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November 7, 2017

Barbara A. Lee
Director
Department of Toxic Substances Control
1001 I Street
P.O. Box 806
Sacramento, CA 95812-0806

RE: Report of Investigation - Arcadis

Dear Director Lee:

The Department of Toxic Substances Control (DTSC) and the Governor's Office retained the Attorney General's Office to conduct an investigation of allegations related to DTSC contractor Arcadis. In 2016, DTSC hired Arcadis to conduct lead testing of residential properties located in the 1.7-mile Preliminary Investigation Area for the Exide clean-up project. Beginning in mid-January 2017, complaints were fielded by Exide Advisory Group members¹ from Arcadis employees and referred to DTSC. The complaints were in three basic areas: (1) allegations that community workers hired by Arcadis were subjected to discriminatory or inappropriate comments; (2) allegations that the workers were subjected to unsafe working conditions, particularly by not being provided with air-purifying respirators; and (3) allegations that the workers were instructed to skip steps in the testing protocol by the Arcadis supervisors. The Office of the Attorney General investigated these three areas and is providing you with a summary of our investigation findings.

¹The Exide Advisory Group was formed in May 2015 and consists of the DTSC and the South Coast Air Quality Management District, local, State and federal elected officials or their representatives, government agencies, community leaders from areas surrounding the former Exide Technologies, Inc. (Exide) battery recycling facility, environmental justice advocates, and health professionals. The Exide Advisory Group provides community members with a forum for the diverse interests of the community to discuss their needs and concerns related to the oversight of the closure and cleanup work on and around the former Exide facility. Because many of the members of the group come from the impacted community, the workers reached out to group members to inform them of their concerns.

SUMMARY OF ISSUES INVESTIGATED AND FINDINGS

1. *Were the Arcadis community employees subjected to racial or derogatory comments or behavior from permanent contractor employees and/or supervisors?*

The investigation revealed that several racially inappropriate and insensitive comments were made over the course of the testing project, although the majority of community employees² reported that they were never subjected to any racial or inappropriate comments. These inappropriate and insensitive comments were primarily made by a single Arcadis embedded employee who functioned as a field lead. On another occasion following a minor conflict between a community worker and an embedded employee, Arcadis management initially and wrongly assumed the community worker was at fault and failed to conduct a timely, full and fair investigation into the matter.

2. *Were the community employees denied proper safety equipment, in particular air-purifying respirators?*

All the evidence indicates that employees were provided the appropriate safety equipment for the sampling effort. The consensus of DTSC, and contractors Arcadis and EFI Global's Certified Industrial Hygienists was that Level D Personal Protective Equipment – which requires steel-toed boots, long pants, a safety vest, safety glasses, gloves, and a hard hat – was appropriate for the sampling effort.

Although employees complained of odors when they began to cook the soil for longer periods in an effort to dry it out from the rains, the evidence indicates that air-purifying respirators were not necessary. Testing indicated that blood lead levels of the workers did not increase during the testing. Similarly, air monitoring for lead and other volatile organic compounds, like motor oil, fuel, paint, solvent, petroleum products, and hydrogen sulfide showed no detectible levels of lead or other compounds. Air-purifying respirators were not needed because all results were within permissible limits. In mid-February 2017, DTSC also addressed worker concerns about the odors by ceasing sampling by dry protocol which involved cooking the soil.

² Most of these community employees were hired by the contractors after they graduated from the Workforce for Environmental Restoration in Communities (WERC) program. DTSC created the WERC program to train local community members to become certified lead sampling technicians.

3. *Did the contractors instruct the employees to manipulate the data in ways that impacted the testing results?*

The investigation found there was no manipulation of data. Some employees felt pressured to meet a daily goal which derived from the contract with DTSC. The contract required contractors to meet a goal of testing 700 properties a month, and required each sampling crew to “sample a minimum of 5 properties per day.” This was otherwise known as the “five a day” rule. When using dry protocol, both contractors and workers felt it was impossible to meet the “five a day” rule and also properly follow all steps of the testing protocol. Some workers claim they were told to record the moisture of the soil as higher than it was so that they could follow the wet protocol instead. Wet protocol is an authorized testing method which is also much faster than dry protocol. However, doing this would not impact the results. Using wet protocol instead of dry simply resulted in all samples being tested by laboratories rather than in the field.

There were instances of human error, which should be expected in a project of this magnitude with newly trained employees. For example, workers periodically did not homogenize the soil for a sufficient period of time which was noted by both DTSC and AECOM oversight inspectors. The contractors appropriately responded to this concern by having the workers use timers while homogenizing or practice the technique using different colors of Playdough. Had there been significant problems with improper homogenization techniques or other instances of human error, these would have shown up in the comparisons of the field results with the lab results for the same samples. Such did not occur, and the field results are within acceptable norms of the lab results.

During dry protocol, workers used the X-ray fluorescence (XRF) device for the time period required in the work plan, as it was set to automatically read for that time period. The investigation confirmed that workers correctly recorded XRF results into the field computer notebooks. Even if a worker had failed to correctly record XRF data in the notebook it would not matter because the data contained in the XRF device was automatically downloaded each day and sent to quality review and quality assurance staff. The investigation also did not substantiate the claim that workers added water to samples.

Also not substantiated are claims that Arcadis failed to test in the drip zone. Where precisely to test the drip zone is a subjective decision with many variables (e.g., presence of utility lines, contaminants, concrete, path of the water, etc.) and this caused some disputes regarding where and when to sample drip zones. However, workers reported they routinely tested the drip zones, even sometimes contrary to instructions not to do so due to the presence of utility lines. Moreover, DTSC reviewed a substantial number of the properties where Arcadis provided an inadequate explanation in reports as to why it failed to test the drip zone, and determined that there were valid reasons for not testing on each of the properties.

BACKGROUND FACTS

A. Scope of the Investigation

The investigation commenced on February 22, 2017. Between the end of February and the middle of April, 50 witness were interviewed, some more than once, and most in person. Witnesses consisted of concerned members of the public, environmental justice leaders, and Exide Advisory Group members, DTSC staff, employees of Arcadis, employees of the other sampling contractor EFI Global, and employees of AECOM, the contractor hired by DTSC to perform oversight of the sampling contractors. Witnesses were ascertained from speaking with other witnesses, and reviewing documents. At the March 2, 2017 public Exide Advisory Group meeting, DTSC announced that the Attorney General's Office had set up a "hot-line" for anyone who wished to call in and provide pertinent information. Despite the number being announced at the meeting, and posted on DTSC's website, only one call was received related to the investigation. It is possible the members of the impacted community did not know of the hot-line because they may not all readily have access to the internet. Nonetheless, with the help of several environmental justice leaders and Exide Advisory Group members, sufficient witnesses were ascertained to conduct a full and complete investigation. Documents were received from Arcadis, EFI Global, AECOM, and DTSC, and culled into nearly 3000 pages of relevant exhibits.

