

Case Studies

Examples from Region 5

Region 5 Case Studies

- There have been an increasing number of incidents in R5
- These case studies highlight issues encountered and lessons learned
- Issues can vary from spill to spill
- Some issues seem consistent regardless of the variables

Region 5 Case Studies

- Basics of biofuels response in R5 and what we have learned
 - The amount of feedstock and product greatly varies
 - The types of material on hand at production varies
 - Location of production facilities can be surprising
 - Generator knowledge is unpredictable

Region 5 Case Studies

Examples from 3 states – Michigan, Ohio and Indiana

Up first, the Buckeyes!

Defiance Biofuel Spill

Region 5 Case Studies – Defiance cont.

Initial report called in to state: COMPANY HAD AN EXPLOSION. THERE ARE 2 LARGE TANKS ON SITE CONTAINING GLYCERIN. SEWER BEING IMPACTED WITH FF WATER.

- Ohio EPA OSC responded
- 2 tanks were in fire, a 10,000 gallon and 4,000 gallon
 - Only 1650 gallons of glycerin reported on hand
 - Also ~700 gallons of biodiesel
 - “empty” 55-gallon drums
- Release to ground and storm sewer
- Release threatened creek and river via storm sewer

Region 5 Case Studies – Defiance cont.

Fire and release point



Region 5 Case Studies – Defiance cont.

- Ohio EPA responded and assessed situation
 - called EPA spill phone duty officer
 - duty officer coordinated with OSC
 - both told Ohio EPA to respond as if diesel spill
 - were not sure what regs applied to biodiesel production
 - both continued research that night
 - advised state on limited info obtained
 - Ohio determined spill contained, but not cleaned up
 - They decided to wait till morning for removal

Region 5 Case Studies – Defiance cont.



Drums consumed in fire

Release came out of structure with
FF water



Region 5 Case Studies – Defiance cont.



- “fats” floated
- 3 layers in water observed
- some suspended in water
- “milky” layer observed

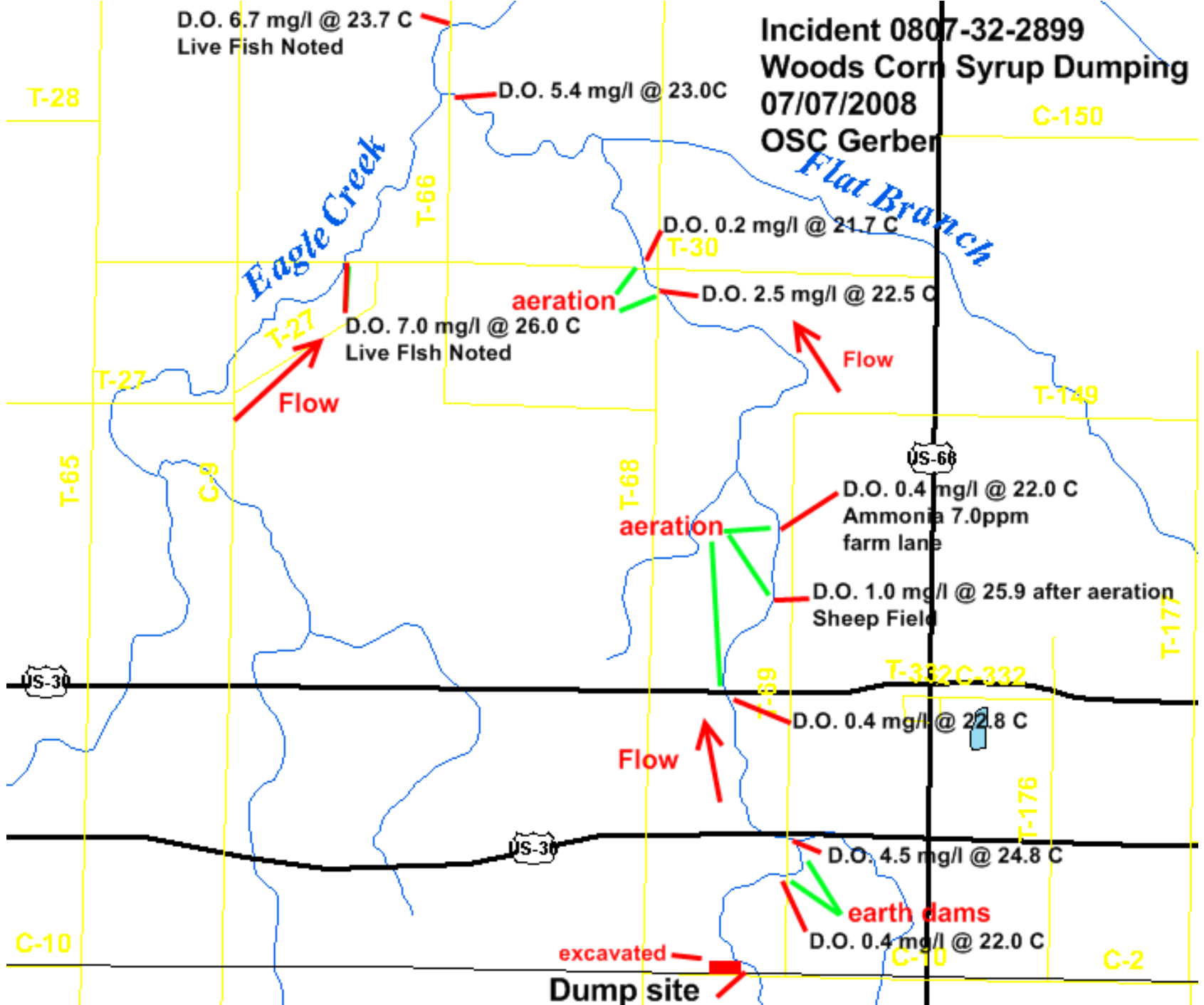
Region 5 Case Studies – Defiance cont.

