1600 Collect sample from bulked Flammables
For C-14 analysis via LSC
- Test America will be unable to
process any liquid or solid haz
waste samples from Beta-Chem
site

1645 Depart site

1800 Work on identifying remaining unknowns

1845 End day

Danny O.
6-18-14



6-19-14 Beta-Chem

0740 STM O'Connor arrives @ TE office
- Prep Flammable Liquids sample
for shipment

0930 Drop off sample @ FedEx
Discuss site Health and Safety
with STM Denny Cox
- Suggestions
- Move Rad containers into coolers
- Post H & S items in field office
- Discuss dose readings with
EPA Hooper

1040 Depart for site

1105 Arrive on site, FBI on site to
continue assessment and meet
with EPA Ferguson

1230 Pick up coolers from Wal Mart

1300 Begin transfering rad sources and
externally + internally contaminated
containers to coolers
- Screen samples with unknown
contamination

1530 Speak with University of Kansas
Radiation office about having
samples analyzed for carbon-14

Rite in the Rain

6-19-14 Beta - Chem

Lab can likely handle the samples @ little or no cost

Michael Lemon 785-864-2851

Discuss KU with EPA Ferguson

1700 Depart site

Danny O.
6-19-14



6-20-14 Beta-Chem

0735 STM O'Connor arrives on site, Prep for days activities

Review qoute from GEL for chemical analysis of bulked Flammables → $1,703.50

-Discuss bulking plan

-Will begin bulking chlorinated solvents and finish flammables

Review containers removed from rad section yesterday

| | Container # | |
|---|---|---|
| Flam | # 395 | Tetrahydrofuran |
| Toxic/Comb | 47 | N,N-DimethylFormamide |
| Flam (55°F) | 364 | Acetonitrile |
| Flam | 121 | Ether |
| Flam | 366 | 1,4-Dioxane |

Check # 52 (Acetic Anhydride)

Look up container # 47, flash point = 136°F, will add to flammable liquids

Bulk- Flammable liquids # 395, 366, 121, 364, 47

Prepare chlorinated solvents for bulking

Rite in the Rain.

Container #

662 Octafluorotoluene

1069 Isobutyryl Chloride $H_2O$ sensitive

41 Chloroform

309 α,α,α-Trifluorotoluene

308 Tetrabromomethane

977 3-Bromo-o-xylene

528 Benzoyl Chloride

493 Phthaloyl dichloride $H_2O$ sensitive

494 " $H_2O$ sensitive"

377 Carbon tetrachloride

739 Titanium Chloride $H_2O$ reactive

373 Chloroform

369 " "

390 Carbon tetrachloride

298 " "

363 Chloroform

738 Titanium Chloride $H_2O$ reactive

316 Dichloromethane

295 "Di "

Bulk liquid chlorinated solvents

41, 295, 298, 309, 316, 363, 369, 373, 377, 390, 528, 662, 977

-ERRS crew preps to collect samples From air/water reactive containers



6-20-14 Beta-Chem

Prep containers 234, 736, 110, 248 in Blast Cabinet 30-gallon

1400 Work on other project

Danny O.
6-20-14

Rite in the Rain.

6-23-14 Beta-Chem

1030 STM O'Connor departs KC office for site

1055 Arrive on site, prep for days activities

- Prep sample containers for chemical analysis of bulked flammable liquids

Required analysis:

TCLP Metals, VOCs, SVOCs

pH

Flashpoint

PCBs

Total Halogens

BTUs

required volumes

TCLP analysis - 2 Liters

PCBs - 100 ml

Remaining analysis - 250-500 ml

Prep COC for KU analysis of Carbon-14 via LSC

EPA Ferguson delivers samples

1700 Provide STM Kumud with update of site

1730 End day

Danny O.
6-23-14



6-24-14 Beta-Chem

0700 STM O'Connor arrives on site, prep for days activities

ERRS crew has finished collecting samples from water/air reactive chemicals

- Prep samples for KU

- 45 total samples to deliver

Discuss bulking strategy with EPA Ferguson and ERRS crew

1230 ERRS crew bulks organic acids

Containers # 978, 340, 310, 332, 545, 336, 329

Bulk inorganic acids containers 324, 1116, ~~336~~ D.O., 991, 990, 339, 989, 335, 342, 108, 331, 338, 327, 328

Added containers # 330 & 204 to the bulked halogen group

Container #337 was going to be bulked with inorganic acids but it's a solid

1450 Depart for KC Tt office

Work on preparing samples for shipment as dangerous goods

1800 End day on this project

Danny O.
6-24-14

Rite in the Rain.

6-25-14 Beta-Chem

0730 STM O'Connor arrives on site, prep For days activities

ERRS to continue bulking chemicals and collecting samples for LSC

-Update Summary spreadsheet

ERRS collecting samples from halogens group for chemical analysis

Chemical and C-14 samples from organic and inorganic acids

Will ship Halogen group as UN 1992 Flammable Liquid NOS (Carbon Tetrachloride mixture)

ERRS crew bulks solid bases 211, 306, 264, 268, 179, 156, 157, 177, 245, 178, 317, 262, 624, 625, 611, 784

Danny O.
6-25-14



6/26/14 Beta-Chem

0730 STMs O'Connor & Kunud arrive on site. Review site work and Health and Safety

Discuss planned activities with EPA Ferguson

0900 ERRS crew begins sampling oxidizers Containers 832, 860, 837, 835, 834, 839, 838, 836, 840. All containers now empty

0940 Bulk sample #514 with halogens and #334 with organic acids

STM O'Connor departs site.

6-26-14 STM Pyakuryal oversees ERRS crew
10:00 as they begin sampling oxidizers Containers 847, 803, 797, 686, 221, 841 (no sample – the container was empty), 594, 571, 220, 236, 572, 880, 581, 993, 566, 251, 833, 227, 254, 512, 559, 209, 256, 173, 296. All containers except 797, 221, 594, 236, 572, 581, 833, 227, 254, 512, 559, 209, 256, 173 and 296 were empty; those containers that were not empty were also sampled w/ wipes (wipe samples were collated).

Rite in the Rain.

6-26-14

11:30 STM Pyakuryal gathered all samples to prepare the COC prior to lab submittal.

13:30 Samples were logged and properly labeled for delivery to the University of Kansas lab.

13:35 OSC Ferguson left the job site to deliver the samples in Lawrence (KU lab).

14:00 ERRS crew began sampling liquid oxidizer containers 333, 406, 411, 424, 425, 439, 440, 444, 450, 461, 469, and another container without a number.

16:00 STM Pyakuryal started the COC and requested the ERRS crew to place the liquid oxidizer samples collected in the afternoon in the fridge/refrigerator for delivery on Friday.



6-26-14

16:20 STM Pyakuryal and ERRS site Manager lock the trailer and turn off the generator before leaving the site.

6-26-14

Rite in the Rain.

6-27-2014

7:30 STM PYAKURYAL arrives @ the site. ERRS Crew is ready to start sampling.

07:40 OSC Ferguson informed START that toxics will be sampled.

08:00 Samples of Liquid oxidizers from 6/26/14 sampling event were labeled, preparing for delivery to KU labs. These samples were kept in the refrigirator overnight. COC was provided to OSC Ferguson with samples in a cooler.

08:30 Started sampling preperation for the toxics.

09:00 ERRS crew started sampling the toxics containers #s 27, 79, 142, 228, 235, 241, 259, 480, 484, 489, 491, 509, 515, 538, 547, 553, 627, 633, 670, 697, 707, 720, 749, 752 759, 779, 806, 814, 827, 831, and 877. In addition, wipe samples were collected from containers # 27, 79, 142, 228



6-27-2014

09:00 (Continued)
235, 241, 259, 480, 484, 489, 491, 509, 515, 538, 547, and 752.

