



Transmitted Electronically

September 9, 2009

Ms. Alyssa Hughes
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street
Atlanta, Georgia 30303

**Subject: Incident Response Letter Report
Severn Peanut Company Fire
Severn, North Hampton County, North Carolina
TDD No.: TNA-05-001-0091
Contract No. EP-W-05-053**

Dear Ms. Hughes:

The Oneida Total Integrated Enterprises - T N & Associates, Inc. (OTIE-TN&A) Superfund Technical Assessment and Response Team (START) has prepared this Incident Response Letter Report detailing the activities conducted in support of the U.S. Environmental Protection Agency (EPA). The scope of this response was to provide technical support to the EPA On-Scene Coordinator (OSC) during a phosphine gas release at the Severn Peanut Company located at 1333 Severn Road North, North Hampton County, Severn, North Carolina. Specifically, START was tasked to document response activities and on-site conditions with written logbook notes and digital photographs, conduct perimeter air monitoring using AreaRae[®] instruments, and prepare an incident response letter report.

This Incident Response Letter Report summarizes the incident, the response, and provides a summary of the activities. Figures are provided as Attachment A. The log of AreaRae[®] minimum and maximum readings is provided as Attachment B, the photographic log is provided as Attachment C, and a complete copy of the field logbook notes are provided as Attachment D.

Site Background

Severn Peanut Company houses the largest dome silo of its kind in the country. The dome is 192 feet (‘) in diameter by 100’ high. The walls of the dome are constructed with 22 inch (”) thick concrete at the base, tapering to 10” thick at the top. Within the concrete there is 3” thick R19 insulation and a membrane roof on the exterior. The silo holds a total of 21 million pounds of peanuts, which occupy an

estimated 1,345,000 cubic feet (ft³). The total volume within the dome is 1,791,000 ft³, leaving approximately 500,000 ft³ of head space.

Aluminum phosphide tablets, used as a fumigant throughout the grain industry, were applied to the peanut silo on August 4, 2009. Industrial Fumigant Company (IFC) applied 28.4 grams/1,000 ft³ of fumigant, for a total of 49,000 grams applied using 98 flasks containing 500 grams each. Standard procedure is to drop the flasks into the dome through the 1' by 3' plate at the top. After application, the plate is replaced and bolts are tightened. The aluminum phosphide reacts with water to produce phosphine gas that disperses throughout the peanuts and serves as a rodenticide. Under normal conditions, the reaction takes place within 7 to 10 days, after which the phosphine gas reaches a level suitable for release into the atmosphere (less than 0.3 parts per million [ppm]).

On Monday, August 10, 2009, an employee of the Severn Peanut Company detected the smell of burning peanuts. At approximately 1600 hours on August 11, 2009, smoke was observed emanating from the top of the dome peanut silo. The employee immediately notified his supervisor and the local fire department. The local fire department, North Carolina Regional Response Team (NC RRT), and North Hampton County Emergency Management Agency (EMA) responded to the scene. Following the initial assessment by first responders, EPA assistance was requested. At 2024 hours on August 11, 2009, EPA tasked START to provide emergency response personnel to the site. START mobilized two personnel to the site at 0915 hours on August 12, 2009 as requested by the responding OSC. Prior to mobilization, START prepared a site-specific Health and Safety Plan (HASP) for the incident.

Response Activities

START arrived on site on August 12, 2009 and met with the EPA OSC, EPA Emergency Response Team (ERT) personnel, and representatives from the peanut plant. The fire chief, police, EMA, and NC RRT personnel had all demobilized from the scene awaiting a change in status. EPA and the responsible parties (RPs), Severn Peanut Company and IFC representatives, discussed the situation and several alternative means for extinguishing the fire. Phosphine levels measured via tube, inserted to a depth of 15 feet below the top of the dome, had reduced from 580 ppm on August 11, 2009, to 265 ppm on August 12, 2009. As of August 12, 2009, no phosphine had been detected outside the dome.

The EPA OSC consulted the Agency for Toxic Substances and Disease Registry (ATSDR) to obtain a public health consult regarding phosphine gas. The permissible exposure limit (PEL) for phosphine is 0.3

ppm with an Immediately Dangerous to Life and Health (IDLH) value of 50 ppm. Based on the short life of phosphine in an open environment, ATSDR recommended an action level of 0.25 ppm to consider protective measures.

START responders and EPA discussed the situational status and identified several viable methods for extinguishing the fire. The RPs brought in a phosphine specialist on August 13, 2009 to provide additional input on the best alternative to mitigate the fire.

Representatives from the insurance companies for the RPs arrived on-scene on August 13, 2009. The entire group held an operational briefing to discuss specific goals, ideas as to how to proceed, and concerns. Several ideas were discussed, of which the most probable consisted of pressure feeding carbon dioxide or argon into the bottom of the dome through the fans to force the oxygen up and out the top of the dome, depleting the oxygen source for the fire and extinguishing it.

START contacted their company's structural engineer Lee Paulus in order to find out information regarding the dome's structure. Mr. Paulus contacted the dome manufacture company, DOMETECH International, to discuss the structural integrity of the dome under the fire conditions. Based on the manufacturer, the dome is capable of withstanding temperatures up to 1,000 degrees Fahrenheit (°F). The dome is manufactured with 20 thermal cables that constantly measure the interior temperature. On August 13, 2009, the maximum temperatures inside the dome were only approximately 250°F.

While the RPs discussed alternatives for fire mitigation and procurement issues, the EPA OSC, EPA ERT, START, and representatives from IFC traveled to the silo to collect air monitoring readings. Readings were acquired using phosphine sensors on four AreaRAEs. During the equipment set up, it was determined that with phosphine sensors can be triggered by the presence of several gases including carbon monoxide (CO). According to the AreaRae manufacturer, the presence of 1,000 ppm of CO, may elevate a phosphine reading by 1 ppm. Therefore, only 50,000 ppm of CO in the dome could skew the air reading to indicate the maximum detection limit (50 ppm) of phosphine. While the AreaRAEs were being prepared with the phosphine sensors, readings were taken from inside the dome through the polyethylene tube using a handheld pump with midrange Draeger® tubes. Using this technique, 33 ppm of phosphine was detected. By the end of the day, the level of phosphine had reduced to 20 ppm.

