Outstanding Issues in the Locate and Mark Process

From USA North 811's Perspective

California Underground Facilities Safe Excavation Board meeting – May 11, 2021

Abbreviations used: USAN = USA North 811; USAS = USA South (DigAlert); SEB = California Underground Facilities Safe Excavation Board; EPR = electronic positive response system, CGA = Common Ground Alliance

1. **EPR Responses.** USAN has received complaints from excavators alleging improper use of EPR codes by facility operators. USAN has also received complaints from operators alleging improper comments from excavators on tickets about EPR responses provided by operators. Included with this document are reports showing response code usage by USAN member facility operators and examples of comments provided by excavators. From USAN's perspective, the conflict is centered on three related issues, which are listed as items 2-4 below.
2. **On-time Locates.** USAN believes excavators are losing faith that their tickets will be marked on time. Per the CGA's 2019 DIRT report, the percentage of reported damages in which the root cause was identified as "no ticket" was 28% nationally. In California it was 40%. In previous years, many stakeholders assumed this was due to a lack of awareness of 811 and the problem could be solved by increased marketing. We now need to face the reality that many, if not most, of these no-ticket damages were caused by contractors who were aware of the 811 system but chose to not use it.
    a. Damage Tracking – When investigating a damage, if the facility operator determines the excavator did not have a ticket, the operator should probe to find out why the excavator did not have a ticket. Was the excavator not aware of the 811 system? Assumed the facilities would be deeper? Thought they were in a different area? Did not want to wait the time to have facilities marked? Assumed marks would be late and/or incorrect? Etc. And what type of excavator was digging without a ticket (homeowner, licensed contractor, unlicensed contractor, public works crew, facility operator in-house excavation crew, etc.)?
    b. USAN recommends that the SEB make this data capture mandatory so analysis can be performed, trends discovered, and targeted education campaigns created for excavators that dig without tickets.
    c. A contractor association has hired a consultant to conduct a study of how the locate and mark process works in several states in the western US. It seeks to identify challenges and successes. Part of its goal is to quantify how much money is being lost by excavators due to down time caused by no marks, late marks, and mismarks. The consultant believes the amount of money lost by excavators due to downtime caused by late marks far exceeds the amount paid by operators in penalties for not marking their facilities on time.
    d. The contractor representative on the national CGA's board of directors reported in a CGA committee meeting in April 2021 that the largest risk factor for contractors when preparing bids is how much down time will result from late markings.
3. **Noise in the System.** If facility operators are expected to mark every ticket on time, much needs to happen to make this requirement realistic. Note that this a struggle in every state in the nation. USAN believes the "noise" must be removed from the system.
    a. Planning & Design – Engineers and project designers should not be creating regular tickets for planning and design purposes when the excavation will not occur until weeks or months later. Included with this document is USAN's policy related to planning & design. This is

being used since there is nothing in GC 4216 or 19 CCR D4 that discusses plan & design. USAN recommends that the SEB create regulations or lead the effort to enact legislation that creates a plan & design process that must be followed for projects that meet certain criteria. USAN recommendations:

i. New ticket type "Plan & design ticket" allows facility operators more time to respond than a regular ticket. Other states with plan & design in their law allow 10-28 days to respond.
ii. Facility operators must provide maps, as-builts, and/or marks on the ground. Discussion should occur about whether facility operators should be able to charge engineers and designers for these services.
iii. Engineers and designers must create a plan & design ticket if their project is of a certain size, cost, and/or scope.
iv. Subsurface utility engineering (SUE) is required for certain types of projects. See new Colorado law as a reference. This has been widely praised nationally.
v. Other states are considering requirements to provide advanced notice to facility operators about large projects that will result in many tickets, such as fiber-to-the-home or power pole testing for a large area, so facility operators and contract locators can increase staff accordingly. Some states are discussing the concept of quotas in which no more than [X] tickets and/or or [Y] area can be requested to be located and marked by an excavator within [Z] timeframe.

