



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Michigan TENORM Update for IOGCC

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Michigan TENORM Regulations

- Department of Environment, Great Lakes and Energy
 - Oil, Gas, and Minerals Division
 - Monitors oil and gas permitted locations for TENORM
 - Radiological Protection Section
 - No licensing (yet)

Michigan TENORM Regulations

- Landfill Disposal
 - Landfills can accept up to 25 pCi/g or 50 pCi/g Ra-226 and Ra-226 and 260 pCi/g Lead-210 with a monitoring program
- Downhole Disposal >50 uR/hr at Plugging
 - At least 100' below freshwater zones
 - Between cement plugs or encased in cement
 - 50' cement plug on top (and tagged)
 - Recorded on plugging records

Michigan TENORM Regulations

- Flowlines
 - more than 30" deep and less than 1000 uR/hr may be flushed, capped and abandoned in place
- Active wellsites and production facilities
 - Restrict access to public if TENORM present greater than 50 uR/hr
- Soil guidelines
 - Surficial soil limit 5 pCi/g
 - Sampling not required if survey of soil indicates less than 20 uR/hr

Orphan Well & TENORM

- Received 25M initial grant
- Orphan Well Scoring Checklist – includes TENORM 0-49 or 50+ uR/hr
 - Of the 440 orphan wells and 66 facilities, 1% have TENORM > 50 uR/hr
 - Orphan well team is actively gathering data pre-plugging using scintillometers.
- Disposal of TENORM within orphan well
 - encapsulated downhole following existing regulations

TENORM Data Collection

- Objective to obtain a statistically significant dataset
- Ensure consistency of the data by controlling entry options

Field Maps 9:43 AM

OGMD INSPECTION NOTES- WELLS- TENORM

Site Name:
61155 MATA 2-23

Current Well Type:
OIL

Inspection Date: *
Monday, July 26, 2021

Inspect Type: *
TENORM

Inspect Purpose: *
Testing

Information Source: *
On-site Inspection

Observed Well Type: *

Verizon 10:02 AM

OGMD INSPECTION NOTES- WELLS- TENORM 2.0

TENORM

Common Measurements

Background (uR/hr)
All measurements allow one decimal point and 0-9999 as values.

Wellhead (uR/hr)

Soils (uR/hr)

Separators (uR/hr)

Tank Battery (uR/hr)

Verizon 10:02 AM

OGMD INSPECTION NOTES- WELLS- TENORM 2.0

Flowline and Piping Measurements

Facility Piping (uR/hr)

Inlet header pipes or manifold (uR/hr)

Flowlines Above Grade (uR/hr)

Flowlines Below Grade (uR/hr)

Equipment Measurements

Tubing/Rods on rack or ground (uR/hr)

Casing (uR/hr)

Verizon 10:03 AM

OGMD INSPECTION NOTES- WELLS- TENORM 2.0

Dehy/Tower (uR/hr)

Iron Sponge/H2S Equipment (uR/hr)

Line Heater/Heater Treater (uR/hr)

Pumps (uR/hr)