The RPs later met to discuss an action plan. The insurance company for IFC planned to supply a mobile laboratory to analyze air samples collected on-site. The RP group decided to obtain laboratory readings of the phosphine levels before deciding on a plan for extinguishing the fire.

Air monitoring readings taken from the dome using the handheld pump Draeger® tubes were at 6 ppm on August 14, 2009. A certified industrial hygienist arrived on-site to provide consultation to the RPs during the fire fighting operations. An additional monitoring instrument, a QRAE four gas meter, would be utilized during the opening of the dome top hatch. The instrument was used to log the phosphine and CO readings during the event.

EPA and START began air monitoring activities around the perimeter of the dome using the AreaRAEs. No elevated levels of phosphine were detected outside the dome. Interior levels of phosphine attained using the tube extending into the dome continued to drop. A crew consisting of two members from IFC and one START member traveled to the top of the dome in level B personal protective equipment (PPE) to perform a reconnaissance of the “nut house”, which is the structure on top of the dome where the plate opens up into the dome. START brought an AreaRAE, a camera, and a thermocouple to attain information regarding the characteristics of the atmosphere within the dome. IFC brought additional tubing to lower equipment down the hatch and obtain phosphine readings. During the time the crew members were in the “nut house”, phosphine levels were on the order of 10 ppm, with a maximum of 17 ppm and a minimum of 4 ppm at the door. CO maxed out at 1,500 ppm. It was noted on the AreaRAE sensor sheets that for every 50 ppm of CO present, phosphine levels may have been inaccurately detected at 1 ppm. Once the crew descended from the top of the dome, data from the AreaRAE was downloaded and saved. The AreaRAE readings are provided as Attachment B.

The RPs and responders met on August 15, 2009 for a planning meeting to lay out a course of action for the fire fighting operations. It was determined that a crew of hazardous materials (hazmat) trained fire fighters would ascend the dome house in full turn out gear and open the plate. During the initial plate opening, a rescue crew, three fire fighting units, and Emergency Medical Services (EMS) crews will be on standby at the base of the dome. The hazmat fire crew would take the QRAE monitoring instrument with them so that levels in the dome would be known during operations. Once the plate was open, the crew would descend to the ground outside the dome and begin fire fighting operations. Fire fighting operations would consist of using a conveyor belt to deliver approximately 76,000 pounds (lbs) of dry ice in pellet form to the top of the dome. The dry ice would then be dropped into the dome through the plate

opening. Following the initial drop of dry ice the dome would be monitored. Two additional 40,000 lb loads of dry ice were planned for drop on the morning and evening of August 17, 2009.

During the planning meeting, the group established Incident Command Structure (ICS) for the operational period beginning at 0800 hours August 16, 2009. The local fire chief was designated the sole incident commander. EPA and START comprised the Air Monitoring Branch. All fire fighting units were divided into various groups and divisions within the operation section.

On August 16, 2009, at 0830 hours, all participants signed in at the Incident Command Post/Staging Area and attended the Operational Briefing conducted by the Deputy Incident Commander. Incident Action Plans (IAPs) were distributed during the briefing. The EPA OSC detailed the air monitoring operations and described the hazards posed by the presence of phosphine gas. Individuals involved in the ground support operations, dome top operations, and air monitoring support mobilized to the dome after the Operational Briefing and prepared to support with water operations in the event of a fire. A back-up unit with foam supply was staged and on alert at the Incident Command Post.

The EPA OSC and START personnel set up three AreRAEs along a 50' perimeter surrounding the dome. Two units were placed downwind, and one unit upwind where ground support teams were staged. The fourth unit was attached to the EPA vehicle and was operated as a mobile unit. A weather station, with wind vein, was also attached to the vehicle. A wind sock was placed at the top of the tower by EPA and START for all responders to view during operations.

Prior to the entry team's ascent to the top, Draeger® readings were taken from the tube descending into the dome. Phosphine readings were approximately 1.5 ppm. The team, composed of three Williams Fire Specialists, traveled to the dome house in full turn out gear and supplied air. They carried the QRAE monitoring device with them. Once in the dome house, the team removed the plate from the floor of the dome, obtained temperature readings with a thermocouple cable, and collected air quality readings with the QRAE. Phosphine levels reached a maximum value of 4 ppm, with CO reaching 350 ppm. The team completed the entry and began their descent within approximately 20 minutes.

Plant personnel began dry ice operations after the entry crew safely reached the ground. A 4-gas meter was given to the operator of the conveyor system to ensure adequate oxygen levels. A total of 76,000 lbs of dry ice were loaded into the dome by 1900 hrs. A 2 minute delay between loads was applied due to

extreme cooling of the conveyor system by the dry ice. Once the operations were complete, the plate was replaced and sealed until the morning of August 17, 2009. During operations, downwind AreaRAE (number 3) reached a maximum value of 0.7 ppm for phosphine. A Draeger® tube reading was taken next to the unit, and no elevated readings were indicated. The mobile unit was driven in accordance with wind direction, and no additional elevated readings were attained.

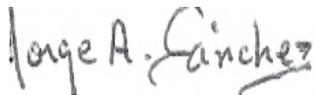
EPA and START demobilized from the site on the morning of August 16, 2009. The photographic log of site activities is presented as Attachment C and a complete copy of the logbook notes is included as Attachment D.

Conclusion

The Deputy Incident Commander continued operations as planned on Monday September 17, 2009 with the application of 40,000 lbs of dry ice in the morning, and an additional load of 40,000 lbs of dry ice in the evening. The plate was replaced and sealed, and the dome has remained closed until an entry can be made to confirm that the fire was successfully extinguished.

If you have any questions or comments regarding this letter report, or require any additional information, please feel free to contact myself or Greg Kowalski, START Program Manager, at 678-355-5550.

