

AB 1914 Workshop Survey – Results Summary

Survey Responses Received:

Operator Version	42
Non-Operator Version	57

Which of the following describes your primary industry role? (Operator Survey)

Excavator (General)	2
Locator	2
Operator (Electric)	1
Operator (Gas)	5
Operator (Oil)	15
Operator (Teleco)	6
Operator (Water)	10
Other (next question)	1
Grand Total	42

Which of the following describes your primary industry role? – Other (Operator Survey)

Free-typed responses, separated by "--": apprentice welder

Which of the following describes your primary industry role? (Non-Operator Survey)

Excavator (General)	34
Excavator (Potholing/Utility Specialist)	3
Locator	8
Operator	1*
Other (next question)	11
Grand Total	57

**(Survey directed that respondents indicating "Operator" should stop and take the Operator version of the survey, but did not force respondents to do so.)*

Which of the following describes your primary industry role? – Other (Non-Operator Survey)

Free-typed responses, separated by "--": Construction Superintendent -- Collection Systems Supervisor -- Contractor -- Safety Coordinator -- Project Engineer -- Project Manager/ Granite -- General Engineering Contractor -- Project Manager -- Site Inspector -- Inspector -- Field Quality Control for excavation and pipeline construction -- Engineer -- Trenchless Technologies Engineer – skip

What specific powered tools would you never under any circumstances want to see used within the tolerance zone of your facilities, prior to positive location? (Select all that apply) – This question was only on the Operator survey

Drills	33
Augers	35
Boring Equipment	31
Ripping Attachments	34
Chain/Wheel Trenchers	34
Other	9

What additional safety measures do you/would you require when using powered tools to positively locate your own facilities, as opposed to when using hand tools? – This question was only on the Operator survey

Free-typed responses, separated by "--": Probing area, 2x depth to 1x power tools depth -- We support the use of clay spades to pothole and expose operating facilities when they are buried in difficult to excavate soils, hard pan, hard clay, slurries, concrete etc. there is no know safer means to do so. we have a responsibility to put the absolute safest tool in

the hands of the workers who have perform this dangerous activity. Clay spades are significantly safer what other more primitive so called ""hand"" tools such as picks, digging bars, sharp shooters etc that are used to break up hard ground or slurries. For soft materials, we advocate the use of vacuum excavation and shovels. -- The excavator must be able to assure that their activity will not damage the facility that is being excavated. The operator should be able to inform the excavator of the nature of the buried facility and the excavator should only use those tools which pose the minimum risk to the facility. -- vacuum excavator with proper nozzle section, in non abrasive soil. -- Positive location of cable in addition to locator personnel must be on site to monitor work activity while power equipment is used around cable -- There is no reliable way to tell depth at this point. We have to have a way to positively state a depth to use power equipment in the tolerance zone. -- We utilize hand tools and once our pipelines are located then we'll utilize power tools. -- pothole -- I would prefer that potholing be by non mechanical means. However if the excavator takes that risk and damages our asset they will be billed for repairs -- The tool should not touch the facility. The tools should be used with the blade parallel to the line (not perpendicular). The employee should be trained to dig with the tool. Small bites should be applied with the tool -- I would want to specify probing, if possible, prior to using powered equipment such as excavators, and blunt nosed clay spades when chipping through hard earth or cementitious backfill. Any digging operations, powered or otherwise, would require standby if digging is within 5' of the edge of my facility. -- A trained spotter, probing bar -- Do not use power tools within the 2ft. tolerance zone; vacuum excavation is a preferred method to locate our water lines. -- hand dig all utilities -- Only a specified and approved clay spade. -- Any power tool must be a hand-held device (e.g. clay spade) with a weight limit (20 to 30 pounds, to exclude jack hammers) with a wide blunt nose shovel tip that spreads the forces across an area vs. a fine point or tip. -- Vacuum excavation, Pot Holing -- Asphalt thickness verification, consult Asbuilt records -- Utilize as-built and survey data to locate facility. -- The same safety measures should be used regardless of what method is used for positive locates. -- notify locator prior to pothole location -- locating tools -- We would never allow ""powered tools to positively locate."" This statement is completely counter to safety of life and public. -- In order to use power tools to locate pipelines (which is not recommended) you must at a minimum probe every 2"" of the trench and use a spotter. -- vacuum digging -- Hand tools or hydrovac only. -- The only way to positively verify a facility is by seeing it with your eyes via a pothole first and foremost. After that each case is different and should be handled accordingly. -- probing to make sure there is a buffer between machines and pipe. -- Excavators, backhoes, rock wheels. -- Inspector onsite -- To have a company representative at site when locating utility. -- locator stand-by to more accurately locate the facility as it is exposed. -- Hand tools are the only way I would allow to be used to positively locate my facility, never powered tools. -- Probing -- Non-mechanical excavation technologies -- Vacuum extraction for exploratory excavation -- Pot-holing / hydro-vac

Under what circumstances would you be most likely to come to an agreement with an excavator for a power tool use exception? – This question was only on the Operator survey

Free-typed responses, separated by "--": when we have confirmed minimal/no risk to pipeline -- with the exception of clay spades which we would like to exclude from the definition of power tools, we would like to be able to use all other mechanical equipment in the tolerance zone once we expose the facility. alternately, we would advocate to relook at the definition of the tolerance zone and consider the value of former definition which was the 24"" annular space around the utility and not an infinite distance over and under the utility. Within the tolerance zone, we would like to continue to be able to use clay spades as the safest method to expose and excavate in hard soils around live assets. -- When both the excavator and operator agree that the power tool is the safest way to proceed. -- Never -- Both parties discuss the work involved while on site and agree on what needs to be done to remove risk from damage to cable. -- Complete understanding that if they break our fiber using power tools they are responsible for all repairs and damages.³ -- Dependent upon the depth of excavation relative to the depth of our pipeline. -- field verified -- Hard material with known depth of utility. Removal of asphalt or concrete at surface above utility. -- It is his risk, no reason for me to agree to it. -- We would only consider allowing clay pneumatic spades under 45lbs. The circumstances should be based on general guidelines from the DigSafe Board along with any additional parameters set forth by the Operators based on the sensitivity of the particular facility at the excavation site. General guidelines from the Board could include the requirements that the employee is trained on the tool, the tool shall not touch the facility, the tool's blade should be kept parallel to the facility, and small bites applied. -- The power tool (pneumatic or electric) must be a hand-held device

(e.g. clay spade) with a weight limit (maximum of 20 to 30 pound), specifically excludes jack hammers. The power tool must have a wide blunt nose shovel tip that spreads the forces across an area vs. a fine point or tip. -- After clearly identifying our utilities, that they have a trained spotter on the ground -- If there was a concrete cap over the water main. -- never -- Due to the High Voltage contained in our subsurface facilities and the inherent hazards, only a specified type of clay spade would be allowed. -- The power tool (pneumatic or electric) must be a hand-held device (e.g. clay spade) with a weight limit (maximum of 20 to 30 pound), specifically excludes jack hammers. The power tool must have a wide blunt nose shovel tip that spreads the forces across an area vs. a fine point or tip. -- Proper USA marking, positive identification -- No agreement, use at your own risk, follow the law -- Hydro or dry vacuum excavation. -- Hard ground conditions, such as slurry or encased facilities. -- pothole location prior to excavating -- if it has not been found then hand dig or vac rig to locate it. then you can start excavate -- Never. It has been in place a long time and there is no reason to go backwards. Doing so only sends the wrong message that damage prevention efforts are burdensome. -- Sometimes in order to break through harder ground (2 sac slurry/cement) a clay spade can be used. -- for an abandoned or out of service pipeline -- none, high profile utilities need to be potholed to verify depth and location. -- Depending on the scope of work but only after having positively verifying said facility. -- Not many. Possibly a clay spade in slurry conditions. -- The 811 notification is sufficient. Exemption agreements should only be issued on a case by case basis, or a categorical exemption for specific equipment (i.e., vacuum equipment). -- Qualified operators and they take responsibility for coating damage. -- Use of vacuum excavation only -- after the utility is marked out by the company right of way technician & the utility is located using a hydro vac. -- Proper use of water knife. When locate is reliable. -- Never -- Probe entire excavation prior to using power tools -- If after technical analysis it is determined there is no likelihood that proposed excavation using mechanical power equipment has the potential to impact the integrity of the underground facility. -- When the exact location, including depth, in the tolerance zone is determined -- Pothole to verify depth