10:50 Additional samples of toxics were collected from containers 24, 141, ~~674~~ P. 517, 583, 599, 674, and 1060. Wipe samples of containers 24, 141, 517, and 1060 were also collected.

11:45 Samples were labeled and COCs were filled out.

12:15 The samples were placed (kept) in the Beta-Chem office for delivery to KU labs on Monday, June 30, 2014. The ERRS crew left the site.

14:30 Completed field activities for the day and provided OSC Ferguson samples, COCs, and rest of the

Rite in the Rain.

6-27-14

14:30 paperwork ready for samples delivery to KU labs on Monday, June 30, 2014.

STM Pyakuryal departs the site with OSC Ferguson.

Pyakuryal
6-27-14



6-30-14 Beta-Chem

0730 STM O'Connor arrives on site, prep for days activities

Finish preping samples for KU

-Review STMs Pyakuryal's notes from previous week

ERRS crew bulks containers 420, 462, 631, 447, 555, 421, 470, 427, and 444 with bulked halogens

Unable to bulk containers 413, 458, 435, 460, 409, 415, 407, 414, 453 because chemicals are air/water reactive

ERRS crew will sample these under Nitrogen

Containers # 467, 430 are solids - not bulked

Work on sampling chemicals for LSC

STM O'Connor prepares shipments of dangerous goods samples

-UN1992 Flammable liquid, toxic, N.O.S. (Carbon Tetrachloride mixture)

-UN 2920 Corrosive liquid, Flammable, N.O.S. (Acetic Acid mixture)

Rite in the Rain.

6 ~~7~~/30/14 Beta-Chem
D.O.

- UN 3262 Corrosive solid, basic, inorganic, N.O.S. (Sodium hydroxide mixture)
-

1800 End day

Danny O.
6-30-14



7-1-14 Beta-Chem

0730 STM O'Connor arrives on site, prep for days activities.
ERRS crew continues sampling irritants & harmful solids
Receive preliminary Carbon-14 results from KU Rad lab
- Bulked 1A - 3,456 pCi/ml
- Bulked 0A - 4,042 pCi/ml
- Bulked CS - ND
Discuss unknown container with STM Pyakuryal, he thinks samples is from container # 444
STM O'Connor begins inventorying internally & externally C14 contaminated containers in rad section

1700 Depart site

Danny O.
7-1-14

Rite in the Rain.

7-2-14 Beta-Chem

0730 STM O'Connor arrives on site, prep for days activities.

Continue labeling samples and filling out COCs for samples going to KU

- Bulked Halogen sample returned by FedEx. Cargo plain only sticker is expired, will fix and re send.

- Will order new labels from ULine

Continuing inventorying rad containers

HazCat containers # 362 & 459

362 - Not $H_2O$ reactive, partially soluble/sinks

pH = 4 Non-flammable, not a sulfide

459 Insoluble/Floats. pH - 4. Non-Flam

Not oxidizer or sulfide

End day

Danny O
7-2-14



7-7-14 Beta-Chem

D.O.
~~0730~~
0700 STM O'Connor arrives on site, prep For days activities

- locate remaining unbulked & unsampled containers

ERRS crew begins sampling containers

EPA Ferguson brought 55-gallon drum full of rad debris and Containers

Inventory all containers H-1 -> H-40

Several containers indicate they hold Carbon-14, readings with pancake probe read 1K -> 999Kcpm outside of glass

Readings outside glass may be from Bremsstrahlung

1700 End day

Danny O.
7-7-14

Rite in the Rain.

7-8-14 Beta-Chem

0730 STM O'Connor arrives on site, prep for day

- ERRS crew continuing to sample remaining containers

Update spreadsheet with sampled containers & newly inventoried containers

1700 End day

Danny O.
7-8-14



7-9-14 Beta-Chem

STM Konrad Pyakuryal labels samples and fills out COCs

STM O'Connor working on BMAC site

Danny O.
7-9-14

Rite in the Rain.

7-10-14 Beta-Chem

0720 STM O'Connor arrives @ Tt, pick up bulked CS sample

0800 Arrive on site

ERRS crew has found most of the missing containers.

EPA Ferguson needs a summary of rad @ the Beta-Chem site - Due by August 1

Review remaining containers that need to be sampled. Update list

1040 ERRS crew purchase nitrogen for air/water reactive samples

Attempt to locate remaining containers and prep for sampling.

Sample Container #247 - very $H_2O$ reactive

1700 Depart site. End day

Danny O.
7-10-14



7-11-14 Beta-Chem

0730 STM O'Connor arrives on site, prep for days activities

- Will attempt to find 15 remaining containers and check gas cylinder #354 (Methyl Amine)
- Will also continue labeling samples

ERRS crew preps poly drum for venting of Methyl Amine Container #354. Venting causes water to become very caustic, attempt neutralize with acetic acid & baking soda

~~Bulk Container #93 with organic acids halogens~~ D.O.

Container # 539, ~~1100~~ 1110, 1113 with halogens

Container # 93 D.O. is acetic acid not bromo acetic acid, will bulk with OA

Measurements $V = h\pi r^2$

OA -> 6" = h d = 9"

Halogens -> h = 5" d = 13 7/8"

IA -> h = 6" d = 8 5/8"

FI -> h = 16.5" d = 22"

SB -> h = 3.5" d = 8 5/8"

LB -> h = 1" d = 8 5/8"

1700 End day

Danny O.
7-11-14

Rite in the Rain.

7-14-14 Beta-Chem

0720 STM O'Connor arrives on site, prep for days activities

- Continue working on labeling sample containers for lab analysis of C-14
- Update excel spreadsheet

Danny O.
7-14-14



7-15-14 Beta-Chem

0720 STM O'Connor arrives on site.
Continue labeling and organizing samples.
Add RADeCo samples to list going to KU for carbon-14 analysis
ERRS beginning to get disposal cost summaries for bulked FI, IA, OA, SB

0930 Depart site for Tt to work on BMAC Report

Danny O.
7-15-14

Rite in the Rain.

7-16-14 Beta-Chem

0815 STM O'Connor arrives on site, prep for days activities

- ERRS crew transfers bulked chemicals to applicable DOT containers
- Bionomics will be picking up bulked FI, SB, LB, IA, OA

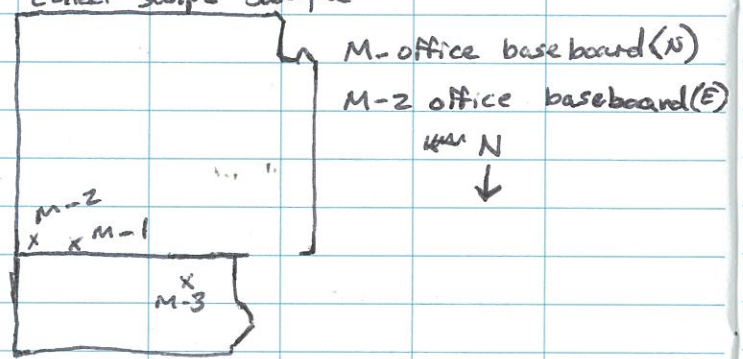
EPA Hooper & Ferguson ~~arrive on-s~~ and STM O'Connor assess 14412 Mar Tech, Inc

Conduct response check with

Readings

M-office-1: 35-55 cpm also

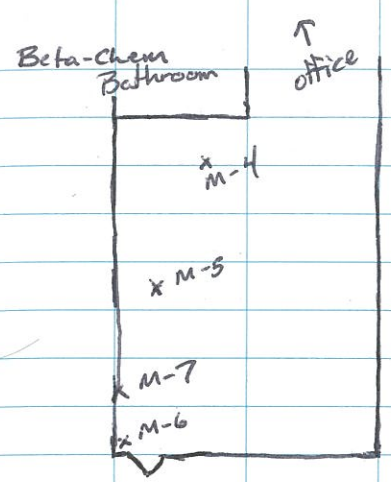
Collect swipe sample




M-3 - Bathroom Floor

M-4 - Storage SE Floor






M-~~3~~ 6 Storage NE Floor D.O.

