

**REMEDIAL PROJECT MANAGERS' MEETING MINUTES
NASA/JET PROPULSION LABORATORY
3 MARCH 1994**

Attendees: Organizations represented at the Remedial Project Managers' (RPMs') Meeting included the following:

- U.S. EPA (EPA)/Federal Enforcement Branch, Region 9, San Francisco, CA
- California EPA/Department of Toxic Substances Control (DTSC), Region 3
- NASA/NASA Resident Office, Jet Propulsion Laboratory
- Los Angeles Area California Regional Water Quality Control Board (RWQCB)
- Jet Propulsion Laboratory, Contractor to NASA
- EBASCO Environmental, Contractor to JPL

A list of individuals attending this RPM meeting is attached to these minutes.

OBJECTIVE:

The purpose of the NASA/Jet Propulsion Laboratory meeting held on March 3, 1994 at the Jet Propulsion Laboratory in Pasadena, California, was to discuss the following topics:

- Progress on Field Work Associated with Field Sampling and Analysis Plan for OU1
- Projected Schedule for Field Work Associated with Field Sampling and Analysis Plan for OU2
- Results from January Soil Gas Sampling
- Parking Structure Construction Project
- Risk Assessment Approach

1. TOPIC: PROGRESS ON FIELD WORK ASSOCIATED WITH FIELD SAMPLING AND ANALYSIS PLAN FOR OU2

Buril: We are making good progress. One well is installed, #15. We are working on wells #12 and #16. Well #12 is a mud rotary well, and well #16 is the percussion. The percussion rig is down now for changing out the bit.

Cutler on soil sampling progress: At the mud rotary rig down by the Arroyo we got a sample at 10 feet. We tried six times to get a sample at 20 feet. At well #15 we got a 10-foot sample. At well

#16, the air percussion rig, we got all three samples. Buri: Cobbles the size of basketballs are very common in the Arroyo. Madyun asked why JPL was taking such shallow samples. Buri explained that the sampling was included in an effort to satisfy EPA's request for soil samples at the wells. It was thought that if there were a contaminant source present it would be seen in the top 30 feet. That is why it was planned to sample at 10, 20, and 30 feet. He further stated that because these sites are not source locations, we are finding no signs of any contamination. They had "non detect" across the board. He asked if the agencies still had a strong feeling about sampling at those locations, or if we might be able to suspend that activity based on what we have seen thus far. Madyun: We would like to see a deeper sample, but we would say suspend the activity. Swarthout: If you are installing wells where you think you will have a source, then it would be a good idea to sample. Otherwise, no need for soil samples. However, it can be useful to have soil samples to analyze the geology. Buri: We are using the soil cuttings and an E-log to interpret geology. Discussion of whether OU1 had to be amended. Swarthout: You can do it with a letter to us, then when the RI is submitted you can have a section that talks about changes. Huff: Are we clear on what the agreement is? Melchior: We are suspending soil sampling because wells are not in suspected source areas, because of technical difficulties, recovery issues, and because we are finding no contaminants. This is, of course, contingent upon the agreement that if we see contamination in soil cuttings, we will sample.

Buri on schedule: We hope to have all of the wells for OU1 installed by the end of this month.

Nakashima and Chandler arrived.

Nakashima: Could you sample at a lower depth if you came to a sandy area? Buri: That would be determined by field conditions. I don't know. We could try. Nakashima: I'd like to see a sample as close as possible to the water table. Cutler: We don't have the equipment to obtain deep samples. It would also take 4 to 5 hours per sample to trip in and out of the borehole. Buri: The water table is several hundred feet down. Melchior: There are only five well locations. Three of those locations have already been drilled and sampling at 10, 20 and 30 feet was attempted. Buri (to Nakashima): If it's agreeable to you, we will suspend sampling at the well locations, unless we find something that is obvious contamination. Also, we will be sampling at suspected source areas as part of OU2.

2. TOPIC: DISCUSSION OF RESULTS FROM JANUARY SOIL GAS SAMPLING

Buri: According to the FSAP, as it stands now, we don't have enough contaminant loading to trigger the FSAP requirement for soil gas work. It's my recommendation that we continue the work that has been identified in the FSAP, which is to install the deep nested vapor wells that are already proposed and to complete as much of the soil boring work as possible. When we get the analysis back on that, we can look at the full picture. I would hope that

we could revisit this issue when we have all of the information. We may have other contaminants that will require additional work. We don't know at this point. Madyun: In other words, you're going to install the nested vapor wells? Buril: Yes, as described in FSAP-OU2. The boring work will start the week of April 4. The nested vapor wells will also be started that week. We will sample the soil at the source locations, and as that information comes in we will assess the need for additional work.