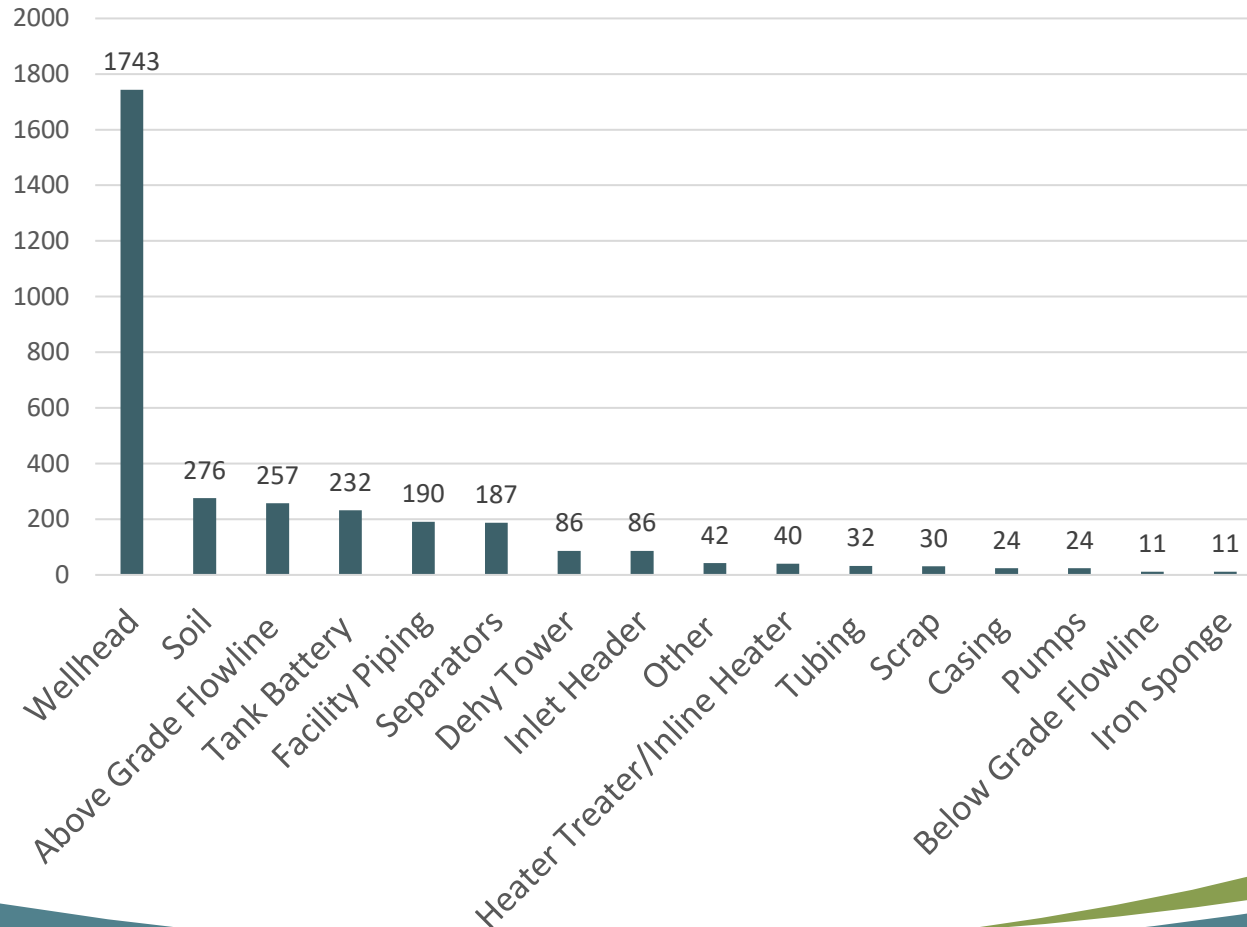
Scrap, Drums, other material (uR/hr)
Explain in Comments

Other (uR/hr)
Explain in Comments

TENORM Comments:

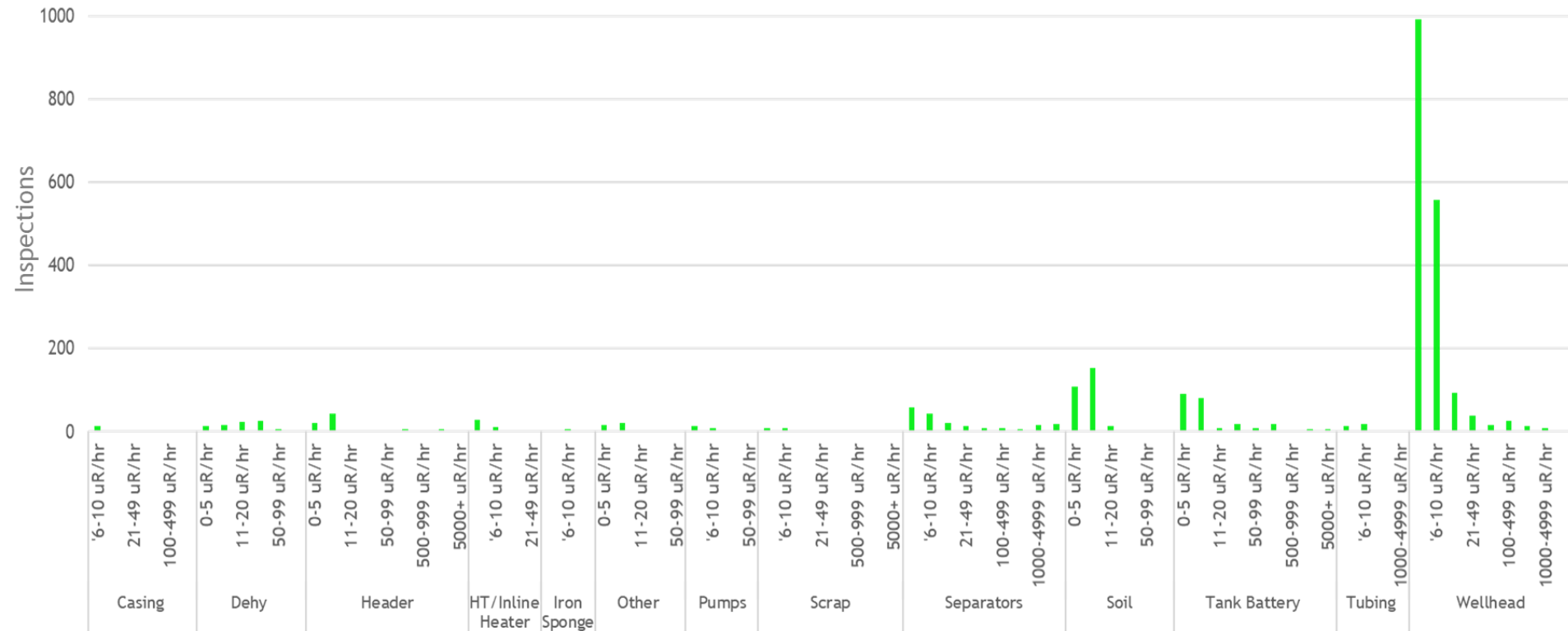
TENORM Data Collection

Where TENORM Levels were Measured During Inspection



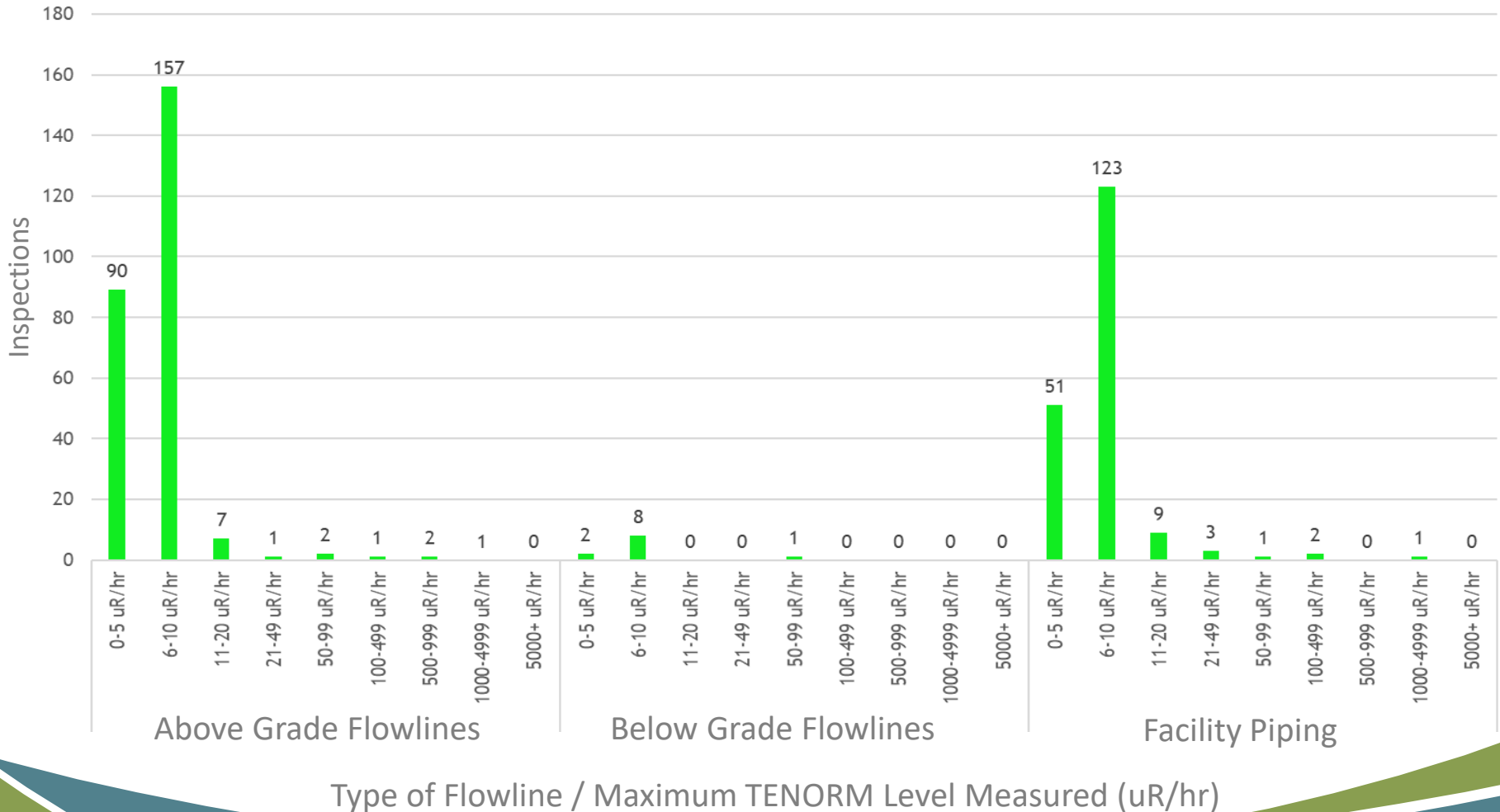
TENORM Data Collection

Where TENORM was measured with level (uR/hr)



TENORM Data Collection

Where TENORM was measured with level (uR/hr)