Sincerely,

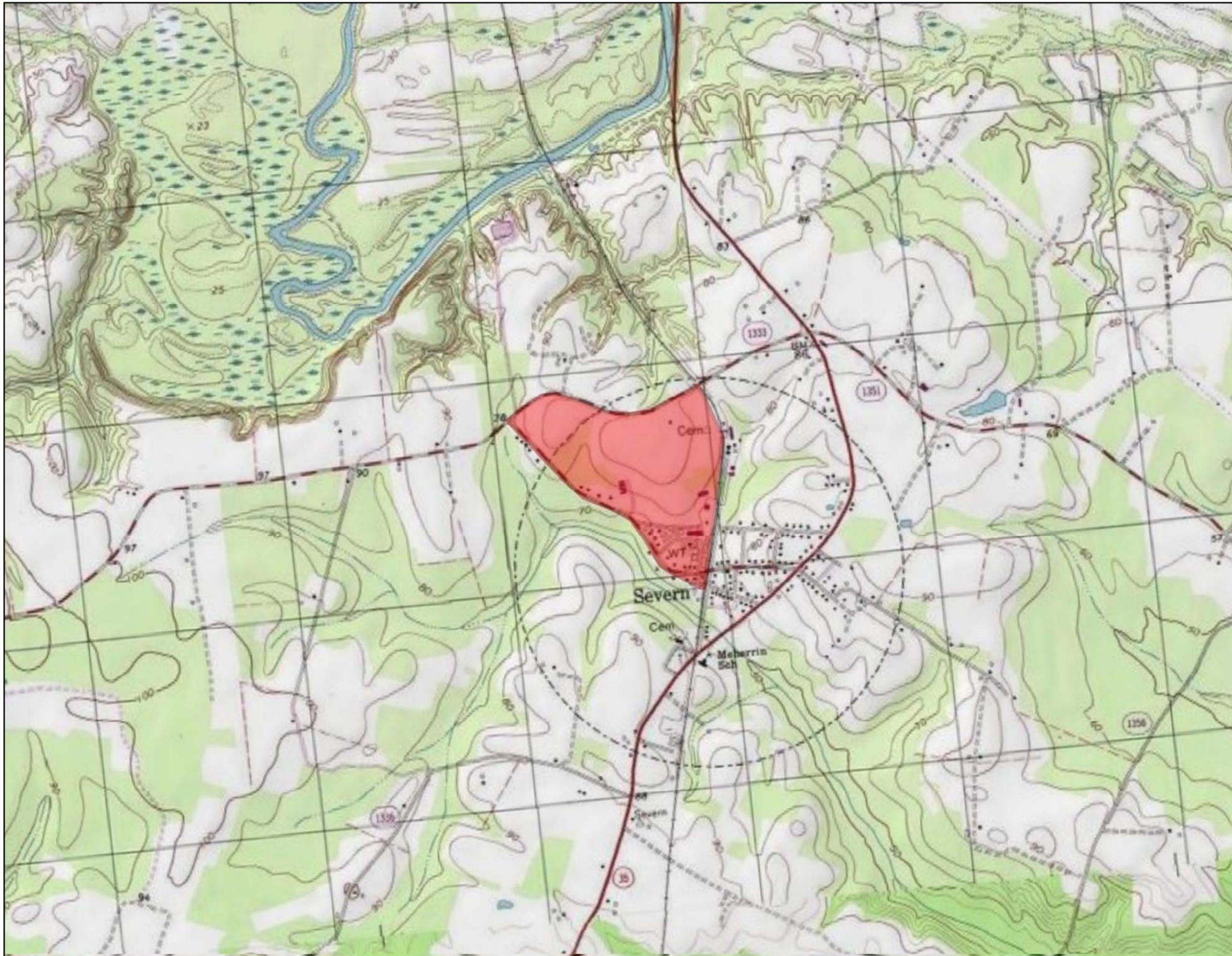


Jorge Sanchez
Project Manager

CC: Katrina Jones, EPA Project Officer
Darryl Walker, EPA Project Officer
Greg Kowalski, START Program Manager
START file

