California Underground Facilities Safe Excavation Board

December 9 - 10, 2024

Agenda Item No. 13 Information Item – Staff Report

Electronic Positive Response (EPR) Codes Revisions and Two-Way EPR Development Update

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SUMMARY
Electronic positive response (EPR) was introduced in California through the Dig Safe Act of 2016 (SB 661, Chapter 809, Statutes of 2016). While EPR usage was initially voluntary, utility operators were required to use it in 2021 pursuant to AB 1166 (Chapter 453, Statutes of 2019).

During its November 2022 meeting, the Board discussed the usefulness and clarity of the EPR codes and agreed that revising the codes would prove valuable in improving safety and communication. During other board meeting discussions, members noted that certain EPR codes are ambiguous, redundant, or not fully aligned with current statutory requirements. As a result, staff is providing this report for the Board's consideration. The report recommends revising the codes to enhance clarity, streamline communication, and improve safety outcomes. Additionally, the staff report presents a two-way EPR framework and includes a simulation to provide an update on its development.

STRATEGIC PLAN
2020 Strategic Plan Objective: Improve Compliance by Reaching Parties in Effective Ways
2024 Strategic Activity: Develop Broadly Useable Electronic Positive Response

BACKGROUND
Government Code section 4216.3(a)(1)(A) requires a utility operator to respond to an excavation notification in one of three ways:

1) Locate and mark.
2) Provide facility location information.
3) Advise the excavator that no facilities exist in the area.

The operator must make its required response by the legal start date and time, with limited exceptions, such as if the excavator and operator have agreed to a phased marking schedule

or a later start date and time[1]. Upon receiving a response from all operators, an excavator may begin excavation work unless the excavation is within 10 feet of a high priority facility, in which case the excavator and operator must have an on-site meeting[2]. The operator must notify the excavator of the presence of the high priority facility.

In 2019, the Legislature passed AB 1166 (Chapter 453, Statutes of 2019) in response to a California Public Utilities Commission investigation into the falsification of locate and mark records.[3] This bill required every operator to provide an EPR through the one-call center before the legal start date and time[4]. The Assembly Utilities and Energy Committee analysis of AB 1166 highlights the purpose of EPR[5]:

"[…] Excavation law in California requires that all utility members respond to every request they receive by marking the site, notifying the excavator that the site is clear of their facilities, or providing information to the excavator regarding the location of the facilities. Positive Response goes one step further by having the utility member notify a center how they chose to respond to the request. The notification center will then publish these responses online."
The purpose of EPR is clear: it serves as a communication tool for the excavator to receive information about the operator's facilities and their locations. It also acts as an accountability measure, allowing operators to demonstrate compliance with the requirements of Government Code section 4216.3(a)(1)(A).

Prior to AB 1166, Operator EPR had been voluntary[6]. To accommodate this option for operators, the one-call centers, Underground Service Alert of Southern California (DigAlert) and Underground Service Alert of Northern California and Nevada (USA North), were obligated to develop an EPR system. In addition to the technological components, DigAlert and USA North needed to develop standardized response options for operators. The one-call centers developed "codes" as a shorthand way of making these standardized responses. The codes have continued to be in use (with minor additions or revisions) since 2018. At its July 2021 meeting, the Board created a Ticket Committee of Members Johnson and Charland to address communication issues between excavators and operators as facilitated by the one-call centers[7]. In prior Board meetings[8], members expressed concerns with the appropriate use of some of the codes and questioned whether the codes are adequate or if there is a need for revision. A brief overview of past Board EPR discussions:

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[1] Gov Code § 4216.3(a)(1)(A).
[2] Gov. Code § 4216.2(c). and Gov. Code § 4216.10(c)(1).
[3] Office of Assemblymember Marc Levine, "Fact Sheet: AB 1166 – Dig Safe Notifications: Positive Response, April 4, 2019
[4] Gov't Code § 4216.3(c)(1).
[5] Assembly Committee on Utilities and Energy, 2019
[6] SB 661 (Chapter 809, Statutes of 2016 made electronic positive response optional for operators.)
[7] July 2021 Board Meeting
[8] July 2021 Board Meeting and September 2022 Board Meeting