B. The Exide Cleanup

A lead recycling plant operated at the former Exide facility property from 1922 until March 2014, much of that time before environmental statutes or regulations existed. It was operated by Exide from 2000 until its closure. During the plant's operation, battery breaking, smelting, lead refining, and storage, handling, and transportation of batteries, finished lead product, and other materials associated with lead recycling operations all occurred and likely contributed to releases of lead within a 1.7-mile Preliminary Investigation Area. DTSC has undertaken the sampling and development of a comprehensive clean-up plan for the impacted area.

C. The Contractors

In April 2016, the Legislature passed a bill to provide \$176.6 million in funds to bolster cleanup for the Exide project, including commencing initial lead testing within the 1.7-mile Preliminary Investigation Area as well as some remediation. A provision in the bill required contractors working on the project to hire work force from the local community, and contracting requirements with DTSC set that number at 40 percent. To facilitate compliance with this requirement, DTSC created the Workforce for Environmental Restoration in Communities (WERC) program and began training local community members to become certified lead sampling technicians. Most of the workers interviewed in this investigation were hired from the community by the contractors after they graduated from the WERC program.

DTSC held an open bid for the initial lead testing, and received multiple bids. The winning contractors were Arcadis and EFI Global. Both contractors hired the required number of community employees. In addition, both Arcadis and EFI Global had permanent embedded staff who worked with the community employees, some as lead sampling technicians, others as Quality Assurance/Quality Review personnel, or supervisors and managers.

Each contractor typically worked seven teams of two or three technicians in the field. Although Arcadis had staff working on the project throughout the country, approximately 35 people routinely worked in the Arcadis field office located in Commerce. These 35 people included 23 graduates of the WERC program, and at least two additional hires through the Los Angeles Trade Technical College. EFI Global had staff working on the project out of both their Los Angeles and Maywood offices. They had 28 lead sampling technicians, and, of those, 16 were WERC graduates. EFI Global also had three managers who were WERC graduates, and made an additional four hires from Los Angeles Trade Technical College.

Arcadis appointed a project manager who was based in Portland, Oregon. She traveled to and from Arcadis' Commerce field office as needed, more often as the project progressed and issues arose. EFI Global appointed a project manager who was located in Los Angeles. As he lived in Los Angeles, he was always on site or at the local head office in Los Angeles if needed. Arcadis had some staffing issues with its supervisors. Its first field supervisor was on the project for one month before he left. Its second field supervisor was also on the project for one month before he left. The next field supervisor worked for two months, but she quit the project around the time the workers' complaints were made public. The rotating supervisors, plus comments from AECOM, led to Arcadis bringing in two new permanent field supervisors around February 1, 2017. By contrast to the supervisorial turmoil experienced at Arcadis, EFI Global had consistent supervisory staff throughout the project.

In addition, Arcadis had some challenges keeping a licensed Lead Inspector/Risk Assessor (LIRA) in place. In addition to being required by state law on the job site, LIRA provided useful support to the sampling crews, particularly with the complex issue of if or where to sample in the drip zones. Arcadis went through several LIRA, and at one time AECOM reported that upon questioning, Arcadis field staff could not identify the LIRA on call. Arcadis always had the required LIRA on staff. However, unlike EFI Global who would at times have as many as four LIRA actually working in the field, Arcadis typically had one, or at most two.

Because of community pressure to begin the work, DTSC pushed the contractors to start testing quickly. Sampling commenced on August 24, 2016, before Arcadis and EFI Global had fully set up their field offices or had a finalized work plan with DTSC. The contract provided that each contractor had a goal of completing 700 homes per month, and each sampling crew needed to sample "a minimum of 5 properties per day."³ This was often referred to by workers as the "five

³ The contract does not appear to have any penalties for failure to meet this goal, but provides that DTSC could remove the contractor "at any time for any reason."

a day” rule. Both contractors had difficulty meeting this goal. There were unexpected absences by the community hires that impacted the ability to meet the goals due to lack of staffing. EFI Global in particular had many discussions with DTSC about its inability to meet the goal. Emails and witness statements support a conclusion that EFI Global could not meet the goal because it was strictly following protocol, including wet decontaminating augers after every single sample.⁴ EFI Global workers were also using paper notebooks to record data, which was more time consuming, while Arcadis had computer notebooks in the field. Over time, DTSC put less and less emphasis on the goal, and workers reported they felt less pressure to complete five properties a day.

Before sampling had even commenced, DTSC had decided it would contract for an Independent Quality Assurance Auditor, or oversight contractor. This is standard practice on complex projects like Exide, and was also requested at a public meeting. In the interim, DTSC conducted oversight on its own. DTSC staff members typically visited the sites two days per week. After bidding on the oversight contract, DTSC hired AECOM who commenced its oversight at the beginning of November 2016. From that point, AECOM provided DTSC with regular reports outlining any issues it saw with sampling techniques or safety issues for the contractors.

D. The Sampling Protocols

As a preliminary note, because of the push to quickly begin testing, the contractors began work on August 24, 2016 without a finalized work plan or quality assurance project plan. The contractors started testing using the original work plan developed by Parsons Environment & Infrastructure Group, Inc. (Parsons), the contractor who conducted testing at the first 1,000 properties in 2016. The Parsons plan was different in many respects from the final work plan signed by DTSC and contractors on November 1, 2016. Areas of difference between these plans will be noted in the following discussion.

To perform the lead testing, the technicians took multiple samples from each property within the Preliminary Investigation Area. Typically, for each “decision unit” the technicians would collect a minimum of five “surface” samples at up to a three-inch depth. The typical decision units were the front yard, backyard, and drip line or drip zone. Thus, routinely 15 surface samples were collected from three separate decision units. If there was evidence of a child play area, an additional two surface samples would be collected from the child play area, for a total of 17 surface samples for each property.

Where and even if one should test a property’s drip zone were subjective decisions. Technicians were instructed not to test the drip zone if it was covered in concrete, had garbage on it, was located too close to the driveway where fumes from running cars could impact the results, or if utility or gas lines were present. Although the technicians generally looked for downspouts and

⁴ DTSC ultimately clarified with EFI Global when it could use dry decontamination versus wet decontamination consistent with the work plan, thus speeding up EFI Global’s work.

places where the water ran in determining where to test the drip zones, individuals on site often disagreed regarding the proper location for drip zone testing.

If a decision unit did not exist (for example, the front yard was covered in concrete), then a minimum of eight areas were sampled between the remaining decision units in order to meet the required number of samples for the 95% Upper Confidence Limit (UCL) analysis being used by DTSC to determine which properties would ultimately be remediated. The 95% UCL requires a minimum number of eight samples and uses statistics to estimate a conservative “average” concentration of lead. For example, if the 95% UCL for a property is 1,000 parts per million (ppm), that means one is 95% sure that the exposure limit is 1,000 ppm.

Once all agreed on the proper location for the 15 surface samples, the samples were taken using a hand auger that was decontaminated between each hole. Technicians were required to change their gloves between holes. Each team prepared an “equipment blank” for each property; this was essentially pure water run over one of the augers into a container to help establish the augers were not contaminated. Technicians recorded the location of each sample by photographing and noting the GPS coordinates of the location of the sample. Descriptions of the site location were input into the notepad, as well as the depth of the sample taken.