- Response Techniques
 - Ohio EPA made PRP hire a contractor
 - the on-land spills were excavated
 - the spill to the ditch was collected and put in frac tanks
 - 3 distinct layers were noted in ditch waters
 - analytical of frac tank water revealed styrene and perchloroethylene
 - shows more than “glycerin” spilled
 - Some wastes suspended in the water column were lost

Region 5 Case Studies – Woods Ethanol

- July 7, 2008-Report from Hancock Co. EMA of yellow substance in a roadside ditch
- Owner of adjacent property dumped 5,000 gallons of corn distiller (byproduct of ethanol production) to feed wildlife on his property
- Corn distiller was rejected at disposal facility and sold to local farmer to feed deer
- Ethanol Plant on-site to provide “Technical Assistance”
- ODNR discovers up to 1,000 dead fish downstream of spill site
- PRP hired an environmental contractor:
 - Remove gross contamination from spill site
 - Provide aeration to tributary
 - Remove dead fish from downstream
 - Dispose of contaminated soil
- Direct Reading in tributary
 - DO Levels @ 0 mg/L
 - Ammonia @ 30 mg/L

Incident 0807-32-2899
Woods Corn Syrup Dumping
07/07/2008
OSC Gerber



Woods Ethanol Spill



Woods Ethanol Spill



Woods Ethanol Spill



Woods Ethanol Spill



Woods Ethanol Spill



Woods Ethanol Spill



Note fish crowding around available O₂ at water inlet

Region 5 Case Studies – Renewable Energy

Hoosier time

Indiana spill at “Renewable” Energy Resources

Region 5 Case Studies – Renewable Energy

- At biofuels production facility
- Spill from 50,000 gallon tank
- Surface soils and ditch water impacted
- Water in ditch a “milky” white (hear that before???)
- Soils excavated
- Tile field drains intercepted and plugged

Region 5 Case Studies



Note “milky” water

Normal fuel spill techniques not effective after initial spill

Ability of surface cleanup not really a viable option

Region 5 Case Studies – Private garage

Indiana cont.

- Small scale production
- used vegetable oil
- No tanks large enough for regulation
- However, 20 gallons spilled, some to the sewer
- IDEM advised resident on contingency plans and contractors

Region 5 Case Studies – Private garage



Region 5 Case Studies – Michigan

Wolverine's turn

- Paint shop
 - reported as small biodiesel spill
 - was actually a paint shop
 - USCG was in area and offered to check on spill
 - USCG and MDEQ met on site
 - small spill observed
 - didn't see any coming out of sewer
 - USGC left, conditions changed
 - MDEQ noted emerging issues at shift change

Region 5 Case Studies – Michigan cont

- Paint shop cont.
 - noted entering waterway, low flow
 - “milky” white throughout water column
 - MDEQ and EPA discussed options
 - capture and removal not possible
 - little impact to fish observed
 - conditions did not change much due to no flow
 - Decided to purge ditch and flush
 - Flushing somewhat ineffective
 - Heavy rains completed the flushing

Region 5 Case Studies



Region 5 Case Studies – Lessons learned

Lessons Learned

- Biofuel production can be anywhere
- “manufacturers” are heavily ignorant of regulations
- In R5, many facilities are being abandoned or going bankrupt due to market fluctuations
- Glycerin spills seem to be prevalent
 - Output from the transesterification
 - Not that much use for it as product
 - People are storing it and not disposing of it
 - Some waiting for “value” to increase

Region 5 Case Studies – Lessons learned

continued

- Biofuels degrade faster
- Causes extreme DO issues in creeks
- Not great for water treatment plants
- Other removal/cleanup techniques
 - Any ideas for treating “in stream” besides aeration?
 - Other sorbant technologies?
- Fast degradation can make cleanups faster
- Biofuel spills are many times not biodiesel or ethanol, but production products and byproducts