Buril: As for the wells, we have two locations that we think will tell us whether we have a concern in this. We found high concentrations in the soil vapor samples #31 and #33. That corresponds to seepage pits #31 and #36. Those are up in the northeast corner of the Lab, which is an area where we have had number of sources. We have seen a number of hits in that general area. It would be our recommendation that we install one of the nested vapor wells in that general location—not in a specific location, but in a location that allows us to combine seepage pits #31 and #36. Then we would look at that area for the vertical component of soil gas, if there is any. The second one we would suggest is near seepage pit #29, which is close to existing well MW-7. We had some hits on #29, I believe carbon tetrachloride and also TCE. We would suggest that we look there, not only because of what we see at the surface but also because MW-7 is historically our most contaminated well. Thus, we already have a documented concern with the ground water there, along with some indication of something possibly emanating from the surface. So this would seem to be a good place for understanding what the soil gas situation might be.

Discussion of ground water levels. MW-7 has groundwater at 200 to 240 feet. MW-1 has an anomalously high water level. We've had water there at 24 to 40 feet. Buril: It's probably less than 100 feet at that location (northeast corner of Lab).

Chandler: I would like to see the probes indicated on a map, maybe a subset of the overall map. It sounds to me as though #29 is a good call, but I would like a chance to look at the data from the probes. Randolph: What we can show Phil are engineering drawings of where the seepage pits might have been. It could even be a figure in the report. Chandler: I'm not sure it has to be a figure in the report, as long as someone knows where the seepage pits are located. Buril: What it comes down to is that Phil should probably come here at some point and we will lay the drawings out on the table for him. Some of the drawings are of very poor quality, but we can pull it together. How about if I pull that information together, and then anyone who has a desire to come back and look at it can do so. We will do our best to get together something that is usable for locating the soil probes, at least the ones that showed hits. Chandler: How long has it been since you used seepage pit #29? Buril: Decades. Virtually every one of these pits stopped operating back in the late 1950s or early 1960s. Swarthout: Were the soil probes actually placed at seepage pits? Buril: We tried to get as close to what we determined to be the actual seepage pit locations, but sometimes we were slightly

offset because of utility clearance considerations. One location was, at most, 15 feet from the pit because a building was on top of the pit. At the time, the accuracy with which EBASCO was able to locate these things really says a lot for the effort. We got brick in three of the probes, which indicated to us that we had actually pushed through the bottom of the seepage pits. So, we appear to be very accurate as to where these things are.

Buril: We are offering to provide more detailed maps by March 14 that show, for the probes where we have had hits, the locations relative to buildings, etc. We will show both the location of the seepage pit and the location of the soil gas probe.

Discussion of location of seepage pit #29. (It turns out that it is not near well MW-7.) Buril: It looks like we will have to make our recommendations again, since there is some confusion regarding correct pit assignment.

Discussion of schedule. It was decided that Phil Chandler would come in to JPL on March 16 to review the drawings. Buril: How much time do you need to review the maps we are going to send you? Agencies: One week. Discussion and agreement that conference call will be on March 22 at 10:00 a.m. Buril: Hopefully, we can come to agreement on the location of the nested vapor wells at that time.

TOPIC: PROJECTED SCHEDULE FOR FIELD WORK ASSOCIATED WITH FIELD SAMPLING AND ANALYSIS PLAN FOR OU2

Buril: The only thing I wanted to say about the OU2 work is that we plan to begin that as soon as the OU1 work is complete. What we are looking at right now is to begin the soil boring and nested vapor well installation the week of April 4. This is, of course, contingent on the assumption that we do not get hung up on OU1, since we will be using the same rigs.

Huff raised the issue of the resurfacing of the West Parking Lot, which she said is due to begin at the end of February. She suggested that we contact Bill York to coordinate the resurfacing with the two existing and one planned well.