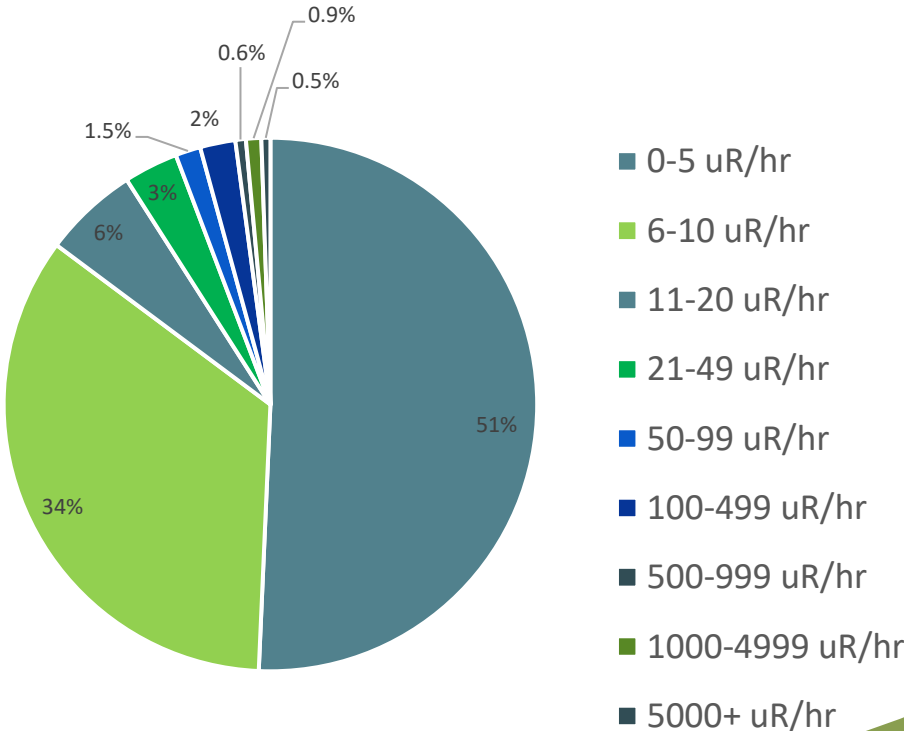
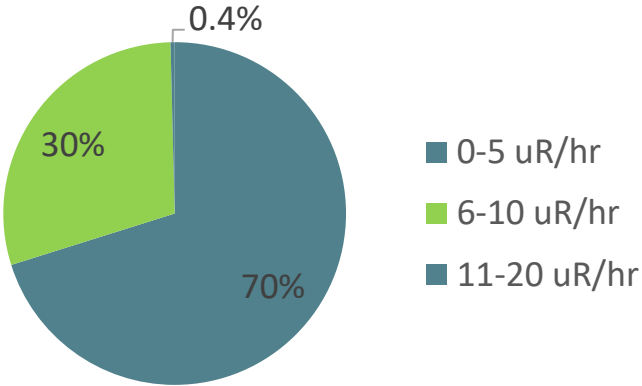


TENORM Data Collection

Statewide TENORM Levels

91% of all measurements collected under 20 uR/hr

Background Levels



Data presented based on 4544 inspections conducted in 2019, 2020, and 2021.