b. Ticket Size – USAN and USAS have formed a "ticket continuity committee" (TCC) to standardize many operations between the two contact centers to provide a consistent experience for excavators, operators, and regulators that work in both service territories. The TCC has been working to create ticket size rules to reduce the maximum variation between tickets (e.g. one ticket's dig site is entirely within a single residential parcel but the next ticket encompasses multiple blocks in an urban area). Benefits to dividing a large project into multiple small tickets instead of having one large ticket include:

i. Shorter marking instructions reduces the risk of locator error. This was the finding of two large contract locating companies that studied ticket sizes across multiple states. A long paragraph of instructions describing a large area to be located and marked, such as along multiple roads, is more complex and difficult to interpret than several smaller tickets with one street per ticket.
ii. If there are multiple tickets, the entire project will not be delayed by a problem in the field, such as a locked gate. The excavator can start working on the other tickets in the area while the problem is resolved on the one ticket. But if the whole area is listed on one ticket, the whole project could be delayed by a locked gate.
iii. Tickets that are closer in size help locators manage their staffing better. Using the example listed in (b) above, an operator cannot simply assign [X] number of tickets per locator when one ticket could be a small residential lot and the next ticket several blocks long. Having smaller ticket sizes allows for more efficient labor allocation. A balance must be struck, of course, since too small of a ticket size means a lot more paperwork on the excavator's side to track the tickets.
iv. USAN recommends that the SEB create regulations or lead the effort to enact legislation so ticket size is enforceable. Several states have ticket size in their law.

4. **EPR as the Central Hub of Responses.** USAN believes excavators are being overwhelmed by communications sent to them when they create a ticket. USAN estimates that an ordinary ticket results in 8-10 email messages sent to the excavator. A confirmation email of the ticket is sent by USAN immediately after the ticket is created, then several operators send ticket-related emails (an

average of eight operators receive each ticket), and then USAN sends another copy of the ticket at the legal start date/time that lists the EPR responses submitted by each operator. Not every operator sends an email to the excavator, but some send multiple. The number of emails can increase if high priority facilities are in the area, if facilities cannot be located using standard techniques, etc.

a. USAN is aware of a recent damage in which an excavator did not see an email from a public works department telling him not to dig in an intersection. He dug and damaged an unmarked facility. He told the investigator that he did not see the email telling him not to dig because he is overwhelmed by the number of ticket-related emails sent to him, especially since most are messages saying the operator is clear, the operator will be coming to mark, or the facilities have been marked. He feels the number of non-urgent messages has created a "boy who cried wolf" situation in which urgent emails get lost in a sea of non-urgent ones.
b. GC 4216(e) defines electronic positive response as "an electronic response from an operator to the regional notification center providing the status of an operator's statutorily required response to a ticket." USAN interprets this to mean that the operator must respond to the excavator and then document that response in EPR. USAN believes excavators would be less overwhelmed if the operator was not required to respond to the excavator directly but could instead reply to the EPR system only. This would not prevent the operator from communicating with the excavator, but it would filter non-urgent communications to EPR, allowing urgent ones sent directly to the excavator to be seen more easily.
c. USAN recommends that the SEB study this issue and then lead the effort to enact legislation that modifies GC 4216 to allow operators to respond only to EPR instead of to the excavator directly. USAN recommends that part of this legislation includes a requirement for excavators to check EPR before commencing excavation.
d. USAN and USAS applied for a federal grant to build a "ticket management system for excavators" (software) that would help keep track of ticket-related communications. However, USAN still believes the SEB can help by requiring excavators to check the EPR system before commencing excavation.

Other issues not directly related to the scope of this document but that need attention from the SEB.
USAN asked SEB to discuss the issue listed in item 1 of this document. SEB staff directed USAN to identify issues within the purview of the SEB; this document was created in response to that directive. While items 1-4 relate to the original topic of EPR response code usage, other factors contribute to the complexity of the overall locate and mark process in California. These include:

5. **Renewals.** In 2020, USAN processed 668,894 Renewal tickets, which constituted 37.8% of total tickets processed. In contrast, USAN processed 33,981 Re-Mark tickets, which constituted 1.9% of total tickets processed. Either our excavators are good at maintaining the markings in the field after they are applied by the facility operators, or Renewals are being abused. USAN suspects the latter.
    a. USAN recently began performing analysis on Renewals and will have a detailed report for the SEB within the next month or so. An initial query shows that 1,882 tickets were renewed for the 15th time in 2020. Another 545 tickets were renewed for the 16th or 17th time in 2020; 17 was the max time a ticket in USAN territory was renewed in 2020. Large projects like road reconstruction may certainly require renewing a ticket that many times; USAN will begin looking at work type to determine how many tickets were renewed in which the work would likely not take very long to complete once the excavation begins.