TOPIC: PARKING STRUCTURE CONSTRUCTION PROJECT

Buril: Let me describe the sequence of events that leads up to what you see in your handouts. A while back, we did some geotechnical foundation studies to determine how we are actually going to design the parking structure. The location is just paved lot right now, and we would like to install a parking structure with about 1,000 spaces. Considering the spaces we would lose from the East Arroyo Lot, we would end up with about a 990-space gain. The East Parking Lot is leased from the City of Pasadena, and the city has placed NASA and JPL on notice that the lease will not be renewed after June 1995. They intend to use that area to expand the spreading basins that are already there. The immediate concern for the Laboratory is what we are going to do when we lose about

1,200 spaces of parking. We don't have enough available land on the Lab itself to just pave something and make another 1,000 spaces, so the best thing we have been able to come up with is to build a large parking structure to take up the slack.

Buril: As mentioned, we did some geotechnical borings, and as part of that effort we took soil samples with the idea that we should have them analyzed to see if we had a problem with contaminants. We found that we had hydrocarbons through 418.1. We analyzed for TPH through 418.1, 8240 for volatiles, 8270 for semivolatiles, and all of the California metals. The volatiles, semivolatiles, and metals all came up "non detect." The TPH showed at one location a concentration as high as 570 parts per million. Many of the locations showed "non detect." (He lays out map and shows locations of samples.) Boring #6 was the one where we found the highest concentration of TPH, at a depth of five feet. (He discusses findings at other boring locations.) So, we appear to have some low-level hydrocarbon contamination in this area. It appears to be heavy-end type of material. The 418.1 method tends to indicate the heavier end. This material seems to be similar to what we found when we built the Observational Instruments Laboratory (OIL) building. In that case, we actually excavated the contaminants out from under the footprint of the building. We are hoping to do a similar thing with the parking structure. We also found tubing, bricks, and broken glass at boring #3. This location corresponds to a trench called out as a possible disposal area by the EPA aerial photograph study. We have no idea if this material was from the Lab, the City, or the neighbors.

Buril: Our approach is that this is a construction issue. It is our desire to meet the intent of CERCLA, but we don't consider it a true consideration. Our main concern is taking care of the area in a way that allows this building to be built on schedule, because if we stall the building for any reason the impact to the Lab's operation would be absolutely horrendous. We would simply have no place to put our people's cars. So I'm offering this concept with the idea that we could provide a more detailed plan for sampling, etc., at the conclusion of what we call our "due diligence" efforts to identify what is going on in this area. I think it is important to note that the contaminants we are finding are at the very heavy end, and they are almost completely immobile, based on my previous experience at other sites. Also, we have wells MW-4 and MW-3 nearby, which we have recently analyzed for TPH and found nothing. So, this does not appear to be a problem as far as the ground water is concerned. Finally, the site is currently paved and will be paved again, so the paving will act as a cap to prevent any percolation to the surface.

Nakashima: What is the depth to ground water there? Cutler: Right now, it is 100 to 105 feet in that area.

Swarthout: This all sounds reasonable to me. I think it would be important to do some additional sampling in the area where you found the 570 ppm. Buril: We do plan on doing that. And we would offer to write this up in a more formalized plan to show what kind

of samples we would take, what the methodology would be, the analytical methods we would use, etc. Then, we would submit a follow-up report once it is complete.

Buril: Samples were collected with split spoons. Samples had zero head-space and were immediately capped and iced.

Buril: We are on a critical time schedule on this project. We have to have the structure in place by the end of summer 1995, so we would hope the agencies would help us achieve this by expediting review times, etc.

It was decided that a work plan and follow-up report will be sufficient documentation. The report should be titled "Investigations of the Parking Lot Area" or something along those lines. NASA should not use "corrective action" in the title. Swarthout: Make the internal parts of the report look as much like an RI as possible.

TOPIC: RISK ASSESSMENT APPROACH

Melchior: We are in receipt of your memo, and we are in the process of assembling the things you want, but some fundamental questions arose. This issue is very large and encompassing, and I wanted to ask the agencies their perception of two areas. One is the actual pathways for evaluation of health risk revolving around the future use of ground water, in light of institutional restrictions on the use of that ground water. Second is the legal issue that NASA/Caltech do not have the right to extract water from under the facility. Also, this institution will, hopefully, be here in perpetuity. There are several issues that overlap and make me ask the question about future use of ground water.