What do you see as the greatest risks to your facilities posed by the potential use of power tools within the tolerance zone prior to positive location? – This question was only on the Operator survey

Free-typed responses, separated by "--": damaging pipeline -- excluding clay spades and vacuum excavation, other mechanical equipment can create significant asset damage and associated public safety risks -- Injury to the excavator's personnel, damaged infrastructure, loss of service, loss of essential communications, loss of essential services. -- Fiber Optic Cable cut, network disruption, FCC Reportable outages, 911 services disruption - Life/Safety. -- Using power tools near fiber optic cables greatly increases damage risk. Excavation contractors say they will be careful and always claim they are very good with their tools. They typically say that before the digging starts and have a plethora of excuses after the cable has been damaged. Keeping power tools out of the tolerance zone works 100% of the time. -- since we have no accurate way to state depth, there is no way they can safely use power tools in the zone. -- There are numerous risks to include damage to the coating, dents, punctures or absolute rupture of a high pressurized asset. -- damage, loss of service -- Over-penetration of power tools causing damage to utility. -- Damage to our facilities -- Damage from power operated excavation equipment can cause an immediate gas leak resulting in a hazardous environment to workers, the community, first responders, and the Utility workers. Powered operated excavation equipment has the potential to quickly and easily damage buried facilities within seconds of encountering the facility. Whereas hand tools allow the excavator to feel the facility typically without the likelihood of immediately causing damage. -- Excavator uses wrong type of attachment to jackhammer attachment (not a clay spade) which can damage pipeline. -- property damage -- Damaging a water main or service lateral -- backhoes and directional bores -- Untrained excavator personnel who do not comprehend the hazards of High Voltage Subsurface Facilities, who could become victims of ignorance. ""Rule Books are written in blood"". Then secondly damage to our facilities. -- If the excavator uses the wrong type of power tool, gas powered auger, jack hammer, or the power tool has a tip with a sharp point, these devices would be capable of piercing or severing a plastic natural gas distribution pipe and possibly puncturing a steel gas transmission pipeline, both causing an uncontrolled gas release. -- Damage to the fiber network causing network outages, having a negative impact on customers, government and civilian -- Dig in, damage to facility without breakage -- Main break, property damage -- Damage to our facility and damage to public property and/or bodily injury to the public. -- Facilities being damaged -- hitting our pipeline of various sizes (36" to 122") and various depths, -- people not considering the risk. -- We are most concerned about the public and excavators. Our ""facility"" can be repaired, we

can't repair a life lost due to mechanical digging in tolerance zones. -- Contacting a high pressure line with a drill/bore because the line was not positively identified causing an explosion and casualties. -- damaging the coating, creating a external corrosion condition for the future. -- public safety and environmental risk. -- DEATH and or damage to the facility and general public. -- Damage to the line or coating causing potential rupture or even damage that leads to corrosion and future rupture. -- Facility and property damage coupled with endangering public health and safety. -- Damage -- damage to protective coatings which will fail later at an unexpected and unplanned time. -- Damaging the utility itself or coating. -- Damage to facility. -- Puncturing pipeline resulting in product/vapor release that could result in an immediate danger to life and health. -- pipeline damage -- Potential risks include: competency of machine operator; unintended tool malfunction; non-compliance with agreed upon excavation plan; use of substitute equipment/method from jointly approved equipment/method; use of mechanical power equipment without underground facility staff present to observe excavation within tolerance zone. -- Loss of primary containment on a facility strike and unknown damage during excavation that is not reported to the operator -- Line-strike - explosion, leaks. Minor line strike - unknown coating damage that could lead to corrosion is not identified.

Which of the following describes powered tools you have used in the past within the tolerance zone, prior to positive location of underground facilities?

-Vacuum Truck-

Operators	37
Non-Operators	55
Total	92

-30 & 60 lb pneumatic or electric roto hammer, clay spade tipped-

Operators	37
Non-Operators	55
Total	92

-Excavator-Mounted Hydraulic Hammer-

Operators	1
Non-Operators	9
Total	10

-Backhoe or Small Excavator-

Operators	5
Non-Operators	26
Total	31

-Other (see next question)-

Operators	10
Non-Operators	10
Total	20

Free-typed "Other" responses, separated by "--":

Operators: Hand digging. A marvelous tool! -- None -- To clarify the previous answer, we do not allow 60lb, but 30lb is acceptable. -- We hand dig, if there are no USA marks on the ground or if there is a question about the utilities location or signal -- Only a 30 LBS. pneumatic clay spade. -- Pneumatic/Hydraulic tools have been used to remove the Asphalt section -- hydro excavator -- Hand tools -- Hydro vac & hand shovels

Non-Operators: Hand tools -- Hand Tools/ Hand Power Tools -- AirSpade -- Hand Tools -- Concrete saw -- Air Knives -- Geophysical locating equipment -- Probe -- SHUVEL -- Vacuum trailer; hand dig -- skip

In your opinion, what specific powered tools are business critical for working within the tolerance zone, prior to positive location?

-Vacuum Truck-

Operators	38
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Non-Operators 50

Total 88

-30 & 60 lb pneumatic or electric roto hammer, clay spade tipped-

Operators 17

Non-Operators 38

Total 45

-Excavator-Mounted Hydraulic Hammer (9k lbs. or less in Type A soil, 2 ft or greater above established depth)-

Operators 3

Non-Operators 13

Total 16

-Other (see next question)-

Operators 6

Non-Operators 10

Total 16

Free-typed "Other" responses, separated by "--":

Operators: 15 lb class chipping guns/spades. Power washer. -- None -- Again, per the previous answer, we do not allow 60lb, but 30lb is acceptable -- Vacuum excavation and 30 LBS. clay spades. -- hydro excavator -- Back hoe

Non-Operators: HAnd tools -- Backhoe -- Excavator with bucket or backhoe to remove concrete and AC -- Hand Tools/ Hand Power Tools -- Hand Tools -- Most utilities are buried under concrete or asphalt -- Air Knife -- Anything other than vac truck is an extreme risk for loss of lives and property. -- Probe -- HAND TOOLS -- Vacuum trailer – skip

What specific powered tools would you like to have the option of using within the tolerance zone, prior to positive location?

-30 & 60 lb pneumatic or electric roto hammer, clay spade tipped-

Operators 17

Non-Operators 43

Total 60

-Excavator-Mounted Hydraulic Hammer (9k lbs. or less in Type A soil, 2 ft or greater above established depth)-

Operators 7

Non-Operators 10

Total 17

- Backhoe or Small Excavator (under 55k lbs. with smooth cutting edge, applying probe/dig method in both Type A & B soils)-

Operators 7

Non-Operators 31

Total 38

-Other-

Operators 21

Non-Operators 14

Total 35

Do you believe it is possible to safely use boring equipment in the tolerance zone, prior to positively locating subsurface facilities?

Free-typed "Other" responses, separated by "--":

Operators: "none -- yes 1- if we pothole the bore path exactly over the known utility a certain distance below the bore path and follow with precise instruments the exact location and depth of the bore path.. This would apply for deep utilities. 2- also the same would apply for deep bores which clearly could not come in conflict with each known surface