This will provide some data to help us understand how often excavators are creating their tickets too early.

i. Osmose Utility Services, which performs treatment and testing on power poles, processed 235,146 Renewals in 2020. USAN has been told that this type of work can be completed in less than one day once excavation begins.

b. Southwest Gas recently started a "Renewal Initiative Program" in which they send personnel in the field to check on Renewals to confirm the markings are still visible. In Q1 of 2021, they shut down 270 jobs and required the excavator to submit a Re-Mark or New ticket because the markings were not clearly visible and thus a Renewal should not have been submitted. That was in Clark County, Nevada, only. USAN believes similar findings would occur in California if operators chose to field-check Renewal tickets.

c. USAN recommends that the SEB require operators to track how many damages occur because the markings were not clearly visible and the excavator was digging under a Renewal ticket when he/she should have submitted a Re-Mark or New ticket instead.

d. USAN recommends that the SEB consider creating regulations or legislation that specifies a maximum number of times a ticket can be renewed before a new ticket must be created in which the operators will provide fresh markings. Nevada law allows a ticket to be renewed a maximum of two times before a new ticket must be created.

e. USAN recommends that the SEB consider modifying the process in which an excavator can request fresh markings. GC 4216.3(b) specifies "Excavation shall cease in the area to be remarked." USAN believes the intent of a Renewal is a good idea, because it saves the resources of operators by not requiring them to provide fresh markings every 28 days for projects that are not completed during the life of the original ticket if the original markings are still visible. But because excavation must cease in the area to be re-marked, USAN believes many excavators are allowing the markings to slowly fade until they are no longer clearly visible, which creates a safety issue. Getting data on how often damages occur because of this situation would help the SEB know if the process of Renewal vs. Re-Mark should be revised.

6. **Abandoned Facilities.** If a facility is properly abandoned, it is no longer connected to the rest of the utility network and above-ground appurtenances, meaning it cannot be located using standard locating techniques. This complicates the requirement in GC 4216.3(a)(1)(C) for operators to mark the locations of abandoned facilities. USAN recommends that the SEB gather data about damages in which an abandoned facility contributed to the damage, such as occurrences when the excavator uncovers an unmarked abandoned facility but believes it is a live facility that was marked, and then proceeds to damage the live facility. One possible solution is to have the one-call centers store records about the abandoned facilities and provide them to excavators when a ticket is created in the area in which the facility was abandoned.
7. **Emergency Tickets Start Date/Time.** Included with this document is USAN's internal policy about how to respond to an excavator who asks this question: "All facility operators have responded to my ticket. Can I begin digging before the legal start date/time?" USAN recommends that the SEB provide interpretation of existing law, since excavators dig every day before the legal start date/time, especially on emergency tickets. For example, if all operators have posted a response to the EPR system, and all of these responses are of the variety that confirm they are finished responding to the ticket, can the excavator begin digging before the legal start date/time? Or must the excavator contact each operator directly to "agree to a different notice and start date" as specified in GC 4216.2(b)?
8. **Caltrans.** Clarification is needed about how Caltrans must respond when an excavator contacts them directly and asks them to mark their facilities. USAN has received several complaints about Caltrans

not marking their facilities and then billing excavators for repair costs when their facilities are accidentally damaged by the excavator. GC 4216.1 specifies Caltrans does not need to be a member of the one-call centers, but they are not exempted in the definition of operator in GC 4216(o), and 4216.5 specifies "the requirements of this article apply to state agencies…" USAN recommends that the SEB provide interpretation about Caltrans' required compliance with GC 4216.