- **July 2021:** The Board discussed the improper use of codes which led to delays in locating and marking underground facilities.[9]
- **September 2022**: The Board discussed the frequency of use for specific EPR codes and considered that given California's (then) two years of experience with mandatory EPR, it might be a good time to evaluate EPR's effectiveness.[10]
- **November 2022:** The Board again discussed the frequency of use for specific codes, and that any unused, redundant, or inconsistent codes should be removed. The Board emphasized that the EPR codes should showcase three main information items: if there are facilities in the area; if the facilities are marked; and if the facilities are not marked, when will marking occur. The Board directed the Ticket Committee and staff to review the existing EPR codes and if necessary, draft a revised set of codes, consistent with law, to further the goal of effective communication between the utility operators and the excavators.[11]
- **November 2023:** The Board discussed the effectiveness of both enhanced positive response and two-way positive response.[12]

DISCUSSION

As EPR codes are being evaluated and revised, staff seeks feedback on the proposed EPR codes. These codes are meant to make communication between excavators and operators clearer and more efficient. The changes focus on making the codes easier to read, so everyone can quickly understand the status of locating and marking activities and know what steps to take next in the digging process.

Ambiguous and Inconsistent Obligations in Electronic Positive Response Codes

Not all 32 codes are used consistently, and not all of them are consistent with the obligations conferred by California law. Even though some of the existing codes do not provide information required by statute, they do have value. For example, code 14: "Partially marked - more time is needed" Provides valuable information to the excavator. It communicates to the excavator that the facilities have not been fully marked yet.

Some codes are redundant. Code 13: "Locate area marked up to private property," can be replaced with code 12: "Locate area marked up to private owned utility - contact private utility owner for locate" without loss of information. Even though code 13 satisfies statutory requirements, it is not needed. Removing redundancy and simplifying the list of EPR codes should lead to clearer and more effective communication during excavation activities.

[9] July 2021 Board Meeting
[10] September 2022 Board Meeting
[11] November 2022 Board Meeting
[12] November 2023 Board Meeting

Some codes require excavators to meet requirements that are not in law or regulation. For example, code 31: "requires standby at time of excavation – contact facility owner" and code 32: "visible or exposed facility – contact facility owner if crossing" both imply requirements for the excavator to perform activities that are not obligations under current law or regulation. Another example is code 34: "Field meet required - contact facility owner to schedule" which appears to inappropriately create an additional condition of a field meeting on the excavator's ability to begin work. While it may be reasonable for the EPR system to facilitate an operator's field meet request, and while excavators may find it in their interest to accommodate these requests for both safety and liability[13] reasons, it is not appropriate for the EPR system to allow an operator to assert obligations or conditions on an excavator that are not legally required.

Code 40: "Excavator completed work prior to due date" is an example of an EPR code which implies a failure of excavator to fulfil their obligation. However, this implication is unhelpful and inconsistent with the purpose of section 4216.3(a)(1)(A), which only requires an operator's response to identify the status of locate and mark activities, not give their opinion on the excavator's status or excuse operator compliance. The EPR system is intended solely for operators to respond to excavators with the relevant status of their locate and mark activities. Codes which do not align with these statutory requirements should be removed to maintain code usefulness, provide clarity, and reduce potential misunderstandings.

In addition to redundancy and implying incorrect obligations, some codes are ambiguous. For example, code 16: "Operator has located and marked all subsurface installations known to be embedded in the pavement" leaves much information out that would be useful to the excavator. While it explicitly states that subsurface installations embedded in the pavement have been marked, it leaves out information about whether non-embedded installations have also been marked. It is not clear how an excavator, looking at the marks, is to know which subsurface installations are embedded in pavement and which are not. Other codes, such as code 52: "Unable to locate using standard locating techniques" are unclear as to status and future status. For code 52, it is unclear whether the operator plans to ever locate the facility, or if the operator will comply with its legal obligations in another manner, such as through providing maps[14].