utilites. in Many instances it would impossible to have a dig in because the distances are large between know utilities and bores. e.g. we are boring 30' deep under a freeway and some utilities are at 5' to 10' deep at most in and around the freeway. it would be impossible to hit utilities in this case. -- No -- No, No, and No, -- NO! -- None of those. -- No. -- no -- No -- None -- No. The boring activity should never cross an facility without the facility being exposed to confirm the boring clears the facility. -- YES- assuming the boring (HDD, auger/hammer, microtunnel, etc.) has enough vertical clearance from our facility. The definition of ""reasonable care"" will need to dictate what this is for each boring technology. As it stands, the ""tolerance zone"" is defined with no depth limit i.e., the tolerance zone extends to the center of the earth. Logic dictates that if a contractor wants to HDD a conduit 45' beneath my asset, and he/she has proven, either through potholing or through discussions with my asset engineers, that this 45' clearance is based on fact, it is completely safe to proceed. This excavation (boring operation) would NOT be in conflict with my utility. The converse can be true: if my asset if very deep, say 25'-30' deep, and a contractor would like to bore above it, with proper due diligence, I would not force said contractor to ""hand dig"" 30' deep to determine the ""exact"" location of my facility. Essentially, the question asked here is very tough to answer since many boring operations may occur within the ""tolerance zone"" of a subsurface utility, but many times, these operations will not be ""in conflict"" with said utility. The board, with support of public stakeholders, will need to establish what reasonable care is and possibly determine what ""in conflict"" means. -- vacuum excovator -- No -- none -- Again, trained personnel on a 30 LBS. clay spade. -- The question as written is very specific to shallow boring operations. For shallow boring operations, -typically, 3 to 10 feet in depth- I would answer NO. However, for deep boring operations, which can be anywhere from 10â€™ to +100â€™ below the surface my answer is YES. Within Ca Gov Code Section 4216.0, it does not define a safe tolerance zone beneath a Subsurface installation. Section 4216.4 (a) (1) states; If an excavation is within the tolerance zone of a subsurface installation, the excavator shall determine the exact location of the subsurface installations in conflict with the excavation using hand tools before using any power-driven excavation or boring equipment within the tolerance zone of the subsurface installations. The Boards definition of hand tools is very specific. It does not permit the use of survey instruments or physical access into manholes to determine the size and depth of a subsurface installations or for positively locating subsurface facilities. Section 4216.4 (a)(1) states; In all cases the excavator shall use reasonable care to prevent damaging subsurface installations. What is reasonable care? Section 4216.18 (b) states; The Board shall develop a standard or set of standards relevant to safety practices in excavating around subsurface installations;

b) What constitutes reasonable care, as required by paragraph (1) of subdivision (a) of Section 4216.4, in using hand tools around subsurface installations within the tolerance zone, considering the need to balance worker safety in trenches with the protection of subsurface installations. (1) Subsurface installation is delineated within the tolerance zone but it is not in conflict with the excavation. In our opinion when determining reasonable care, the Board shall also consider deep non-traditional construction methods and should exclude the need to hand excavate to locate utility structures that are well out of harmâ€™s way, especially if the substructure depth and size has been verified by as-builds and/or manhole access and elevation surveys. As currently written 4216 presents some real-life safety concerns for Utility Owners, Operators and our Construction contractors when faced with a deep boring project. I ask the Safe Excavation Board to; â€¢ clarify the safe tolerance zone beneath a subsurface installation, define â€œReasonable Careâ€ as required in Section 4216.18, and more specifically when a subsurface installation is delineated within the tolerance zone, but it is clearly not in conflict with the boring. -- NO! -- no -- No -- NO -- Vacuum excavation -- yes provided that proper clearance is used for guidelines prior -- there is always risk in this line of work whether or not something is daylighted. you should always daylight before boring -- Absolutely not and it's concerning others believe this is a safe move forward. -- absolutely not -- hydro excavator -- no -- none -- NO!! ANYONE THAT SAYS YES SHOULD BE FIRED AND RUN OUT OF THE INDUSTRY. this will only get people killed. -- Not by your average contractor. -- No -- No -- no -- Yes it is possible. -- Varies greatly -- None -- NO -- Yes. Under certain circumstances boring equipment can be used. The depth and location of underground facility in relation to proposed boring depth/profile is critical. Safety factors and buffers must be in place to assure there is no potential to impact the integrity of the underground facility. -- vacuum extractor -- NO"

Non-Operators: Yes, if we have an idea of the utility location & depth. -- no -- No -- yes -- Only if there could be a reasonable argument a safe zone was likely. example Boring 70' deep where we are crossing a CNG distribution line with services attached . There is virtually no chance a distribution line with service feeding business or homes deeper than 15'

, if we were boring 70' deep you would be safe to assume a minimum of 55' separation is likely. Potholing the distribution line damages roadways, disrupts traffic, and adds expense to the project. I think some safe tolerance zones could be set with a clause for exceptions as needed. -- No -- Vacuum Truck -- no -- no -- no -- no -- Yes -- No -- yes -- In my industry role, we do not perform our own boring activities. however, existing bored lines vary greatly in depth and positive location should be performed prior to boring around subsurface facilities -- Hand Power Tools -- Undecided -- no -- No opinion. Not familiar with this work -- Yes -- no -- Maybe -- Vacuum truck / trailer -- Yes -- No -- No -- Yes ,Boring under services -- yes -- NO -- No -- Yes -- NO -- No -- No comment. -- No -- no -- No -- no -- Yes, since the tolerance zone doesn't establish a vertical requirement. Horizontal bores and horizontal drills that are 10 or more feet away from asbuilt information should not require positive location. The method is being used to prevent environmental and public impacts. When designed properly and using the appropriate amount of clearance any exposing of pipelines is only adding to the impacts the owner was required to avoid. Some locates will not allow for positive exposure of assets (railroad crossings, water ways, state highways). -- absolutely not! gps on boring tools isn't perfect and can fail. -- No -- No -- No -- Hand tools, hydro vacs and air vacs are the safest tools to excavate within the tolerance zone. -- no -- None. Way to dangerous -- No -- No -- HAND TOOLS -- no -- No -- Sometimes case by case -- No -- I don't know. We have never performed this type of work.

In your experience, what soil conditions require powered tools to positively locate subsurface facilities?

Free-typed "Other" responses, separated by "--":

Operators: clay, slurry or other very hard subsurface -- slurry, hard pan, hard clay, concrete, or any materials that cannot be excavated with a reasonable of effort with a hand shovel or vacuum excavation methods. Picks, digging bars, sharp shooters or other so called ""hand tools"" have uncontrolled energy, uncontrolled penetration, uncontrolled positioning and are not the safest to use around live assets. -- Excess depth, cemented soils, rocky soils, extremely unstable soils -- None -- Doesn't matter what the soil composition is. There can be no power tools in the tolerance zone unless agreed upon by the local locator personnel and the excavating contractor. -- All soil can give false readings depending on conditions. -- Asphalt, cement -- boring, drilling, -- Hard or dense soils. Removal of surface improvements such as concrete and asphalt. Deep utilities. -- None -- Road base, clay, slurry, other hard soils where a shovel does not work -- Rocky, clayey backfill can hinder hand-dig operations and require power tools. We've found that pickaxes and digging bars are often used, but these tools can cause serious damage to plastic or thin wall steel pipes. Clay Spades are the most efficient and safest method of digging through hard soil. Additionally, many trenchlines are backfilled with 2-sack slurry or popcorn slurry that is often too hard to hand-dig through, and occasionally (North Bay Area Especially), Cal Trans would require cementitious backfill on state roads or pour 1' or more roadbed slabs, which obviously cannot be hand-dug through. -- Class A soil -- slurry and CTB -- Decomposed granite and (CLSM) Controlled Low Strength Material which is slurry back fill. -- Hard-pan, hard clays, slurry back-fills -- All soil requires a vacuum truck. The Vacuum truck is the only power tool that can be used on top of or near the fiber optic cable. -- type A, type B & some type C -- I don't believe any require it, they just make the process much faster -- Undisturbed hard pan soil. -- Clay, clay loam, rock -- all -- hard pan, rock, wet clay, shall, poor back fill -- 2 sac slurry/cement -- cobble or rock -- none -- NONE, there is always a way to pothole using air or water vacuum trucks.' -- Maybe slurry -- Clay, compacted silt, road base. -- Hard rock or concrete -- Hard rock -- when your backfill material consist of cement -- clay -- Slurry -- Type A, One Sac and two Sac slurry -- This is on a case by case basis since numerous factors must be considered (weather/location/recent activity) -- all -- Heavy base, 2 sack

Non-Operators: Clay soils, concrete treated bases, AC/PCC that might exist underground. -- Compacted AB or Lime treated AB or soil -- BOTH A & B SOILS -- Hard compacted soils -- Hard clay, rocky ground, road base, concrete slurry, dry baked compact ground, caliche. -- Road base, 1 Sac or greater Slurry, some cemented gravels -- sandy, clay, rocky -- hard soil, rock, pavements -- Hard or compacted soil, Rock, Thick Clay. Anything that would otherwise require uncontrolled force to break the ground such as, digging bars or pickaxes. -- hard -- CDF, hardpan, clay -- B & C -- All except for Sand -- concrete, AC, slurry backfill -- rock/rocky, clays -- Slurry, Minor Concrete, Major (Structural) Concrete, Hard Clay, Cementitious soils, Clay -- Type A & B soils, Locations where surface improvements have been constructed above the utility -- hard clay strata, compacted engineered fill -- Hard Soils, concrete/slurry backfill materials -- hardpan or rocky conditions -- hard material. slurry/concrete -- Hard Pan and soils covered by hardscapes -

