

Rock Mining Task Force Recommendations September 4, 2018

In the Final Report of Contract FM410, a report entitled "Construction Materials Mining Activities Consultation and Study Preparation Services," RESPEC emphasized time and budget constraints as the reason for many of the unverifiable data. They also mentioned the need for a study that addresses structural damage to residential structures near a mine site in Florida, as well as recognizing the social impact of ground vibration in the population near the southeastern region. They believe that "the blast vibrations characteristics in southern Florida (long duration, low frequency) are likely why the vibrations are noticeable, even though the vibrations have low amplitude."

The Task Force respectfully recommends the following:

- A new study (ala 8507) that is:
 - Specific to Florida, possibly to each region of state as defined in Final Report
 - Uses real houses/structures and residents in affected areas
 - Consider many aspects such as physical and psychological effects to individuals

Study needs to use multiple variable groups of residential and commercial dwellings well outside of blasting areas versus control group(s) of residential and commercial dwellings well within blasting areas. Data will be collected and compared among observed groups to identify whether or not identical structural effects are visible/noticeable among groups.

- Limit ground vibration to a level that is imperceptible to persons occupying residences and/or commercial properties that lie within .25 miles of any portion of the mining site.*

**Miami-Dade and Broward Counties are densely populated counties and therefore need a considerably narrower radius of "imperceptibility" of blasting effects. Other areas of the state of Florida may have wider radii of "imperceptibility" of blasting effects that are more appropriate depending on factors such as population density, residences'/businesses' proximity to blasting areas, etc.*

- Return regulatory and oversight authority State to local governments.
- Shorten permit period from 10 years to 5
- Permit suspension for 3 or more violations within current permit period
- Require notice to neighboring municipalities (FAC 69A-2.024, section 8A)
- Hire experts in CFO's office for data interpretation (i.e. seismologists, vibration engineers , etc.)
- Repeal DOAH, return Jurisdiction to civil court (as was prior to 2003)
- Extend statute of limitations to file claims for property damages to three years
- Continue to use seismographs to monitor all blasting levels and calibrate to monitor frequencies below 2Hz (Implement recommendations from RESPEC regarding seismographs).
- Ensure that seismographs are situated correctly in foundation at the nearest residence, verify via GPS

The following are additional recommendations taken from report entitled "Construction Materials Mining Activities Consultation and Study Preparation Services," by RESPEC:

- Since seismograph placement and calibration are recurrent issues found throughout the study, it should be noted the need to implement RESPEC recommendation of changing the FAC to reference the most current version of the ISEE Field Practice Guidelines for Blasting Seismograph. They also recommend a follow-up study addressing Florida's frequencies below 2Hz.
- Consider frequency when determining limits, not just particle velocity.
- RESPEC recommends that the FAC require an electronic report of each vibration record and the raw seismograph file (raw data) to be available so that the waveform can be analyzed.
- GPS coordinates of the seismograph location are needed. RESPEC stated that about 20% of seismographs may have been placed at a different location (not at the nearest residence).
- GPS coordinates of the blast locations are needed. This is the only way to verify seismograph placement with complete accuracy.
- Blasting reports need to include both frequency and particle velocity, blast date and time, seismic reading, and should be made publicly available.
- Weekly Blasting schedule must be posted on State Fire Marshal's website in a timely manner.
- Standard complaint report form. Each complaint report should have tracking number for accountability purposes and deadline for investigator to address complaint.
- The SFM should require training (continuing education) for blasters* and seismograph operators. RESPEC noted that "no oversight over the quality of that training is currently being conducted." Seismograph placement and operation can affect the accuracy of the readings (FAC 69A-2.024, section 4D). **"Blasters" refers to the operators/contractors that are conducting the blasting portion of the mining operation.*
- SFM inspectors are not seismologists. They are not vibration engineers, geologists, or blasters either. For the most part, they are former firefighters with very basic knowledge on blast vibration. RESPEC recommends that "they attend OSMRE blaster training course to better understand the nature and effect of blast vibrations so they can better inform the public."
- VERY IMPORTANT: 74% of the recorded ground vibration events had a frequency content below 2 Hz. The industry typically keeps seismographs calibrated to 2 Hz. Improper calibration = inaccurate data. RESPEC acknowledged that particle velocity amplitudes could be higher than those reported when frequency content is below 2 Hz. Furthermore, when addressing ISEE seismograph standards call for accuracy, they stated that "the amplitude at 2 Hz could be 70-80 percent of the input value." This range could represent a significant difference between the reported particle velocity and the observed one.
- The FSFM **should** sponsor a study to determine seismograph specifications that apply to the unique blast vibration characteristics that occur in Florida.

The following are recommendations of a communicative nature:

- More frequent town hall meetings with legislators of affected areas
- Improved and regular communication from legislative offices from affected area
- Create standard form for residents in affected areas, to be disseminated to the Fire Marshall and local and state legislators, whereby the following questions are asked*:
 - Address
 - Date
 - Time
 - Estimated duration of blast
 - What was felt by person filing form
 - Contact information of complainant
 - Brief description of damage
 - USGS description of seismic magnitude (Richter Scale) should be included and person filing form asked to indicate which one coincided to reported blast

**Form should be online and easily accessible on State Fire Marshal's website and should have an individual tracking number*