Melchior: One scenario that I am interested in pursuing with you is that ground water cannot be legally extracted. With this in mind, would it still be necessary for us to evaluate that pathway for ground water under the facility. This is not just a technical issue but also a legal issue that will confront us down the road with respect to potential cleanup levels, should they be needed, and where the point of compliance would be when we decide on the ultimate remedy, if there is a remedy. All of these issues cloud the standard risk assessment, but they are very common for federal facilities.

Swarthout: My feeling is that you would have to evaluate ground water as a pathway. Buril: But where is the point of exposure? The problem we have with this is that, assuming that JPL is going to be here for a long time, the prospect of our ever extracting ground water is zero—not because we can't do it technically, but from a legal standpoint we have no rights to extract water from this basin. And I don't believe NASA has any plans to seek water rights, since we are already tied into a water purveying system through the City of Pasadena. So, asking us to evaluate that pathway would seem to be overly conservative, because the

extraction of ground water is something that simply is not going to occur.

Swarthout: Ten years ago, we might have said a lot of things about federal facilities not closing, but now a lot of them are closing and have closed. So, with this in mind, there is a chance that the extraction of ground water could occur at some future date, if JPL closed. Also, you are going to be required to clean up the plume, regardless of whether the water is going to be extracted or not.

Melchior: That represents a dramatic leap of faith. Talking about a requirement to clean up anything here is premature. Obligation by any party to clean up is premature. Swarthout: What I would say is that if you have ground water above an MCL or above an action level, then you are going to be required to clean it up. Buril: I don't think there is any doubt in anyone's mind that we would do just that. I think the consideration is where do we need to do the evaluation that decides how clean the system as a whole has to be. Melchior: Where is the point of exposure—that is really the question. Swarthout: The way we have been determining the point of exposure is in the center of the plume, because that is where we have the highest contamination.

Buril: The question is where you could reasonably expect exposure to occur. The exposure occurs when a water purveyor with rights to extract water from the basin has a well installed. We have a bunch of great examples across the east side of the Arroyo. Melchior: Perhaps that is the pathway that would be—it is highly conceivable that production wells could be placed beyond the east boundary of the facility. Swarthout: We generally consider the center of the plume. Normally, we don't consider areas off the facility. This involves the question of why we do a risk assessment. (He says he will consult with EPA experts on this issue.) Buril: This issue also tends to drive remedial design. If a point of compliance issue becomes "how much water do I really have to deal with in order to be in compliance?", then I have an area in which I can contain the plume. It makes a difference whether it's a 500-foot radius or a 5,000-foot radius.

Swarthout: There are two criteria you have to meet when you do a ground water evaluation. First is the effect on human health and the environment, and second is ARARs. The cleanup will be based on those two issues. Melchior: One of the ARARs is having a legal right to the resource. That is an ARAR. Swarthout: What is the ARAR? Melchior: It is the adjudication by the state to purvey water. Buril: It says that you have a right to extract a certain portion of the water that is contained in this basin. Swarthout: That doesn't sound like an ARAR to me. I'm not going to say that it is not, but neither am I going to let you say that it is. It's up to EPA to decide what is or is not an ARAR. Buril: Rather than debate the issue further, I would like you to take that information back and help us determine whether or not this is actually going to be a consideration. Looking into the future, if in fact we have a legal obligation not to draw water, then that would seem to throw a wet blanket over the whole idea of doing some form of remedial

action. Working around that is a consideration that we should look at right away.

Swarthout: If you think you have identified an ARAR, then you should, as soon as possible, provide a citation so that we can determine whether or not something is an ARAR. Buril: That's fair. Let me do this. The organization that manages the basin is called the Raymond Basin Management Board. I have been in contact with them for a year, and they are very familiar with the site. They are also being very helpful to us. We recently received a proposal to allow us access to all of their information for modeling and such. So, they are very cooperative, and I'm sure they would be more than happy to provide the statutes and other types of information that would help you determine whether that is a true ARAR—and if it is, how we can best approach the matter.

Buril: If we punch a well in the ground and start to pump water we could face civil and criminal penalties. Melchior: This applies to purveying of water. But we still have the issue of how we go about arranging to extract water for remediation purposes, if necessary, in an adjudicated basin.

Swarthout: Where does NASA think the point of compliance should be? Buril: We don't have enough information from the investigation to come to a decision on that, yet.