M-4 Storage SE Floor

M-5 Storage E-Central

M-7 NE Storage wall Floor

Readings near M-6 peak @ 85 cpm

M-4 readings 30-50 cpm

M-5 readings 30-50 cpm

M-7 readings 30-50 cpm

Count samples with Ludlum 3030

Background α: 0 β: 39

| | | |
|---|---|---|
| M-1 | α: 0 cpm | β: 27 cpm |
| M-2 | 0 cpm | ~~27~~ 42 cpm D.O. |
| M-3 | 0 cpm | 43 cpm |
| M-4 | 0 cpm | 48 cpm |
| M-5 | 0 cpm | 57 cpm |
| M-6 | 1 cpm | 52 cpm |
| M-7 | 0 cpm | 52 cpm |

No readings of concern

1420 Bionomics picks up bulked chemicals:

Rite in the Rain.

7-16-14 Beta-Chem

Bulked Flammables, inorganic acids, organic acids, solid bases, liquid bases, and halogens

Updated

Bulk CS(Halogens): 28

Empties: 475

Bulked Fl: 138

Bulked IA: 15

Bulked LB: 5

Bulked OA: 9

Bulked SB: 16

Vented: 14

1700 End day

Danny O.
7-16-14



7/21/14 Beta-Chem

0825 STM O'Connor arrives @ Tt, depart for site

0850 Arrive on site, EPA Ferguson works on checking to see which samples being sent to KU are water/Air reactive

- STM O'Connor works on rad assessment summary

1320 Depart site

Danny O.
7-21-14

Rite in the Rain

7/23/14 Beta-Chem

0750 STM O'Connor arrives on site, Continue work summarizing radiation assessment activities @ Beta-Chem site

1045 EPA Ferguson departs site for KU Radiation lab

Sample shipment includes 304 VOA vials with solid or liqoid sample of container contents, 187 wipe samples, 8 air monitoring samples

Total Samples sent to KU lab to date

673 40-ml VOA Vials (Liquid/Solid Chemical)

353 wipe samples

8 Air monitoring samples (Filter Samples)

1,034 Total Samples

Danny O.
7-23-14



7-28-14 Beta-Chem

0745 STM O'Connor arrives on site, continue work on radiation summary report

-Radiation summary almost complete need to confirm removable risk-based standard

Danny O.
7-28-14

Rite in the Rain

8-1-14 Beta-Chem

0750 STM O'Connor arrives on site. Review Containers in Air/Water Reactive Cart to determine Container # for sample that broke VOA lid and reacted
- Appears to be either container # 533 or 737
- After reviewing both containers it appears to # 533. Only remaining chemical is in bag.

1030 Depart For Tt office

Danny O.
8-1-14



8-14-14 Beta-Chem

0720 STM O'Connor arrives @ Tt office, Finish Removal Assessment report
Complete Report
Update summary of containers
Bulked and disposed of: 217
Vented Gases: 14
Empties: 200
Carbon-14 Sources: 17
Individual containers sampled with results
From KU: 401
Individual containers sampled awaiting results
From KU: 242
Remaining containers: 43
Total Containers inventoried: 1134

0850 STM O'Connor arrives on site, deliver Removal Assessment Report to EPA Ferguson
- ERRS crew has been weighing and collecting measurements from containers with 44-9 detector
Will send 10% of wipe samples from Removal Assessment to TestAmerica For C-14 analysis.

Rite in the Rain.

8-14-14

Count air monitoring samples

Run QC check on Ludlum 3030

| Date | Volume | α/β |
|---|---|---|
| 7-1-14 | 946 ft³ | 0/96 |
| 7-8-14 | 951.3 ft³ | 0/69 |
| 7-16-14 | 675.5 ft³ | 0/81 |
| 7-11-14 | 666.4 ft³ | 0/90 |
| 8-12-14 | 896.9 ft³ | 0/78 |
| 8-13-14 | 745.6 ft³ | 0/108 |

ERRS Roski works on putting together RFQ for disposal of individual containers

1600 STM O'Connor departs site. End day

Danny O.
8-14-14



8-15-14 Beta-Chem

0740 STM O'Connor arrives on site.

- Expect to receive laboratory results From KU today

Equation for converting Ludlum 44-9 reading to dpm/100 cm²

$$Y = \frac{Z}{\text{Detector Efficiency}} \times \frac{100\ cm^2}{12.26\ cm^2}$$

Where

Y = the detector reading converted to dpm/100 cm²

Z = the Ludlum 44-9 detector reading in cpm

Detector Efficiency is 2.5%.

- The efficiency changes to 2.0% when protective

0800 KU Michael Lemon confirms delivery of results by mid afternoon today

- Receive preliminary lab data From KU, update spreadsheet and discuss results with ERRS

- ERRS working on weighing containers

1130 Depart site

1400 Arrive back @ site

Continue inventorying containers

1530 Receive draft Final KU Report

1600 End day

8-15-14
Danny O.

Rite in the Rain.

8-19-14

0710 STM O'Connor arrives @ Tt. Transfer R1 phone

0745 Arrive on site. KCTV5 crew arrives @ industrial park. Inform EPA Ferguson

- STM O'Connor and ERRS Roski try to locate ~40 containers that may require additional sampling

| Container ID # | Missing Info | Comment | |
|---|---|---|---|
| 175 | No wipe Sample | Collect WS | ✓ |
| 176 | " " | Collect WS | ✓ |
| 193 | " " | Collect WS | ✓ |
| 198 | No Chemical Sample | Collect Chemical Sample | ✓ |
| 247 | No Chemical/Wipe | Extremely Air/Water Reactive | |
| 326 | No wipe Sample | Collect WS | ✓ |
| 424 | No wipe Sample | In Fridge Collect WS | ✓ |
| 433 | " " | " " | ✓ |
| 434 | " " | Unable to Find Collect WS | ✓ |
| 435 | No Chemical Sample | In Fridge Reactive | |
| 454 | No wipe | " " Collect WS | ✓ |
| 455 | No wipe | " " Collect WS | ✓ |
| 458 | No Chemical | Empty | ✓ |
| 467 | No wipe | Empty | ✓ |
| 496 | " " | Collect WS | ✓ |



| Container ID | Missing Info | Comment | |
|---|---|---|---|
| 505 | No wipe | Unable to Find Found sample data in KU Report | ✓ |
| 510 | No Chemical/Wipe | Unable to Find - In Fridge Peroxide, sample already collected | ✓ |
| 522 | No wipe | Collect WS | ✓ |
| 568 | No wipe | Empty | ✓ |
| 587 | No wipe | Collect WS | ✓ |
| 588 | No Chemical | Empty | ✓ |
| 598 | No Chemical | Unable to Find Empty | ✓ |
| 604 | No Chemical | Empty | ✓ |
| 612 | No wipe | Empty | ✓ |
| 663 | No wipe | Empty | ✓ |
| 664 | " " | Collect WS | ✓ |
| 667 | No wipe | Unable to Find Empty | ✓ |
| 687 | No wipe | Collect WS | ✓ |
| 706 | No Chemical | Empty | ✓ |
| 725 | No wipe | Unable to Find Empty | ✓ |
| 732 | No wipe | Collect WS | ✓ |
| 738 | No wipe | Unable to Find Empty | ✓ |
| 739 | No wipe | Collect WS | ✓ |
| 769 | No wipe | Collect WS | ✓ |
| 846 | No wipe/Chemical | Unable to Find Check rad | |
| 944 | " " | Unable to Find Empty | ✓ |
| 956 | No wipe | Unable to Find Empty | ✓ |
| 957 | No wipe/Chemical | Unable to Find Empty | ✓ |
| 960 | No wipe | Unable to Find Empty | ✓ |

Rite in the Rain.

