Mission Bay Landfill
Technical Advisory Committee
City Administration Building
12th Floor Conference Room B
July 1, 2005
10:00am to 12:00pm

Meeting Minutes

TAC Members Present

David Kennedy, DDS	Judy Swink	David Huntley Ph.D.
Barry Pulver	Robert Curtis	Jeoffry Gordon, MD

TAC Members Absent

Donna Frye	Brian McDaniel	Rebecca Lafreniere
Bruce Reznik	Robert Tukey Ph.D.	Ben Leaf
John Wilks	Frank Gormlie	

Interested Parties/Alternates

Scott Andrews	Kathleen Blavatt	Glen Gentile
Patrick Owen	Hiram Sarabia	Paul Damian
Tessa McRae	Vicky Gallagher	John Odermatt

Staff

Steven Fontana	Ray Purtee	Sylvia Castillo
Chris Gonaver	John Lamb	

As Councilmember Frye was absent, Chris Gonaver chaired the meeting. Self introductions were made. A quorum was not yet present.

Human Health Risk Assessment Results

Dr. Damian handed out tables from the Human Health Risk Assessment to show how conclusions were drawn. He started off by showing that along with the new SCS data; some old data was used in the risk assessment. He reminded the group that a premise of the risk assessment was that there would be no background screening of COPC's and therefore Table 2 shows a lot of COPC's.

A question was asked concerning Table 2 Summary List of COPC's and EPC's -Soils "What does EPC mean?" Answer was Exposure Point Concentrations are the representative concentrations of chemicals that are used in the risk assessment calculations. EPC's are empirical data and are very conservative.

Question "What is 'NA?'" Answer was for Table 2, a chemical not detected or analyzed for, in the 0-5 foot soil depth.

Concerning Table 3 Summary List of COPC's and EPC's –Landfill Gas, there were many landfill gas chemicals detected. A question was asked "What does Total Non Methane Hydrocarbon mean?" Dr. Damian replied that since the lab couldn't isolate which petroleum hydrocarbons were present, they were converted to a methane equivalent. He will get more clarity on this item.

Question "What does capital 'E' mean?" Answer was an exponent; means a power of ten. For example 2.8E-05 equals .oooo28 [decimal point moved 5 places to the left].

There was a question concerning units for Table 3, were they correct? Dr Damian replied that he will check on the units and get back to the TAC.

On Table 5, Dr. Damian reminded the group that there had been no background screening so all the COPC's in groundwater are listed on this table. A question was asked "Since Thallium isn't listed on this table was it not detected?" Answer was yes. Questioner continued with "Was Thallium included in the Title 22 metals analysis?" Dr. Damian answered that he would have to check on this and get back to the group.

There was a question concerning units on Table 5 and Table 4- the numbers presented seemed wrong for the units shown. Dr. Damian replied that he will check all units and get back to the TAC.

A question was asked "Are you planning to include raw data in the report so that someone could check the calculations?" Answer was yes, that's standard practice for risk assessments.

Concerning Table 6 Exposure Parameters, the equations using these parameters aren't shown here. Exposure parameters are for long term daily intake with different parameters for each receptor population. Exposure frequencies were based on DTSC standards. The "Soil Ingestion Rate" of 100 mg/day is a new one recommended by OEHHA; usually it's 15 mg/day. The "Skin Surface Area" used for an adult is 5,700 square centimeters. The "Particulate Emission Factor" converts soil particulates to particulates in air.

A question was asked "How many hours are in a typical day?" Answer was as shown on Table 6, a typical adult recreational user spends one hour per day at the site, and a typical child recreational user spends three hours per day at the site. These durations are recommended by OEHHA.

Concerning Table 7 Toxicity Criteria for COPC's-Inorganics, these values come from the State of California OEHHA database and are usually more conservative than the EPA's values.

A question was asked "Is the arsenic Inhalation Reference Dose OEHHA's?" The answer was yes, and the ingestion dose is from the USEPA IRIS database.

A question was asked "What labs did you use?" Tessa McRae answered that labs used were American Scientific in Los Angeles; Batelle for low level metals, and she would have to get back to the group for the name of the landfill gas lab.

Concerning Table 9 Non-Cancer Risks Commercial Worker, a question was asked "What's a Hazard Quotient?" Dr. Damian replied that a Hazard Quotient (HQ) of one or less means that it's a safe dose.