- hardpan, CLSM/slurry used in prior utility installation -- none -- Lime Treated Soils, Cement Treated Aggregate Bases, Hard Native Dry Clay Soils, Rocky conditions. -- Hard clay -- A and B -- Hard ground that cannot be dug by hand -- All -- A, B & C -- Hard soil -- All. The tools help loosen the soil quickly and efficiently while reducing body fatigue as opposed to a shovel or other hand tools. -- Type A, Some Type B. Any hard or difficult soil to excavate by hand. -- Class A -- hard clay -- Hard, compacted soils, usually because it's under a roadway or has not been disturbed on decades. Also, soils around tree roots -- Rocky soil conditions, and/or deeper locations that would put hand-digging laborers at risk for cave-ins -- harder soils and slurries. -- when dealing with base, or concrete type of materials. -- Hard Pan, Plow Pan, Clay, Slurry Back Fill, Merton, Caliche, Cemented Aggregates, etc. -- Type A soils like Dense Clays and hard pan. -- Extremely dry soils, Hard clay, Flow fill, Extremely rocky -- 2sac slurry, concrete, asphalt. Anything harder than 1sac slurry. -- hard soils and rock -- Hard packed clay. -- 1 and 2 sac slurry, hard clay, rocky soil. -- Asphalt, concrete & slurry -- HAND TOOLS -- slurry -- Vacuum excavation is primary method in all soil types. -- A & B -- A and B -- Hard pan and densely compacted soils, aggregate bases, lime and cement treated soils.

In your experience, are there any soil conditions where powered tools cannot, under any circumstances, be safely used to positively locate subsurface facilities? If yes, please describe...

Free-typed "Other" responses, separated by "--":

Operators: Where there is local interference causing the location to be in question -- excluding clay spades and vacuum excavation, other mechanical equipment should not be used within 24" of the pipe in all directions. As stated above this implies a tolerance zone of 24" around the pipe. using proper probe and scrape, this safe distance could be maintained. -- No -- All soil types -- There is no safe way to positively locate with power tools that will not result in damage to utilities. -- no -- No -- Should always use non mechanical means to avoid damage -- If cementitious backfill is too hard for a clay spade to excavate, and a subsurface utility is encased within this backfill, I am not aware of a safe way to positively locate a subsurface utility. -- No -- rock -- Yes, untrained personnel who would use "a bigger hammer (60 LBS.)" as they say to break through subsurface concrete. We encase in concrete. -- No -- The only power tool that can be used on top of or near the fiber optic cable is the vacuum truck. This applies to all soils. -- Yes, Type A, Solid Rock -- No, Vac-exv is safe -- No -- Loamy sand & gravel, are examples of soil conditions that power tools should not be used. The tools tend to bit in deeper than harder soils making it difficult to control the tool and/or feel any substructures before it comes into contact with. -- sand -- All -- Power tools should never be used to locate pipelines -- no -- no -- NO -- They should never be used. -- Slurry backfill. -- to safely locate subsurface facilities you must probe the utility. Once you have a certain distance from the utility you must use hand tools. This safe distance should be identified in your companies excavation manual. -- concrete slurry -- Within tolerance zone no powered tools are safe to locate facilities -- No

Non-Operator: Sandy soils, usually it a soft soil condition. No use of excavators except if it is known the depth of the utility. -- No -- N/A -- no -- No, however experience and training with the tool is necessary for the tool operator. -- there is always a risk -- rock, compacted treated base -- NO. Proper use of power tools is safe. -- soft -- no -- Sugar sand -- When digging through concrete AC and Slurry backfill -- sand, pea gravels. Vacuum equipment could be used to locate utilities in sand and pea gravel soils. -- No -- No -- dry sand -- The only situation where utilities can be very brittle is old ACP pipe (Asbestos Concrete). We have found using the correct tools to help locate utilities is safer. -- Sand -- no -- Only when the locator is not confident in his marks. -- Very tightly packed soil with rocks included. -- no -- no -- Yes. Certain soils make it difficult to ascertain what an operator is feeling while digging. Such as when digging through rock, it is difficult to differentiate between feeling the pressure up against a utility vs. against a rock or hard debris. -- no -- no -- No -- None -- No -- No -- NO -- No. -- No -- Not sure what soil condition would prohibit using powered tools!?

-- In most soil conditions, positive location would be safer if done with hand tools. -- it shouldn't be allowed period. the danger is too high. spending an extra day hand digging is worth employees lifes -- Soft soil conditions such as sand, etc. -- No. In softer Type C and some Type B soils which can be probed will allow more powered tools since you can clear two feet above the facility -- any soil condition is not safe to use powered tools to positively locate subsurface facilities. -- Soft or loose soils -- All. Only one that I think is acceptable is a Vac truck -- Sandy or zero sac slurry. Pipelines should be probed in these soil types to avoid and prevent pipeline damage. -- Sand, loam & clay -- ALL -- Any. This practice is dangerous regardless of soil type. -- Slurry backfill -- Case by Case but you don't have to use power tools on most C class -- No -- Wet, muddy soils

Are there situations where you have used or would like to use powered tools to positively locate, irrespective of soil type?

Operators: 21 YES | 19 NO

Non-Operators: 44 YES | 12 NO

Please explain your answer re use powered tools to positively locate, irrespective of soil type.

Free-typed "Other" responses, separated by "--":

Operators: in all cases, clay spades should always be allowed within the tolerance zone as the least damaging and safest means to expose live assets in hard soils -- Soil type always determines the tool to be used. -- Hand dig to positively locate -- Vacuum Truck, or hand digging -- clay -- General use of light power tools to locate utilities is more effective and productive than hand methods. -- non mechanical means only -- We would use clay spades for excavation around our Company owned facilities and any other Operator's utilities that allows it. -- Hand digging puts men and women in an excavation, which puts them at risk unnecessarily. Vacuum excavation is a very efficient and safe method of locating subsurface utilities and puts minimum risk on our working men and women. There are instances, obviously, where vacuum excavation doesn't make sense or isn't possible. In these cases, probing and scraping (outside of a certain distance from a subsurface utility) is an efficient and proven method of digging down to a subsurface utility before hand digging becomes necessary. -- no power tools should be use to locate any su surface installation -- The answer is still no, even though a good backhoe operator can feel the majority of subs if they ""peel dig"", it is still not a safe practice. -- Hard-pan, heavy/firm clays, slurry back-fills -- Vacuum truck. -- Excavating in Type C, Sandy Soil -- Vac-exv -- In hard pan soil where a utility has been installed through boring, it may be useful to be able to use a pavement breaker to loosen the soil. If this is allowed, it should be done with the utility owner present. -- The only tools we would use in these situations would be a vacuum or clay spade -- if I can hand dig or vac to daylight I will, but when your dealing with hard pan or clay rock or shall you have to you power tools to get the job done -- we consider hydro excavators power tools -- If the pipeline operation was shut down to eliminate the potential harm to personnel. -- Using anything power to identify a facility is the most absurd thing i have ever heard. -- Vacuum equipment -- To dangerous around active gas lines -- There are cases where infrastructure is located in hard rock that requires use of powered equipment to uncover infrastructure. -- when you backfill material is made up of cement -- hard clay, concrete slurry encapsulate, low road bed. -- depth over 8' -- Depth greater than 10â€™ after being verified with probe. Lines located under asphalt would use backhoe to remove base