8-19-14 Beta-Chem

| Container ID # | | | |
|---|---|---|---|
| 961 | No wipe | Unable to find Empty | ✓ |
| 963 | No chemical/wipe | Unable to find Empty | ✓ |
| 996 | No Chemical | Empty | ✓ |
| 1117 | No wipe | Empty | ✓ |

Collect wipe samples from Gas Cylinders

Prep samples for laboratory

- Pace Analytical Scott Farris will come to site @ 1000 tommorrow with sample jars. Will collect sample from water used to vent container # 354. Sample to be analyzed for TCLP Metals, VOC, SVOCs, pH, Flashpoint, Cyanide, Sulfides.

1630 Depart site. End day

Danny O.
8-~~20~~-14
,19
D.O.



8-20-14 Beta-Chem

0730 STM O'Connor arrives on site. Review notes from yesterday and update inventory list

0845 Pace Analytical Courier arrives on site

0900 Collect samples from water used to vent container # 354

- Summary of containers we were not able to sample - Water reactive

| Container ID | Contents | |
|---|---|---|
| 247 | Boron Tribromide | Very WR ~~Not sent to KU~~ Sent to KU but not counted |
| 389 | Ether (Radioactive) | reported by KU as "invalid count" |
| 407 | Iodine Monochloride | reported by KU as "reactive, not counted" |
| 410 | Iodine Monochloride | " " |
| 414 | Trifluromethane sulfonic acid | KU reports as "reactive, sludge not valid Analysis" |
| 417 | Hydriodic Acid | "Fluid, but dark & precipitate" |
| 435 | Thionyl Chlorid | Water reactive; no chemical sample collected |
| 444 | Nitric Acid | KU reported as "no count" |
| 460 | Thionyl Bromide | KU reports as "Air reactive, no count" |

Rite in the Rain.

8-20-14 Beta-Chem

These water/air reactive chemicals can not be analyzed by KU, will screen chemicals in blast box under Nitrogen with 44-9 pancake probe to get an approximate reading

- Attempt to find container # 368
2 L Glass Amber Hexane*

- Attempt to find Container 846 & 847
Locate both containers, Container in radioactive cooler is mislabeled, should be 846. May need to collect wipe sample

1530 Depart site

Danny O.
8-20-14



8-21-14 Beta-Chem

0730 STM O'Connor arrives on site.

- Will Finish collecting and preping remaining samples

Container 382 is empty, but some Sample remains from HazCating

Find container 368 (might be with Rad)

- With rad containers, collect WS

Find container 846, collect wipe sample

- Collect WS

Check two unlabeled containers in rad coolers

? Hexane : Ethyl Acetate 1L (50%) (368?) ✓

? No label 200ml (25%) - New container 1118

Find 650 (Mesylate Salt) (no samples)

✓ Find 804 (Palladium 50g glass jar) (no samples) Mercury Chloride not Palladium

✓ Find 823 - 1L glass Unknown (Corr) E

824 - 5g glass LS-Aminohydrobromide (NH)

825 - 100g plastic Potassium nitrate (O)

✓ 852 - 25ml Semicarbazide (chemical, no wipe) no hazCat E

979 - 50ml glass $Na_2CO_3$ (no samples)

982 - 5ml glass Unknown (no samples)

✓ 1023 - 20ml glass Unknown (no samples) E

2 - 40ml VOA (No samples)

Rite in the Rain.

8-21-14 Beta-Chem

Update radioactive source container inventory

| Container | % Contents | |
|---|---|---|
| R-10 | 25% | |
| R-15 | 1% | |
| R-16 | 1% | |
| R-17 | 1% | Potassium Cyanide 500mCi |
| R-9 | 50% | |

Sort through VOA samples, several bulked flammables samples. Bulk samples into larger containers

-Organize chemicals numerically

Look for following containers

- 308 100 g Glass Tetrabromomethane (Bulked CS?) Poll Samples
- 418 100ml Glass Phosgene (Bulked CS?) RF
- 247 Boron Tribromide (need WS)
- 371 1L N,N-Dimethylacetamide (No Chemical) ✓
  Should be @ KU
- 406 250ml Glass Bromine (No chemical) RF
- 411 250ml Glass Bromine (No C) LF
- 425 250ml Glass Bromine (No Chemical) RF
- 431 1L Glass Tetrahydrofurfuryl Alcohol (No WS) RF
- 432 1L Glass N,N-Dimethylaniline (No WS) LF
- 459 100ml Glass Unknown Rad (No WS) RF
- 941 250g Clear Plastic Celite Filter Agent (No WS) ✓



8-21-14 Beta-Chem

-700 4g Glass 1-Hydroxybenzotriazole (No CS) E

Will find these containers tomorrow

1630 End day

Danny O.
8-21-14

Rite in the Rain

8-22-14 Beta-Chem

0780 STM O'Connor arrives on site
Attempt to Find containers identified from yesterday. Collect samples if necessary
-Check to see if 308 is $H_2O$ reactive - No
Samples to collect
308 - CS + WS (Fumehood) ✓
418 - CS + WS (RF) ✓
247 - WS (Check F) ✓
406 - CS (RF)
411 - CS (LF)
425 - CS (RF)
431 - WS (~~RF~~) LF ✓
432 - WS (LF) ✓
459 - WS (RF) Can't Find

1030 Depart site to deliver samples to KU
1230 Return to site
1320 Depart site
1430 Finish updating spreadsheet. End day

Danny O.
8-22-14



8-25-14 Beta-Chem

0715 STM O'Connor arrives @ Tt. Transfer response phone

0800 Arrive @ Beta-Chem Field office. Prep. for days activities
-Plan to search through KU samples brought back to site on Friday, will place back with original container
Containers with remaining issues
121 Water* - Needs HazCating 1L Glass if not empty
- Cannot find, calling empty
196 SilicAR™ CC-4 - Look up hazard 500g Glass
✓ * - Screen HazCat Sample
282 Unlabeled - Sample White Bucket if not empty ✓
✓ * - HazCat Sample
416 Unknown - Sample 250ml Glass if not empty
* - HazCat Sample
451 Unknown - Sample 1L Glass if not Empty
✓ * - HazCat sample
483 6-ethyl-o-toluidine - Sample 100g Glass if not empty
✓ * - HazCat sample
~~497~~ 500 Check chemical Name, check hazards 100g Glass
- HazCat Sample 2-Dimethylaminoethanethiol hydrochloride, 95% NH 100ml Glass
✓ 505 Check Name, plus hazards ✓
- ✓ Harmful, Flammable