As discussed at the November 2022 Board meeting[15], some of this ambiguity in response codes appears to have been recognized by Nevada, who shares its one-call center with California. Nevada modified several of its EPR codes in 2021[16]. Nevada rewrote existing EPR codes to improve clarity and communication and removed codes which were redundant. Staff's suggested removal of certain EPR codes will improve the efficiency and clarity of the communications between excavator and operator. The revised EPR codes will ensure

[13] Gov. Code § 4216.7. assigns liability to an excavator who fails to comply with the operator's requests to protect the subsurface installation as specified by the operator before the start of excavation.
[14] Gov. Code § 4216.3(a)(1)(A)(ii).
[15] November 2022 Board Meeting
[16] NV EPR Code Changes

reflection of statutory requirements, reducing the risk of safety concerns leading from misunderstanding of obligations not supported by law. It will also improve the practical usability of the list, by providing a list of EPR codes which are free of redundancy and ambiguity allowing the operators to be more effective and efficient in their response to a locate and mark request.

EPR Code Removal Suggestions

Ambiguous, redundant, and unlawful EPR codes are bad for both the excavator and the operator, as both need to use EPR as a means of communicating with each other. Moving forward on code improvement, staff proposes the removal of the following codes:

Table 1: Suggested EPR Codes for Removal

States or implies disclaimer
Imposes unlawful requirement
Identifies rationale for not fulfilling 4216.3(a)(1)(A) obligations
Implies a failure of excavator to fulfill obligations
Others/Redundant

Code	Description	Reason for Removal
11	Locate area marked but abandoned facilities may be in the area	Abandoned facilities is not defined, only unmarked. Treat all lines as live.
13	Locate area marked up to private property	Redundant; use code 12 instead.
30	Contact facility owner for more info	Doesn't comply with statute, unclear locate and mark status, unclear meaning.
31	Requires stand by at time of excavation - contact facility owner	Imposes unlawful requirement to contact facility owner; unclear locate and mark status.

32	Visible or exposed facility - contact facility owner if crossing	Imposes unlawful requirement; unclear locate and mark status.
34	Field meet required - contact facility owner to schedule	Imposes unlawful requirement; redundant with Code 33.
40	Excavator completed work prior to due date	Implies a failure on the part of the excavator to fulfill obligations.
41	Excavator no show for meet	Implies the excavator is at fault for unmarked facilities.
42	Excavator canceled request	Identifies a failure on the part of the excavator.
43	Excavator not digging within 14 calendar days (preplanning)	Implies failure on the part of the excavator without documented agreement; rarely used.
51	Mutually agreed to a later start date and time (4216.3(a)(1)(A))	Redundant with Code 50; rarely used.
52	Unable to locate using standard locating techniques	Doesn't comply with statute; unclear locate and mark status.
53	Scheduled meet with excavator at requested date and time	Redundant with Code 50; rarely used.
990	Member has been granted an extension from the EPR requirement by the Board as defined in 4216 through 12/31/2021	Any such extension has expired. This code is no longer a valid response.

Electronic Positive Response Code Rewrite – Clear, Marked, or Unmarked

As listed in Table 2 on the following page, staff are suggesting a new framework for existing EPR codes. These revised EPR codes offer a clear indication of the status of locate and mark while retaining the familiar description of the previous codes. This will should help with continuity and ease of use amongst operators. Additionally, the revised codes should make it easier for operators to select the most appropriate option and excavators to clearly understand the locate and mark status.

The revised codes would organize responses into three broad categories to directly addresses

the usability challenges identified in the current EPR system. Consolidating the codes into three main categories allows for simplicity and should make communication effective and efficient for both excavators and operators. Each category conveys the status of locate and mark with additional information if necessary.

- ***Clear:*** The area delineated for excavation has no subsurface installation.
- ***Marked:*** The area of delineation has been marked completely and accurately and is safe for excavation.
- ***Unmarked:*** The area of delineation has not been marked and thus not ready for excavation.

The three-category grouping for EPR codes should allow an operator to quickly and accurately respond to the locate request while fulfilling their statutory requirement. It reduces complexity in choosing an EPR response and errors in appropriate code selection. Excavators would be able to quickly interpret the status of the excavation site based on the category. This simplicity should reduce delays in locate and mark requests and help ensure that excavation activity begins only when the area is appropriately marked.

