Comments

- You may use this card to provide written comments on the Proposed Plan to Select a Remedy to Clean Up Soils at the JPL.
- Public comments on the Plan will be accepted through June 11, 2001.
- Please mail your written comments to the address on the reverse side or bring them to public meetings on May 12 and May 14, 2001. (See Proposed Plan for details).

Your SVE proposal appears to be a valid alternative and I agree; However it only mildly guarantees significant removal of contaminats on their way to ground water, my question are what is significant? Will there be subsequent efforts to increase their significant" amounts and if so how many attempts will be made to increase eradication so that the bottom line is Zero! Also in your "Reduction of Toxicity..." your mention "can be" is there a "will" in the equation I seem like a hope is there, but not ~~surety~~ surety. Another concern is that the focus seems to be Cancer are there any other health concerns, primarily short term effects on Health, especially birth defects, etc.

Thank you for your information, & appreciate your notifications and updates.

If you would like to receive a written response to your comments, please provide your name and address:

Name: Samuel E. Hooker
Address: 2975 BARBON WAY
City, State, Zip: ALTADENA CA 91001

Comments

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1. What are the VOC concentration levels for:
   a) regulation (MCL)
   b) "negotiated" goals of cleanup
   c) level in test-site soil before and after test clean-up

2. Does the 200 lbs of VCO extracted include the weight of the charcoal or is it pure VCO?

If you would like to receive a written response to your comments, please provide your name and address:

Name: _____
Address: _____
City, State, Zip: _____

Comments

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1. MEETING NOTIFICATION DID NOT ARRIVE UNTIL 5 DAYS BEFORE PUBLIC MEETING – DOES THIS MEET LEGAL AND REASONIBLE REQUIREMENTS?

2. THERE IS NO MENTION IN THE INFORMATION BROCHURE REGARDING THE SIGNIFICANT AQUAFER ADJACENT TO AND BELOW JPL. THIS AQUAFER IS USED FOR DRINKING WATER. IF IT IS NOT CURRENTLY IMPACTED BY THE VOC'S AS DEFINED BY THE ARAR'S WHAT ASSURANCE IS THERE THAT IT WILL NOT BE IMPACTED IN THE FUTURE?

If you would like to receive a written response to your comments, please provide your name and address:

Name: TONY SCHWARZ
Address: 442 NOREN ST.
City, State, Zip: LA CANADA, CA 91011

Comments

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My husband and I are strongly in favor of Alternative 2, SVE, because it will help protect the Waters in La Canada and is the best long term solution.

Sincerely,

Mary Ann DeBruyn
Joe DeBruyn

Mr. & Mrs. R. Joseph DeBruyn
342 Meadow Grove St.
La Canada-Flintridge, CA 91011

If you would like to receive a written response to your comments, please provide your name and address:

Name: We do not require a written response.
Address:
City, State, Zip:

Comments

- ☑ You may use this card to provide written comments on the Proposed Plan to Select a Remedy to Clean Up Soils at the JPL.
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I'm sorry, but I don't understand all the fuss over this issue. If, based on the assessments presented, there is no danger to human or animal life, why are we going to the time and expense?

The area in question is relatively remote from any residential structures and the natural cleansing action of soil will in time, solve the problem.

I'm of the opinion that "Alternative No 1" is the preferable choice. This "making the world safe" from every possible contamination is a hysterical absurdity.

If you would like to receive a written response to your comments, please provide your name and address:

Name: John Holt
Address: 5545 Burning Tree Dr.
City, State, Zip: La Canada, CA 91011

Comments

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How long did it take for demo well to recover 200# VOCs? How did 5 wells get decided? Where is 45 acre plume exactly? Reference using helipad stables, Oakgrove Ave entrance kiosk etc. for non-JPL people. How much VOCs will be recovered, from what depths? How long will it take? Could LCF get more cleanup bang for these $3.75 million by getting EPA to use them to assist LCF in, say, covering 210 Fwy and cleaning that exhaust instead which use would provide greater protection (and other benefits) to community?

Recvd this Sat 5/13. Read Mon 14th. Not enough notice to make mtgs on 12th. Presence required at another mtg on 14th. More time next mailing please.