Rite in the Rain

8-25-14

551 - Check name & hazard MT 25g Glass

✓ ★ - HazCat Sample

665 Confirm name & hazard - E 5g Glass ✓

725 Now MT - Need name + hazard E 100ml Glass ✓

★ - HazCat Sample

808 Confirm name + hazard MT 25g Glass methyl-5-t-3-hydroxyisobutyrate ✓

- Pharm Drug

843 Confirm name + hazard MT 10g Glass 3,4-bisdenzgloxbenzaldeh ✓

- Pharm Drug

845 MT Confirm name + hazard D.O. 852 25ml Glass semicabazide

? ★ - HazCat Sample

857 MT, confirm name + hazard 10ml Glass O-tert-butyl ✓

- Label says US Flammable. O-tert-butylhydroxyl

982 Unknown, sample? 5ml Glass Solid 5ml Glass Unknown HazCat MT? cumine hydrochloride

- Calling empty

Check Container 567 - NH

Samples to screen with 44-9 due to reactivity: 247, 389, 406, 407, 410, 411, 414, 417, 425, 435, 444, 460, 755, 973

752 - Insol., N $H_2O$. Comb. Not Ox. Not Sol. 7 (Non-Haz) Float

665 - Insol. N $H_2O$. 7. Non Fl. Not. Not Sol. (Non-Haz)

551 - Insol. N $H_2O$. 6. No Fl. Not O. Not Sol. (Non-Haz)

451 - Insol. No $H_2O$. 6. No Fl. Not O. Not Sol. (Non-Haz

282 - Insol. No $H_2O$. 6. No Fl. Not O. Not Sol (Non-Haz)

483 - Insol. No $H_2O$. 6. No Fl. Not O. Not Sol (Non-Haz)

196 - Sol. No $H_2O$. 6. No Fl. Not O. Not Sol (Non-Haz)

Danny O. 8-25-14

Rite in the Rain®

ALL-WEATHER

**LEVEL**

№ 311

Beta-Chem Site

Removal Assessment + Removal Action

X9025140060/0061

# Log Book # 3

8-26-14 Beta-Chem

0855 STM O'Connor arrives on site.
Continue working to put sample VOAs
with original container

1300 Discuss Removal Assessment report
with EPA Ferguson & Hooper
Several changes to make
-Continue organizing VOA samples

1630 Depart site

Danny O.
8-26-14



8-27-14 Beta-Chem

0725 STM O'Connor arrives @ Tt.
Continue working to find containers
listed on 8/25 log book pages
Field screen samples
725 → Non-Haz
665 → Non-Haz
551 → Non-Haz
451 → Non-Haz
282 → Non-Haz
483 → Non-Haz
196 → Non-Haz
Prep water/air reactive chemical containers
247, 389, 406, 407, 410, 411, 414, 417, 425, 435,
444, 460, 755, 973. Screen samples using
Ludlum 44-9 Pancake Probe
389 → 4k cpm
406 → Bg
411 → 600 cpm (above background)
425 → Bg
435 → ~~800~~ 900 cpm (above background)
407 → Bg
414 → Bg
247 → 900 cpm (above background)
417 → 100 cpm (above background)

Rite in the Rain.

8-27-14 Beta-Chem

444 → Bg

460 → Bg

755 → Bg

Unable to find 973

- Update inventory spreadsheet

To do

Find 444 500g Plastic Nitric Acid - Confirm content%

-

458 Marked as empty with no internal C-14 data -

Danny O.
8-27-14



9-2-14 Beta-Chem

0820 STM O'Connor arrives on site

Discuss weeks activities with EPA Ferguson

- Disposal company has been selected Bionomics

- Shipping containers to arrive wednesday

0900 Work on containers with issues (i.e. missing sample data, unable to find, etc.)

171 - Collect wipe sample. Count with 3030

α: 0 β: 249 cpm

89 - No wipe sample required. Container is in new box. has not been exposed

417 - Container empty, no WS needed

436, 458, 459 - Unable to find, assume empty

510 - Screen with 44-9, readings near BG.

Collect WS: α: 0 β: 474 cpm

807 - Receive data from KU

981 - Move to non-haz group

Reorganize samples in flammable cabinet

1645 Depart site.

Danny O.
9-2-14

Rite in the Rain.

9-3-14 Beta-Chem

0730 STM O'Connor loads vehicle @ Tt office

0820 Arrive on site.

-Hazardous Waste Shipping containers to arrive on-site today. Containers will be segregated and placed in appropriate Container

FedEx arrives with two overpak drums and eight bags of vermiculite

EPA Ferguson continuing review of inventory to confirm hazards

1640 STM O'Connor departs site

Danny O.
9-3-14



9-4-14 Beta-Chem

0730 STM O'Connor arrives on site.

Work on updating inventory of radioactive sources/chemicals taken From house

-HazCat the Following containers

H-40: Non-haz

H-36: Non-haz

H-35: Non-haz

H-33: Sealed glass unable to open

H-30: pH of 0. Corrosive

H-28: Non-Haz

H-3: Non-Haz

Collect readings From chemicals in attempt to quantify carbon-14 contamination

1640 Depart site

Danny O.
9-4-14

Rite in the Rain.

9-5-14 Beta-Chem

0740 STM O'Connor arrives on-site. Continue updating H-1 → 40 in spreadsheet

- Remaining to do:

| Container | Missing information |
|---|---|
| H-03 | Internal/External C-14: 5.16 kcpm(I) +150cpm(E) |
| H-04 | Internal/External C-14 HazCat: 70.9k(I) 16.1k(E) Corrosive/Oxidizer |
| H-08 | External C-14: 2.8kcpm(E) |
| H-10 | Internal C-14: Sealed glass, unable to open |
| H-26 | Internal C-14: Sealed glass, unable to open |
| H-29 | Internal C-14: 39kcpm (I) |
| H-33 | Internal C-14 + HazCat: Sealed Glass |
| H-34 | % contents: 1% |

- Update spreadsheet with information

Field screen H-33: Non-haz

1330 STM O'Connor returns to Tt office

- Unload supplies and updates notes

1730 End day

Danny O.
9-5-14



9-8-14 Beta-Chem

0725 STM O'Connor arrives on site

- ERRS planning to overpak chemical containers today. Containers to be picked up by bionomics this week

EPA Ferguson departs site to pick up samples from KU

- Assist ERRS with locating containers to be overpacked for disposal

1030 Pick up supplies: Ziplock bags, wet wipes, and water

- Chemical samples received from KU

406 - Bromine (Fridge)
411 Bromine (Fridge)
425 Bromine (Fridge)
418 Phosgene Check Fridge
382 Empty 1L Ether (Fl/O)
823 Empty 1L Unknown (Corr)
996 Empty Non-haz

- ERRS will provide packing list

1230 Continue assiting ERRS with locating containers to be overpacked

595 25 grams glass Amber 4-Chlorodiphenyl

Overpack one 30-gallon drum, 2 10-gallon buckets and one 5-gallon bucket

1640 End day

Danny O.
9-8-14

Rite in the Rain.

9-9-14 Beta-Chem

0730 STM O'Connor arrives on site
- ERRS planning on having Bionomics pick up overpacks next Tuesday (9/16)
- ERRS to continue overpacking chemicals today
- Discuss planned site activities with EPA Ferguson

ERRS Roski provides list of Carbon-14 sources to be packaged together in 5-gallon bucket # 6

Continue packing radiation sources in overpack containers

1630 End day

Danny O.
9-9-14



9-10-14 Beta-Chem

0730 STM O'Connor arrives on site. Prep for days activities
- ERRS plans to continue overpacking containers

0800 ERRS laborer arrives on site.

ERRS PM and EPA Ferguson will be in late morning
- Bromine appears to be reacting in right fridge. Repackage all containers and check for leaks
- ERRS will continue overpacking after building vents

Pick up supplies from Tt

Overpacking so far
6 5-gallon
3 10-gallon
1 30-gallon

Disposal schedule has changed
- Bionomics scheduled to arrive week of Sept 22

1630 End day

Danny O
9-10-14

Rite in the Rain.