Non-Operators: "Yes, most definitely on hard soil conditions. It is very labor extensive and time consuming to just use hand tools. It would be good to use power tools in soft soils only if we knew an idea of the depth of the pipe. Mini excavators are good to remove dirt for exposure. -- When the soil is of a compressive strength of 1.5 tons per sq. foot or more -- PRIMARILY WORK IN CLASS C SOILS, SO POSITIVE LOCATION TYPICALLY DONE BY HAND OR VACUUM -- A spade has a fairly wide blunt end that wants to bounce off an obstruction instead of cut or penetrate. It will vibrate, penetrate and separate the earth but is does not work to cut or penetrate even plastic. If we don't use a spade our choice is a digging bar or a pick to penetrate and break the earth up. Most all of the Digging Bars and Picks develop a very sharp point. A combination of the point on the tool and the velocity of the swing a person has to use it is far more likely to damage or rupture any utility that is either know or unknown that you may encounter. With in excess of 35 years in the industry with vast experience with hand digging activity it is my opinion that a 60 pound spade with the proper blade attached is a safer alternative to picks and digging bars. -- Very hard ground , and slurry -- yes, when raw sewage is coming out of the pipe into the ground or surface waters -- hard soil or rock -- Hard or compacted soil, Rock, Thick Clay. Anything that would otherwise require uncontrolled force to break the ground such as, digging bars or pickaxes. -- If using tool correctly you can safely find the utility without damaging it -- Deeper utilities -- soil type is going to dictate where power tools (clay spade, 30-60# hammer) are appropriate. -- Some situations are impossible to use hand tools or vacuum trucks alone to successfully locate utilities -- Hand dig over the locate mark, then use an excavator to remove surrounding material that falls in to hand dug hole. -- There are many situations where hand operated power tools are the only productive way to remove material while also protecting the utility. -- In Lime treated soils, it is near impossible to hand dig without the use of a jackhammer or clay spade. -- hard clay -- Digging around slurry -- Hard ground conditions -- Spader -- Without the use of electric clay spades we are left with picks and

shovels to excavate hard ground. The chance of damaging an existing facility with a pick or high force on a shovel is 5000000% higher than using a controlled clay spade. -- When performed properly, power tools can help in safely locating utilities. Power equipment can remove hard soils with more controlled force than swinging of hand tools to remove soil. -- We have used vacuum excavation successfully without causing any damage to facilities -- Around tree roots -- Deep, and very deep hand-digging carries risks (over-exertion, etc.) when the proposed excavation is relatively shallow...Utilities should be installed in a way that can ascertain depth more accurately such that the tolerance zone can be 2' vertically as well. -- only hydro vacs should be allowed -- When potholing a utility where the soil conditions allow the use of a non-conductive probe and mechanical excavator. Probe 2 feet excavate 1 etc. -- Powered tools in Type A soil is necessary because the material is too dense to realistically get through with hand tools or the hand tools needed create a hazard like digging bars which can be more dangerous than other powered tools. Denser type B soils can generally be probed and scraped. Many type C soils do not require powered tools. -- Many years ago -- All exposures have been safely done via hydro/air vac trucks, and or hand tools. Powered tools are NOT a necessity for positive location of subsurface facilities. -- Would not use a powered tool unless necessary over hand digging -- I always like to verify our pipelines via probe before using powered tools because powered tools could potentially damage the pipeline. -- Power tools can damage the pipe. -- Any movement within tolerance is unsafe for people, environment,,, -- Power tools should not be used to expose pipelines. There is too high a risk for damage to the pipe and I don't want to be standing over a trench where a line is ruptured due to this. -- Vacuum truck -- Where there is water in the hole or unsafe conditions -- 30lb to 60lb electric or pneumatic breakers with a unsharpened chisel tip are more often safer to dig with than a pointed hand shovel or digging bar, which is what is used when only hand tools are required. We have had multiple incidents of punching through a utility with a hand digging bar while trying to locate the utility in hard to dig soils. -- Deep excavations"

Have you observed incidents where powered tools being used within the tolerance zone resulted in damage to subsurface facilities? If yes, please describe...

Free-typed "Other" responses, separated by "--":

Operators: yes, clay spades chipping coating; teeth from excavators hitting pipeline; hydro vacs with pressure too high or not having an oscillating tip damage coating -- yes, we have records of multiple dig ins caused by excavator buckets but we have significantly more dig-ins caused by so called ""hand tools"". Shovels, picks, digging bars, post hole diggers, etc -- Yes, I have seen the damage from 60# pneumatic hammers with clay spades, from pavement breakers, from tracked or wheeled excavators, backhoes, dozers. Additionally I have personally witnessed damage from vacuum excavators where an air and/or water lance was used where direct buried cable was in abrasive soil. The lance cut the sheath of the cable as easily as a shear. -- Yes, Cable cuts, damaged sheaths which were undetected, later causing electrolysis, and sheath faults. -- Yes. Backhoe, trackhoe, compactors, saws, scrapers, loaders -- Yes many times . -- Yes, damage to coating, dents and scratches to pipeline. -- yes -- Yes, point used on chipping gun rather than chisel or spade, over-penetrated soil and damaged coating on utility. Did not damage utility pipe or encasement, only surface coating. -- jackhammers and backhoes breaking pipes, -- Boring contractors damage facilities when boring without exposing the marked facility and also when they don't leave the excavation open to verify their bore is clear of the potholed facility. Backhoes frequently damage facilities because the excavator assumes the marked facility is at a certain depth. This is true for all machine powered excavation equipment except vacuum equipment. -- You must still be careful -- Yes, I have seen damage that has occurred while using a backhoe, large auger, hydraulic mole, pavement breaker, clay spade, and jack hammer. -- yes ..hit line with excavator and backhoes -- I have stopped workers when I was a foreman from such behavior. Or only after the fact, either a miss marked sub, or personnel lacking training using poor judgement from findings in an investigation. -- Yes. Shallow boring when the subsurface facility was not day-lighted, e.g. cross bores where natural gas distribution lines were HDD'ed through sewer and storm drain lines. -- Yes, that is why we no longer allow power tool digging on top of or near the fiber optic cable. -- Yes, hit a concrete water line in Type A solid rock soil - - Yes, backhoe, Auger, D-bore, Chipping gun, Pavement breaker, -- No -- Not since the tolerance zone was defined. -- MWD Rialto Feeder 120"" , MWD Orange County Feeder 36"" -- no -- Yes, when contractors think the lines are deeper than the areas they are working and don't call 811. -- Yes, it happens all the time. Excavators digging without a dig alert or using power tools within the tolerance zone -- Yes -- yes, the utility was not potholed to verify the exact location and

gas was released into the atmosphere creating a hazardous situation. -- no -- Yes. I have seen backhoes do significant damage to a pipeline because it was shallower than they ""thought."" -- Yes, backhoes damaging utilities. -- Yes -- no -- no -- yes, removal of concrete caps -- Many cases I have seen coating damage while using powered tools to locate facilities, which is very close to puncturing facility. This also calls for a coating repair which could delay progression of project by hours. -- backhoe hit an unknown large rock and bounced it's bucket into a facility causing a leak -- Backhoe struck gas line after digging deeper than the utility gave permission to. Boring machine pulled off course and struck parallel utility.

Non-Operators: No. -- Yes, Have had one of our facilities damaged by another utility using a small truck mounted excavator -- yes -- 35 years ago I did see and inexperienced laborer manage to spade through a 5/8"" polyethylene gas service that he did not know was in the vicinity he was digging in. After the fact even he admitted that he had been at a loss to explain why it had been so tough to get through the ground at that location. However I have seen dozens more 5/8"" poly lines cut with shovels that with spades. -- Yes, I have seen careless people damage facilities -- yes. -- no -- I have seen clay spades damage coating on steel pipe. I have also seen a digging bar punch a hole in a steel line. -- no -- Yes, the tool was not being used correctly and proper dig methods were not being applied -- Yes. Excavator lifted huge chunk of slurry that had a 1/2"" gas line encased in it. -- no -- Yes. -- No -- no -- No -- no -- yes -- Yes. Incorrectly marked utilities. Utilities attached to hardscape being removed (utilities that were placed too shallow). -- No -- No -- no -- Yes, Clay spades, jack hammers and even shovel tips have penetrated utility casings / piping. -- yes, damage to Plastic services -- Yes but the damage was very minor -- yes -- None -- No -- Yes, an excavator bucket hitting an exposed line -- The backhoe ripped apart a phone cable. -- Yes, excavator buckets improperly applied. -- Yes, I have seen damage caused by using a backhoe, hydraulic mole, pavement breaker, auger, and jackhammer. -- yes -- Yes. Lack of caution -- yes...typically, powered tools encounter old, abandoned stub-ups, disconnected laterals, piping that was installed shallower to go over another utility, etc. Occasionally, sidewalk and street removal operations involves utilities immediately underneath them...but sidewalk and street cannot be removed with hand tools. -- I have observed accidents with both hand tools and power tools. Power tools are less likely to damage the pipe and pipe coating than a hand tool. Brittle AC pipe will be damaged with both methods if not careful. -- yes, backhoe scratches on stl pipe. -- Yes, Concrete based and/or encased utilities -- Yes. Direct buried lines in dense soil can be damaged with any tool powered or not. You cannot see the facility until your into it and a shovel will break a communication line quicker than some powered tools. -- Yes. The backhoe operator made a miscalculation -- Yes. Crew used clay spades with pneumatic power to trench across facilities and removed coating and damaged pipeline. Result was shut down of job, cut out and replacing of pipe. Luckily no injuries occurred on the job. -- Can damage small plastic lines with a shovel or jackhammer with spade. -- Yes, Crew working without KM rep onsite and used backhoe. They hit our line a number of times which resulted in temporary shut down. -- Yes. There have been instances where clay spades, backhoes, and even shovels have damaged either the coating of a pipeline or damaged the actual utility it struck. -- Erroneously marked utility lines. -- Yes, damage to coating, gouging pipe and dents. -- NO -- yes. using clay spades to cut through base has resulted in dents to pipes that can lead to bigger problems down the road. -- Yes. Backhoes damaging utilities. -- no -- I have seen hydraulic equipment (backhoes, excavators, etc) damage utilities many time, but not smaller electric hand tools. -- Yes, when power tools were not used carefully.