The samples taken from a property were then tested by following either a “dry protocol” or a “wet protocol.” Dry protocol involves testing samples in the field using the X-ray fluorescence (XRF) device which is a hand held spectrometer. The protocol followed a method approved by the United States Environmental Protection Agency, EPA Method 6200. Before first being used at a site, the XRF device was calibrated. The soil samples were put in a Ziploc bag by a worker wearing latex gloves, and then homogenized for a minimum of one to two minutes. The homogenization broke up the soil and uniformly mixed it. Since dry protocol can only be conducted if the sample has a moisture reading of 20% or less, moisture readings of the soil sample were taken while in the bag to confirm that the soil had a less than 20% moisture reading. If any of the soil samples had to be dried to get below the required 20% moisture reading, they were “cooked.” Each contractor used a propane stove with a pan on top to “cook” the soil. The cooking process further homogenized the soil. The cooking pans were decontaminated between each sample.

The cooked or dry sample was then placed into a 60 mesh sieve and shaken. The resulting “fine dust” was placed into an XRF analysis cup, a cotton ball placed on top, and closed. Then the cup was placed into the holder on the XRF device and analyzed for 30 seconds.⁵ Both contractors set the XRF devices to automatically run for 30 seconds. The results were then input into the notepad for the particular sample location, but this was primarily back up data. The XRF device automatically stored the results of each sample, and those results were downloaded at the end of

⁵ When testing originally began using the Parsons work plan, the contractors took XRF readings while the samples were still in Ziploc bags. Two weeks into testing, the DTSC changed this and required the use of XRF cups, an additional step that was included in the final work plan.

the day. The notepad data was only collected in the event the XRF device data became corrupted.⁶

Based on the initial XRF test results, the technicians then identified the two areas, in the front yard and in the backyard, with the highest levels of lead concentration. At these two “hottest” areas, the technicians then took “deeps”; further samples at depths of 6, 12 and 18 inches, for a total of six more samples. These “deeps” were not tested on site, but rather collected in sample jars and sent to the laboratory for analysis. As with the initial samples, the technicians also took GPS readings for the “deeps” as well as photographs, and recorded the depths of the samples and descriptions. The technicians also had two duplicate XRF cups for the areas of highest concentration, known as the “dupes” which were also sent to the laboratory, primarily to confirm that the XRF samples were properly homogenized.⁷

Dry protocol cannot be conducted on a property unless 50% of the samples have a moisture reading of less than 20%. If more than 50% of the samples had too high of a moisture reading, the technicians switched to what was known as “wet protocol.” Under wet protocol, the technicians skipped the use of the XRF device on soil samples altogether. Instead of collecting the samples in XRF device cups and testing them, the technicians only collected jars of samples similar to the “deeps” for every sample site and depth. Two representative locations would be selected for the “deep” samples based upon field observation. All jars would then be sent to the laboratory for processing and testing. Because there was no need for the time-consuming process of homogenizing, cooking, sifting the soil, preparing the XRF cups, and analyzing the samples with the XRF device, wet protocol was far quicker than dry protocol. Whereas teams were having trouble completing two or three homes a day doing dry protocol, they could easily complete four to five homes under wet protocol.

Regardless of the method used, technicians also used the XRF device to take up to six scans of the exterior structures on the property, one reading per paint color and per paint on location (e.g., red paint on house siding, red paint on stairs, etc.) If samples of the paint could be obtained because it was flaking off, those samples were collected for analysis by the laboratory. The notepad was used to record the locations of the paint samples and take photographs. Finally, a sketch of the property was made, showing the basic lay out, location of the decision units, any reasons a particular area was not tested (for example, concrete covering the entire front yard), and the locations of all the samples, including the paint samples.

C. The Impact of the Weather on Testing

When the testing first began, California was still in a lengthy drought; as the soils were dry, the technicians primarily followed dry protocol. Commencing in October 2016, the rains came.

⁶ There was no evidence of any such corruption, so the notepad XRF data was not relied upon.

⁷ The addition of the duplicate XRF cups was yet another late occurring change added when the Quality Assurance Project Plan was finalized on November 29, 2016.

Due to the unusually wet weather during the winter of 2016-2017, there were many days when the soil was saturated from the rains and moisture readings were well in excess of the 20% requirement for dry protocol. In mid-October 2016, the draft work plan authorized the contractors to begin using wet protocol. By December, the laboratories contracted with by the contractors began to get backed up, particularly the labs used by EFI Global. DTSC had experienced a previous backlog issue with Parsons. DTSC did not wish to have this issue again. Faced with a heavy burden on the labs, long delays in getting results, and pressure from DTSC, the contractors both increased the number of laboratories they had under contract. In an effort to reduce the backlog, on December 16, 2016, DTSC issued guidelines to the contractors on when to use wet protocol, advising how long to do wet protocol after rain of a quarter inch or less, and what to do in the event rain was greater than a quarter inch, or ongoing.

As the rain kept falling, the backlog at the labs did not ease up despite the December guidelines. Indeed, in January, 2017, EFI Global had 1,000 wet weather samples stored in its field office with no laboratory to accept the samples. Accordingly, in mid-January 2017, DTSC instructed the contractors to avoid wet protocol whenever possible. If the soil could be dried using the propane cooking stoves so that dry protocol could be used instead, then the contractors were to do so. Under these new guidelines, even if greater than 50% of the samples had over 20% moisture content, the technicians would cook the soil samples anyway until they were dry enough to use the dry protocol. Because of the high moisture content from the rains, where before drying time meant cooking the soil for a minute or two, now technicians started cooking each sample for as long as ten minutes. The employees began to cook as many as 30 samples a day.

For the cooking process, EFI Global had purchased large stoves which did not require the employees to bend over them, and were ergonomically easy to use. On the other hand, Arcadis purchased smaller stoves, somewhat akin to Bunsen burners, which required the workers to come much closer during the cooking process. Oversight contractor AECOM commented on Arcadis' small burners used for cooking. The week of January 9, 2017, AECOM suggested Arcadis buy higher British thermal unit (BTU) output stoves with two or more burners to decrease drying time. As of the week of January 30, 2017, AECOM was still stating in its observations that Arcadis needed to provide its technicians with "camp stoves (placed on a work table) or comparable alternative."

On February 14, 2017, after workers complained regarding fumes from the cooking process, DTSC halted the dry protocol entirely solely to address the concerns of the workers, and thereby, eliminating the need for the cooking process. From that point forward, the technicians only used wet protocol.

D. Protective Gear and Health and Safety Protocol

At the beginning of the project, a group of Certified Industrial Hygienists employed or contracted by DTSC, Arcadis, and EFI Global conducted a series of tests to assess what level of personal protective equipment was necessary for the work that would be conducted. The testing

included dust monitoring, testing for lead in the air, and noise monitoring. The testing indicated that there were negligible levels of lead in the air with no attendant risks to the workers. Similarly, the overwhelming majority of employees had blood lead levels of less than 1 microgram per deciliter of blood (mcg/dl), meaning that none of the employees were at risk of medical impairment of their health from exposure to lead.⁸ The industrial hygienists concluded that the primary safety concerns involved sun and heat exposure, animal bites, traffic safety, hydration, spider/insect bites, and ladder safety.