9-15-14 Beta-Chem

0715 STM O'Connor reviews inventory spreadsheet and preps for days activities

0750 STM O'Connor arrives on-site. Will record all remaining containers to determine which hazardous chemicals remain to be overpacked and disposed of.

1st Table

| | | | |
|---|---|---|---|
| 80 | NH | 719 | NH |
| 147 | NH | 744 | NH |
| 174 | NH | 758 | NH |
| 222 | NH | 761 | NH |
| 255 | NH | 781 | NH |
| 386 | NH | 787 | NH |
| 481 | NH | 791 | NH |
| 498 | NH | 793 | NH |
| 499 | NH | 795 | NH |
| 513 | NH | 801 | NH |
| 523 | NH | 828 | NH |
| 561 | NH | 307 | NH (Combustible) |
| 563 | NH | 1071 | NH |
| 578 | NH | 941 | NH |
| 643 | NH | 508 | Toxic |
| | | 756 | Corrosive |



9-15-14 Beta-Chem

| | | | |
|---|---|---|---|
| WR | Cart | 783 | FS |
| 239 | FL Solid | 473 | CORROSIVE/Toxic |
| 246 | TOXIC | 594 | OX |
| 25 | WR/FL | ✓533 | Listed as MT FL/WR |
| 110 | FL Solid | 296 | Ox |
| 326 | Corrosive | -737 | FL/CORR/ENV listed as MT Double Check |
| 67 | CORROSIVE | 745 | FL SOLID/WR |
| ✓74 | FL. Listed as bulked double check | 750 | FL/Toxic |
| 201 | Toxic | ✓493 | WR - Listed as MT/LSC |
| 271 | FL SOLID | -771 | CORROSIVE/FL MT/LSC |
| 478 | TOXIC | -765 | CORROSIVE/FL MT/LSC |
| 590 | CORROSIVE/FL | | |
| 556 | CORROSIVE/FL | | |
| 146 | TOXIC/ENVIR | | |
| ✓533 | FL/WR - Listed as MT Double Check | | |
| 477 | FS/WR | | |
| 746 | CORROSIVE | | |
| 205 | CORROSIVE | | |
| 52 | Poison/WR | | |

Barium rods, Metal 100g (169, 233, 242)

| | |
|---|---|
| 281 | NH |
| 236 | OX |
| 213 | FS |
| 755 | CORROSIVE |

Rite in the Rain.

9-15-14 Beta-Chem

281 Listed as NH on spreadsheet, but label says "Contact w/ $H_2O$ causes release of highly flammable gas". Double Check with EPA Ferguson. Confirm Non-haz

74 Not bulked. 15% remaining

533 Not MT

737 MT

493 MT

771 MT

765 MT

Second Cant

| | | | |
|---|---|---|---|
| 24 | TOXIC | 534 | TOXIC |
| 79 | TOXIC | 546 | TOXIC/EN |
| 137 | TOXIC | 490 | TOXIC |
| 225 | TOXIC | 559 | TOXIC |
| 218 | TOXIC | 576 | TOXIC |
| 232 | TOXIC | 733 | TOXIC |
| 263 | TOXIC | 741 | TOXIC |
| 267 | TOXIC | 734 | TOXIC |
| 318 | TOXIC | 735 | TOXIC |
| 527 | TOXIC | 740 | TOXIC |
| 479 | ~~OX~~ TOX | 772 | TOXIC |
| 482 | TOXIC | 773 | TOXIC |
| 530 | TOXIC | 775 | TOXIC |
| | | 851 | OX |



9-15-14 Beta-Chem

1065 CORR/FL

1060 TOXIC

844 FS/TOXIC

1058 CORR

Borane-tetrahydrofuran complex (34, 46)

Toxic hood

| | | | |
|---|---|---|---|
| ✓143 | TOXIC, listed as E | ✓685 | CORR - E |
| 260 | NH | ✓697 | TOXIC - MT/LSC |
| 276 | NH | ✓705 | TOXIC - MT/LSC |
| 489 | TOXIC | ✓707 | CORR - MT/LSC |
| 502 | TOXIC, listed as MT/LSC | ✓710 | CORR - E |
| ✓533 | FL/WR - listed as MT | ✓720 | TOXIC - MT/LSC |
| 558 | TOXIC, not in Dospal (No C-14 data) | ✓749 | TOXIC - MT/LSC |
| 583 | FS - MT/LSC | ✓759 | TOXIC - MT/LSC |
| ✓600 | CORR/T. - MT/LSC | ✓779 | TOXIC - MT/LSC |
| ✓606 | TOXIC - MT/LSC | 790 | TOXIC - (No C14 data) |
| ✓609 | TOXIC - MT/LSC | ✓800 | ENV - MT/LSC |
| ✓627 | TOXIC - MT/LSC | 804 | TOX - (No C-14 data) |
| ✓633 | TOXIC - MT/LSC | ✓806 | TOX - MT/LSC |
| ✓638 | TOXIC - MT/LSC | ✓814 | TOX - MT/LSC |
| ✓670 | TOXIC - MT/LSC | ✓827 | TOX - MT/LSC |
| ✓671 | CORR/TOX - E | ✓831 | TOX - MT/LSC |
| 673 | TOX - (No C14 data) | ✓877 | TOX - MT/LSC |
| ✓674 | FL - MT/LSC | ✓888 | TOX - (No C14 data) |

Rite in the Rain.

9-15-14 Beta-Chem

Toxic hood

1066 Tox

1057 NH

Table

| | | | |
|---|---|---|---|
| 329 | Corr | 170 | NH |
| 485 | Tox | 180 | NH |
| 537 | Tox | 257 | NH |
| 1063 | CORR | 187 | NH |
| 430 | CORR | 6 | NH |
| ✓467 | Tox-(MT)LSC | 272 | NH |
| 812 | Corr | 175 | NH |
| 730 | FL | 261 | NH |
| 988 | CORR | 165 | NH |
| - 50 | TOX | • 270 | Says Corr/WR Weak Corr - Double Check |
| 507 | Corr/FL | 269 | TOX |
| 739 | CORR/WR | 198 | NH |
| 531 | NH | 160 | NH |
| 483 | NH | 231 | NH |
| 312 | NH | 158 | NH |
| Bulked OA | | 194 | NH |
| Bulked 1A | | 237 | NH |
| Bulked LB | | 238 | NH |
| Bulked Halogens | | 148 | NH |
| 166 | TOX | 145 | NH |



9-15-14 Beta-Chem

Table Cont.

| | | | |
|---|---|---|---|
| 153 | NH | 587 | NH |
| 219 | NH | 486 | NH |
| 193 | NH | 1044 | NH |
| 212 | NH | 1068 | NH |
| 200 | NH | 1072 | NH |
| 311 | CORR | Sink | |
| 216 | NH | 505 | FL |
| 666 | NH | 278 | TOX |
| 206 | NH | 87 | NH |
| 203 | NH | 85 | NH |
| 497 | NH | 402 | FL/O |
| 664 | NH | 181 | NH |
| 933 | NH | 1053 | NH |
| 607 | NH | 188 | NH |
| 543 | NH | 159 | NH |
| 805 | NH | 138 | NH |
| 542 | NH | 717 | NH |
| 794 | NH | → • 988 (40 VOA only) | Corr - Check for Cont. |
| 732 | NH | 281 | NH |
| 939 | NH | 86 | NH |
| 794 | NH | 191 | TOX (Added to Disp) |
| 189 | NH | • WR (label eaten away) | |
| • 580 | Double Check Weak Corrosive Says Corr ~~(check Haz Cat)~~ | | |

Rite in the Rain.