Staff suggest using a set of principles to guide the selection of lawful and appropriate codes. These principles should be legal compliance, clarity and precision, and practical usefulness. Additionally, a set of response options should be "complete" in that they convey the required and appropriate messages to allow an excavator to take informed actions.

California's adoption of this revised code structure enables the revisions and changes to EPR to adhere to the statutory requirements outlined in Government Code Section 4216.3 (a)(1)(A). The revised ERP codes aim to provide clearer responses about subsurface installation and excavation readiness. The three broad categories help meet legal requirements while addressing practical challenges, such as incomplete marks or inaccessible sites. These situations are clarified under the "Unmarked" category with additional clear information for excavator. The new framework prioritizes legal compliance, clarity, precision, and practical usefulness. Grouping codes based on their excavation readiness, removes ambiguity and redundancy, and simplifies communication. Staff propose the following principles for evaluating the value of an EPR option:

- It must be consistent with legal requirements.
- It should convey the necessary information with minimal context (outside of legal requirements) for the excavator to decide on the next step.
- It should provide information not included in other response options.
- It must clearly show the actions taken by the utility operator.

Table 2: Proposed changes to the existing EPR codes.
Codes are coded into three broad categories: Clear, Marked, and Unmarked.

Code	Description	Proposed Change
Clear		

1	Clear - no conflict	No Change
2	Clear - no conflict but privately owned utility on property - contact private utility owner for locate	No Change
4	No markings requested	Clear - no markings requested
Marked		
3	Existing markings adequate	Marked - site visited and existing markings adequate
10	Locate area marked	Marked - locate area marked
12	Locate area marked up to private owned utility - contact private utility owner for locate	Marked - up to private facilities - contact private facility owner for locate
14	Partially marked - more time is needed	Partially marked - do not start excavation - operator proposed marking schedule
16	Operator has located and marked all subsurface installations known to be embedded in the pavement	Marked - including known facilities embedded in the pavement - operator contacted excavator to determine a plan of action
33	High priority line in area - on-site meeting required	Marked - high priority line present requires onsite meeting - operator proposed onsite meeting schedule
Unmarked		
15	Provided facility location information to excavator (4216.3(a)(1)(A)(ii))	Unmarked - provided facility information to the excavator
20	Bad address/incorrect street/location info - resend ticket requested	Unmarked - incorrect location info - resend ticket requested
21	No access to locate area - resend ticket requested	Unmarked - no access to locate area - resend ticket requested
22	No delineation - resend ticket requested	Unmarked - no or unclear delineation - resend ticket requested
23	Delineated area does not match location request - resend ticket requested	Unmarked - delineation area and location mismatch - resend ticket requested
35	Traffic control required to mark facilities	Unmarked - traffic control required - operator proposed marking schedule
50	Negotiated marking schedule	Unmarked - operator requested later marking schedule
80	Extraordinary circumstances exist - no locate due to	Unmarked - extraordinary circumstances exist - operator proposed marking schedule

	weather/emergency/safety conditions	
999	Member did not respond by required time (system use only)	No Change

Enhancing Communication and Clarity with Two-Way Electronic Positive Response

At their November 2023 meeting[17], Board members received an overview of the importance and impact of two-way EPR. Staff highlighted the benefits of two-way EPR over current one-way codes. With two-way EPR, communication between an excavator and an operator would be visible and documented for all parties.

There are several EPR codes which are unable to convey the information necessary for the excavator to choose their next step. In such instances, the two-way positive response would allow an operator to provide additional buried facility information and improve communication between excavators and operators to aid in mitigating facility damage. Currently, there is no mechanism to record mutual agreement through an excavation ticket. In accordance with section 4216.2(b), which permits the excavator and operator to mutually agree to a different notice and start date of an excavation[18], two-way positive response would allow for the documentation and discussion of mutual agreement. Lastly, two-way EPR could handle situations where more details are needed regarding the excavation area for the operator to provide information on buried facilities.