The industrial hygienists were unanimous in concluding that the appropriate level of personal protective equipment was Level D. Level D requires steel-toed boots, long pants, a safety vest, safety glasses, gloves, and a hard hat. The hat was later removed due to heat issues, and replaced with sun caps or hats designed to protect the employees from the heat and sun exposure.

In addition to the equipment, all of the employees received Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) training which trained the employees on workplace safety and health when potentially exposed to hazardous materials. Each contractor also had a DTSC-approved health and safety plan. Employees from both contractors received ongoing training in either formal trainings or during morning health and safety meetings on the importance of personal hygiene practices to avoid taking any contamination home. The contractors provided boot brushes and/or boot covers on site and employees were required to decontaminate their boots when leaving a property. Employees were instructed by both contractors about the need to keep their work clothes separate from other clothing in their households, and wash them separate from other household clothes. Employees were continually reminded to wash their hands before they ate, etc., and provided the tools to do so. Some workers brought extra sets of clothes to change into before they returned home. Employees were provided with knee pads, which gave an additional level of protection when working on the dirt. On rainy days, employees received rain ponchos and rain pants to cover their clothes and protect them from mud. No employee reported becoming excessively dusty or dirty during their work.

These levels of protection appear to have been effective. EFI Global provided several blood lead level test results for their employees. There were no changes to the blood lead level of the employees during the course of the field work.⁹

E. The Timing and Origin of the Complaints

The first specific complaint relative to this investigation was received by the DTSC in February 2017 on an unofficial Exide residential cleanup comment card provided to a DTSC staff member

⁸ Employees testing 40 micrograms per deciliter must be removed from the workplace.

⁹ Arcadis provided their employees with an opportunity to take blood lead level tests and have a medical examination at the end of their employment and has made several attempts to encourage the employees to do so. However, no WERC graduate has done so, so Arcadis had no closing blood lead level tests to provide.

from an Exide Advisory Group member. A few other vague comments were made by Arcadis employees to DTSC staff in January and alluded to being treated “disrespectfully” by Arcadis and expressed frustration with DTSC with how it conducted “inefficient canvassing.” On February 1, 2017, DTSC staff heard specific concerns related to worker safety, particularly the need for air-purifying respirators, directly from Arcadis staff. On February 9, 2017, DTSC staff received a written email from an Arcadis WERC graduate who had been sent home from work after a purported altercation with a permanent Arcadis employee. The WERC graduate told DTSC staff he had been discriminated and bullied by Arcadis staff. At a meeting at Resurrection Church a few days later, an Exide Advisory Group member outlined some of the Arcadis employees’ complaints with DTSC staff that she heard at a meeting with the workers. On February 16, 2017, DTSC informed Arcadis it was commencing an investigation into the allegations.

DISCUSSION AND FINDINGS

A. Racial/Derogatory Comments, Unfair Treatment, and Alleged Intimidation

During the six months that the work was conducted prior to the investigation, the majority of employees reported that they were never subjected to any racial or inappropriate comments, but there were a few who experienced such comments made primarily by one embedded Arcadis field lead who was not a supervisor, as he had no authority to discipline or control the working conditions of the employees.¹⁰ Moreover, after a minor incident between another embedded Arcadis employee and a community hire, Arcadis management wrongly assumed the community hire was at fault and failed to conduct a timely, full, and fair investigation into the matter.

All incidents occurred in and around Arcadis’ Commerce field office, where approximately 35 employees routinely worked, of which around 25 were community hires. Arcadis had in place a discrimination policy, which was provided to all employees. Employees also had annual discrimination, harassment, retaliation prevention training that was provided by video.

Arcadis had several embedded permanent employees who were there to provide guidance to the newly trained community hires. One of those employees was a Caucasian male lead sampling technician who originally hailed from New Jersey but resided in Orange County. Arcadis had this employee work as a field lead, traveling to the various properties to make sure the employees were following the work plan. Accordingly, he often worked in the field with the community hires. This employee had taken Arcadis’ harassment, discrimination, and retaliation prevention training several times.

¹⁰ A few other allegedly discriminatory comments were mentioned by a few workers, but they were not substantiated, as they were only reported by one person, or not admitted to or overheard by anyone else.

During the course of the six months, the Arcadis field lead made inappropriate comments, primarily to the same three individuals. First, it is found that the field lead made a comment that there were a lot of cemeteries in the Preliminary Investigation Area because of “gangbangers” shooting each other. This comment was reported by several witnesses, including another embedded Arcadis supervisor who overheard the field lead discussing the comment with an upset community worker. The field lead admitted he “probably” made the comment, and in its aftermath, he and another witness similarly reported discussing the history of the cemeteries in the area, including talking about the Jewish cemetery. It is also found this same field lead made a sarcastic comment about the community, referring to it as a “ghetto” and, while using a sarcastic tone, calling it a “good area” (implying it was the contrary). This comment was reported by several witnesses, and although the field lead denied using the term “ghetto,” his version of the story was consistent with another witness’ version save the use of the term “ghetto.” Moreover, he did admit to the use of the sarcastic “good area” comment, which was similarly disrespectful. The field lead also used the phrase “Speedy Gonzales” repeatedly. This was confirmed by a witness and the field lead who said he meant it “as a joke,” although he understood that this term could be perceived as derogatory by his Mexican co-workers. During a discussion with a community worker regarding the impact of lead on the mental health and learning of children in the community, the same field lead made a reference to how other things, like crack, could also cause learning disabilities in children. This story was reported by a community worker who was reliable in that he reported other substantiated comments admitted to by the same field lead. The field lead remembered the conversation a bit differently and claimed he only told the community worker that other factors other than lead could lead to disability in children. He explicitly denied ever saying the term “crack babies” or mentioning drugs at all as one of those factors, but in light of his other comments, and the other reliable witness’ statement, it is found he used the term “crack” during the conversation.

In one final instance, another Hispanic worker overheard the field lead joking around with an Asian co-worker and friend in the Arcadis field office at a time when the field lead thought no one else was present. During this instance, the field lead called his friend “China Man” and his friend called him a “white boy” or “cracker,” which offended the Hispanic worker who overheard the comments. The field lead admitted making this comment, saying that he and his co-worker were “joking around.” The Asian co-worker confirmed that the field lead called him a “China Man.” The field lead reported that he thought when these things were said, no one else was present, but he understood that someone else overhearing the conversation could have been offended.¹¹

A different embedded supervisor of Mexican descent used the terms “wetback” or “beaner” but only in explaining that he understood racism because someone had called him those names. This conversation occurred during February when dissension was brewing in the workplace and in the context of a heated discussion between the supervisor and a community employee about many

¹¹ He volunteered that there was a vignette in his training provided by Arcadis with a similar scenario.

things, including supervisor style and what constituted racism. The supervisor mentioned the terms to explain that he knew what racism was because he had been the subject of those derogatory comments. He did not call any employee those names. The community employee in the conversation related essentially the same version of events. The supervisor's use of the terms in this incident were not discriminatory.

A few incidents of employee discipline were presented as evidence of unfair treatment of the predominantly Hispanic workforce. All but one of these incidents was understandable and appropriate. For example, one employee was placed off work for a few days without pay after he admitted to tape recording conversations with co-workers without their consent, a violation of the Penal Code. Another employee was counseled for missing an excessive number of days of work.