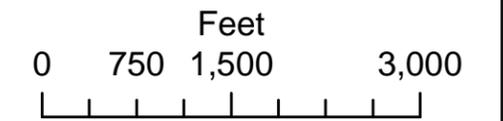
ATTACHMENT A

Figures



Legend

 Site Area



SEVERN PEANUT COMPANY FIRE
SEVERN,
NORTH HAMPTON COUNTY,
NORTH CAROLINA
TDD No: TNA-05-001-0091

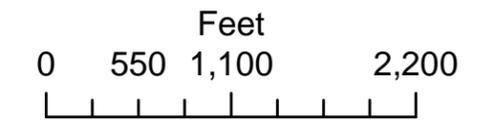
**FIGURE 1
TOPOGRAPHICAL SITE MAP**





Legend

-  One Mile Radial Ring
-  Site Boundary



SEVERN PEANUT COMPANY FIRE
SEVERN,
NORTH HAMPTON COUNTY,
NORTH CAROLINA
 TDD No: TNA-05-001-0091

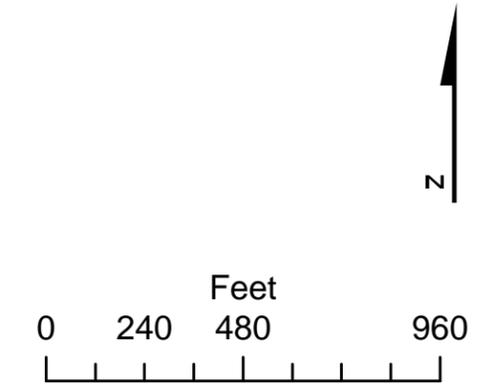
FIGURE 2
ONE MILE RADIAL RING MAP





Legend

-  Site Area
-  Peanut Dome

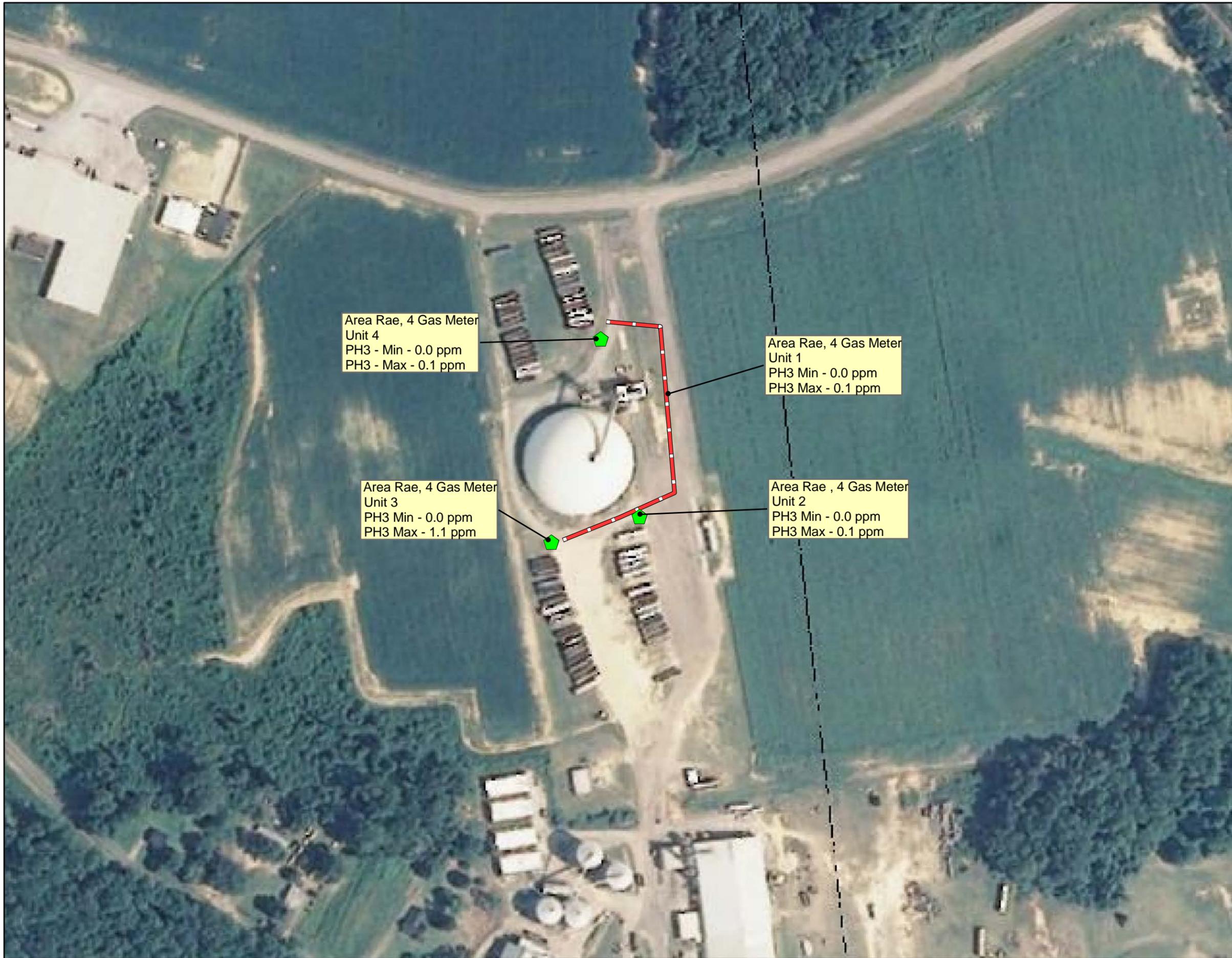


SEVERN PEANUT COMPANY FIRE
SEVERN,
NORTH HAMPTON COUNTY,
NORTH CAROLINA
TDD No: TNA-05-001-0091

**FIGURE 3
AERIAL SITE MAP**



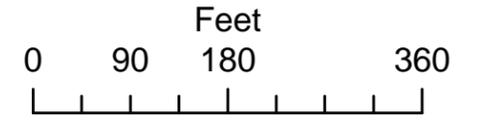
ATTACHMENT B
AreaRAE Readings



Legend

-  Path Of Mobile Area Rae
4 Gas Meter Unit 1
-  Stationary Area Rae,
4 Gas Meter Locations

Notes:
 Max - Maximum
 Min - Minimum
 PH3 - Phosphine
 ppm - Parts Per Million
 Readings taken on 08/16/09



 United States Environmental Protection Agency

SEVERN PEANUT COMPANY FIRE
SEVERN,
NORTH HAMPTON COUNTY,
NORTH CAROLINA
 TDD No: TNA-05-001-0091

FIGURE 4
MOBILE AND STATIONARY
AREA RAE LOCATIONS



ATTACHMENT C
Photographic Log



Photograph No.: 1

TDD Number: TNA-05-001-0091

Date: August 12, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Severn Peanut Company dome. The silo holds 21 million pounds of peanuts.



Photograph No.: 2

TDD Number: TNA-05-001-0091

Date: August 12, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Severn Peanut Company dome. The silo holds 21 million pounds of peanuts.



Photograph No.: 3

TDD Number: TNA-05-001-0091

Date: August 13, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Severn Peanut Company dome. Smoke from the "nut house".



Photograph No.: 4

TDD Number: TNA-05-001-0091

Date: August 13, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: IFC hazardous label, Phosphine gas.



Photograph No.: 5

TDD Number: TNA-05-001-0091

Date: August 14, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Preparation for Level B reconnaissance of the “nut house”.



Photograph No.: 6

TDD Number: TNA-05-001-0091

Date: August 14, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Level B reconnaissance of the “nut house”.



Photograph No.: 7

TDD Number: TNA-05-001-0091

Date: August 14, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Installation of sampling tubing.



Photograph No.: 8

TDD Number: TNA-05-001-0091

Date: August 15, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Severn Peanut Company dome.



Photograph No.: 9

TDD Number: TNA-05-001-0091

Date: August 16, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Operational Briefing in the Incident Command Post/Staging Area.



Photograph No.: 10

TDD Number: TNA-05-001-0091

Date: August 16, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Ground Support Operations. Wind sock installed by EPA and START.