9-15-14 Beta-Chem

Sink Cont.

360 Corr/O

• 822 Weak Corr - listed E (double check) 50°C NH

296 O

Sodium hypochlorite (~~440, 469~~) Both in Fridge 216?

209 NH

• 700 FS - MT/LSC

• 367 Added WR to Dis, No C-14 data

• Titanium Chloride (~~440, 469~~, 738, 739)

1085 NH

3rd Cart

| | | | |
|---|---|---|---|
| 1 | NH | 1107 | NH |
| 472 | Corr/Tox | • 1108 | E? |
| 186 | NH | • 300 | Corr/WR (No C-14 data) |
| 185 | NH | | |
| 762 | Tox | | |
| 199 | NH | | |
| 1088 | NH | | |
| 1087 | NH | | |
| 234 | FS | | |
| 234 | I | | |

Piperazine Reagent Plus (Corr) Not Found 1119

1105 NH

• 1106 E?



9-15-14 Beta-Chem

• 1118 ?(E?)

230 WR

93 - Listed as bulked OA

164 - Listed as bulked FI

40 ml VOA samples

| | | | | | |
|---|---|---|---|---|---|
| 14 | NH | 568 | NH | 649 | T |
| 4 | NH | 569 | NH | 654 | T |
| 11 | Tox | 574 | NH | 658 | T |
| 13 | NH | 575 | T | 659 | NH |
| 169 | WR | 577 | NH | 661 | T |
| 189 | NH | 584 | NH | 688 | T |
| 210 | OA | 589 | NH | 691 | NH |
| 261 | NH | 590 | C/F | 696 | NH |
| 273 | NH | 591 | C | 699 | NH |
| 275 | NH | 596 | NH | 600 | C/T |
| 277 | T | 554 | T | 602 | NH |
| 382 | F/O | 614 | NH | 603 | NH |
| 457 | F/C | 629 | NH | 612 | NH |
| 466 | T | 630 | NH | 613 | NH |
| 467 | C | 635 | NH | 621 | NH |
| 519 | NH | 636 | NH | 628 | NH |
| 556 | C/F | 645 | NH | | |
| 560 | NH | 646 | NH | | |
| 564 | NH | 648 | NH | | |

Rite in the Rain.

9-15-14 Beta-Chem

F1 Cabinet

| | | | | | |
|---|---|---|---|---|---|
| 633 | T | 723 | NH | 868 | E |
| 638 | T | 724 | NH | 870 | NH |
| 644 | NH | 766 | NH | 871 | NH |
| 652 | T | 767 | NH | 873 | NH |
| 653 | NH | 776 | NH | 875 | RAD |
| 657 | T | 764 | NH | 881 | NH |
| 660 | NH | 794 | NH | 884 | NH |
| 667 | NH | 803 | C | 885 | NH |
| 669 | T | 808 | NH | 887 | NH |
| 670 | T | 814 | T | 892 | NH |
| 677 | T | 815 | NH | 897 | NH |
| 681 | NH | 820 | NH | 896 | NH |
| 682 | NH | 823 | Con | 898 | NH |
| 693 | T | 829 | NH | 899 | NH |
| 700 | FS | 830 | NH | 903 | NH |
| 705 | T | 843 | NH | 905 | NH |
| 709 | NH | 848 | NH | 909 | NH |
| 712 | NH | 852 | NH | 910 | NH |
| 713 | NH | 855 | NH | 918 | NH |
| 714 | NH | 857 | FL | 932 | NH |
| 718 | T | 858 | NH | 945 | NH |
| 720 | T | 861 | NH | 946(2) | NH |
| 722 | NH | 862 | RAD | 947 | NH |



9-15-14 Beta-Chem

40ml VOA Samples

| | | | | | |
|---|---|---|---|---|---|
| 951 | NH | 1000 | NH | | |
| 952 | NH | 1001 | | 1025 | NH |
| 956 | NH | 1002 | | 1026 | |
| 958 | NH | 1003 | | 1027 | |
| 960 | NH | 1004 | | 1028 | |
| 962 | NH | 1005 | | 1029 | |
| 964 | NH | 1006 | | 1030 | |
| 966 | NH | 1007 | | 1031 | |
| 961 | NH | 1008 | | 1032 | |
| 967 | NH | 1009 | | 1033 | |
| 968 | NH | 1010 | | 1034 | |
| 972 | NH | 1011 | | 1035 | |
| 975 | NH | 1012 | | 1036 | |
| 980 | T | 1013 | | 1037 | |
| 981 | NH | 1014 | | 1038 | |
| 986 | NH | 1015 | | 1039 | |
| 993 | O | 1016 | | 1040 | |
| 997 | NH | 1017 | | 1041 | |
| 998 | NH | 1018 | | 1042 | |
| 999 | NH | 1019 | | 1043 | |
| 996 | NH | 1020 | | ~~1044~~ | Bulked FL |
| | | 1021 | | ~~45~~ | |
| | | 1022 | | ~~46~~ | listed E |
| | | 1024 | | ~~47~~ | |

Rite in the Rain.

9-15-14 Beta-Chem

~~1048~~ listed E
1049 NH
1050
1051
1052
1064
1070
1073
1075
1076
1079
1080
1084
1086
1089
1090
1105
1107
1117
738 WR
167 NH
203 NH
50 T
567 NH

46 WR
257 ~~[illegible]~~
183 Corr
192 T
318 T
402 F/O
777 En
740 T
739 WR
182 WR
522 Corr
296 O
860 O
833 O
851 O
844 FS
807 WR
282 NH
451 Rad (Find Cont.) NH
196 NH
665 NH
483 NH
551 NH
725 NH

752 F
495 T
540 C
765 En
445 O
413 WR



9-15-14 Beta-Chem

LF
788 - Listed as E
141 - Tox
415 WR
435 Corr
407 Corr (406, ~~[illegible]~~, 425)
(406) Bromine, 99% (450g)
333 - O
454 - Tox
469 - Corr/O
Bulked Fl
431 - NH
432 - Env
hexanoyl chloride ?
diethyl acetylene ?
Sodium hypochlorite (25ml) (~~448, 469~~)

RF
408 - C
425* WR
451 - NH (RAD?)
416 - NH
466 FS/WR
410* WR
463 Env MT/LSC
425 - listed twice
418 - FL
457 - MT/LSC
419 - Env
411* - WR
582 - MT/LSC
510 - O
465 - T
423 - C
426 - listed as MT
444 - O
411 ~~[illegible]~~ WR
449 - Corr
446 - E?
688 - MT/LSC
445 - O MT/LSC

247 - WR
443 - F/R
468 - Corr
405 - Corr
440 - Corr
424 - Corr/O
427 - Bulked CS?
439 - O

Rite in the Rain.