If you would like to receive a written response to your comments, please provide your name and address:

Name: Lauren Oakes
Address: 4708 Gould
City, State, Zip: LCF, CA 91011

818-790-2622

Comments

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1. at a Lincoln Ave. Water Co. Annual Meeting 5 or more years ago we were told by the Board Members of Lincoln Ave. Water Co that at that time JPL would not share with them the chemical analysis of water tests done by JPL. My husband Carl talked at JPL and I felt ashamed of the arrogant attitude of JPL.

2. As shareholders of Lincoln Avenue Water Co we are dependent on that company for our water supply. The VOC's in the groundwater supply have been a severe problem. When do you expect to address the "adjacent groundwater problems" or to reimburse the company for the remedial costs we have already incurred?

If you would like to receive a written response to your comments, please provide your name and address:

Name: Dorothy & M. Carl Thurman
Address: 760 West Mariposa
City, State, Zip: Altadena, CA 91001

Comments

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- Please mail your written comments to the address on the reverse side or bring them to public meetings on May 12 and May 14, 2001. (See Proposed Plan for details).

1) I WOULD LIKE TO RECOMMEND: EARLIER NOTICE OF PUBLIC MEETINGS TO THE PUBLIC & JPL EMPLOYEES

2) WOULD YOU CONSIDER ANOTHER PUBLIC MEETING ON THIS OU-2 PROPOSED PLAN, AFTER APPROPRIATE EARLIER NOTICE, BUT PRIOR TO THE END OF PUBLIC COMMENT PERIOD

3) FOR PUBLIC MEETINGS NOTICE FOR GROUND WATER OU'S, INCLUDE CUSTOMERS OF WATER PURVEYERS ON MAILINGS.

4) SINCE ALTERNATIVE 1 IS DO NOTHING ~~THEN~~ THEN ALTERNATIVE 2 IS REALLY THE ONLY OPTION BEING OFFERED. WHAT OTHER ALTERNATIVES WERE CONSIDERED & WHY WERE THEY REJECTED? IS THERE A LIST OF THESE SOME WHERE?

5) WHERE IS A LIST OF THE NOTICES OF THESE PUBLIC MEETINGS?

If you would like to receive a written response to your comments, please provide your name and address:

Name: CYNTHIA COMPTON
Address: 118 A. SUFFOLK AVE.
City, State, Zip: SIERRA MADRE, CA. 91024

Comments

- You may use this card to provide written comments on the Proposed Plan to Select a Remedy to Clean Up Soils at the JPL.
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- Please mail your written comments to the address on the reverse side or bring them to public meetings on May 12 and May 14, 2001. (See Proposed Plan for details).

6.) PLEASE MODIFY NOTICES SENT TO JPL EMPLOYEES VIA EMAIL TO SAY "PUBLIC MEETING" IN THE SUBJECT TITLE ALONG WITH SUPERFUND PLAN PROPOSED ....

7.) 2 MINUTES FOR MY PUBLIC COMMENTS AND QUESTIONS IS TOO RESTRICTIVE; ESPECIALLY WHEN THERE ARE NOT MANY PUBLIC PEOPLE HERE.

8) SAMPLES & MEASUREMENTS IN BASEMENT OF BUILDING 107 (OR 103?) ARE THESE PART OF PERMENENT TEST POINTS?
WHAT ARE THE FINDINGS FROM THESE MEASUREMENTS?

If you would like to receive a written response to your comments, please provide your name and address:

Name: CYNTHIA COMPTON
Address: 118 A. SUFFOLK AVE.
City, State, Zip: SIERRA MADRE, CA. 91024

You may use this card to provide written comments on the Proposed Plan to Select a Remedy to Clean Up Soils at the JPL.
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Please mail your written comments to the address on the reverse side or bring them to public meetings on May 12 and May 14, 2001. (See Proposed Plan for details).

(1) I WOULD LIKE TO SEE ALL ANSWERS TO ALL THE PUBLIC QUESTIONS. WOULD YOU PLEASE SEND ME A COPY OF RESPONSIVENESS SUMMARY?

(2) PLEASE MAKE SURE FEASABILITY STUDY (& ANY OTHER MISSING DOCUMENTS) ARE AVAILABLE IN ALTADENA LIBRARY.

