

SAN CARLOS APACHE COMMODITY FLOW STUDY

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Overview

- On April 13, 2016 the Inter Tribal Council of Arizona along with the San Carlos Apache Tribe conducted a commodity flow study of Commercial Motor Vehicles (CMVs) hauling Hazardous Materials east and west on Highway 70.
- The goal was to determine the types and quantities of Hazardous Materials being transported.







Overview

- Several Pre-planning meetings were held and we determined we would use the dirt lot just past the rodeo arena.
- ADOT would only bring in CMVs with Haz-Mat Placards for inspections.
- The CMVs and their drivers, were inspected for regulatory compliance and their types and quantities were identified.



Flow Study Partners

- Inter Tribal Council of Arizona
- San Carlos Police
- San Carlos Fire/EMS
- San Carlos Public Health
- Apache Gold Casino
- Arizona Department of Transportation – Engineering Division
- Arizona Department of Transportation – Enforcement and Compliance Division
- Arizona Department of Public Safety



Inspection and Identification

- The Commodity Flow Study had two components:
 - **Inspection** – This was AZDOT ECD and AZDPS who inspected the CMVs for safety and to ensure all CMVs and their operators were not violating CMV rules.
 - **Identification** – ITCA worked with AZDOT ECD and AZDPS to Identify the types and quantities of Hazardous Materials being transported.



Haz-Mat Identified

| Time | Cargo Trailer Type | Placard(s) | Hazard Classification | Hazardous Material Load |
|---------------------------------|---------------------------------------|------------|-------------------------|---|
| 08:06 | DOT 412 Corrosive Liquid Tanker | 1830 | Corrosive | Sulfuric Acid (93 to 98%) Miami-Safford |
| 08:13 | 20 Totes on Flatbed Truck | 1993 | Combustible | Isopropyl Methyl Thionocarbamate |
| 08:15 | DOT 407 Low Pressure Tanker | 1830 | Corrosive | Sulfuric Acid (93 to 98%) |
| 08:17 | Covered (Tarp)Sided Truck (Solid) | 3077 | Miscellaneous | Copper Concentrate (Arsenic) |
| 08:19 | DOT 407 Low Pressure Tanker | 1830 | Corrosive | Empty Sulfuric Acid-Safford to Miami |
| 08:43 | DOT 407 Low Pressure Tanker T414 | 1830 | Corrosive | Sulfuric Acid (93 to 98%) |
| 08:44 | DOT 412 Corrosive Liquid Tanker 347 | 1830 | Corrosive | Sulfuric Acid (93 to 98%) |
| 08:47 | DOT 412 Corrosive Liquid Tanker | 1830 | Corrosive | Sulfuric Acid (93 to 98%) |
| 08:50 | Covered (Tarp)Sided Truck (Solid) | 3077 | Miscellaneous | Empty (returning to get a load) |
| 08:52 | DOT 412 Corrosive Liquid Tanker | 1830 | Corrosive | Empty Sulfuric Acid-Safford to Miami |
| 08:56 | DOT 407 Low Pressure Tanker 7958 | 1830 | Corrosive | Sulfuric Acid (93 to 98%) |
| 08:56 | Plastic Wrapped Flat Load | 3077 | Miscellaneous | Copper Concentrate-Arsenic-Nickel |
| 09:15 | DOT 407 Low Pressure Tanker PAT114 | 1830 | Corrosive | Sulfuric Acid (93 to 98%) |
| 09:16 | DOT 407 Low Pressure Tanker 7974 | 1830 | Corrosive | Sulfuric Acid (93 to 98%) |
| 09:21 | DOT 407 Low Pressure Tanker PAT107 | 1830 | Corrosive | Empty Sulfuric Acid-Safford to Miami |
| 09:30 | DOT 412 Corrosive Liquid Tanker PAT69 | 1830 | Corrosive | Empty Sulfuric Acid-Safford to Miami |
| 09:50 | DOT 412 Corrosive Liquid Tanker 7955 | 1830 | Corrosive | Sulfuric Acid (93 to 98%) |
| 09:52 | DOT 412 Corrosive Liquid Tanker 7966 | 1830 | Corrosive | Sulfuric Acid (93 to 98%) Fully Loaded |
| 09:59 | DOT 407 Low Pressure Tanker PAT99 | 1830 | Corrosive | Loaded Miami to Safford-Sulfuric Acid |
| 10:09 | DOT 412 Corrosive Liquid Tanker 7977 | 1830 | Corrosive | Empty – Westbound Safford to Miami |
| Total Trucks (First Two Hours): | | | 20 Trucks/Cargo Tankers | |