Photograph No.: 11

TDD Number: TNA-05-001-0091

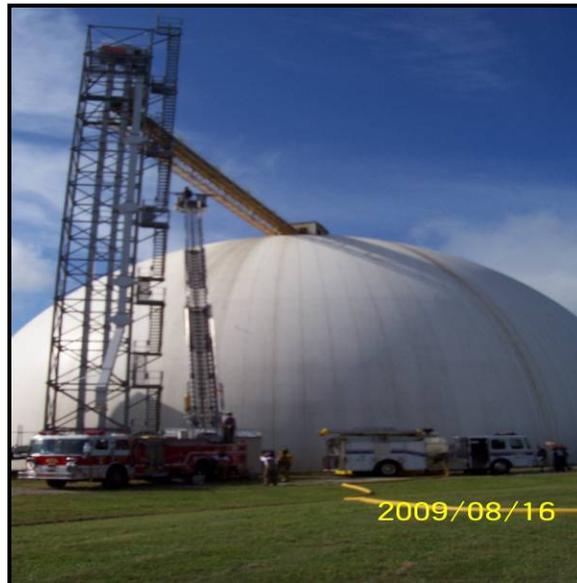
Date: August 16, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Preparing for perimeter air monitoring using AreaRaes®.



Photograph No.: 12

TDD Number: TNA-05-001-0091

Date: August 16, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: First Responders removing dome plate, obtaining temperature readings, installing thermo couplers and recording air quality readings from AreaRaes.



Photograph No.: 13

TDD Number: TNA-05-001-0091

Date: August 16, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Addition of 76,000 pounds of dry ice for fire suppression.



Photograph No.: 14

TDD Number: TNA-05-001-0091

Date: August 16, 2009

Photographer: Jorge A. Sanchez, START

Site Name: Severn Peanut Company Fire

Location: Severn, North Hampton County, North Carolina

Subject: Addition of 76,000 pounds of dry ice for fire suppression.

ATTACHMENT D
Field Logbook Notes

SEVERN PEANUT CO

001-0091-1230



"Rite in the Rain"[®]

ALL-WEATHER

UNIVERSAL

No. 371

08/11/2009

08:24 PM. call from ER Coordinator Russell Henderson to activate ER to a Silo Fire containing peanuts and producing phosphine gas in Severn, North Carolina. The incident description details that the Peanut Fire is in a Peanut Silo where Aluminum Phosphide was used 7 days ago as a pest/chodesticide; when on fire it will produce phosphine gas. Russell Henderson conveyed that Randy Notis activated the ON CALL response and to mobilize ASAP from the Atlanta office. R1 - Jorge Sanchez and R2 - Douglas Fialy were activated, and should report to the OTIE office to pack materials and equipment and drive to the affected area.

09:30 Arrived at the OTIE office. Maritta, George and began to get ER equipment and materials together, along with site HASP, Hospital Route, MSDS and PPE including SCBA.

Scale: 1 square=

08/11/09 cont.

~~09:38~~
09:38 PM - Russell Henderson called R1 - Jorge Sanchez to stand down for the ER and wait for further notice.
10:30 completed packing HASP, Hospital Route and preparation for equipment

08/12/09

07:50 AM. Russell Henderson called to activate the ER Response Team with R1 - Jorge A. Sanchez and R2 - Ryan Strubbs. He mentioned that Allyssa Hughes is on her way to the site, and that OTIE needs to mobilize within the next two hours. The team will contact Allyssa Hughes for further details about the on going fire.

07:51 AM. Called Allyssa Hughes for briefing. She said and stated that she is on her way to the 62-warehouse to pick up air monitoring equipment, and then she will be back on the road. She said that there is no need for us to stop by the 62 warehouse and to get on the road.

08:00 AM. Arrived at the OTIE office Maritta, George

Scale: 1 square=

08/12/09 cont

and began to complete packing the ER truck with SCBA's, PPE, Multi-Rate e-mail printed HASP, Hospital Route and maps, figures and MSDS

09:15 Left the OTE office Marietta, GA via 1333 Sevier Road path, Sevier, North Carolina with Ryan Stobbs + J. Sanchez.

11:30 AM Alyssa Hughes called to get traveling status. She is 4 hours into the trip and wears two hoses behind her. We will continue communication with her.

Weather Conditions: Partly cloudy, about 85° F. Light rain at times

Driving through I-20 to South Carolina then 95 to North Carolina to the site

18:32 Arrived at site Area, Sevier, NC. Campaigna, Phil, Alyssa Hughes, Jim and the EPA along with site officials were present at the office trailer across from the silo.

R.P. Watson President of Operit, up

18:55 Left the area via Comfort Inn hotel in Knoxville, DC.

20:00 AT meeting with Alyssa Hughes

Scale: 1 square = _____

08/12/09 cont

- R.P. Watson, III - Sevier Peanut Coy. Inc. Vice President.

- Randy Turner - Territory Manager. IFC - they applied the Aluminor phosphide → 55% phosphine.

- Walter Natta → the Travelers Company - Insurance

* 21 million pounds capacity

* Done 22" concrete wall with 3" Insulation and membrane outside of the dome.

Being 450° F to withstand heat.

- Probes 85 → 268° F ≈ 171° F

- No hot spot on one side of the dome toward the middle of the dome. The peanuts were treated in October & fumigated at the end of the year.

- During winter they let it set

- Tuesday August 4, 2009 tablets were placed for fumigation.

- 28.4 gm / 1,000 cwt of feet → 49,000 grams Total. 500 grams per of block = 98 blocks.

Scale: 1 square = _____

08/12/09 cont

- Range for 20 to 40 tonnes to press 1,000 cubic feet.
- Dome Constructed in 2004
- Total Volume Exterior 1,976,503 cubic feet. Inside 1,791,000 cubic feet.
- Windy August 10, 2009 not at bearing and next day police was called yesterday at 16:00 hrs.
- Oxygen at 13% inside the dome
- Tube from 25' into the dome was where the readings were taken by dagger yesterday 5:30 ppm - Today 265 ppm
- Outside tube 10 ppm yesterday Today 100 ppm
- Every three to four hours Temperature readings taken. no much variation.
- Man. fixture Done ^{rectangular} Pockets.
- Lat masks set for 10 days and aerate to see phosphate levels ≈ 3 ppm + complete their work for that day.