If you would like to receive a written response to your comments, please provide your name and address:

Name: CYNTHIA COMPTON
Address: 118 A. SUFFOLK AVE.
City, State, Zip: SIERRA MADRE, CA. 91024

(3) PLEASE SEND ME A COPY OF THESE QUESTIONS & CARDS.

Comments

- You may use this card to provide written comments on the Proposed Plan to Select a Remedy to Clean Up Soils at the JPL.
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(4) PLEASE PROVIDE A LIST OF PUBLIC MEETING NOTICES THAT HAVE BEEN ADVERTISED WITH LOCATIONS, DATES & PREFERABLY A COPY OF THEM.

If you would like to receive a written response to your comments, please provide your name and address:

Name: CYNTHIA COMPTON
Address:
City, State, Zip:

- ☐ You may use this card to provide written comments on the Proposed Plan to Select a Remedy to Clean Up Soils at the JPL.
- ☐ Public comments on the Plan will be accepted through June 11, 2001.
- ☐ Please mail your written comments to the address on the reverse side or bring them to public meetings on May 12 and May 14, 2001. (See Proposed Plan for details).

Re: Apr 25 '01 letter on "Proposed Plan"

Pg 2 - It is incorrect and misleading to say "NASA JPL is located between the City of La Canada-Flintridge [sic - there is no hyphen in city name] and the unincorporated city of Altadena ...."

Nearly All of JPL lies within the boundaries of La Canada Flintridge. This failure to acknowledge the true geographical location of JPL has been a political sore point with La Canadans ever since incorporation of the City in 1976.

We sent the battle to CalTech/Pasadena on JPL's mailing address - but this kind of geographical mis-use is ridiculous.

The Planning Dept in the City offices can provide further info.

If you would like to receive a written response to your comments, please provide your name and address:

Name: Scarlett C. Hibner
Address: 560 Berkshire Ave
City, State, Zip: Flintridge CA 91011

Comments

- ☐ You may use this card to provide written comments on the Proposed Plan to Select a Remedy to Clean Up Soils at the JPL.
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What provision have been made in the event of - say an earthquake - to evacuate the surrounding population (H.S. Student + Staff) if a Chemical cloud becomes present + to a threat -

Thx.

If you would like to receive a written response to your comments, please provide your name and address:

Name: Randy Strapazon
Address: 444 Foothill Rd
City, State, Zip: La Canada, CA 91011

June 27, 2001

To: Peter Robles, Jr.
NASA Management Office, JPL
FAX: (818)393-2607

From: Barbara Swain, Pasadena Resident
512 Continental Court
Pasadena, CA 91103
(626)796-6582
Swain-BarbaraF@worldnet.att.net

CONTENTS: Cover plus 2 pages

Per my conversation with Richard Zuromski on Monday, June 24, I am faxing the following pages to replace the roughly edited pages I submitted at the June 20, 2001 Public Meeting: Proposed Plan for Cleanup of Soil at the NASA-JPL.

Richard said he would see that the messy copies with personal messages that I gave to the court reporter would be returned to me. If this does not come through in good condition for copying, I would be happy to mail originals.

Jim Hunt is my nephew. He received his Ph.D. from Caltech in the early 80s before joining the faculty at Berkeley.

Thanks to all of you for your efforts to clean up our environment.

COMMENTS ON PROPOSED PLAN TO SELECT A REMEDY TO CLEAN UP SOILS AT NASA-JPL

FROM JAMES R. HUNT
PROFESSOR OF ENVIRONMENTAL ENGINEERING, U.C.BERKELEY

Introduced at the June 20, 2001 Public Meeting
as e-mailed to Barbara Swain, Pasadena resident.