9-15-14 Beta-Chem

Screen samples for C-14

558 + 200cpm (E), BG (I)

673 +1000cpm (E), Sealed lid

790 + 700 cpm (E), BG (I)

804 BG (E), unopened

888 BG (E + I)

367 + 700 (E) BG (I)

1119 Piperazine ReagentPlus, 99% (100% F)

100 g glass Amber

+100 (E) Unopened Toxic/Corrosive

Rad Containers

| | |
|---|---|
| R-15 | 940(E) - NH |
| R-17 | 109 - Corr |
| 650 - Need activity | 639 - Fl |
| 1054 - O | 393 - Corr |
| 846 - NH RAd | 368 - Fl/O (RAD) |
| 389 - Fl | 391 - Rad |
| 863 1% Rad | 639 - Fl |
| 459 - Rad | |
| 869 - NH | |

"Used Silica" 362 - NH

66 - Fl

492 - Corr

780 - Rad



9-15-14 Beta-Chem

Rad 40ml samples

| | |
|---|---|
| 368 - Fl | 940 - NH |
| 847 - Corr/O | 492 - Corr |
| 459 - Rad | 1054 - O (R) |
| 675 - NH | 393 - R |
| 922 - Rad | 109 - R |
| 927 - Rad | 847 (2) O |
| 863 - Rad | 391 - R |
| 869 - NH | 109 - R |
| 924 - R | 368 - R |
| 923 - R | 391 - R |
| 929 - R | 368 - R |
| 921 - R | |

40ml samples on Fridge

| | | |
|---|---|---|
| 883 - NH | 247 | 424 |
| 109 - R | 405 | 425 |
| 362 - NH | 406 | 429 - Corr |
| 393 - R | 407 | 430 - Corr |
| 389 - R | 408 | 431 - NH |
| 391 - R | 411 (2) | 432 |
| 847 (2) R | 415 | 433 - Selfreach |
| 639 - Fl | 416 NH | 439 |
| 1054 - O (R) | 417 - Corr | 440 |
| 780 - R | 418 | 444 |
| 66 - Fl | 423 | 449 |

Rite in the Rain

9-15-14 Beta-Chem

450 - Corr
453
333
436
469
461
460
465
468
454
735
587 - NH
1700 Depart site

Danny O.
9-15-14



9-16-14 Beta-Chem

64 ✓ 2L Glass Dichloromethane (Both)
171 ✓ 1kg Bromoethane (Both)
172 ✓ 1kg Bromoethane (Both)
210 ✓ E/LSC 25 grams trans-Cinnamaldehyde ✓ (40ml) original E
228 ✓ 250 g Plastic potassium Fluoride (Both)
266 500g Glass Sodium Sulfate
274 ✓ 500g Plastic zinc granules (Both on WR Cart)
412 ✓ 250ml Glass Butyllithium 2.5M (WR) (WR Cart No 3)
413 ✓ 250ml Glass (E/LSC) Thionyl Chloride (WR) (E)
414 ✓ 250ml Glass (E/LSC) ~~Triflur~~ $CF_3SO_3H$* (E) 40ml
429 250 ml Hydrobromic acid
433 ✓ 500g Diazald (40ml Sample)
434 1kg o-toluidine
442 ✓ 25g Cyanamide (Both)
450 ✓ 250ml hydriodic acid (40ml Sample)
~~451 1L~~
458 50ml Trifluoromethane
460 ✓ 100ml Thionyl Bromide (WR) (40ml sample)
524 ✓ 25g 1-bromo-3-nitro-benzene (Both)
552 ✓ 50g 2-Chloroacetanilide (on cart Both sample + Cont.)
597 ✓ 10g Tin Powder (On WR cart 40ml + container)
599 ✓ 25g Sulfuryl Chloride E
752 ✓ 100g 2-Mercaptoethanol (40ml VOA)
806 ✓ 25ml 4-Chloroaniline (E/LSC) - E

Rite in the Rain.

9-16-14 Beta-Chem

813 ✓ 25ml Barium chloride (40ml)

827 100g Iodomethane (E/LSC)

831 5g 1,4-Naphthoquinone (E/LSC)

877 E/LSC 5g Aniline hydrochloride

1067 E/LSC 25g 1-Iodo-3-nitrobenzene

671 (E) 25g Methylphosphonic dichloride

685 (E) 5g hydrochloride

710 (E) 5g " "

822 (E) 10ml Ethyl bromoacetate

~~788 (E)~~

426 (E)

446 (E)

~~427 (CS)~~

329

Danny O.
9-16-14



9-17-14

1200 STM O'Connor departs ~~site~~ D.O. office for Beta-Chem site

1220 Arrive on-site. Work on locating containers with issues

1700 Depart site

Danny O.
9-17-14

Rite in the Rain.

September 24, 2014

10:15 START Team Member Kumud Pyakuryal departed from the Tetra Tech offices in Kansas City, MO for the site.

11:00 Arrived at the Beta-Chem site in Lenexa, Kansas. The emergency removal (ER) contractor was present at the site, along with a sub-contractor Bionomics, who hauled the various chemicals and substance identified for removal.

12:00 The packaging and organizing materials were on-going.

The ER Site Manager asked the Bionomics driver to take lunch break as the ER personnel continued to pack Beta-Chem materials.

13:00 Conducted site walk and took site pictures (by STM Pyakuryal.)



Sept. 24, 2014

13:30 STM Pyakuryal was informed that packing and generating manifest associated with the site removal will continue for the remainder of the day.

[STM Pyakuryal periodically walked around the Beta-Chem facility to observe site activities to ensure appropriate measures were taken and to document them.]

14:00 STM Pyakuryal was informed that the materials being shipped out of the site will end up in the Permafix and Energy Solutions facilities in Gainsville, FL and Oak Ridge, TN, respectively. And the material upon mainivation will be securely deposited in Utah (buried.).

Rite in the Rain.

Sept. 14, 2014

16:00 STM Pyakuryal inspected the Bionomics truck that will haul the materials. (Took photographs to document the space and conditions.)

16:30 ER site manager consulted his colleague on some of the material packing protocols and regulatory requirements for manifesting.

17:00 STM documented/observed site activities and departed the site to return back to the Tetra Tech offices in Kansas City, MO.

9-24-2014



September 25, 2014

08:30 ~~Arri~~ KP Tetra Tech START Team Member (STM) Pyakuryal arrived at the Beta-Chem site in Lenexa, KS and observed/documented start of packing, manifestation, and moving of site materials into the Bionomics truck. The preparation of manifests were ongoing.

ER personnel and Bionomics personnel continue to pack & organize materials for shipment. Two DOT category substances (4.2 and 6.1) were identified and set aside as these may not be shipped with other materials.

12:00 The field personnel break for lunch.

Rite in the Rain

Sept. 25, 2014

12:20 STM Pyakuryal departed for lunch.

13:00 STM Pyakuryal returned to the site and met w/the the EPA OSC Doug Ferguson and appraised him of the morning activities.

The ER and Bionomics personnell continued to pack material for removal.

- periodic site walks were conducted.
- STM Pyakuryal took additional photographs of site activities and packing activities.

16:20 Spoke with OSC Ferguson about today's activities and returned back to the Tetra Tech offices in Kansas City, MO.

9-25-2014



September 26, 2014

09:00 STM Pyakuryal left Tetratech offices in Kansas City, Missouri for the Beta-Chem site in Lenexa, Kansas.

09:45 Arrived at the site and observed ongoing site "paper work" and manifest preparation by the ER and Bionomics personnel.

10:30 Approximately 26 5- and 10-gallon pailes and two 30-gallon drums were prepared and loaded for removal

ER informed STM Pyakuryal that the crew will be leaving the site around noon with the packed materials; except for the remaining 4.1 & 6.2 category materials. Photographs of remaining materials identified for removal were taken.

12:30 STM Pyakuryal departed the site for the TT offices.

9-26-2014

Note: Light Rain.