

GIS Standards – California Underground Safety Board

4216.3(a)(5) requires all new subsurface installations be mapped using GIS starting Jan 1, 2023

4216.3 (s) "Subsurface installation" means any underground pipeline, conduit, duct, wire, or other structure, except nonpressurized sewerlines, nonpressurized storm drains, or other nonpressurized drain lines.

Why do we need standards?

- Statute does not specify the level of accuracy required or how data should be collected
- Without regulatory guidance operators may use low-accuracy methods to gather location data
- CARCGA has called for minimum accuracy standards
- Staff focusing on 3 areas for potential regulation
 - Horizontal positional accuracy
 - Inclusion of specific components and attributes
 - Storage of metadata

Data Accuracy

- Board should consider setting a minimum horizontal positional accuracy requirement
 - One approach suggested accurate within 100mm (~4 inches)
 - Concept would apply to individual components within installation like pipeline segments rather than entire installation
- Considerations
 - Operators would be required to collect data while installation is visible or using trenchless methods
 - GIS Committee suggested each coordinate be recorded in decimal degrees with 6 decimal places
 - Data could be stored as an attribute of component or as metadata

Data Content

- Proposed that operators maintain records of components if present
 - Tracer wire or tracer tape, include location of above-ground access points
 - Marker balls
 - RFID devices along with frequencies
 - Protruding stubs and fittings
 - Pipe wraps, warning tapes, coatings or insulation
 - Pressurized sewage pipelines – required to indicate in records if qualifies as “high priority subsurface installation”. Also applies to:
 - High-pressure gas pipelines
 - Petroleum
 - High-voltage electric lines
 - Haz-mat pipelines

Metadata Storage

- Proposed that operators maintain metadata to ensure that GIS records are both accurate and transparent, providing users with necessary context to assess their reliability and fitness for use
 - Reference frame, coordinate system and epoch
 - Equipment used to capture the data
 - Date of data collection
 - Name of person attesting to the accuracy of the data

Update from Board Meeting 04/15/25

- 3 public commenters in favor of the standards, see great value in the regulation and requirements
- Board discussion
 - Within 100mm should be more than doable for installations
 - Some hesitancy to make the accuracy too prescriptive or tight at this point due to shifting alignment or movement over time
 - Repair accuracy may be reduced compared to installation due to less accurate equipment being used (cell phone vs. survey equipment)

Discussion

- SacSewer Collections Operations looking to comment on the accuracy standard