> > ---- *extract from announcement* ----
> > *"During characterization studies of JPL, the following four VOCs were*
> > *detected frequently at elevated concentrations in soil-vapor samples:*
> > *CCl4, Freon (tm)113, TCE and DCE. These compounds are generally located*
> > *beneath the north-central part of JPL and were detected in soil vapors*
> > *at depths extending to the water table, which ranges up to 200 feet or*
> > *more below ground surface. The total mass of these VOCs in vadose zone*
> > *soils was estimated to be no greater than 5,040 pounds.*

These compounds were likely released into the soil from a leaking tank, pipeline, or waste collection system. If they were released as pure organic solvents, then the compounds will exist initially as nonaqueous phase liquids, NAPLs (like the gasoline in your car). These liquids move into the soils and volatilize since they have a high vapor pressure (like gasoline). If enough are released, the liquids can migrate to the water table where they continue to sink since they are denser than water. If the pure phase liquids were released, then most of the compounds will be found within the gas phase due to their volatility. However, it is highly likely that these solvents were used to clean machines or electronics equipment. These waste solvents probably had a lot of oily materials dissolved in them and were not missed when they were "lost" after use, unlike the original clean solvents. In this case the combination of the oil and the volatile solvents lowers the volatility of the solvents, and less of the material is found within the gas phase and more is within the liquid. Without seeing anything more than the above paragraph, I am guessing that the estimate of 5000 pounds is unreasonably low.

> > EXTRACT FROM ANNOUNCEMENT
> > *Although perchlorate has been identified as a potential chemical of*
> > *concern (COC) in groundwater, it is not a COC for vadose zone soils at*
> > *JPL. Perchlorate moves through the vadose zone quickly until it reaches*
> > *groundwaer, making it unlikily to be found in the vadose zone soils.*
> > *Therefore, issues relating to perchlorate will be addressed in the*
> > *remedial action documentation for groundwater at JPL."* -----

This is an area a graduate student and I are actively studying. What they say is conventional wisdom based on hope more than data. Perchlorate is a very soluble anion that moves as fast or faster than water. If water is introduced into dry soil, it tends to wet the soils and get pulled into the finer materials just as water is taken up by a paper towel. A spill of dissolved perchlorate at the land surface will then move downward through the soils. As it migrates it tends to get absorbed into the finer soils. This is just the opposite of groundwater flow where the water will move quickly through the gravels and very slowly in the fine sands and clays. Since they have perchlorate in their groundwater, they will have it in the soils above the groundwater and there might be a long term source of perchlorate from the soils to the aquifers. If they clean up all the groundwater now, in a few years it could be a problem again if the soils continue to leach out this material. It does not degrade under these conditions.

> > ---extract from announcement---
> > *The PREFERRED REMEDIAL ALTERNATIVE for soils located between the ground*
> > *surface and the groundwater table (vadose zone soils) at the JPL site is*
> > *based on an evaluation of results from sampling and analyzing soils and*
> > *soil vapors at the site. Analytical results showed no risks to humans or*
> > *pland and animal life from the chemicals know as volatile ortanic*
> > *compounds (VOCs) present in soils. However, the VOCs were detected at*
> > *elevated concentrations in soil-vapor samples beneath the north-central*
> > *part of the site at depths extending to th ewater tabe. These VOCs have*
> > *the potential to migrate to the groundwater atthe site. Therefore, soil*
> > *vapor extraction (SVE) is the preferred remedial alternative to remove*
> > *the VOCs and prevent them from migrating to*
> > *groundwater."----------*
> >
> > *SVE is a two step treatment process. In the first step, VOCs are removed*
> > *from soil vapors by a vacuum applied to an underground well. In the*
> > *second step, the VOC vapors are treated to prevent their release to the*
> > *atmosphere. The EPA has identified SVE as a presumptive remedy for*
> > *sites with VOCs present in soil. A presumptive remedy is a technology*
> > *that is commonly used to clean up sites similar to JPL and has been*
> > *given a special status by USEPA. Moreover, SVEwas shown to be effective*
> > *in a pilot study at JPL."------*

Soil vapor extraction is a very good method for the removal of volatile compounds since they are present in the gas phase. It is widely used and appropriate for the compounds found at JPL. Two issues ought to be of concern:
1) If the solvents were disposed as part of a waste solvent tank leakage, then there is lots of oil also present, and the liquid oil will lower the amount of solvents in the gas phase compared to the liquid. The existence of the oil would require longer soil vapor extraction treatment times. This is OK since it would stop any releases to the atmosphere and pick up the gases before they contaminate any more groundwater. You might want to ask two questions:
a) What levels of petroleum hydrocarbons have been found in the soils where the solvent spills occurred? (Their response may be that they were not required to look for petroleum hydrocarbons since they are not part of the superfund remediation. Chances are their consultants spent lots of money analyzing for everything.) If the concentration is greater than 10 to 100 mg of hydrocarbons per kilogram of soil, then there is a very good chance that a liquid oil phase exists where the contaminants of interest reside. This means a long cleanup time and greater contamination.
b) How well do they understand the location of the contamination and the flow paths of the air during soil vapor extraction? We really do not understand what the subsurface looks like, in spite of having hundreds of borings. It is likely that the oils and solvents will not be found where the air is moving, and thus there is some inefficiency in this process, but it is a reasonable approach.

