

Recording Bakken Crude Trains

Draft Protocol developed by FracTracker Alliance and Carnegie Mellon University's CREATE Lab
For more information please contact info@fractracker.org
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Site Selection

Select a set of sites that cover possible train paths through the area of concern with as many of the following characteristics as possible:

- Public place off of the road
- Good lighting at night
- Safe at night
- Location where trains move more slowly, if possible
- Avoid more than 2 tracks in parallel. Parallel tracks create the possibility of missing a train that's obscured by another train.

Train Counting Equipment

Necessary:

- At least 2 people, for safety and counting logistics
- Clipboard & pen
- Blank train reports (at least 10 for every hour that you plan to count). See page 3.
- "Atomic" clock, or cellphone with clock app that displays seconds
- Phone with camera to record the session where needed and take still photographs

Suggested:

- Radar gun
- Canon Vixia HF R52 camcorder
- Extra batteries
- Tripod
- Large category 10 SD card, e.g. [PNY 128GB Class 10](#).
- A large umbrella or tent that can cover both the observers and the camera, when needed.
- Chairs and other amenities to make sure observers are comfortable

How to Count Trains

1. Fill out a new Report form with your name, the date, and start time. Having 2 people count and record each train is ideal so that you can compare results.
2. If using a video camera to record the trains, make sure camcorder time is accurate and set up the camcorder on the tripod. Rotate the camera into "portrait" orientation. Zoom so that the tracks are visible at the bottom. Touch the tracks on the screen to ask camera to auto-focus and adjust brightness for the tracks. (Otherwise the camera will lock onto the far background, which might not be what you want).
3. Start of train –
 1. If you have camcorder, start recording as soon as you hear or see train in the distance

2. On your clipboard, record time as start of train passes your location
3. For each car or engine that passes you - Indicate how many of each car or train engine that passes your location. Every car should be recorded exactly once. If you couldn't tell which of the 2 categories a car matches, record under "unknown/could not discern." The goal is to categorize every car or engine that passes you into 3 types: Crude oil, liquefied petroleum gas, and "other."
 1. **1267** hazmat placard (crude oil)
 2. **1075** hazmat placard (liquefied petroleum gas, e.g. propane)
4. End of train –
 1. On your train report, record time as end of train passes your location.
 2. Stop the camcorder.
 3. Include any notes about the count, such as the chance that cars were missed. If you couldn't discern certain placards, try to include some insight on whether the situation could be improved by better lighting or site selection, or if the train's fast speed made it hard to keep up, etc.
5. Send information about your train counting results and experience to FracTracker Alliance: info@fractracker.org. We'd love to hear how it went.

Videotaping Best Practices

- Even during broad daylight it might be difficult to clearly videotape the trains if they are moving quickly. Try to find a counting location where the trains move slowly (e.g. 25 mph)
- Test out the iPhone's new slow motion camera feature
- Set the video camera up at least 30 frames per second. 60 frames/second is better.
- Don't zoom, as this results in a dark aperture. Try finding a site and setting up close enough that you can get a good shot (but far enough away for safety purposes)



Icon of guy running ("Sports" mode for fast shutter)

SD (recording to SD card)

PF30 (Capture full 1080-line frames, 30 times per second)

AVCHD (Compression format)

MXP (Compression quality)

Rectangle on the tracks for auto-focus and exposure

Train report

Date: ____ / ____ / ____

Time when train initially arrives at your location: ____:____ AM / PM

Location (address or GPS): _____

Person reporting: _____

How many train cars marked with one of these two placards did you witness?



1267 hazmat placarded car (crude oil):



1075 hazmat car (liquefied petroleum gas):

After Train Passes

Time when train has left your location: _____

Total number of cars on train: _____

Were you able to make out all the cars? Yes _____

No _____ (if no, please elaborate below)

Train direction (circle one): Left / Right

Train Operator (Company): _____

Notes: _____

Be sure to include information about what might be missing or uncertain -- if there were two trains at once, or if you missed some cars for any reason. If you missed or couldn't discern cars, try to include some insight on whether the situation could be improved in the future by better lighting or site selection, or if the train's fast speed made it hard to keep up, etc. Remember to send your results to info@fractracker.org.