What do you see as the risks of being restricted to hand tool use within the tolerance zone, prior to positive location of subsurface facilities?

-Increased project time-

Operators	20
Non-Operators	41
Total	61

-Increased worker injury-

Operators	15
Non-Operators	35
Total	50

-Inability to get the job done-

Operators	13
Non-Operators	26
Total	39
-No Risks-	
Operators	15
Non-Operators	9
Total	24
-Other-	
Operators	4
Non-Operators	21
Total	25

In your experience, why is a hand tool use exception needed?

-Worker Safety-

Operators	18
Non-Operators	38
Total	56

-Cost Management-

Operators	7
Non-Operators	20
Total	27

-Schedule Management-

Operators	10
Non-Operators	16
Total	26

-Ability to dig in difficult conditions (rock, cemented soils, etc.)-

Operators	23
Non-Operators	48
Total	71

-Other (see next question)-

Operators	14
Non-Operators	13
Total	27

Free-typed "Other" responses, separated by "--":

Operators: I do not see the need for an exception to allow power tool use without first having facilities locations positively identified. -- No exceptions. -- Not needed. -- The only reason the lobbyists are going for this law is to reduce the cost of projects and try to get out of paying penalties. -- none -- While efficiency and cost certainly are major considerations, requiring hand digging within the tolerance zone puts men and women in excavations unnecessarily. I would hate to put subsurface utility integrity above worker safety. The "tolerance zone" needs to be defined as a radial distance around a utility, not a column of infinite depth defined from the ground surface. Vacuum excavation, clay spades, probing and scraping, and excavator/operator meetings and agreements can all be used effectively to prevent damage to subsurface installations. -- Ergonomics, and safe control of tool. -- Improper use of hand tools (pick, probing bars) around certainly substructure facilities will increase the probability and likelihood of the substructure being damaged vs. the proper use of a power operated clay spade. -- No exceptions. No power tool digging on top of or near the cable. -- vacuum Excavtion isa great tool to positively identify instead of hand tools, protects worker safety. -- I dont think a hand tool exception is necessary. It really depends on how much you value safety and wether or not a life costs more than

your construction project. -- No exception over rules safety. -- Vacuum excavation should be the only exception to hand tool use.

Non-Operators: Interruption of service to the utility consumer, I have seen more damage done to facilities but Picks, Digging Bars, and Shovels than from air spades. -- The use of hand tools to dig through hard ground conditions requires a high amount of force, once that force is released it is impossible to stop when a substructure is encountered. Once that force is applied to the substructure damage is unavoidable. With a "chipping gun" substructures can be felt and the tool can be stopped and backed off with minimal or no damage. If the utility is going to be struck by hand tools or mechanical tool, I would rather hit it with a pneumatic tool. You must understand that operators are not perfect when it comes to identifying underground utilities. In California the biggest additional cost to a project is unknown utilities. That is, unmarked and unidentified. Meaning that there are no marks from the utilities that have cleared the USA and there are no indicators above ground within a reasonable distance. It is almost never the utility that we know about that is struck, it is the ones we don't know about that pose the biggest danger. This law has put our people in danger and public safety at risk. Maybe I am naïve but there must be some statistics that show the tools used during a dig in. Does this law solve a problem or cause one, what is the biggest risk? -- osha -- The other way to break up soil is to use digging bars and those are difficult to control and could result in property damage and worker injury. -- Hand tool exception is a Common sense approach -- A hand tool is more likely to damage a pipe. -- . -- It is the only way to definitively confirm the location of a utility while minimizing the potential for having an unexpected "Dig In". -- Risk of damage to the facility is higher with a forceful hand tool than a properly operated clay spade -- Occasionally, utilities run parallel to proposed excavations and close enough to be entirely within the tolerance zone...potholing/exposing the utility by hand only tells the depth and alignment at the exact pothole locations, but it seems that conflicts and irregularities often occur between pothole locations...and hand-digging the entire street section is not something that most bidders would be able to anticipate when furnishing pricing on a job. This can dramatically slow down the work which has to adhere to certain schedules for most clients and municipalities. -- Hand tools in many situations will cause more harm to the asset. -- Public safety -- Exception is not needed. Every other situation can be mitigated via proper planning and scheduling. -- for Deep trenchless applications like horizontal directional drilling, potholes can be excessively deep and over 50 feet. Opening a hole along an HDD bore causes loss of drilling fluid into the pothole and perhaps to the ground surface and lead to loss of circulation which can impede the HDD boring process and lose the hole. Any phtholes must be backfilled prior to HDD under them. -- I believe that hand tools are needed to safely day light any pipeline due to potential public safety risks. -- It is not needed. The one reason anyone would want to consider this is to save time. Unfortunately they are risking the safety of everyone involved in order to save some money/time. -- Vacuum excavation is a safer and more expeditious method. -- skip -- When utilities are in hard soils/substrate the only hand tools which can loosen the soil are a pick or digging bar which must be forcefully applied to the soil. There is no finesse and the brute strength required will often damage the utility that was intended to be protected.

Do you believe an exception to the hand tool use requirement must include mutual agreement?

Operators: 31 YES | 11 NO

Non-Operators: 30 YES | 27 NO

What would constitute mutual agreement to a hand tool exception?

-Fax or email between parties-

Operators 4

Non-Operators 4

Total 8

-Indicate intentions on 811 ticket + Electronic positive response code from operator(s)-

Operators 14

Non-Operators 10

Total 24

-Indicate intentions on 811 ticket + No objection from operator(s)-

Operators 8

Non-Operators 18

Total 26

-Other (see next question)-

Operators 7

Non-Operators 10

Total 17

-Phone call between parties-

Operators 3

Non-Operators 2

Total 5

-Standard form agreement-

Operators 5

Non-Operators 11

Total 16

-(blank)-

Operators 1

Non-Operators 2

Total 3

Free-typed "Other" responses, separated by "--":

Operators: clay shovels should always be allowed except if operator indicates they do not allow them. Also any operator disallowing clay shovels should provide engineering data to demonstrate why they deem clay shovels more damaging and dangerous than sharp shovels, picks & digging bars on their assets -- Face to Face, signed agreement -- Local locator tech on site must approve -- none -- Assuming the range of acceptable power tools is defined and is agreeable to all parties involved, there should be no exception needed. For my assets specifically, outside of a simple shovel, there are no other "hand tools" that are safer than a clay shovel or vacuum truck. Digging bars and pickaxes have caused damage to my assets in the past. -- I don't agree with the exception -- no exceptions to safety, keep digging with a shovel. -- Has to be signed. -- Onsite meeting and assessing real time dig situations

Non-Operators: If they want to have the authority to approve a method of excavation then they should be required to always mark lines active, abandon or inactive with 100% accuracy with depth of cover. And if they want to deny the use of mechanical tools then they should enter into an agreement to repair any damages and guarantee the safety of my people. Alternatively, they excavate their line prior to the start of my construction project. -- The excavator should be able to make decision based on conditions without agreement of utility operator. The excavator can still be liable for damage. -- Mutual agreement though documentation is too formal and is an easy way for operators to impose personal opinion. Mutual agreement should be done by site visits and understanding the nature of the work from the field. -- There should not be any agreement, the excavator is responsible regardless of any agreement -- there shouldn't be an exception to handtools in tolerance zone -- should require on site meeting with Operators/locators and a standard contract/form signed by both parties. -- This should not be allowed -- Face-to-face mutual agreement plus documentation -- Should always be required for safety -- A signed document -- skip -- Since the excavator will be liable for any damage whether a hand tool or power tools is used why should there be mutual consent?