Steam injection is not an obvious solution to their problem from the data presented. If there is a lot of oil present, it could be mobilized by the steam, and in the process, remove the contaminants. There has been some concern with using steam in the vadose zone since some liquid water is produced when the steam condenses, and this water and associated contaminants might tend to sink down to make things worse. For any remedial scheme to work, it is essential to understand the source term, but that is pretty hard.

Gates, Kimberly (NFESC)

From: Zuromski, Richard (NFESC)
Sent: Friday, June 15, 2001 10:27 AM
To: Gates, Kimberly (NFESC)
Subject: FW: probles@nmo.jpl.nasa.gov

Another comment to respond to.

-----Original Message-----

From: Peter Robles [mailto:PRobles@nmo.jpl.nasa.gov] <mailto:[mailto:PRobles@nmo.jpl.nasa.gov]>
Sent: Friday, June 15, 2001 9:52 AM
To: 'Zuromski, Richard'
Subject: FW: probles@nmo.jpl.nasa.gov

FYI

> ---

From: Mary K Fairbanks[SMTP:mkfairba@jpl.nasa.gov] <mailto:[SMTP:mkfairba@jpl.nasa.gov]>
Sent: Friday, June 15, 2001 7:14 AM
To: probles@nmo.jpl.nasa.gov
Subject: probles@nmo.jpl.nasa.gov

What will be done to verifly that the air vented during the SAVE processing is truely clean? What will be done with the treated vocs?

1,2 Dichloroethane

Gates, Kimberly (NFESC)

From: Zuromski, Richard (NFESC)
Sent: Friday, June 15, 2001 10:28 AM
To: Gates, Kimberly (NFESC)
Subject: FW: Superfund Public Comment Period and Meeting June 20

Another.

-----Original Message-----
From: Peter Robles [mailto:PRobles@nmo.jpl.nasa.gov]
Sent: Friday, June 15, 2001 10:17 AM
To: 'Zuromski, Richard'
Cc: 'Charles L Buril'
Subject: FW: Superfund Public Comment Period and Meeting June 20

FYI

> ----------
> From: Forest Fisher[SMTP:fisher@aig.jpl.nasa.gov]
> Reply To: Forest Fisher
> Sent: Friday, June 15, 2001 8:54 AM
> To: probles@nmo.jpl.nasa.gov
> Cc: fisher@aig.jpl.nasa.gov
> Subject: Re: Superfund Public Comment Period and Meeting June 20
>
> Mr. Peter Robles, Jr.
>
> Is this the reason the well drilling crew outside of bldg 126 is
> drilling a whole in the ground?
>
> What are the risks/side effect to having one of these "SAVE" wells
> so close to a building (where we work, walk, breath, have doors that
> allow air flow from the well area into the building, ...)?
>
> thank you,
> --4est
>
> ==========
> Forest W. Fisher forest.fisher@jpl.nasa.gov
>
> Work: Jet Propulsion Laboratory
> 4800 Oak Grove Drive
> Mail Stop 126-347
> Pasadena, CA 91109-8099
> (818) 393 5368 (voice)
> (818) 393 5244 (fax)
>
> http://www-aig.jpl.nasa.gov/home/fisher
> ==========
>
>
> > X-Sender: intcomm@mail2.jpl.nasa.gov
> > Date: Thu, 14 Jun 2001 15:40:04 -0700
> > To: "All Personnel" <all.personnel@list.jpl.nasa.gov>
> > From: Internal Communications <Internal.Communications@jpl.nasa.gov>
> > Subject: Superfund Public Comment Period and Meeting June 20
> > Mime-Version: 1.0
> >
> > Public Comment Period and Public Meeting Announcement
> > Proposed Plan for Cleanup of Soil at the
> > National Aeronautic Space Administration
> > Jet Propulsion Laboratory
> >
> > For those who were unable to attend the public meetings held on May 12
> and
> > 14, 2001, the public comment period has been extended 30
> > days and now ends July 11. The National Aeronautics and Space