Buril: On the ecological risk assessment, our question is the degree of effort that the agencies would expect in doing an ecological risk assessment for this site. We're in a fairly well-developed area, and based on the information we have available to us now through our environmental resources documentation endangered species, etc., do not appear to us to be a big concern. So, from that standpoint, we are mainly concerned with the impacts to the common flora and fauna of the area. Looking at that, there are two pathways I can see that might be of potential concern, the first being surface runoff coming from up in the hills, and the second being an artesian situation where we actually have water upflowing from the ground and creating the potential for contaminants emanating from the ground in that fashion. As far as we know, all of the seepage pits are covered or paved over, and the possibility of surface water inundation is essentially zero. The possibility of an artesian situation seems to be extremely negligible as well. So, taking these considerations into account, we're wondering what you would be looking for in addition to an analysis of the likelihood of these events taking place.

Swarthout: I need to arrange for our ecological risk assessor to get together with you. Then we can talk about those issues at that time. At the same time, I don't think it is going to be an easy issue that can just be written off. Buril: Can you give us a feel for what might be involved? Swarthout: No, I haven't the slightest idea. Buril: I guess that's fair. How about the State, Penny? Nakashima: It's not just how many creatures you have out there. It's also a question of whether you have a habitat for any species. Buril: Based on what we know now, the possibility of

contaminants becoming a problem for particular species or habitats seems to be very low. That kind of an evaluation we can do fairly readily. What we're not sure of is what is required in addition to that. Melchior: Are you concerned with exposed sediments or exposed water with which species might interact—is that the pathway you're thinking of? Nakashima: Yes. Melchior: What we're saying is that with the two potential pathways that we have identified we are having trouble seeing where the exposure would be. If we could come to agreement on what form the exposure would take, we could then shape the study that's required, as opposed to doing a blanket habitat analysis for creatures that would never be exposed. Take the question of ground water. For creatures to interact with it, there would have to be discharge points, and there are no discharge points. Buri: Nor are there every likely to be, given the legal situation. So, recognizing these site-specific conditions, we are wondering what would be required.

Nakashima: You also have your soil and air pathways. Buri: Again, looking at the soil contact pathways, the points of entry into the environment for these contaminants, at least as far as we can tell, were the seepage pits. Those are physically isolated, paved over in most cases, and are no longer used. In other words, they do not have casual contact with the environment or even the potential for casual contact with the environment. There is nothing exposed, physically, as it stands right now. Nakashima: There are some places at Pt. Mugu where contaminants are not exposed but the levels that are there have caused the animals to go elsewhere to feed. The birds' eggshells are very thin, etc. Buri: That's a site-specific consideration, where you have high levels of contaminants. Here, the levels are vanishingly small. Nakashima: You have to remember that the animals are much more sensitive to concentrations than humans are. Melchior: Again, if we could find out what our points of exposure would be, then we could gauge our study accordingly. And we would like to add some realism to this and not cover all the hypotheticals that might occur. As Chuck says, these are subterranean concentrations on a developed site. Buri: We really don't have an air pathway based on the concentrations that we have now. We can't find it in the air—it's not there. Thus, the need to evaluate something that is not there would seem to be something we would not have to pursue very vigorously. Nakashima: I think the best thing would be to have the ecological people talk to you about it. I can also give you a list of publications to help you. Swarthout: It would be best if you call me directly with any questions on this so that we can resolve questions as soon as possible.

Buri: As for the outline of our approach, we are still working on that, and these are questions that we came up with as we were trying to generate that outline.

TOPIC: SCHEDULE FOR THE NEXT RPM MEETING

Buri: We will get the soil boring information about the 3rd or 4th week of April. We're required to have a meeting no less than quarterly, which would place us at about the first week of June.

We would have most of the soil boring work done by then, if not all of it. So we could continue discussion of what further needs to be done, if anything. I would recommend a meeting sometime in the first two weeks of June. (Discussion, resulting in the selection of Thursday, June 9, 10:00 a.m., at JPL.)