Scale: 1 square = _____

08/12/09 cont.

- Peanut pile 1,348,000 c.b.c feet
- Total 500,000 cubic feet of head space.
- 21:45 completed dinner meeting w. Yb EPA OSC - Allyson Hughes
- Convene to meet at the Hotel lobby tomorrow at 07:45 hrs.
- 10:00 Sending information to Russell Henderson in order to calculate rates of reactions + Exothermic reaction from information gathered Today during meetings with EPA
- Final thoughts: 1) It rained all the way from Atlanta to the site. Heavy rain at times. Forecast for tomorrow, Friday, Saturday + Sunday is the same with heavy rains
- 2) AERO RAE - PID - with Phosphine ships will be place at a perimeter around site tomorrow. PID may malfunction due to high humidity and rain.

Scale: 1 square = _____

08/13/09

- 07:45 Meeting with EPA-OSC-Allyssa Hughes over breakfast at the hotel lobby located in Franklin, Virginia
- Discussed figures, maps, and Perimeters for AEA/EA-KAE's positions
 - Weather: expecting high humidity and light to heavy rain all day.
- 08:30 Meeting with all involved in the Permitting group, IFC, Insurance, Mark Barrows → Incident Fire Investigators.
- 250 ppm of Phosphine was detected this morning by Randy for IFC
 - 230°F readings this morning. From the officials temperature appears to be rising. A table will be provided.
 - Dome Tech has the specifics for structural Integrity base on temperature.
 - 50 ppm is the limit of danger.
 - Last night O₂ was dropping to 0%
 - CO₂ blanket seems to be the answer of putting the fire out & displace the O₂, phosphine and help for Dust not to Ignite and then fire.
 - Structural Engineer for calculation CO₂ injection.

Scale: 1 square=_____

08/13/09

- CO₂ injection rate. Questions about weakness. Structural Integrity.
 - ≈ 350 people around the 1 mile radius, the process says 263 sq mile
 - IFC representative (2) arrived in office
 - * DomTek Structural Engineer Ryan Poole. 208-522-5520 and cell 435-830-2760.
 - * Lee Paulus - 414-607-6760
- 10:10 On our way to do reading with Dragger at the Dome's lower vent with EPA and IFC.
- Calling OJIB ~~Dragger~~ to get Structural Engineer for Dome integrity → L Paulus @ OJIB solutions.
- 10:40 100 ppm → ÷ 3 = 35 ppm, Tube inside 15' from the top.
- One stroke of Dragger pump gave 100 ppm ÷ 3 because rate = 35 ppm).
- ~~50~~ 50 ppm on the 1 to 4 range. 5 strokes under 10. (n=3 reading 9 strokes 100 ppm) which crosses at 33 ppm.
- 10:50 → Structural sounds. No threat of collapse taking place. Cracking

Scale: 1 square=_____

08/13/09 cont

maybe. No significant problem. Clunker
(Iron drinker) 600°F. Furnace
aggregate product. Don does
well. Fire at 400°F not bad
Expense with turning to 3,000°F
same application. Call 414-383-7890.
IFC - UP Dan Ponton. &
11:45 Lunch Break.

Weather: Light rain.

98% humidity
overcast

No lightning

12:20 meeting with PRP, IFC and
Insurance company about plans
timetable for the fire control,
and oxygen depletion addition.
- Puttable link with CIH and
monitoring equipment for gas generation
and reading. Technicians + CIH.
To monitor and have readings.
- Analyzed for offgassing the dome
if there is no serious offgassing.
- Fire control is under discussion
1) First do analyzed for offgassing

Scale: 1 square = _____

08/13/09 cont

and health risk 2) Control fire
Cattam Bob regarding Insurance
13:15 - Left site via hotel in Frankling,
Virginia in order to close account
and move to another hotel the
Hayslar Inn where The EPA-OSC-
Allysa Hughes is staying. that way
we can have meetings this afternoon
and tonight. More convenient.
14:00 Left hotel in Frankling, VA
via hotel via Rowing Oaks, Rapids,
North Carolina. about 1 hour away.
15:30 Arrived at hotel in Roanoke
Rapids, North Carolina, Hayslar Inn.
16:00 Proceeded to send Allysa
Hughes information about phosphine
and also instrumentation used to
measure levels of the gas.
- Don took
Ryan Pooler
208-522-5520
cell 435-830-2760
19:00 Out with Allysa Hughes business
briefing meeting. ~~fire~~

Scale: 1 square = _____

08/14/09

09:00 Arrived at the Severn River Company
after driving 40 miles from the hotel
where we were bumped by the EPA-OSC
Allyssa, Hughes.

Weather: Temperature = 80°F
Humidity = 80%

Light/Drizzle rain

↓ Thunderstorm Forecast afternoons.

Dome Phosphine Readings

IFC took readings with Magnus at
15' feet from the top with tubing 6 ppm
09:30 - Meeting with all participants
of the plant, IFC, Fire department.
- Williams → Fire to 4. Johnstone Company
in the USA.

- Phosphine → Monitoring areas about
11:00 Today. They are thinking about
drugging dry ice on the job.
- Planning on going up the stairs and
get readings, take a look at the situation
and open the top to identify hazards
- Set thermocouples, set tubing, take photos
- Take a safety issues for Level B with
IFC, OTHÉ and fire department.

Scale: 1 square = _____

08/14/09 cont.

10:00 - Calibrating AERONET &
putting chips for phosphine &
setting parameter with monitors.

11:20 continue calibration of Area 2 & 3

USEPA Units 1) EPA ID A 80782

2) EPA ID A 80779

3) EPA ID A 80780

4) EPA ID A 80781

- Preparing for Level B - SCBA
- Tank (PSI) ≈ 35-40 miA.
- Inspected 1) SCBA units

2) Respirators

× Humidity, increasing 88%

- Taken pictures of Dome
- A thermocouple unit will be taped on US.
- Long pH strips will be taped on US.
- Tyrex, yellow Tyrex, booties, gloves.
- * IFC will be the partner with OTHÉ to
climb the dome. to drop thermocouple,
chambers, tubing, readings.
- 1) 15' feet tubing 7 readings
- 2) 20' feet tubing
- 3) Film camera,
- 4) Still camera.