> > Administration (NASA) will hold
> > an additional public meeting to discuss the proposed cleanup of soils at
> its
> > Jet Propulsion Laboratory (JPL) in Pasadena, California. The public
> meeting
> > will be held on June 20, 2001 at the following location and time:
> >
> > Eliot Middle School Auditorium
> > 2184 North Lake Avenue
> > Altadena, CA 91001
> >
> > Summary presentation: 7:00 p.m.
> > Information forum: 6:00 - 9:00 p.m.
> > Formal comment session: 7:30 p.m.
> >
> > During the "information forum," the public will have the opportunity to
> > speak with NASA and federal and local regulatory agency representatives
> on a
> > one-on-one basis about the proposed cleanup actions. Following the
> summary
> > presentations, attendees can formally address questions to these
> > representatives; these questions (and agency responses) will be included
> in
> > a transcript. The final decision may be based on some, or all, of the
> > public comments.
> > The public comments will become part of the Administrative Record
> > supporting the final decision.
> >
> > JPL is a federal facility owned by NASA and is located between the city
> of
> > La Canada-Flint ridge and the unincorporated city of Alameda, near
> Pasadena,
> > California. JPL covers about 176 acres of land and includes more than
> 150
> > buildings and other structures. The JPL site was added to the National
> > Priorities List (JPL) and became a "Superfund" site in 1992 after an
> initial
> > inspection revealed the presence of volatile organic compounds (Vows)
> and
> > other chemicals in the subsurface soil and groundwater. The purpose of
> this
> > notice is to invite the public to provide comments and ask questions on
> the
> > Proposed Plan for cleanup of subsurface or "va dose zone" soils at the
> site.
> > The Proposed Plan was previously mailed to the public during the second
> week
> > of May 2001. If you did not receive a copy of the Proposed Plan or would
> > like an additional copy, please contact Mr. Peter Robes, Jr. at the
> number
> > provided in this notice.
> >
> > NASA is proposing soil vapor extraction (SAVE) as the preferred remedy
> for
> > recovering Vows from the soils. SAVE systems are designed to remove
> chemicals
> > that have a tendency to evaporate or "volatilize" easily by applying a
> > vacuum through a system of underground wells. The Vows are then pulled
> from
> > the subsurface in vapor form where they are treated and clean air is
> vented
> > from the system. SAVE was shown to be effective based on a pilot test of
> the
> > system at JPL.
> >
> > This proposed remedy would involve installation of up to five vapor
> > extraction wells and vapor treatment systems on the JPL site. The
> extraction
> > wells and vapor treatment systems would be operated until Vows in soil
> vapor
> > have been reduced to an agreed-upon level. As part of the cleanup

> process, a
> soil-vapor monitoring program, currently in place, would be used to
> track
> > concentrations and evaluate the extent of Vows in soil vapor over time.
> >
> > Final decisions on the cleanup plans will be made after public comments
> have
> > been received and considered. The public comment period has been
> extended 30
> > days and now ends July 11, 2001 to allow for greater public
> participation in
> > this decision process. Written comments should be mailed or e-mailed to
> Mr.
> > Peter Robes, R. at the address provided in this notice, or brought to
> the
> > public meeting.
> >
> > An administrative record file has been prepared in accordance with
> federal
> > regulations governing the cleanup of facilities where there has been a
> > release of hazardous substances into the environment. The administrative
> > record includes site document-documentation, including the Remedial
> > Investigation,
> > Feasibility Study, and Proposed Plan. Local residents and other
> interested
> > parties are encouraged to review available Superfund information at the
> > following information repositories:
> >
> > Altadena Public Library
> > 600 E. Mariposa Ave.
> > Altadena, CA 91001
> > (626) 798-0833
> >
> > La Canada-Flintridge Public Library
> > 4545 Oakwood Ave.
> > La Canada-Flintridge, CA 91011
> > (818) 790-3330
> >
> > Pasadena Central Library
> > 285 E. Walnut St.
> > Pasadena, CA 91101
> > (626) 744-4052
> >
> > Questions regarding the Proposed Plan, Feasibility Study, Remedial
> > Investigation, administrative record, and/or other issues should be
> directed
> > to the contact below:
> >
> > Mr. Peter Robles, Jr.
> > NASA Management Office
> > Jet Propulsion Laboratory
> > 4800 Oak Grove Drive
> > Pasadena, CA 91101
> > Phone: (818) 393-2920
> > Fax: (818) 393-2607
> > E-mail: probles@nmo.jpl.nasa.gov
> >
> >
> >
>