A question was asked "How do you get a HQ that's 'NA?'" The answer was that SCS used a CDA reference dose for that pathway.

Dr. Damian pointed out that as shown on Table 9 the total Hazard Index[sum of all HQ's] for all chemicals adds up to 0.6, which is less than one.

It was pointed out by a member of the group that the three highest HQ's were for arsenic, mercury and vanadium. The question was asked "Could these be components of industrial waste present in the soil?" Answer by Dr. Damian was that he's not certain, but since the overall total is less than one, there is no risk. Arsenic is known to be present in local soils but no background chemicals were screened out in this analysis. Chris Gonaver stated that since there are a lot of soils testing data for the region, ESD staff can check for arsenic, vanadium and mercury levels in local soils data. Dr. Damian pointed out the mercury levels in this soils data are extraordinarily high. He mentioned that in 1983 there was a concentration of 2000 ppm found.

Concerning Table 10 Cancer Risks Commercial Worker, the far right column shows that arsenic is by far the biggest risk driver. For each chemical, summing up all the cancer risks in the right column gives a total that's an order of magnitude higher than the California State threshold. Hence arsenic is the major cancer risk driver. Mercury is the major non-cancer risk driver.

Concerning Table 11 Non-Cancer Risks Construction Worker, the total Hazard Index of "4" is primarily caused by mercury; there is a low tolerance for mercury. Virtually all the non cancer risk shown here is caused by mercury.

Concerning Table 12 Cancer Risks Construction Worker, arsenic is the primary risk contributor.

Concerning Table 13 Non-Cancer Risks Adult Recreational User, the Hazard Index is far less than one, so there is little likelihood of any non cancer health risk for the adult recreational user.

A question was asked "Where did mercury go (from this Table)?" Dr. Damian replied that only the top 5 feet of soil was used for this receptor.

Concerning Table 14 Cancer Risks Adult Recreational User, again arsenic is the major contributor. The Hazard Index is far less than one, so there is little likelihood of any cancer risk for the adult recreational user. The DTSC would say that arsenic levels are unacceptable.

Concerning Table 15 Non-Cancer Risks Child Recreational User, children inhale more air and ingest more soil per body weight than adults.

A question was asked "Vanadium shows up here- is it naturally occurring or artificial?" Answer was that the background soils report will have to be checked.

An observation was made that from a policy decision, whether it's naturally occurring or not, how will the risk be addressed?

Concerning Table 16 Cancer Risks Child Recreational User, page 2 of the table shows that arsenic again is the major contributor to risk.

Concerning Table 17 Non-Cancer Risks Swimmer, the Hazard Index of 0.2 is below the threshold of 1, so no risk is present.

Concerning Table 18 Cancer Risks Swimmer, virtually all risk, about five in a million, is contributed by arsenic.

A question was asked "does this mean it's five times the acceptable level?" Answer was yes, but remember this was a swimmer in groundwater not surface water.

Concerning Table 20 Cancer Risks Transient, arsenic is the primary contributor to the elevated risk threshold.

Table 21 summarizes the total risks. At over 90%, arsenic is the primary contributor to risk. If we removed arsenic from our COPC's, then mercury (to a construction worker) would be the only constituent posing a risk at this site.

A question was asked "Do you agree arsenic is in background levels and therefore no cleanup is required?" Dr. Damian replied that Cal EPA's policy is to not require cleanup below naturally occurring levels; however, the DTSC reserves the right to require cleanup even if naturally occurring.

Q. Could gravel pits upriver affect arsenic levels or perhaps prior use of DDT and pesticides? A. It would take an evaluation of arsenic levels in the gravel pits versus end of river arsenic levels to determine if the gravel pits played a role. Pesticides used arsenic too, so that could be a possibility.

Q. Did you evaluate the risk to pregnant women? A. The reference doses used were conservative enough to protect sensitive populations such as pregnant women.

Q. So it appears mercury is higher at the 5 to 10 foot depths, or closer to the buried wastes. Is there a pattern related to the dump? A. The data does show higher levels closer to the buried wastes and this could be a reflection of landfill practices at the time where mercury containing wastes could have been accepted. Dr. Damian asked Tessa McRae "What percent of the soils samples was done at 5 to 10 foot depths?" Tessa's information at hand implied that there were 10 surface samples and 47 samples taken at a depth "greater than 5 feet." Dr. Damian asked her to provide him the depths at which each of the deep soil samples was taken.