Which of the following scenarios would be ideal, in terms of an on-site meeting related to a hand tool use exception?

-On-site meeting can be called for by either the excavator or the operator-

Operators 15

Non-Operators 20

Total 35

-On-site meeting is not necessary-

Operators 4

Non-Operators 14

Total 18

-On-site meeting required between the operator(s) and the excavator-

Operators 20

Non-Operators 21

Total 41

-(blank)-

Operators 3

Non-Operators 2

Total 5

If an on-site meeting did take place, in your experience, what category of personnel is sufficient to represent the operator at that meeting?

-Contract Locator-

Operators 9

Non-Operators 15

Total 24

-In-House Locator-

Operators 26

Non-Operators 22

Total 48

-Locate & Mark Supervisor-

Operators 19

Non-Operators 25

Total 34

-Engineer-

Operators 11

Non-Operators 12

Total 23

-Other (see next question)-

Operators 6

Non-Operators 7

Total 13

Free-typed "Other" responses, separated by "--":

Operators: Qualified person from utility who can make definitive decision in field on use of power tools. -- none -
- The operator will need to make the determination as to what level of personnel will be necessary. -- property
operations representative -- Qualified person representing the utility.

Non-Operators: No contract locators. Someone with some skin in the game who feels ownership of the line and
has enough experience to know where the line is and where it goes, and can indicate any possible abandon lines
would be ideal. -- superintendent and project personnel -- Station Management needs to be consulted. --
Utility Representative whom has the authority to make determinations on behalf of utility and Excavator
Superintendent / Project Manager. -- This should be left to the operator. Depending upon how critical the asset
is the operator may want additional personnel available. -- There are too many variables regarding why the On-
site meeting needs to happen i.e., type of facility, age of facility, what the facility services, material the facility is

encased in, etc. it would probably need to be an engineer but scheduling them would be cumbersome -- A OQd person who handles damage prevention for the utility. -- skip

Should the excavator's intention to use powered tools be stated on the 811 ticket?

Operators: 36 YES | 6 NO

Non-Operators: 47 YES | 10 NO

Please explain your answer re stating intention to use powered tools on the 811 ticket.

Free-typed "Other" responses, separated by "--":

Operators: clay spades should not be considered power tool and should always be allowed. other tools should not be and not be on the USA ticket -- The 811 ticket should include all pertinent information regarding the proposed work by the excavator. The intention to use power tools prior to positive location is very pertinent. -- Must be stated, so that operator can respond to the activity. Power tools cannot be allowed. -- We have to be able to tell the intentions of the excavator. -- The use of a box on the 811 ticket will be abused as is other options already available on 811 tickets. -- Transparency is always a good policy. -- if he opts to use power tools he pays for damages -- Putting the information on the ticket can mislead the excavator into thinking power operated equipment is allowed without hearing back from the Operator. Additionally, all tickets would likely have this indicated. -- IF the range of acceptable power tools is not defined by the Board, an operator should have the right to discuss and possibly deny use of certain tools. -- When excavating and direct burial cable is in the tolerance zone, the Operator should be made aware. -- If we know the intentions we can properly tell them that they will need to use a vacuum truck first to locate the fiber optic cable. -- Vac exv -- The conversation should be initiated by the excavator on the 811 ticket. -- Similar to the use of vacuum excavation, the only change would be the lack of response from the operator would constitute acceptance. -- what would be the need? the locator is there to locate to the best of his ability, say one way or another would just mean you doesn't have to be as on the mark if we are using a vac rig as opposed to a spadder -- If the excavator request the use of hand tools, those tickets can be -- I don't agree that power equipment should be used until the utility location is verified by safe dig methods. -- The excavator should clearly communicate to the operator their intent. The USA ticket is the designated tool for that communication. -- Yes, so it is know ahead of the work to be scheduled & to know what type of power tools will be used if allowed. -- simplifies the reporting process -- Explanation of intended powered tools on 811 ticket would give facility owners a great idea of different hazards and would be prepared to approach situation with more ease of mind. -- Clear communication elevates assumptions -- Facility operator needs to know what equipment could be coming close to their facilities

Non-Operators: It is important to know and have this information on record since day one. -- N/A -- The ground has signs of 2 sac slurry -- a brief an clear explanation -- The operator should know what type of equipment will be used and judge the risk from that information -- Being open and honest is always the best way of doing things. But it should not be unsafe or impossible for a contractor to safely to his job. -- It should be stated that way if the operator does not agree a on-site meeting can be set to explain the situation -- Unknown under ground conditions. -- the operator should be afforded the opportunity to have the request an explanation of intended power tool use and why. -- List possible tools to be used -- the intent to use equipment should be noted so as to initiate the field meeting -- In some cases the operator may have specific concerns regarding power tool use in damaging their utility. -- I believe that this is a company decision, not a statewide policy. -- Until the excavation has begun, it is not possible to always identify methods. The default to cover all conditions would be to check Yes for all excavations rendering the questions useless. -- That way, all parties are made aware and it has been identified and recorded by 811 -- Utility owner aware of what we intend to do and request field meeting to confirm methods -- Documenting your intentions is good business. -- doesn't hurt to list it on the ticket -- it seems like everyone would put Yes on the ticket, so what's the point? -- It wouldn't hurt to require it. The only problem is, it will be included every time -- If an excavator was able to describe either the proposed digging depth or the proposed subsurface elevation that they were intending to dig to, the utility companies might be able to benefit from less visits as well...contractor's could spell out that they are only

proposing to excavate to a depth of 12' and if the utility companies all know their utilities are 30' deep they could provide a positive reply of "no conflict" or something. -- Make all requests in one location. Since this is where vacuum excavation is located it should all be here. -- By providing intent to use powered tools on the 811 ticket, all responding utility owners/operators will be informed of intent. -- Some times you don't know what the soil type is until your USA has cleared so every excavator would default to checking the box for powered tools. -- All equipment intended to be used should be posted. -- To have an idea of what they are doing -- The excavators intention to use power tools stated on the 811 ticket would greatly benefit our company determine the amount of risk the job would intake. -- So everyone will be on the same page. -- Of course should be noted! -- Good to know the intentions asap. -- This information is already on the 811 ticket. -- no it should be assumed that power tools are being used -- Good communication never hurts, and if the operator has a valid reason to be concerned with power equipment, this gives them the opportunity to respond. -- The excavator may not know the soil conditions at the time of calling 811 so may not know if required. There would be a tendency to note every ticket with the intention of using power tools.

Do you think a spotter is needed when powered tools are used to positively locate?

-Always-

Operators	29
Non-Operators	29
Total	58

-Don't Know-

Operators	1
Non-Operators	3
Total	4

-Never-

Operators	1
Non-Operators	4
Total	5

-Sometimes-

Operators	10
Non-Operators	21
Total	31

-(blank)-

Operators	1
Non-Operators	0
Total	1

Do you think operator standby is needed when powered tools are used to positively locate?

-Always-

Operators	21
Non-Operators	14
Total	35

-Don't Know-

Operators	3
Non-Operators	5
Total	8

-Never-

Operators	2
Non-Operators	2
Total	4

-Sometimes-

Operators	14
Non-Operators	34
Total	48

-(blank)-

Operators	2
Non-Operators	2
Total	4

Which of the following devices would be helpful when digging with powered tools in the tolerance zone, prior to positive location?

-Tool/Conditions/Practices Matrix-

Operators	18
Non-Operators	30
Total	48

-Safety Checklist-

Operators	19
Non-Operators	32
Total	51

-Excavator-Operator Agreement Form-

Operators	21
Non-Operators	17
Total	38

-None of these would be helpful-

Operators	7
Non-Operators	9
Total	16

-Other (see next question)-

Operators	2
Non-Operators	5
Total	7

Free-typed "Other" responses, separated by "--":

Operators: locating equipment would be useful. would be great to run the survey again while stating power equipment excluding clay spades because the answers would be different -- no power tools -- i dont agree.