One incident did reveal a rush to judgment and general mishandling by Arcadis management and supervisors. On or about February 2, 2017, a second embedded Arcadis lead technician had just begun his role working as a field lead.¹² He reported to the property where a Hispanic Arcadis employee was supposed to be working. This particular Hispanic employee had a medical condition which at times impacted him, particularly if he became overheated or did not drink sufficient fluids. On the day in question, the employee was feeling a little off and was not working as efficiently as he could have been. The new Arcadis field lead thought the Hispanic worker was "sandbagging" and called him on it in the middle of the homeowner's yard. A somewhat heated discussion followed, so loud that the homeowner came out of her home to reprimand the new Arcadis field lead for talking harshly to the Hispanic employee. Ultimately the homeowner obtained the phone number for the field lead's own supervisor, and called that individual to complain about the conduct of the field lead. This incident was not reported to DTSC at the time, despite a previous agreement between Arcadis and DTSC that any incidents between the contractor and homeowners were to be reported immediately to DTSC. Generally speaking, the coworkers also felt the new field lead had mishandled the situation and were upset about it. No one from Arcadis ever spoke to the Hispanic employee about the incident.

The following week, after a lengthy health and safety meeting, another Hispanic employee who was good friends with the worker involved in the incident the prior week, was called over by Arcadis staff to a table to discuss some missing paperwork. Also sitting at the table was the field lead and the Asian staff member discussed previously in this report. The field lead reported that since the altercation with the other Hispanic employee at the property, the friend had been giving him "dirty" and intimidating looks. When the friend approached the table, the field lead reported the friend continued this behavior and "stared at him" and was "fixated on him." The friend denied that he was hostile. The friend's version of events was supported by the Asian staff member, who said it was the field lead who was a "mad dog," meaning being "mean and angry," not the friend. The field lead then asked the friend "Is there something you have to say to me? Do you have a problem with me?" In response, the friend "smirked" and said to the field lead

¹² This second embedded field lead also was originally from New Jersey.

“why are you so aggressive?” - a comment the friend admitted he made. The field lead got up and walked away, and immediately reported the incident to the project manager, telling her that the workers were trying to “intimidate” him and the work environment was not “healthy.”

The project manager talked to Arcadis HR, who told her to release both the field lead and the friend from work until they figured out what happened. Both went home, but the field lead returned to work the next day, whereas the friend was told to stay home. DTSC employee Roger Kintz was informed by Arcadis staff that the friend would be fired because Arcadis could not tolerate “workplace violence.” Shortly thereafter, the field lead left the project on his own and never returned.¹³ The friend stayed home for a total of four days, and after telling Arcadis HR he felt he was being discriminated against, was returned to work and paid for all the days he remained home.

Arcadis HR never spoke to the Asian staff member witness about the alleged workplace violence incident. Both the field lead and the friend denied being formally interviewed by Arcadis HR until each of them instigated the discussions with HR. This was a relatively easy investigation to conduct, and with a third party witness, easy to confirm that the friend employee did not engage in any conduct which remotely could be seen as “workplace violence.” The field lead had been involved in two incidents in a matter of a week, neither of which was fully vetted by Arcadis. Another former Arcadis manager reported that the field lead had a prior unspecified incident while employed with Arcadis. This manager reported he informed the project manager that the field lead was not the right person for the position because it was not a good role for him and he did not have experience being a manager. His advice was disregarded by the project manager.

There were also a few complaints about intimidating conduct directed toward the workers, but the investigation revealed these were misunderstandings. For example, after the investigation commenced, the Arcadis legal counsel sent out a litigation hold letter to all staff. A litigation hold letter is notice to staff to preserve evidence given current or anticipated litigation to avoid any future claims of spoliation, or destruction, of evidence. In this context, given that the investigation had commenced, Arcadis legal counsel was attempting to preserve any evidence that the Attorney General’s Office may wish to see. The Arcadis workers communicated in the field using their personal cell phones with text messaging, so the hold would encompass the text messages on employee’s personal cell phones. Arcadis legal staff offered to copy the text messages off of the private phones so that the employees would not have to save them. The hold was strongly worded, threatening discipline for failure to preserve documents. The employees were not familiar with litigation holds, and after coming to understand what it was, they signed the hold documents.

The employees also claimed that after the investigation started, they were told they were going to lose their jobs by Arcadis supervisors, so they should be quiet. This allegation refers to a single

¹³ He remains employed by Arcadis, but as of his interview had not been assigned to any other projects.

statement by one supervisor. The supervisor of Mexican descent was the individual who purportedly made the comment, but at no point did he interfere with the investigation or tell the employees not to participate in the investigation. In fact, during the investigation, he assisted in getting employees to their interviews. When asked about the allegation, he reported that after the LA Times article about the investigation came out, DTSC ordered Arcadis to cease work and send the employees home until AECOM had enough oversight staff to cover every contractor team. After the morning meeting during which the employees were informed of the investigation and that they were going home for the time being, he was in the parking lot by his truck discussing the investigation with a group of employees. He told them that, in his personal opinion, if the investigation was sustained, most certainly Arcadis would not get any Phase 2 work. He also told them that in his opinion, any new contractor on Phase 2 would go looking “elsewhere” for employees, and not hire anyone from the contractor that had the issues.

B. Worker Safety Allegations

The worker safety allegations primarily relate to whether Level D was the proper level of personal protective equipment for the sampling project or whether workers should also have received air-purifying respirators. Based upon the extensive testing conducted by the Certified Industrial Hygienists working on the sampling project at the commencement and during the project, Level D was the appropriate level of protection throughout the project. All employees were properly trained and reminded of their health and safety obligations and risks throughout the work. Testing confirmed that the odors some workers reported during cooking did not warrant issuance of air-purifying respirators. DTSC ended dry protocol – and therefore any potential need for respirators – before Arcadis could offer voluntary respirators to the employees.

When the project commenced, Arcadis, EFI Global, and DTSC Certified Industrial Hygienists considered the primary safety risks to the employees as animal bites, insect bites, heat and sun stroke, dehydration, traffic risks, and personal hygiene with handling potentially contaminated soil. The employees were not moving great amounts of soil, so the risks of airborne lead that one might get with bulldozers moving soil was not present. On the other hand, given that they were touching the soil, there was a small risk of personal contamination from failure to follow the recommended personal hygiene practices. To address these concerns, all of the hygienists agreed that the level of personal protective equipment needed was Level D, the minimum level, which requires eye protection, gloves, steel-toed boots, long pants, safety vests, and hard hats. Instead of hard hats, employees used sun hats to protect against heat and sun exposure. Each contractor also provided the employees with dust respirators. These masks filter particulates, but do not filter odors.

To confirm their initial conclusions regarding the level of protective equipment needed, DTSC, EFI Global, and Arcadis all conducted air monitoring at the beginning of the project.¹⁴ Specifically, they conducted air sampling for lead and all results were “non-detect” – meaning

¹⁴DTSC, EFI Global, and Arcadis produced copies of all their air-monitoring results.

the level of lead was below the limit of detection.¹⁵ They also conducted noise assessments to make sure the employees were not exposed to unhealthy levels of noise during the project, and the results were acceptable.