Scale: 1 square = _____

08/14/09 cont.

11:40 - Dragger Tube reading from tubing going over and in to the dome 15' in. 1) PH_3 0.1/a

Batch AKZF 6761 CH 31101

Range 0.1 - 4.0 ppm

of Pumps = 10 pumps

Reading of PH_3 = 0.8 ppm

12:10 Walked around the dome and

Took AreaRAE for background readings

* There were no readings on AreaRAE

12:45 START - Sanchez, IFC's Brian and Randy starting climb up the stairs to the catwalk for the dome. RS

12:50 IFC personnel (Brian & Randy) entered building on top of dome to install tubing and to take temp readings.

12:52 AreaRAE reading 7.7 ppm PH_3

12:57 Guys out and coming back down stairs. RS

13:05 START - Sanchez said PH_3 maxed at 14.0 ppm and when exiting PH_3 = 4.2 ppm + O_2

Scale: 1 square = low was 0.3 ppm. RS

08/14/09

13:10 AreaRAE #1 Peak readings

CO = 1293 ppm

LEL = 47%

PH_3 = 17 ppm

O_2 = 22.3%

13:20 IFC - Brian & Severn Peanant worker going up in manlift.

Going to take readings

through a sampling port about half way up the side of the dome. RS

* Latenote: IFC - Randy got a reading of 18.0 ppm PH_3 with a Drager tube at about 0830.

* Latenote: At 1310 Randy of IFC got 10.5 ppm PH_3 with a Drager tube.

13:25 IFC - Brian installed a tube in the sampling port on the side of the dome.

PH_3 = 9.4 ppm

CO = 1440 ppm

O_2 = 6.2%

AreaRAE #1 readings from top

RS

Scale: 1 square =

08/14/09

~~13:25 AreaRAE #1 readings RS~~
~~PH₃ = RS~~
~~CO = RS~~
~~O₂ = RS~~

14:20 IFC on manlift again
 reinserting tubing in the
 port in the side of the
 room.

14:45 EPA - Hughes + START Hubbs
 using Drager pump + tube
 from the sample hose in
 the port in the side of
 the room

15:45 Bob → stating that there is
 a loss already of the product.
 - It will be difficult to put product
 fire out with water.
 - they are planning (PRP) to open
 the hatch on top to let phosphine
 gas out. EPA-OTIE will monitor
 the operation from the perimeter.
 - At this moment we do not have
 enough people here to open the hatch.
 We will need fire department, medics,

Scale: 1 square = _____

08/14/09 cont

~~15,000 pounds of Dry Ice w. 4th CO₂~~
~~#6,000 pounds half of it first and~~
~~second half later.~~

- 1) Perimeter of 1,000 feet, before opening
 the hatch, the HAZ team.
- 2) Use AreaRAEs to monitor for the perimeter.
- 2) Use the ambulance and the paramedics
- 4) A fire suppression team need to be available
- 6) Sunday is schedule to open the top
- 7) the amount of Dry Ice will be determine
 with the involvement of CIH + IFC,
 PRP and Insurance.

16:00 Leave the site area via the
 Emergency Management, Northampton
 County office to see location.

18:00 Arrived at the Hotel/Reg. City.

19:30 - Meeting Dinner with EPA-OSC
 Allysis + Hughes. To discuss plans +
 operations for the rest of the weekend
 - Calibration of AreaRAE will take place
 tomorrow, while Allysis + Jorge
 goes to the site for Intrusion meeting.
 Need to meet at 09:00 hrs tomorrow

21:30 Completed the EPA/OTIE meeting

Scale: 1 square = _____

08/15/09

08:10 Left the Hampton Hotel via Severn Peanot, Seven, North Centre
 09:00 Arrived at the Severn Peanot Company where a ER - meeting is in progress with Fire Department, County Emergency Medics, EFC,
 * 40,000 pints every 4 hours after the initial 76,000 ~~initial~~ addition.
 - If problems need to add liquid CO₂ that transform into CO₂ gas.
 - If this does not work Foam will be used. To get the fire control and extinguish.
 - 2,000 gpm could be establish with the pumps (mobile) for H₂O suppression.
 { 2 Loads of 4000 hours approx.
 { To introduce dry Ice with the conveyor belts. [from 2 to 12 hours to add the load of dry Ice.
 * 12 hour cycle starting Monday morning
 H₂O / H₂ & Safety: 1) Medics 2) Responders available (2-4) in case somebody goes down. Air lines available.
 - This morning 3 ppm of phosphine was detected.

Scale: 1 square=_____

8/15/09 cont.

10:00. Meth-water test works
 temp by 80°F
 Hum. dt. 60% to 40%
 → Weather for 8/16/09 for the opening of the manhole on the side
 * Hot Zone 50' foot from the Top Housing. to keep people away
 * Staging and cert. be establish by the fire hydrant next to the open building.
 * One ambulance will be available for the county. Evacuation plan in progress.
 → Troy conducting the presentation
 → Class A foam could be use better than B. B will be more harmful than A.
 Preparing ICS → County Fire Chief
 Dennis IC
 Tim Deputy IC
 PIO → Sharon Lawm
 HSO → Hank Fuller
 Operators → Troy Johnson Kevin Break
 LEPA Air Monitoring Operator → Allport High
 → Bob Slender IFC
 * Red Cross Rehab with buffet/lunch/Free meals
 * Accountability → signing sheets.

Scale: 1 square=_____

8/15/09 cont

Security with Police on their car for
 three enter roads. (Seven, Main Street,
 Evermountain will take place tomorrow 1 mile.

Personnel On Scene

- 1) Lester Rich → Forensic Fire Analyst
 hired by Travelers Insurance and their
 attorneys. Introducing investigation
 of the ALPH₃ tablets and base
 for insurance purpose. Once

the removal of the cover plate.
 * Safety Meeting at 08:30 hrs

10:50 Ryan Stobbs bought a weather
 station with wind impact and weather.

In addition per Allyssa Hojnos, we
 are also buying a wind sock.