9. **Exemptions for Nonpressurized Sewer and Drain Lines.** These facilities are not considered to be subsurface installations, as specified in GC 4216(s) and the owners of these facilities are not considered to be operators, as defined in GC 4216(o). Thus, these types of facilities are not required to be marked in the field, which has led to several damages. In one situation, an excavator accidentally crushed an unmarked nonpressurized sewer main while setting a power pole, causing raw sewage to back up into several homes. USAN believes these facilities were exempted from participation because they have not historically been mapped accurately and because they are not typically buried with tracer wire. USAN recommends that the exemption for these facilities be removed. If that cannot occur immediately, USAN recommends that SEB conduct a workshop and/or begin the process to require these facilities to be mapped, with the not-too-distant goal that these facilities be considered subsurface installations.
10. **Allowance for Public-sector Agencies to Charge for Locating and Marking.** GC 4216.5 allows local agencies to charge "a fee in an amount sufficient to cover the cost" of responding to tickets. USAN recommends that the SEB create a regulation that specifies that local agencies cannot recoup these costs by directly charging excavators for tickets. USAN recommends these costs be recouped through permit fees, or simply on their utility customer's bills as part of capital projects or asset protection costs. Allowing operators to charge for locating and marking disincentivizes excavators from creating tickets, which undermines the education and outreach efforts made by the SEB, one-call centers, CARCGA, and other stakeholders to promote the "call 811 before you dig" process.
11. **Private Property Exemption.** GC 4216.2(d) specifies that an excavator does not need a ticket if the excavation work will be performed on private property and does not require a permit. USAN recommends that the SEB study this issue and then take the lead on enacting legislation to remove this exemption. USAN recommends that the legislation include a clause that would prevent a homeowner from being subject to a civil penalty for digging in his/her own yard without a ticket, but USAN recommends that the homeowner be required to pay repair costs if he/she digs without a ticket and damages an underground facility.
12. **Emphasis on Mapping.** USAN believes many damages can be prevented if all subsurface installations are mapped with precision and maintained in a centralized GIS system. The concept of a centralized GIS raises many red flags for facility operators so the centralization should be the last step and not occur until the pros of centralization outweigh the cons. Until that occurs, which may be many years in the future, USAN believes all facility operators should be encouraged now, and required in the near future, to map all of their facilities with precision. GC 4216.3(a)(5) specifies that all new subsurface installations shall be mapped using a GIS. USAN recommends that the SEB conduct a workshop with stakeholders, study the benefits of having an accurate GIS, and then develop timeframes that require operators to map their entire system. This may be a 10-year goal, but it should be started immediately, from USAN's perspective. Incremental steps could include:
    a. Require GPS coordinates to be captured for all underground facilities whenever they are exposed – when a new facility is installed, but also when existing facilities are repaired, replaced, relocated, or inspected.
    b. Some excavators capture GPS coordinates whenever they pothole an underground utility. This practice could be required and the data could flow back to the operator's GIS to improve the location accuracy of the underground assets.

c. Locating instruments can now integrate GPS technology, which allows the instrument to tie GPS to signal strength. This data can flow back into the operator's GIS to improve the location accuracy of the underground assets.
d. Cables with fiber optic cameras and GPS locator beacons are commonly used by plumbers to scope the inside of sewer and water pipes. These are also widely used by gas companies to ensure gas pipes have not been bored through sewer laterals (creating a dangerous "cross bore" situation). This data can flow back into the operator's GIs to improve location accuracy of the underground assets.

USAN believes it is in the best interest of all damage prevention stakeholders to work toward mapping the locations of all underground utility facilities with precision.

Response Code Usage – 2021 – California, Response Code Usage – 2021 – Nevada and Electronic Positive Response System Code Usage – 2021 – Nevada for Locate and Mark Response from USA North 811 are not available online due to challenges making them compliant with Web Content Accessibility Guidelines 2.0, as required by Government Code Section 11546.7. For a copy of these exhibits, please make your request at DigBoard@fire.ca.gov.

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PLAN & DESIGN POLICY & PROCEDURES

USA North 811

Approved by Board of Directors on 4/29/2020

POLICY

Locate request tickets should only be created after the planning, design, and engineering phases of an excavation project have been completed. Tickets should NOT be created for design purposes. State statutes or regulations need to be amended to create a process for design tickets that allows utility facility operators a longer timeframe to respond than the two business days required by a regular ticket. Until that occurs, engineers and project designers must contact the utility owners directly to obtain information about the locations of underground facilities that may be in conflict with their project.

