U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Hormigueros Pyrotechnics - Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region II

Subject: **POLREP #2**
Hormigueros Pyrotechnics
A25M
Hormigueros, PR
Latitude: 18.1295900 Longitude: -67.1091500

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From: Dilshad Perera, On-Scene Coordinator
Date: 7/22/2015
Reporting Period:

1. Introduction

1.1 Background

Site Number:	A25M	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	
Response Authority:	CERCLA	**Response Type:**	Emergency
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	6/1/2105	**Start Date:**	
Demob Date:		**Completion Date:**	
CERCLIS ID:	PRN000201799	**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category
Emergency Response

1.1.2 Site Description
On May 26th 2015, a fire and explosion occurred at an illegal pyrotechnics storage warehouse. The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) attributed the cause of the fire to be as a result of improper installation that may have influenced the overload, arcing and causing the molten material to be expelled.

The warehouse is divided into three bays and suffered significant damage, particularly the middle bay which housed the illegal pyrotechnics. The middle bay's roof is all but nonexistent as are the front and side walls.

Pyrotechnics contain salts of heavy metals such barium, strontium, lithium and copper to generate specific colors. In addition older pyrotechnics may also contain lead salts as a primer. The resultant ash – estimated at approximately 100 cubic yards – may contain these heavy metals.

1.1.2.1 Location

The warehouse is located in Hormigueros, Puerto Rico. Within 100 yards of the warehouse is a large residential development as well as a large supermarket. Directly across the street is an unnamed stream to which storm-drain water discharges into. This unnamed stream drains into a second unnamed stream – at the confluence of which a school of large fish was oberved.

1.1.2.2 Description of Threat

There is potential of heavy metals such as barium, copper, lead, strontium and lithium being present in the ash. Barium and lead also have the potential of exhibiting Toxicity Characteristic. Copper can, even in low concentrations be acutely toxic to all aquatic life.

Significant portion of the ash – approximately 100 cubic yards – is stockpiled in the middle bay which no longer has a roof or side and front falls, there is a potential for the ash to migrate through wind and tropical rainfalls.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

EPA obtained written access agreement from property title holder on June 16th, 2015. On June 17th, 2015, EPA, RST and EQB met on site to collect five (5) samples. The samples were analyzed for Toxicity Characteristics, Total Metals (TAL) and semi-volatile organics.

The results indicated elevated levels of copper between 80mg/kg and 23,000mg/kg. Elevated levels barium was also detected - between 1,630mg/L and 2,800mg/L. The Toxicity Characteristic results for barium, however, were well belove RCRA levels

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

2.1.2 Response Actions to Date

- The material is difficult to ignite and set off the live pyrotechnics – occasional popping was observed.
- On July 20th, 2015, the PRPD returned the pyrotechnics they had removed during the initial fire and explosion due to public safety concerns.
- The returned pyrotechnics were introduced to the box to be ignited – making the assumption that the live/spent pyrotechnics contained enough inert material to support a fire. However, the returned pyrotechnics also did not successfully ignite
- Given all the observations, OSC contacted CEPD, RCRA staff. On July 23rd, 2015, CEPD-RCRA evaluating all the circumstance concluded that the material no longer exhibited the characteristics of reactivity.
- On July 29th, 2015, a Request for Proposal was issued for disposal of the material as non-RCRA hazardous waste with a response date of July 30th, 2015.
- The waste will be disposed of at a local industrial landfill.
- In the initial Task Order, only $150,000 was issued as a verbal. However, in order to bind to the subcontract agreement, the additional $50,000 was required.
- ERRS crew was demobilized on July 30th, 2015 whilst the additional monies required was issued to the Task Order.
- On July 31st, 2015 after exhaustive search online to determine why some of the intact pyrotechnics could not be set off, the OSC found Pyrotechnics Guild International – they provide training for professionals in the pyrotechnics industry – and spoke to their director.
    - All pyrotechnics are based on black-powder – a mixture of carbon, sulfur and potassium nitrate in an appropriate ratio
    - In order for the black-powder to ignite, there has to be a mechanical closeness of the three substances.
    - This is achieved by a milling process during manufacture.
    - Once the black-powder is sufficiently wetted, the potassium nitrate dissolves.
    - As the black-powder dries, the potassium nitrate re-crystalizes.
    - However, the regrown crystals – in part because of the slow evaporation – are much larger than the original milled variety.
    - Once this happens, the black-will never ignite, short of re-milling.
    - This explains why some intact pyrotechnics did not ignite (too soaked as a result of the firefighting efforts) and some did ignite (not enough firefighting water penetrated the pyrotechnics)
- On August 3rd, 2015, the Fair Opportunity Act paperwork was submitted.
- On August 3rd, 2015, EPA met with a supervisor within PRPD Bomb Squad to discuss EPA's observations and findings regarding deactivating pyrotechnics
    - EPA described the physical changes that occur to the black-powder when wetted and the subsequent rendering the pyrotechnics inactive even upon subsequent drying.
    - This is a far less costly approach to dealing with the ongoing issue of illegal pyrotechnics storage throughout Puerto Rico,
    - Arrangements were made with PRPD to visit the selected industrial landfill to observe the EPA waste being wetted and solidified.
- On August 4th, 2015, EAS procurement was submitted.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*

2.2 Planning Section

No information available at this time.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

No information available at this time.

4. Personnel On Site

No information available at this time.

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.