Q. Historically thallium was detected at the site but none of your tables show it? A. There were no thallium results of concern that made their way into the risk assessment. Reference was made to Chuck Budinger's previous report to the group on thallium.

Q. This is the first time I've seen concrete data on risks- are these levels unusual? Have you used this methodology at other sites and found unacceptable risks? A. The levels shown here are not unusual and yes, this methodology has found high risks at other sites.

Q. Recommend that you have a table in the risk assessment showing parameters measured, detection limits for the method used, accuracy and precision figures, and maximum permissible

levels. Hiram Sarabia will forward an example of such a table. A. In every risk assessment there's a listing of data with means, maximums, detection limits; all of this information is a standard component of risk assessments. The risk assessment will include a statistical summary table and a raw data summary.

Concerning the table entitled Methane and Hydrogen Sulfide in Landfill Gas Samples, Dr. Damian pointed out that these were soil gas results, not ambient air that people are breathing. Methane in the soil is at very high levels; the San Diego County Department of Planning and Land Use guideline is that levels above 0.5% require special measures before building could occur. Each of the samples shown in this table was taken after field instruments indicated the presence of gas, so all results show exceedance.

The last table of the handout Methane Walkover Survey Results, shows that methane is rapidly disbursed in ambient air over the landfill. Landfill gas levels in the air above the landfill are low.

Q. Was any distinction made between marsh gas and landfill gas? A. No, but the presence of man made constituents in the gas such as refrigerants would indicate whether it was landfill gas.

Q. Do the methane levels seem normal for a landfill of this age? A. Yes.

Q. Previously, three well pockets of hydrogen sulfide gas were discovered below ground. Are you O.K. with no further testing? A. Safety precautions should be taken for any building or excavations.

Q. Can we correlate these gas samples with the grid we saw in the work plan? A. Yes

Q. Concerning the precautionary principle- as most of the COPC's are below threshold levels, do you conclude the site is safe? A. There are many chemicals present, but they are at low enough levels to present no risk with the exception of arsenic.

Q. So what is the major exposure pathway of risk? A. Table 21 shows that soil ingestion and dermal contact are the major contributors to risk.

The tables in this handout are just a subset of the tables presented in the risk assessment. There is a lot more information on specific measures used in the report. We are still planning to issue the report in August then have discussion on it at the September meeting. After the TAC review of the report, other agencies will get it to review.

Follow up items for Dr. Damian includes: Is vanadium at or near background levels? How does mercury compare to background levels? Is thallium in the Title 22 list of metals? Units and values in some tables need checking.

Public Comment

Hiram Sarabia expressed concern that methodologies for assessing the risk to pregnant women should have been addressed. Are there standard factors for this case? A. Dr. Damian replied that there are no standard factors. Barry Pulver commented that Proposition 65 includes a list of chemicals known to cause reproductive harm. Also, many studies include a factor of ten for "sensitive receptors."

Hiram- So in this case there were no additional factors for pregnant women? Dr. Damian replied that the USEPA doesn't use such factors for pregnant women. There are no interspecies and intra species factors of ten to compensate for sensitive subpopulations.

A statement was made that pesticide studies and others don't have data sets for pregnant women. Industry wants to do away with such studies.

There is a lot of uncertainty in any risk assessment and there should be some reference to this. Given your knowledge of this site through performing the risk assessment, would you recommend building out South Shores Park at this site? Dr. Damian replied that since soil methane levels are very high, precautions would have to be taken.

Then is it O.K. for grass? Dr. Damian replied that if bare areas are minimized to minimize soil ingestion and soil dermal contact, then grass would be O.K. The majority of the site where activities occur is already paved, but the HRA assumed that recreational activities took place over bare earth. This made the exposure and resultant health risks higher than they otherwise would be for most recreational users.

Approval of Minutes

As a quorum was now present, the minutes of the last meeting were reviewed and approved with one modification- include the following by Dr. Kennedy: "In California, approximately 50 tons of mercury is sold to dentists, but only two tons are recovered. A State bill would require drain traps to recover dental mercury amalgam, and when San Francisco required them, the amount of mercury in their sewer system dropped significantly."

Future Meetings

- Wednesday, August 31, 2005
- Friday, Sept 16, 2005
- Friday, Oct 21, 2005
- Friday, Nov 18, 2005
- Friday, Dec 9, 2005