Non-Operators: N/A -- a matrix of recommendations, not necessarily requirements would be helpful -- Procedures are written into law and excavators follow. Also if a field meet is required for sensitive lines procedures can be discussed/agreed to then. For normal lines a checklist is not necessary. -- type of pipe material -- Need a geophysical locate on the utility first -- Power tools should NOT be used in tolerance zone -- Is this information for the excavator's benefit, or the operator's benefit. The question unclear. The operator stand-by person satisfies this need for information. -- skip

If there is anything further you would like to add, please do so here.

Free-typed "Other" responses, separated by "--":

Operators: we support clay spades and vacuum excavation in the tolerance zone. We do not support other mechanical equipment 24" around the asset radially prior to exposing it. -- Regarding Question 3, add Backhoe, Excavator (trackhoe), Jackhammer, Vibroe, Blind drills, anything that could damage the structure before its location is positively identified. -- Bottom line is no power equipment within in the tolerance zone unless locator personnel and excavation contractor agree what is appropriate. Locator personnel must remain on site to

monitor while any agreed upon power work is active. -- This law is an attempt by excavators from Los Angeles trying to run the state. This is a bad idea for all parties concerned and damages to fiber optic cable will lead to public safety issues and possible national security issues. The operators cannot be held responsible if the state takes away our right to protect our networks. -- no -- I think the power tool law should remain the same, they use them no if they need to and they pay for damages they cause. I have better things to do then meet with excavators to check training status or stand around and watch them do it. -- The Board should provide a list of tools that are allowed to be considered for a mutual agreement and the list should have minimum guidelines for use of that tool. We believe the Board's tool list should be very limited. Furthermore, as a starting point, we would like the board to only list clay spades that are less than or equal to 30lbs because they are safe if used within the guidelines (General guidelines from the Board could include the requirements that the employee is trained on the tool, the tool shall not touch the facility, the tool's blade should be kept parallel to the facility, and small bites applied, only a clay spade bit can be used - no sharp bits.). However, in some situations and around some facilities, even clay spades may be too risky to use, so an Operator should have final approval before allowing an excavator to use a tool from the DigSafe Board's tool list on a job by job basis. -- Again, I believe the intent of SB 661 and subordinate legislation is extremely positive, however, I worry that by requiring hand digging in all cases, we will be required to put more individuals in trenches unnecessarily when other soft-dig technology exists and is used widely in industry. Additionally, SB 661 has the potential to put an unnecessary burden on boring contractors and operators using boring technology to install assets. HDD, auger boring, hammer boring, microtunneling, etc., can be performed within the tolerance zone of a subsurface utility, but not in conflict with said utility. The Board needs to consider what ""in conflict"" means. I do not think the board intends to force entities to dig every street light cable or home gas service along a street that an HDD contractor is installing a conduit 30' below. Additionally, some operators SPECIFICALLY DO NOT want excavators to expose their assets. DWR in particular is very weary of digging up their pipelines due to the fragility of their structures. There needs to be legislation that exempts excavators from hand-dig requirement if tertiary agreements can be made between operators and excavators. -- My 32 years of experience has taught me many styles of excavation, some proper and some not. As a member of an Utility Operator as well, all damaged infrastructure can be replaced, granted at a cost. But damages that cause life taking events our my biggest concern. They usually result from lack of training, complacency or neglect. Our personnel are well trained to recognize hazards and perform their work safely and go home safe each night. Everyone wins when that is the result, operators and excavators... -- Allowing digging on top of or near the fiber optic cable will result in damage. This has already been proven historically. It doesn't matter how much effort or diligence is used to avoid damage, if a power toll is used, the cable will eventual be damaged. -- I have come across contractors doing work without a dig-alert stating that they are a sub-contractor and they are working for a City or main contractor -- If this does move forward it would be critical that hazardous material pipelines are an exception and the operator would have to agree to power tool use. -- If AB1914 is approved, that state should pick up the costs and except responsibility in the event of a serious accident because the high profile utility location was not verified first. -- I truly cannot believe this law got passed in the first place, someone must have spend alot of money to get thhis passed under the table. There is no way inmy over 20 years of experience would i ever allow this type of work to take place to put my guys or the general public at risk of death or injury no way no how!! -- This law will create confusion on job sites between the contractors who think this allows them to work faster and the utility who is trying to protect their asset. Safety must be the priority when dealing with High pressure lines and high priority utilities. -- Vacuum excavation is a safe alternative to hand digging to expose subsurface installations. -- I believe there needs to be more advertisement on 811 to reach a lot more folks that are not aware of this service. -- Digging within the tolerance zone with powered tools would create an immense amount of risk to underground facilities. Line damage would increase, safety of life and health would be jeopardized, environment would be at risk, and jobs would be lost. Even with current laws/standards there are enough line damage that still occurs. I could not imagine how a law to allow powered tools even closer to these dangerous lines would help anyone besides an impatient foreman.

Non-Operators: N/A -- I argue in the industry I am in working around gas lines always. I view a pick or a digging bar the equivalent of a can opener on a can, it can instantly pierce a line releasing pressure that will burn or asphyxiate any or all that are in the vicinity. An air spade is like a spoon trying to open the can, if you beat on the can long enough it can and will do damage and open a hole but it takes a lot longer with more effort. -- working with power tools to locate utilities is a common practice now in situations where hand tools is not practical. There needs to be some agreement about what is acceptable. The current no power tool requirement is not realistic in many scenarios so is largely ignored. If reasonable regulations were published, the use of these tools could be better controlled. -- Sometimes a solution is well intended but still causes bigger problems. -- Positive location of deep utilities, using only hand tools, can and does lead to worker injuries. Because of the restriction on hydraulics, and laborer could have to bench his way down to a deep utility in hard clay soils. This is back breaking work to create his own access by hand. -- It all comes down to training. With the right training anyone can safely operate power hand tools to locate buried facilities. -- Need more tool options to dig. Shovel, picks, sharp shooters, and digging bars aren't always the safest. At minimum having the option for pneumatic hand tools is needed. -- At a minimum small powered hand tools should be utilized for excavating for known utilities. Requiring hand dig only is to simplified of an approach and often creates additional hazards. -- We are a civil contractor and at times are working over the top and paralleling utilities less than two feet deep. It is not feasible to hand dig 100s of feet of the utility to positively know where it is at all times. Additionally, we cannot grade the road by hand. -- Some form of power tool use almost always seems to be needed in any area where there is asphalt or concrete...so some form of exception is necessary...and while the topic is open, sure seems like it's time to evaluate the possibility of safe use of power tools within the tolerance zone even if it has restrictions that are somewhat difficult to implement for those situations where the risks or complications of hand-digging make power equipment a viable option to consider. -- The first and foremost goal of these rules are to ensure the safety of the workers and public. The danger to both private and public safety are exponentially increased by allowing power tools to be used within the tolerance zone of the subsurface facilities. The cost of all damages, loss of life, and property will be astronomical. -- This is not a good or safe idea at all. -- Not all line marks are accurate. Using powered tools within the PRESUMED tolerance zone of 2' is dangerous. -- I think its irresponsible to even consider this law change. Tools like these can cause severe damage to pipelines and can result in serious injury. The benefits created by this are minimal in comparison. The only thing I can see being accomplished by this is it makes it faster and ""easier"" assuming nothing bad happens, to get a job done. There is no safety benefit gained here. Less man hours? Less strain hand digging? What happens when a bore that is not calibrated properly drills though a gas line with a crew onsite, or a backhoe rips off coating and damages a pipe enough that 2 years later it ruptures. This is DANGEROUS and it will create tension in the field between the contractor and the people trying to protect the utilities. SAFETY should be the #1 priority -- No. -- skip -- I believe the current ""hand dig only"" regulation leads to ground crews breaking the rules no matter how often we stress not to do so, because some soil types are so difficult to dig only by hand. This also means they will use a hand digging bar when just a hand shovel becomes unreasonable, and a digging bar is much more dangerous to use (i.e. can puncture utilites fairly easy) than a small electric or pneumatic breaker with spade bit. -- Question 25, I was unclear whether 'spotter' refers to a laborer working with an operator while locating the utility or an observer representing the utility owner.