PROCEDURES

1 – Use the Utility Contact Lookup tool on USA North 811's website to outline your project area on the map to generate a list of engineering contacts from the member facility operators that have underground assets within your project area:
https://newtinx.usan.org/newtinweb/usan_contactlookup_emergency.html.
2 – Email a map or plans and a description of your project to the affected facility operators, and request that they provide information about their facilities in the project area.
3 – Receive maps and plans from the facility operators and use those to design your project and identify any needed facility relocations.
4 – If maps provided by a facility operator do not contain the needed level of precision for your project, request that the operator mark the facilities in the field. This coordination should be done WITHOUT creating a locate request ticket, and it should be done on a negotiated marking schedule.
5 – Facility operators should create a process to field-mark facilities for design purposes without a ticket.
6 – Facility operators should respond to design requests in a timely manner so as to encourage engineers to follow this process instead of creating locate request tickets for design purposes.
7 – Engineers and project designers should not create tickets for design purposes. Tickets should only be created after the engineering has been completed and all utility conflicts identified.
8 – Tickets can be created to pothole utilities, but those should only be created after the engineering has been completed and each individual pothole location has been identified, numbered, and delineated in the field. Tickets should request markings within a small radius (e.g. 10 ft) of each pothole location.

For questions about USA North 811's policy or procedures for planning and design, you may contact:

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All facility operators have responded to my ticket. Can I dig before the Legal Start date/time?

Last Revised: 3/22/2021

CALIFORNIA ANSWER:

You must obtain permission from all utility operators that were notified on your ticket if you wish to dig before the legal start date/time. Once you have received permission from all of these operators, you may begin digging before the legal start date/time.

BASIS FOR ANSWER:

Key portions of California Government Code 4216, which is the article in state law that governs the "call before you dig" process (emphasis in blue added):

4216(l)

"Legal excavation start date and time" means two working days, not including the date of notification, unless the excavator specifies a later date and time, which shall not be more than 14 calendar days from the date of notification. For excavation in an area of continual excavation, "legal excavation start date and time" means two working days, not including the date of notification, unless the excavator specifies a later date and time, which shall not be more than six months from the date of notification.

4216.2(b)

Except in an emergency, an excavator planning to conduct an excavation shall notify the appropriate regional notification center of the excavator's intent to excavate at least two working days, and not more than 14 calendar days, before beginning that excavation. The date of the notification shall not count as part of the two-working-day notice. If an excavator gives less notice than the legal excavation start date and time and the excavation is not an emergency, the regional notification center will take the information and provide a ticket, but an operator has until the legal excavation start date and time to respond. However, an excavator and an operator may mutually agree to a different notice and start date. The contact information for operators notified shall be available to the excavator.

4216.2(g)

Unless an emergency exists, an excavator shall not begin excavation until the excavator receives a response from all known operators of subsurface installations within the delineated boundaries of the proposed area of excavation pursuant to subdivision (a) of Section 4216.3 and until the completion of any onsite meeting, if required by subdivision (c).

4216(f)

(1) "Emergency" means a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services.

(2) "Unexpected occurrence" includes, but is not limited to, a fire, flood, earthquake or other soil or geologic movement, riot, accident, damage to a subsurface installation requiring immediate repair, or sabotage.

4216.3(c)(1)(A)
On and after January 1, 2021, every operator shall supply an electronic positive response through the regional notification center before the legal excavation start date and time. Upon a showing of good cause by an operator, the board may extend the time by which the operator is required to comply with this requirement. The board shall not grant an extension beyond December 31, 2021. The board shall determine which facts or circumstances constitute good cause.

4216(e)
(e) “Electronic positive response” means an electronic response from an operator to the regional notification center providing the status of an operator’s statutorily required response to a ticket.

4216.3(e)
The excavator shall notify the appropriate regional notification center of the failure of an operator to identify subsurface installations pursuant to subparagraph (A) or (B) of paragraph (1) of subdivision (a), or subdivision (b). The notification shall include the ticket issued by the regional notification center. The regional notification center shall maintain a record of all notifications received pursuant to this subdivision for a period of not less than three years. The record shall be available for inspection pursuant to subdivision (f) of Section 4216.2.