* 120 gallons w/you available class A.

* Pat Roy - 17450 → 232-396-3541
 Seven River

* Marshel Lissick - Town Manager 536-8683

* 704-309-6567 - Troy Johnson

* 50 ppm is PH₃ Lethal Dose

* 15 minutes = 1 ppm average

12:10 left the site via Roanoke Rapids to get
 Supplies for tomorrow. 15:00 at the hotel.

Scale: 1 square = _____

08/16/09

06:30 - Meeting with EPA at hotel Lobby
 before heading to the site across Seven, etc.
 - Very foggy, Partly cloudy.

Weather: Temperature = 72.7°F

Humidity = 72% RH

Pressure = 29.99 in Hg

07:45 Arrived on site Seven. Peanuts

- Commence setting up weather station
 and the air monitoring Area's

- Spoke to Troy Johnson - Hazmat unit -
 Williams Fire & Hazard control - contacted
 by a private party for Travelers Insurance

- Preparation: 1) DSC - EPA - Allyssa Hojnos
 on site representing the government.

2) Ryan Stobbs + Jorge Sanchez representing
 OTIE Solutions - Contractor.

3) Reviewed Site Safety Plan with EPA
 and will proceed to set up Area's.

08:05 Randy from DEC took a Dargger
 Tube reading 1.5 ppm. Range ~~0.1 to~~

0.1 to 4 ppm range = 10 of 100 ppm

08:15 Reconnaissance of the area for monitoring

08:30 Safety Meeting in progress by Tom
 Zgers. All participants spoke.

Scale: 1 square = _____

08/16/09 cont.

09:00 Alyson Hughes + Jorge Sanchez set up the wind sock at the end of the steps 120' feet high - Completed calibration of Aeropak

10:50 the hatch was opened. Heat readings 110°F. Aeropak #3 reads 0.3 ppm. Aeropak #4 by the truck read 0.1 ppm when the wind changed direction. No winds from the heat camera dropped by Leslie + Smoke keeps emanating from the housing + low winds. Firefighters are still on the catwalk and preparing to complet set up To add the dry ice into the conveyor belt system and into the dome.

- Unit #2 CO reads 2.5 ppm; O₂ = 19.8%

- Unit #3 still reads PH₂ = 0.3 ppm

- Unit #4 CO reads 0.9 ppm = PH₂ = 0.1 ppm

11:00 Unit #2 = CO = 1 ppm
VOC = 0 ppm
PH₂ = 0.0 ppm
O₂ = 18.9%
LEL = 0%

- Wind with South West 25W.

Scale: 1 square = _____

08/18/09 cont.

11:05 weather - wind direction NSE
wind speed 2.4 mph
temp 96.5°F
Humidity 47% RH
Pressure 30.03 in Hg

Partially cloudy + Sunny

- Unit #3 CO = 0 ppm
VOC = 0 ppm
PH₂ = 0.3 ppm
0.4 ppm
LEL = 0%
O₂ = 20.9%

X { 0.01 ppm To 1.0 ppm Dragger
Range, 10 ppm. No Readings
0.0 ppm by Dragger
(4.6 PH₂ ppm pick) (CO.)
Average 0.6 ppm. { 32.8 } at 10:00
53.7 } on

→ ORAC = every 20/45 minutes
* Steam build up scraping from top;
- Not so hot if a smoke.
- will deliver dry ice and close top
just a little to leave no oxygen.
MISS Beginning addition of Dry Ice.

Scale: 1 square = _____

08/16/09 cont

12:00 A total of 8 Totes of Dry Ice were delivered to the Inside the Dome via conveyor belt system. The system froze and now is being halted to let it warm up and continue the addition - will go out to have lunch.

13:20 - Bumped Area #3 read 6.6 ppm for PH₃ - then calibrated it for PH₃ - then bumped got 5.0 ppm then it read 0.6 ppm Bumped again and got 4.2 ppm.

- Now is reading 0.0 ppm Area #3. The Areas are hot due to direct sun and high humidity. Sensor is giving problems.

13:30 Resume addition of Dry Ice - Area #2 bumped - PH₃ = 5.6 ppm.

14:30 Another truck with 26 more Totes of 1,500 each pounds of Dry Ice arrived on site. The addition of each tote is followed by a 3 minute wait due to over cooling of the conveyor system - No more readings on phosphine are

Scale: 1 square = _____

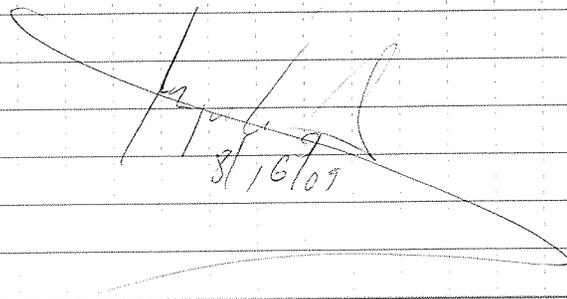
8/16/09 cont.

detected at this time. Continue monitoring the area. Smoke continues to come out of the housing structure above the dome. The smoke now is clear. JFC was dismissed from the site.

Responders are leaving at a steady rate from the site. EPA-OSD Allyssa Highers directed START to begin to pack all equipment + material for these site areas.

15:45 left site area via the staging area to sign out and say goodbye to all responders attending the fire response.

16:30 Arrived at the hotel/Rooms for 1800 Final briefing with EPA-OSD Allyssa Highers. Dinner followed.


8/16/09

Scale: 1 square = _____

08/17/09

08:00 Met with EPA-OSC at the lobby
of the hotel. Conducted final
briefing about the ER Response.

09:00 Left the hotel via Atlanta, GA

Stop to get gas and to buy
25 Quarts of oil for the truck.

The oil gauge was about empty.

Need to take truck to the mechanic
for a small service this week.

17:00 Arrived at the OTEC office

Marietta, Georgia. Met with Greg
Koudski and briefed shortly about
the Severn Peanut fire operations.

17:30 Left the office via to own home.

~~John G. [Signature]~~
08/17/09

Scale: 1 square = _____

Scale: 1 square = _____