Haz-Mat Identified

| Time | Cargo Trailer Type | Placard(s) | Hazard Classification | Hazardous Material Load |
|---|---------------------------------------|------------|--------------------------------|---------------------------------------|
| 10:17 | DOT 407 Low Pressure Tanker 7968 | 1830 | Corrosive | Empty Sulfuric Acid-Safford to Miami |
| 10:20 | DOT 412 Corrosive Liquid Tanker | 1993 | Corrosive | Empty Sulfuric Acid-Safford to Miami |
| 10:31 | DOT 407 Low Pressure Tanker 349 | 1830 | Corrosive | Sulfuric Acid (93 to 98%) |
| 10:32 | DOT 412 Corrosive Liquid Tanker 348 | 1830 | Corrosive | Empty – Safford back to Miami |
| 10:43 | DOT 412 Corrosive Liquid Tanker PAT84 | 1830 | Corrosive | Empty Sulfuric Acid-Safford to Miami |
| 10:43 | DOT 407 Low Pressure Tanker 817 | 1830 | Corrosive | Empty Sulfuric Acid Safford to Miami |
| 10:43 | DOT 412 Corrosive Liquid Tanker PAT84 | 1830 | Corrosive | Empty Sulfuric Acid Safford to Miami |
| 10:50 | DOT 407 Low Pressure Tanker T379 | 1830 | Corrosive | Empty Sulfuric Acid-Safford to Miami |
| 10:57 | DOT 407 Low Pressure Tanker T317 | 1830 | Corrosive | Empty (returning to get a load) |
| 10:58 | DOT 407 Low Pressure Tanker 7956 | 1830 | Corrosive | Empty Sulfuric Acid-Safford to Miami |
| 11:09 | Covered (Tarp)Sided Truck (Solid) | 3077 | Miscellaneous | Copper Concentrate – Arsenic-Nickel |
| 11:11 | DOT 407 Low Pressure Tanker T376 | 1830 | Corrosive | Empty Sulfuric Acid-Safford to Miami |
| 11:36 | DOT 407 Low Pressure Tanker 7949 | 1830 | Corrosive | Empty Sulfuric Acid Tanker |
| 11:41 | Mixed Cargo Boxed Truck (Heritage) | 5.1 | Dangerous | Aerosols, Adhesives, Paint, Solids |
| 11:41 | Covered (Tarp)Sided Truck (Solid) | 3077 | Miscellaneous | Copper Concentrate – Arsenic-Nickel |
| 12:35 | Covered (Tarp)Sided Truck (Solid) | 3077 | Miscellaneous | Copper Concentrate – Arsenic-Nickel |
| 12:39 | DOT 407 Low Pressure Tanker 7963 | 1830 | Corrosive | Empty Sulfuric Acid Tanker |
| 12:41 | DOT 407 Low Pressure Tanker 7946 | 1830 | Corrosive | Empty Sulfuric Acid Tanker |
| 13:10 | DOT 412 Corrosive Liquid Tanker T105 | 1830 | Corrosive | Loaded Miami to Safford-Sulfuric Acid |
| 13:11 | DOT 412 Corrosive Liquid Tanker PAT82 | 1830 | Corrosive | Empty – Westbound Safford to Miami |
| Total Trucks (Next Three Hours – 1000-1300 Hours): | | | 40 Trucks/Cargo Tankers | |

Haz-Mat Identified

| Time | Cargo Trailer Type | Placard(s) | Hazard Classification | Hazardous Material Load |
|---|----------------------------------|------------|-------------------------|---------------------------------------|
| 13:12 | Intermodal Tank 101 | 5.1 | Corrosive | Hydrogen Peroxide Aqueous Solution |
| 13:27 | UN Portable Tank | 5.1 | Corrosive | Hydrogen Peroxide-Solution 60% |
| 13:53 | Mixed Cargo Boxed Truck | 3266 | Flammable | Paint, Acetone, KOH, Corrosive Liquid |
| 14:14 | DOT 407 Low Pressure Tanker T380 | 1830 | Corrosive | Sulfuric Acid (93 to 98%) Loaded |
| 14:26 | DOT 407 Low Pressure Tanker T315 | 1830 | Corrosive | Sulfuric Acid (93 to 98%) Loaded |
| Stopped Pulling in Trucks because of an Acetone Spill on a Mixed Cargo Boxed Truck | | | | |
| Total Trucks (Next 1 ½ Hours – 1300-1430 Hours): | | | 45 Trucks/Cargo Tankers | |

| Number | Vehicle Description | Class | Division | ID # | ERG Guide |
|--------|--|--------------|----------|------|-----------|
| 35 | Corrosive Tanker Truck | Corrosive | 8 | 1830 | 137 |
| 2 | Boxed Trailer Mixed Load | Dangerous | 8 | | 111 |
| | | Flammable | 3 | 1993 | 128 |
| | | Corrosive | 5.1 | 1760 | 154 |
| 6 | Tarped Waste Trailer Environmentally hazardous waste | Copper Waste | 9 | 3077 | 171 |
| 2 | Hydrogen Peroxide | Oxidizer | 5.1 | 2015 | 143 |