Each contractor had a health and safety plan designed to reinforce good practices by the employees and minimize exposure. The health and safety plan was regularly discussed during morning “tailgate” meetings, during which employees were reminded to wash their hands before eating and drinking, and to launder their clothes separately from the clothes of other members of the family. Consistent with the health and safety plans, employees were provided with boot brushes to decontaminate their boots, or boot covers to wear while on site. Employees were also given knee pads to protect them when kneeling on soil or grass, rain coats and pants during muddy and wet weather, shade structures, and tables and chairs to work at.

Both contractors also had a “stop work” policy. Under the “stop work” policy any employee could stop work without any risk of retribution if he or she felt it was dangerous to continue working. Employees were repeatedly reminded of their right to “stop work.”

Given the testing conducted at the beginning of the project, the ongoing training received by the employees, and the nature of the work, at commencement of the project, Level D was the appropriate level of protection for the employees.

Level D remained the appropriate level of protection throughout the project, even after employees began to cook the soil for longer periods of time due to the rain. October 17, 2016 saw the first measurable rain in Los Angeles in 155 days.¹⁶ What followed was significant rainfall that ended the drought. The heavy rains led to the contractors using wet protocol fairly frequently, which in turn led to a significant backlog on the laboratories, in particular those used by EFI Global. Pursuant to the instructions from DTSC discussed above, in mid-January 2017, contractors began cooking samples that previously they may not have even tried to cook, and for longer periods of times. Employees spent significant periods of time drying soil over propane camping stoves.

With longer cooking times, the employees began to smell things – the propane from the stoves, the smell of burning animal feces and urine, and other unknown odors. During their interviews, some employees reported they would get headaches while cooking, and their eyes would get

¹⁵ The contractors were asked if the results would be the same if CalOSHA’s new proposed standards were in place, which amend the standards to 10 mg per cubic meter in an 8-hour period. Both contractors confirmed all tests conducted during the entire sampling contract came within the proposed more stringent higher standards as well.

¹⁶ “It’s Raining In Los Angeles and People Are Losing Their Minds.” Doyle Rice, USA Today, October 17, 2016, <https://www.usatoday.com/story/weather/2016/10/17/los-angeles-rain/92294288/>

watery, or they would get dizzy.¹⁷ At the end of January, beginning of February 2017, one of the female Arcadis employees was cooking and became nauseous. Rumors flew. Many employees said she was hospitalized for her illness, which was allegedly caused by the cooking of the soil. In reality, the female employee had an unrelated respiratory infection and went to urgent care for treatment. These incidents culminated in Arcadis workers asking for air-purifying respirators around February 1, 2017.

Arcadis responded appropriately to the worker concerns. Arcadis promptly initiated the procedure for determining whether any of the employees had been fit tested for respirators or had the required medical exams. Arcadis also immediately notified DTSC staff Roger Kintz and Rafat Abbasi regarding the worker concerns. DTSC decided to meet with Arcadis staff the following week and attend a health and safety meeting regarding the respirator issue.

That meeting occurred on February 8, 2017, and lasted two hours. It was attended by David Kudlinski (the Arcadis Certified Industrial Hygienist), DTSC's Kintz, and a DTSC certified industrial hygienist, as well as Arcadis' field managers, supervisors, and staff. Staff were reminded of the testing that had been conducted so far, and how the results had shown no risk to the employees. Staff were reminded to use "behavioral" or "engineering" controls while cooking - for example, take notice of the wind direction and stand downwind when cooking, keep arms extended while cooking, or walk away while cooking. Arcadis emphasized the "stop work" policy and reminded the employees that if they felt the soil was discolored or dangerous, they could stop the sampling or cooking the soil with no consequence for so doing.

This did not satisfy the employees, so the Arcadis hygienist questioned the employees to ascertain what they thought they were smelling. Based upon the information he collected, he decided to conduct further air monitoring testing for other pollutants in addition to lead and dust. On February 13 and 14, 2017, Arcadis began a full battery of testing which included lead and dust, as well as added testing for volatile organic compounds such as motor oil, fuel, paint, solvent, organic petroleum products, hydrogen sulfide (which would be an indicator of feces or rotten organic matter), ammonia (an indicator of pet urine), and carbon monoxide (from the pan and flame of the propane stove). Testing included monitoring individuals who were cooking the soil over the propane stoves.

The testing results indicated the employees were not at any risk. The lead testing again showed that lead was not present in the air anywhere, including over the cooking sites.¹⁸ These results

¹⁷ Such complaints were not limited to Arcadis. The Project Manager for EFI Global reported that after the LA Times article came out, and DTSC had ended dry protocol, two of his staff told him they would sometimes get headaches while cooking the soil.

¹⁸ Although EFI Global never tested for any organic compounds, it also conducted follow-up air monitoring for lead in February and March 2017, including testing employees who were conducting cooking. All results were non-detect, and well below current and proposed action levels for lead.

were unsurprising because lead does not volatilize until it reaches a much higher temperature than achieved through using a Bunsen burner.¹⁹ Similarly, the results showed no dangerous levels of any of the other compounds. There was no detection of ammonia or hydrogen sulfide. There was some detection of carbon monoxide from the propane stove, but it was negligible – not above three parts per million – far below a toxic level and at a level presenting no danger to the workers. In some locations, motor oil was barely detectible. The highest reading was 0.1 parts per million, but at three of the properties there was some detection in any one 15-minute period where there was a peak level, but nothing higher than 5 parts per million. And none of the results raised any danger to human health.

In conclusion, Level D remained the appropriate level of personal protection for the employees even after they were required to cook the samples longer to deal with the higher moisture content from the rains. It appears the period of time the workers were cooking the soil extensively lasted about a month. Arcadis received complaints about two weeks into that time, and began to take steps to assess the level of personal protective equipment once again. Arcadis specifically tested for a wide variety of possible contaminants in addition to lead, and the results showed no dangerous levels of any of these compounds. Those assessments did not reveal any change to protective equipment was necessary. The level of protective equipment selected at the beginning of the project continued to do its job to protect the employees, as is evidenced by the fact there was no change in the blood lead levels of the employees from the beginning to the end of the project. Although not required by law because there was no lead detectible in the air monitoring samples, the two contractors did initial blood level testing of all employees. The initial blood level testing of the employees for both companies showed nearly all employees were at or less than 1 microgram per deciliter. EFI Global conducted blood lead level testing for all employees after the project concluded, and the employees still all had a level of 1 microgram per deciliter, with most less than 1 microgram.²⁰

Although the February 2017 testing by Arcadis confirmed there was no mandatory need for the air-purifying respirators, the employees could still have requested voluntary air-purifying respirators. But the need for those respirators ceased by February 14, 2017, when DTSC ordered both contractors to cease all dry protocol. Accordingly, all cooking of soil ceased. From that point on until the end of sampling, the workers only collected samples using the wet protocol. Once this occurred, no employee felt the need for an air-purifying respirator, and the requests ceased.