In line with ongoing efforts, the staff has developed a simulation tool to demonstrate the two-way positive response framework **(Attachment 1)**. The two-way system provides a record of interactions between the excavators and operators which is visible to both parties and can be useful for post incident or other investigations. It further helps with proper EPR code usage during excavation process, providing transparency and demonstrating compliance with established guidelines. Both parties can select from predefined set of EPR codes and can add comments to provide additional context or clarify specific details related to the marking status, excavation schedule, or other relevant information.

For example, code "33: High priority line in area - on-site meeting required" pursuant to section 4216.2(c), an operator must notify an excavator about the line and set up an onsite meeting prior to the legal start date and time[19]. Through two-way EPR, both the operator and the excavator could confirm and document the schedule. The attached Table 3 and Figure 1 provides an example of how the two-way EPR would work using code 33 as example. The revised codes that the hypothetical operator and excavator would use, and their description is

[17] November 2023 Board Meeting
[18] Gov. Code § 4216.2(b).
[19] Gov. Code § 4216.2(c).

provided in Table 3. Figure 1 is a flow diagram illustrating how the response options are related to each other and what the available options are at each step of the EPR communication. Not all codes are available to be used at each stage. Response Option codes that are relevant to this demonstration are shown in Table 3.

Figure 1: Flowchart of Two-way EPR Framework using Code 33 "High Priority Line – Onsite Meeting Required" as an Example

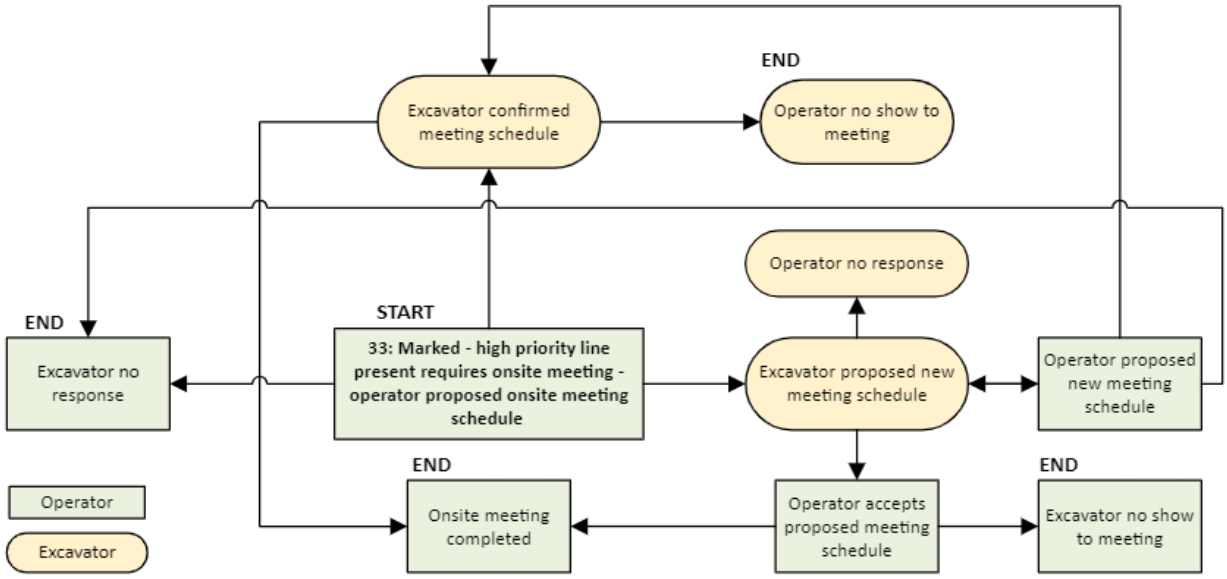


Table 3: Two-way EPR Codes using Code 33 "High Priority Line – On site Meeting Required" as an Example

Actor	Code	Description	Response Code Options
Operator	33	Marked - high priority line present requires onsite meeting - operator proposed onsite meeting schedule	3301 3302 3305
Excavator	3301	Excavator proposed new meeting schedule	3304 3307 3306
Excavator	3302	Excavator confirmed meeting schedule	3309 3303
Excavator	3303	Operator no show to meeting	
Excavator	3304	Operator no response	
Operator	3305	Excavator no response	
Operator	3306	Operator proposed new meeting schedule	3301 3302 3305

Operator	3307	Operator accepts proposed meeting schedule	3308 3309
Operator	3308	Excavator no show to meeting	
Operator	3309	Onsite meeting completed	

Note: The communication always begins with an operator but can end with either operator or excavator. Response Code options provide the possible replies at each stage of EPR communication. Code number convention is subject to change in the future.