Discoveries

- During this CFS it was determined that Sulfuric Acid is the most common Hazardous Material being transported on Highway 70.
- The second most commonly transported material is Tarped Hazardous Waste.
- See Guides 137 and 171

Emergency Response Guides – Sulfuric Acid

GUIDE SUBSTANCES - WATER-REACTIVE - CORROSIVE 137

POTENTIAL HAZARDS

HEALTH

- CORROSIVE and/or TOXIC; inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns or death.
- Fire will produce irritating, corrosive and/or toxic gases.
- Reaction with water may generate much heat that will increase the concentration of fumes in the air.
- Contact with molten substance may cause severe burns to skin and eyes.
- Runoff from fire control or dilution water may cause pollution.

FIRE OR EXPLOSION

- EXCEPT FOR ACETIC ANHYDRIDE (UN1715), THAT IS FLAMMABLE, some of these materials may burn, but none ignite readily.
- May ignite combustibles (wood, paper, oil, clothing, etc.).
- Substance will react with water (some violently), releasing corrosive and/or toxic gases and runoff.
- Flammable/toxic gases may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.).
- Contact with metals may evolve flammable hydrogen gas.
- Containers may explode when heated or if contaminated with water.
- Substance may be transported in a molten form.

PUBLIC SAFETY

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate enclosed areas.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

EVACUATION

Spill

- See Table 1 - Initial Isolation and Protective Action Distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

SUBSTANCES - WATER-REACTIVE - CORROSIVE GUIDE 137

EMERGENCY RESPONSE

FIRE

- When material is not involved in fire, do not use water on material itself.

Small Fire

- Dry chemical or CO₂.
- Move containers from fire area if you can do it without risk.

Large Fire

- Flood fire area with large quantities of water, while knocking down vapors with water fog. If insufficient water supply: knock down vapors only.

Fire involving Tanks or Car/Trailer Loads

- Cool containers with flooding quantities of water until well after fire is out.
- Do not get water inside containers.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.
- Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.
- Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Small Spill

- Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
- Use clean, non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.
- Prevent entry into waterways, sewers, basements or confined areas.

FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.
- Removal of solidified molten material from skin requires medical assistance.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

Emergency Response Guide- Hazardous Waste

GUIDE 171 SUBSTANCES (LOW TO MODERATE HAZARD)

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- Some may burn but none ignite readily.
- Containers may explode when heated.
- Some may be transported hot.
- For UN3508, be aware of possible short circuiting as this product is transported in a charged state.

HEALTH

- Inhalation of material may be harmful.
- Contact may cause burns to skin and eyes.
- Inhalation of Asbestos dust may have a damaging effect on the lungs.
- Fire may produce irritating, corrosive and/or toxic gases.
- Some liquids produce vapors that may cause dizziness or suffocation.
- Runoff from fire control may cause pollution.

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Spill

- See **Table 1 - Initial Isolation and Protective Action Distances** for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

SUBSTANCES (LOW TO MODERATE HAZARD) GUIDE 171

EMERGENCY RESPONSE

FIRE

Small Fire

- Dry chemical, CO₂, water spray or regular foam.

Large Fire

- Water spray, fog or regular foam.
- Do not scatter spilled material with high-pressure water streams.
- Move containers from fire area if you can do it without risk.
- Dike fire-control water for later disposal.

Fire involving Tanks

- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent dust cloud.
- Avoid inhalation of asbestos dust.

Small Dry Spill

- With clean shovel, place material into clean, dry container and cover loosely; move containers from spill area.

Small Spill

- Pick up with sand or other non-combustible absorbent material and place into containers for later disposal.

Large Spill

- Dike far ahead of liquid spill for later disposal.
- Cover powder spill with plastic sheet or tarp to minimize spreading.
- Prevent entry into waterways, sewers, basements or confined areas.

FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Next Steps

- ITCA recommends additional unannounced commodity flow studies.
- Hazardous Materials training for LE, Fire/EMS, Public Health and Hospital staff on most common Hazardous Materials.
- Working on administrative legislation to charge trucking companies a Haz-Mat fee for transporting Haz-Mat on Highway 70.



Conclusion

- Additional training in the areas of Commercial Vehicle enforcement and inspection are recommended (two weeks, LE Only).
- Identification of needed Haz-Mat equipment and PPE for all responders.
- Development and implementation of a comprehensive Haz-Mat Response plan which address most common and present Haz-Mat.



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THANK YOU!