¹⁹ Lead melts at 621 degrees Fahrenheit.

²⁰ As noted before, Arcadis provided its employee with the ability to have these same tests performed after work completed, but no employee has done so, so it had no post-work blood lead level tests results to report.

C. Testing Protocol Allegations

There is no evidence of manipulation of data, but efforts to meet the “five a day” goal may have led to favoring wet protocol over dry protocol, rushing steps, and basic human error. Even if this occurred, there is no evidence that the failure to follow protocol impacted the results in any measurable way. DTSC and the contractors used recognized, scientifically proven, measurable ways of evaluating the data to confirm its validity. If any of the errors in testing protocol were significant, e.g., capable of altering the sampling results, this would have been revealed in the subsequent sampling data confirmation processes that were performed. The data confirmation processes did not indicate that any errors in testing protocol impacted the results in any measurable way.

1. Instances of Failure to Follow Protocol

Most of the allegations of failure to follow protocol were not substantiated by the investigation. And those failures that were found were minor deviations. Much of this can be attributed to newly trained employees and human error. Some of it can be attributed to the pressure to complete the required “five a day” properties. None of these failures appear to have impacted the test results due to the several redundancies and quality assurance reviews put in place by DTSC and the contractors.

Unsubstantiated claims largely related to the use of the X-Ray fluorescence device. There is no evidence that the workers did not use the XRF device for the required 30 seconds in the work plan. Nor is there any evidence that the workers inputted the incorrect results from the XRF device into the field notebooks.

With respect to taking readings with the XRF device for the required 30 seconds, workers reported the XRF device would be placed into a holder and just permitted to run the required time, at which point it would go off and the reading would show on the screen. Both contractors and employees reported that the XRF devices were set to automatically run for the required time. Arcadis showed many reports that were generated from the XRF device downloads. They had columns of “30” standing for 30 seconds, the amount of time the XRF device was used to read the sample. Arcadis also had in place Quality Assurance/Quality Review protocols to ensure the employees used the device for the required time. On a daily basis, an Arcadis employee located in another state would review all data obtained by the field teams. If she observed any inconsistencies or missing data, she would immediately contact staff to determine why the information was incorrect, missing, etc. One of the things she looked for in her daily review was a failure to use the XRF device for the required 30 seconds. She did not observe this to be an issue.

All the workers interviewed, community workers and permanent Arcadis staff alike, stated that they input accurate readings into the field notebooks. No witness stated that an inaccurate XRF reading was ever put into the field notebook. However, even if an employee reported the XRF readings incorrectly into the notebook, this would not impact the data, as the information in the

notebook served only as a redundancy. The information inputted by workers into the notebooks was to be used only as back-up data in case something happened to the XRF devices and the data stored in the devices was corrupted in any way. The actual XRF readings relied upon by the contractors were automatically stored in the XRF device itself. At the end of each day, the XRF device was downloaded by contractor staff into a database, which was then sent to quality review staff for the contractors to be consolidated into the various reports. The XRF device data relied upon, therefore, came from the XRF device, not the field notebooks.

Similarly, all workers interviewed denied ever adding water to the soil to allow them to switch to wet protocol. There is, however, evidence the workers reported the humidity level as higher than it was so that they could switch to the quicker wet protocol method. Witnesses agreed that wet protocol was considerably faster to complete than dry protocol, as it has less steps (e.g., no homogenization, sieving, drying the soil, or using the XRF device). With less steps, the workers could quickly move on to the next property. This would not, however, impact the data as it removed testing from the field and placed it in the control of the meticulous laboratories.

There were also several instances of failures to follow the work plan protocol. Primarily at the beginning of testing, but still ongoing throughout, workers did not homogenize the soil for the required period of time, and would periodically forget to decontaminate the augers or change their gloves between samples. Again, these could have been efforts to accelerate testing to meet the goals, or simple human error. But as is explained below, quality review procedures confirmed that these expected and periodic human errors did not in any way impact the validity of the results.

The homogenization technique used by the workers was subject to criticism throughout the testing process. Under the final work plan, the contractors were to homogenize the soil in a plastic bag for one to two minutes, and then sieve it. When DTSC was providing the oversight at the beginning of the project, one DTSC staff member timed an Arcadis employee who was homogenizing and found the employee only homogenized for 20 seconds, far short of the required one to two minutes. When AECOM began conducting its oversight, it also noted that both Arcadis and EFI Global employees were not homogenizing long enough. One embedded Arcadis employee admitted he would homogenize multiple samples all at once by shaking the bags, hardly the method of massaging the soil in the bag outlined in the work plan.

Once concerns with homogenization were identified, there were ongoing efforts to correct worker technique. AECOM recommended that both teams use a timer to make sure the workers homogenized for a long enough period of time. Both contractors then adopted timers. Arcadis also had a meeting where it required its employees to homogenize two different colors of Playdough until they became a third color as a teaching tool demonstrating how much effort was needed to homogenize soil. DTSC also required the contractors to obtain two extra sample XRF cups at the location of the two sites of the deepest samples (known as “the deepes”) primarily to show that the soil samples were properly homogenized.

Early in the sampling, Arcadis ran out of XRF test cups, so one DTSC staff employee reported seeing workers use the XRF device directly into the Ziploc bags. Again, this is not pursuant to the work plan or protocol, and would not produce the most accurate results. The DTSC staff member confronted Arcadis regarding this and was informed that Arcadis had obtained a Conex storage unit at their Commerce office, and was actually processing the soil collected and testing it with XRF devices in the Conex, which were the results that were being used. Processing the soil offsite was permitted under the contract. Witnesses testified about being assigned to process soil and test it in the Conex for several weeks, and eventually Arcadis obtained sufficient XRF cups to conduct the testing in the field.

Other types of human error occurred, but this is to be expected as more than one witness put it, “people are human and make mistakes.” AECOM noted in its reports these types of errors by both contractors, including failures to change gloves between samples, or to properly decontaminate the augers between samples. This would, in turn, lead to additional training by the contractors on the missed steps in morning meetings in attempts to minimize or reduce their recurrence.

2. Quality Review Analysis Confirms Protocol Mistakes Did Not Impact the Data

In order to account for and minimize the impact of human error, DTSC and the contractors relied upon duplicate sampling and comparative analysis of these samples to determine whether errors impacted the data. The methods for conducting this analysis were outlined in the Quality Assurance Project Plan. The results of these reviews at the time of this report indicated no concerns with the validity of the data, although testing was still ongoing.²¹

DTSC and the contractors used linear regression analysis to confirm the validity of the samples that were taken by the XRF devices in the field. About ten percent of the samples that were screened by the XRF devices (or two samples per property) were also sent to the lab to be analyzed. In an ideal world, the results obtained by the XRF device in the field for the sample would be the same or close to the results the lab obtained on the same sample. If they are the same or close, then one could reasonably say that even though only ten percent of the samples were also lab tested, since those ten percent of samples all came in the same as or close to the results from the field XRF device, it validates all the samples taken and says the results from the XRF devices are valid. There should be a general trend that the XRF results are proportional in concentration to the lab results.