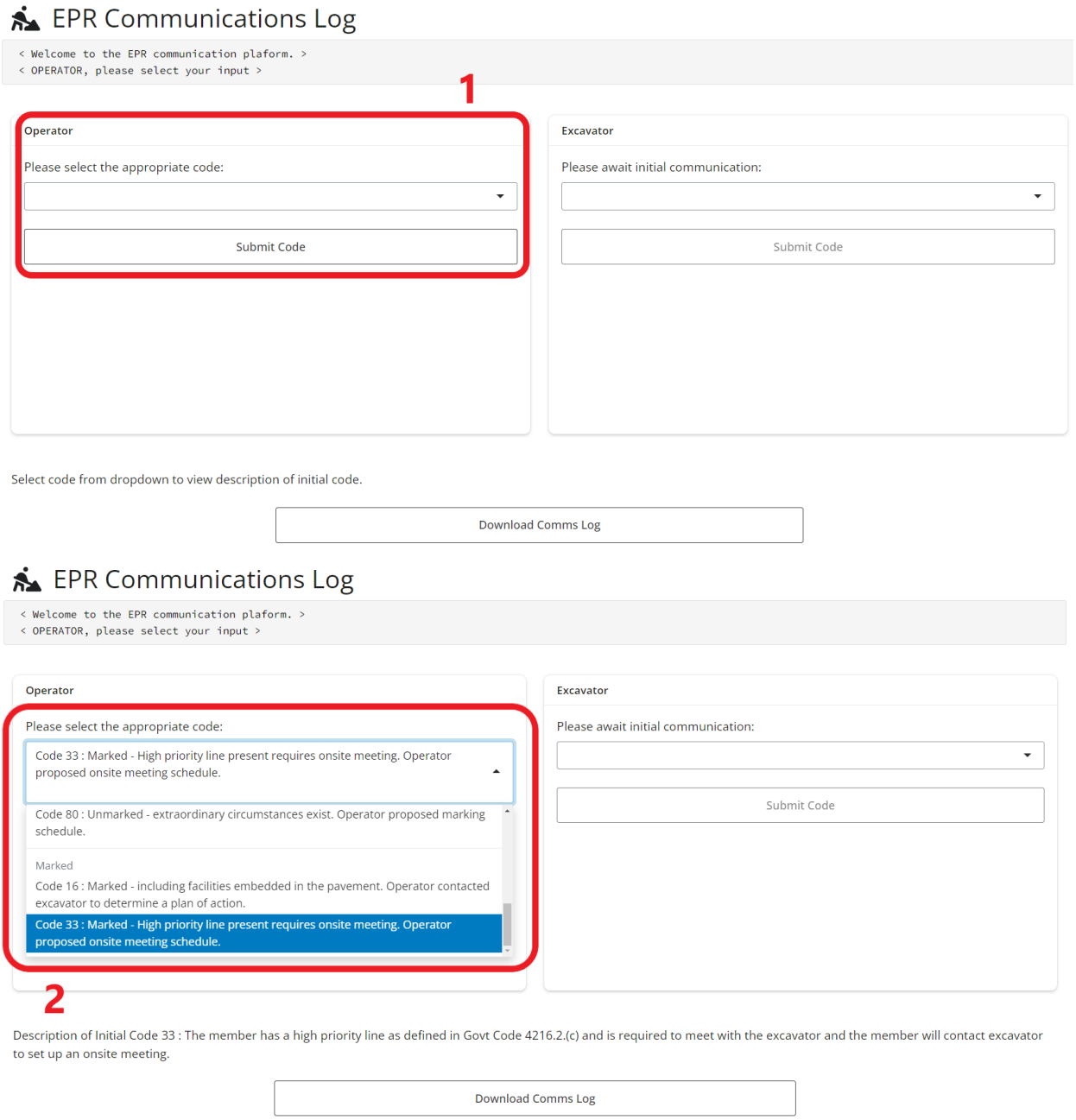
RECOMMENDATION

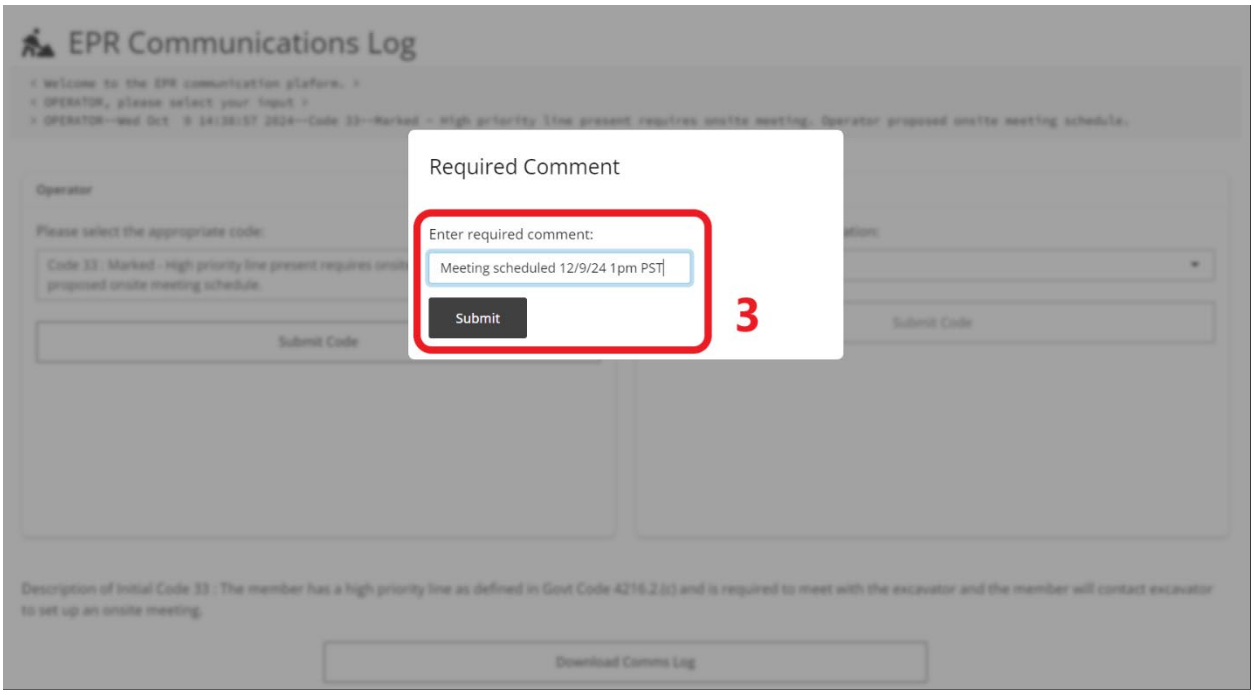
Staff requests Board feedback on the proposed codes and two-way EPR framework. Staff recommends that the Board direct staff to gather additional feedback from stakeholders, potentially via a survey or workshop, to obtain input on proposed solutions and continue to evaluate the proposed changes to EPR codes and the development of a two-way EPR code framework.

ATTACHMENTS

1. Two-way Electronic Positive Response Simulation

Attachment 1: Two-way Electronic Positive Response Simulation





EPR Communications Log

```
< Welcome to the EPR communication plaform. >
< OPERATOR, please select your input >
> OPERATOR--Wed Oct  9 14:38:57 2024--Code 33--Marked - High priority line present requires onsite meeting. Operator proposed onsite meeting schedule.
[Comments: Meeting scheduled 12/9/24 1pm PST]
```

4

Operator

Please await or select the appropriate code:

Submit Code

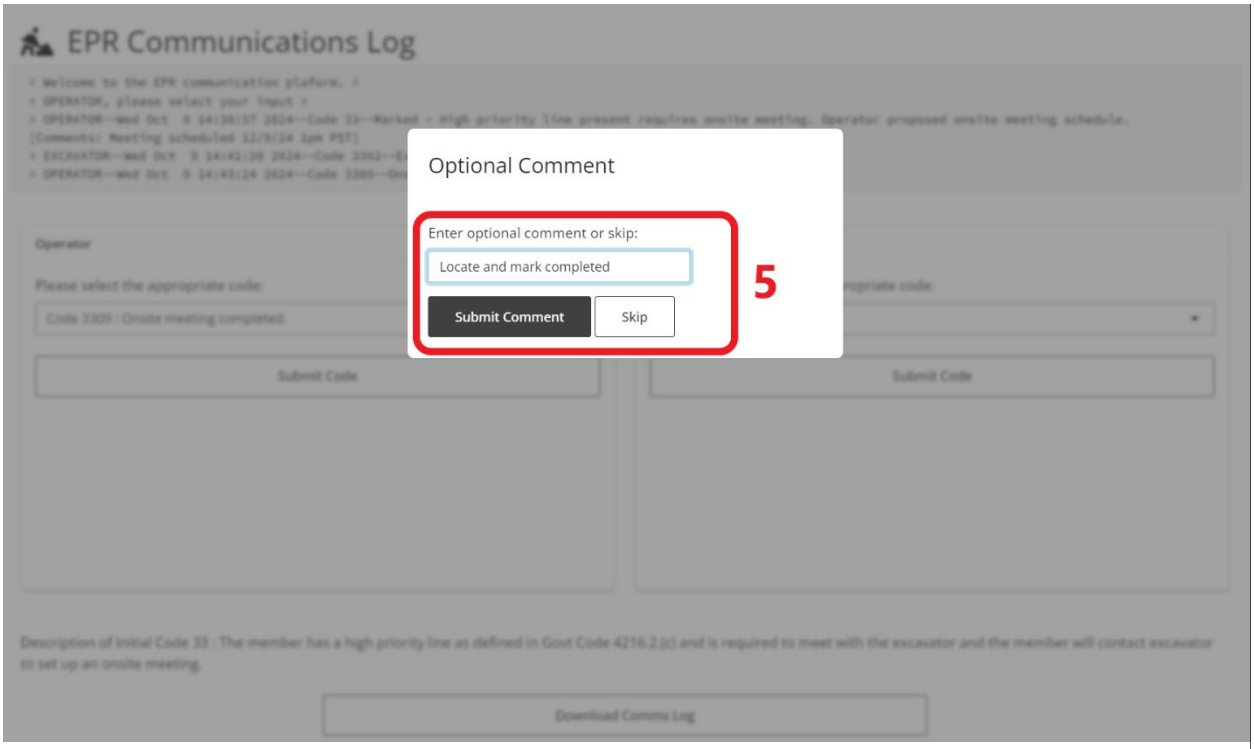
Excavator

Please select the appropriate code:

Code 3301 : Excavator proposed new meeting schedule.
Code 3302 : Excavator confirmed meeting schedule.

Description of Initial Code 33 : The member has a high priority line as defined in Govt Code 4216.2.(c) and is required to meet with the excavator and the member will contact excavator to set up an onsite meeting.

Download Comms Log



EPR Communications Log

6

```
< Welcome to the EPR communication plaform. >
< OPERATOR, please select your input >
> OPERATOR--Wed Oct  9 14:38:57 2024--Code 33--Marked - High priority line present requires onsite meeting. Operator proposed onsite meeting schedule.
[Comments: Meeting scheduled 12/9/24 1pm PST]
> EXCAVATOR--Wed Oct  9 14:41:20 2024--Code 3302--Excavator confirmed meeting schedule.
> OPERATOR--Wed Oct  9 14:43:24 2024--Code 3309--Onsite meeting completed.
[Comments: Locate and mark completed]
```

Operator

Communication Ended

Submit Code

Excavator

Communication Ended

Submit Code

Description of Initial Code 33 : The member has a high priority line as defined in Govt Code 4216.2.(c) and is required to meet with the excavator and the member will contact excavator to set up an onsite meeting.

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