TOPIC: STATUS OF PREVIOUS MEETING ACTION ITEMS

Buril: An action item left open from the previous meeting had to do with the acceptability of using the October sampling for the "dry season" sampling. Michelle at that time was trying to find out why the EPA had discontinued the use of the Grundfos pumps we used for sampling. Swarthout: I haven't heard anything about that. I think that issue can go away. Another action item is that we need to provide you with the high-rate/low-rate sample analysis comparison. That sampling is scheduled for the upcoming sampling event. I guess that remains open. The next action item was the ranges of contaminants found in city municipal wells. I have made that request, and they are trying to pull that information together. Apparently it is fairly voluminous. Hopefully they will have that available for us soon. Another previous action involved Penny. (He reads: "Schutz will provide comments on FSAP-OU2 and the Work Plan next week...") New action: Nakashima to respond. JPL will adjust timeline if State requires. (Discussion.) This one is closed.

Buril: (He reads: JPL will contact the City of Pasadena to determine if an MOU regarding the DGMUP and JPL CERCLA can be reached...) I have done that, but unfortunately most of the people who were involved in that have now left the city, and so we do not know how that is going to be brought together. I also raised the issue with the Raymond Basin Management Board, and they said they are very much interested in working with us. But as far as an MOU goes, the Board has no need or desire to establish an MOU. So, the issue is still there, and we don't have any progress to report.

Action items assigned from the last meeting:

- Replacement pages for Community Relations Plan. (CLOSED)
- Work Plan. (CLOSED)
- Status of FSAP-OU2. (CLOSED)
- Status of HASP. (CLOSED)
- Sieve analyses. (CLOSED - after Cutler reviewed the re-analysis of previous sieve data and explained the decision to use one size lower sand pack in the wells.)
- Location of well screens. (CLOSED)
- Well screen placement in deep wells. This is provided in the documents. (CLOSED)

- Well screen shifting. (CLOSED)
- RWQCB written guidance on grout thickness. There is no written guidance. (CLOSED)
- Notifying agencies when soil gas data is ready for review. (CLOSED)
- Replacement pages for Community Relations Plan. (CLOSED)
- Use of Grundfos pumps. (CLOSED)
- Status of FSAP-OU2. (CLOSED)

Buril: There are no outstanding Action Items from the previous meeting except for the high/low flow rate sample analysis comparison.

New Action Items from this meeting:

- Commitment to provide the agencies with more detailed maps showing the locations of the probes, for the "hits" only, by March 14th.
- Telephone conference on March 22, at 10:00 a.m.
- Get information from the Raymond Basin Management Board on laws regarding the adjudication of the basin, and get this information to the agencies for the possible consideration of an ARAR.
- Letter of agreement describing the soil sampling and the rationale for suspending that activity for the well site locations.
- Phil Chandler will come on March 16 to view the maps.
- Federal EPA will put Chuck in touch with their ecological expert.
- State EPA will also put Chuck in touch with their ecological expert.
- Method for hexavalent chromium analysis will be made consistent throughout the documents. EPA Method 71-96 will be used to analyze for hexavalent chromium in both soil and groundwater samples.
- Providing modified pages for all affected documents.
- New page with updated Figure 6.5.

TOPIC: OTHER TOPICS

Buril: The one thing I had under Other Topics was Fact Sheet #3 and its review. We would very much like to get this out, as it describes the work in OU1, which is going to be done in two or three weeks. EPA has no changes to the Fact Sheet. Penny did not receive her copy. Chuck will provide a copy to her at the end of the meeting and requests comments as soon as possible.

Buril: On the OU3 draft final, I believe the FFA requires that we receive comments within thirty days of submission or it goes final automatically. Comments are due on March 30.

ATTENDEE LIST

<u>Name</u>	<u>Organization</u>	<u>Phone</u>
Charles L. Buri	JPL	(818) 354-0180
Judy Novelly	JPL	(818) 354-8634
Ray Hardesty	JPL	(818) 354-4484
Dora Huff	NASA Management Office	(818) 354-6315
Dan Melchior	Ebasco - Virginia	(703) 358-8911
BG Randolph	Ebasco - Santa Ana, CA	(714) 662-4050
Mark Cutler	Ebasco - Santa Ana, CA	(714) 662-4056
Penny Nakashima	Cal/EPA DTSC	(818) 551-2881
Brian Swarthout	U.S. EPA, Region IX	(415) 744-2409
Gale Madyun	RWQLB	(213) 266-7540
Stephen Niou	URS Consultants	(909) 381-4566
Phil Chandler	Cal/EPA DTSC	