²¹ The testing was complete for September, October and November, 2016 and was beginning on December 2016. As AECOM was already on board in November, one would expect the mistakes were decreasing given the routine and constant oversight. Moreover, given the rain, there were extensive wet protocol days, so the laboratories were still doing much of the actual testing.

To confirm the data, the contractors plotted the XRF results for the ten percent of samples on one axis and the lab results on another axis of a graph. Some filtering of the data was done using statistics. The result was a regression coefficient value, called “R”, and if that “R” value is above a certain threshold, then the contractors could consider the full data set as usable. The “R” value threshold for screening level data is 0.7, which means a 70% correlation factor. The protocol agreed upon by DTSC and the contractors specified that they were to do biweekly batches of data. Both contractors reported that at the time of this investigation, their respective XRF analysis evaluations using this method resulted in an “R” value above 0.7. For EFI Global, the vast majority of the regression analysis blocks were in or around a 0.9 “R” value. For Arcadis, at the time of the interview, it reported that only one data set was below the 0.7 correlation factor. It was for one machine for a two-week period that was slightly off. The problem was determined to be with the XRF device, not human error. Arcadis claims that 98% of the time, the XRF device was getting the same results as the lab on a particular soil sample.

Unsurprisingly, both contractors had some “outliers,” or samples where the results did not correlate. The outliers were not consistently from homes sampled by the same workers, but rather random employees, indicating no consistent mistakes or errors by any particular employee. Both contractors claim outliers are typical in environmental work, and there are recognized tests used to confirm if the outliers are valid or further testing is required.

DTSC Senior Hazardous Substances Engineer Dominique Forrester has been reviewing the results of the XRF readings taken in the field and how those correlate to the samples sent to the labs for confirmation. He reported that if the workers were making significant human errors (e.g., not properly homogenizing the soil, failing to decontaminate augers, or failing to use the XRF device correctly), it would show up in a large difference in the correlation studies and the linear regression analysis between the XRF readings and the laboratory results. As noted above, such has not been the case. Accordingly, although some mistakes were made and workers may sometimes have taken short cuts to expedite testing, there is no evidence this conduct impacted the results in any meaningful way.

3. The Drip Zone Testing

The investigation did not substantiate allegations that Arcadis systematically and routinely failed to test in the drip zone. Workers consistently reported that they were never told to skip testing in the drip zone unless one of the understood exceptions applied. There were, however, reported disagreements about whether a drip zone could be tested or where exactly to test in the drip zone. Initially in its reports, Arcadis failed to clearly articulate why it had not tested in the drip zones on nearly 200 properties, but a careful review of all these properties by DTSC has confirmed Arcadis had valid, recognized reasons for not testing in the drip zone that simply were not clearly explained in its reports.

The drip zone is a separate decision unit where water draining from the roof accumulates. Because dust and toxic matter can accumulate on the roof, washing down during the rain, the drip zone is typically one of the areas in a property with the highest lead concentration. For this

reason, a homeowner would want the drip zone measured so the higher lead concentration number will be included in the calculation to determine if the property will be remediated.

There were a number of recognized circumstances where the drip zone would not be tested. These included the drip zone being paved over by concrete, utility lines or trees being planted in the drip zones, trash on the drip zone or the close presence of a driveway near the drip zone (increasing the risk of property-specific contamination sources). In addition, whether to test a drip zone was also a subjective decision requiring looking at a specific property and how the water run-off occurred. For example, a property could slope toward the front yard such that the drip zone would be located in the front yard, and not the side yard. A property may have a downspout that led the run-off to the backyard or front yard away from the dirt areas on the side yard. In those instances, sampling in the backyard or the front yard would be representative of the drip zone.

During the investigation, it was learned that before AECOM began its oversight work, Arcadis had not done a good job of explaining why it had not tested the drip zones for certain properties. For 221 properties Arcadis vaguely indicated in reports that it had not tested in the drip zone because “no drip line soil available.” No witness could clearly explain what this notation meant. The Attorney General’s Office reported its concerns on these homes to DTSC before completing the investigation. At DTSC’s request, Arcadis staff visited 55 of these properties and was able to provide a reasonable and appropriate explanation of why the drip zones were not sampled. DTSC wanted more information, so commencing May 10, 2017, DTSC staff began a review of all 221 properties where Arcadis had simply noted “no drip line soil available.” DTSC staff actually visited each property. It finished its review on June 15, 2017, and in each case found that the drip zone had not been sampled for appropriate reasons. Based upon both Arcadis’ and DTSC’s careful review of these properties, there were valid reasons for not testing the drip zones in these 221 properties.

Arcadis explained the vague notation in its reports as being part of its learning curve. At the beginning of the project, the workers were not instructed to provide enough detailed information regarding why things were done the way they were done at a property. As comments and questions came in from both DTSC and AECOM, Arcadis made adjustments and worked with the employees to provide more detail to explain the testing that was conducted. The vague “no drip line soil available” was replaced with detailed explanations for drip zone testing concerns. After AECOM began its oversight work, each time AECOM made a notation about a failure on the part of either EFI Global or Arcadis to sample a drip zone, DTSC required the respective contractor to provide an explanation. Each contractor did so to DTSC’s satisfaction.

Generally speaking, these reviews revealed that in a number of the cases, the drip zones were paved over with concrete. Other times, the slopes of the properties were towards the front yards so that the drip zones were located in the front of the property, not the sides. Many of the properties had utility lines and/or trees located on the side yards and thus, sampling was not possible. There were occasions where trash was visible in the drip zones or within five feet of the drip zone, created a potential for property-specific contamination sources. Some properties

had downspouts that led the run-off to the backyard or the front yard away from the dirt areas on the sides on the houses. In this case, the sampling locations in the backyard or the front yard would have been representative of the drip zones. Nonetheless, it appears that drip zone testing occurred when and where appropriate.

CONCLUSION

The investigation indicates there was no manipulation of data and, more importantly, the data collected by the employees appears to be reliable. Each of the workers interviewed repeatedly said they knew what they were doing, and they also trusted the results from the work that they were performing. Given that these individuals primarily are from the impacted community, and performed the work, the fact they trust their work product speaks volumes. While mistakes were made, DTSC and the contractors anticipated many of these mistakes and placed redundancies and quality review systems in place to make sure the data was not compromised.

As for worker safety, the level of protection provided the employees was appropriate for the situation and within that required by the law. Upon receiving new complaints about cooking odors, Arcadis acted appropriately by conducting testing which confirmed there was no risk to the employees. The employees were fully trained in hazardous waste handling, and received ongoing training reminding them of their personal obligations to be careful.

The investigation confirmed that some racially inappropriate and insensitive comments were made by a few permanent members of Arcadis staff. Although the comments should never have occurred, the investigation confirmed that they were not pervasive. Arcadis should have been more proactive in conducting full, fair, and effective investigations of these incidents. A stronger more reliable management structure at Arcadis would also have helped provide stability in the workplace.

We are honored to have been asked to conduct this investigation. It has been a privilege to meet and work with the dedicated community members and workers who have taken such a strong interest in restoring their community after this tragic and unfortunate event.

Sincerely,



CHRISTINE MERSTEN
Supervising Deputy Attorney General

For XAVIER BECERRA
Attorney General