FAX

To: Richard Zuromski
cc: Kimberly Gates

From: Keith Fields

Contents:

Included with this fax are the written comments received during the June 20, 2001 NASA JPL public meeting.

Thanks.

Keith

Subject: JPD cleanup
Date: Wed, 20 Jun 2001 08:48:34 -0700
From: "James [redacted]" <[redacted]@ce.berkeley.edu>
To: "Barbara [redacted]" <[redacted]@worldnet.att.net>
CC: Kris Hunt <[redacted]@HOME.COM>,

Aunt Barbara,

Good morning. I should be home by 4 today. I have added some thoughts to your summaries. I tried to get into the JPL Web site and found that they are far more interested in groundwater on Mars than under their mission control center. This is NASA!

Jim

----- Original Message -----
>From: [redacted]
>To: [redacted]
>Sent: Wednesday, June 20, 2001 7:45 AM
>Subject: Message for Jim re JPL cleanup
>
> FROM: BARBARA SWAIN (626-796-6583) — COMMENTS FROM JAMES HUNT, U.C. BERKELEY ENVL ENG.
> > Kris ----
> >
> > If I could talk to Jim before the meeting tonight, I'd appreciate it.
> > Here is some stuff from their meeting announcement that I'd like to
> > confer with him about. The meeting starts at 6PM. E-mail me re: his
> > availability to talk to by phone sometime before 5:30PM. I could call
> > him at home or at school Thanks for the list of websites. I have
> > printed most of them and am taking the list with me..
> > ---- extract from announcement ----
> > "During characterization studies of JPL, the following four VOCs were
> > detected frequently at elevated concentrations in soil-vapor samples:
> > CCl4, Freon (tm)113, TCE and DCE. These compounds are generally located
> > beneath the north-central part of JPL and were detected in soil vapors
> > at depths extending to the water table, which ranges up to 200 feet or
> > more below ground surface. The total mass of these VOCs in vadose zone
> > soils was estimated to be no greater than 5,040 pounds.

These compounds were likely released into the soil from a leaking tank, pipeline, or waste collection system. If they were released as pure organic solvents, then the compounds will exist initially as nonaqueous phase liquids, NAPLs (like the gasoline in your car). These liquids move into the soils and volatilize since they have a high vapor pressure (like gasoline). If enough are released, the liquids can migrate to the water table where they continue to sink since they are denser than water. If the pure phase liquids were released, then most of the compounds will be found within the gas phase due to their volatility. However, it is highly likely that these solvents were used to clean machines or electronics equipment. These waste solvents probably had a lot of oily materials dissolved in them and were not missed when they were "lost" after use, unlike the original clean solvents. In this case the combination of the oil and the volatile solvents lowers the volatility of the solvents, and less of the material is found within the gas phase and more is within the liquid. Without seeing anything more than the above paragraph, I am guessing that the estimate of 5000 pounds is unreasonably low.

> > *Although perchlorate has been identified as a potential chemical of concern (COC) in groundwater, it is not a COC for vadose zone soils at JPL. Perchlorate moves through the vadose zone quickly until it reaches groundwaer, making it unlikily to be found in the vadose zone soils. Therefore, issues relating to perchlorate will be addressed in the remedial action documentation for groundwater at JPL."* -----

This is an area a graduate student and I are actively studying. What they say is conventional wisdom based on hope more than data. Perchlorate is a very soluble anion that moves as fast or faster than water. If water is introduced into dry soil, it tends to wet the soils and get pulled into the finer materials just as water is taken up by a paper towel. A spill of dissolved perchlorate at the land surface will then move downward through the soils. As it migrates it tends to get absorbed into the finer soils. This is just the opposite of groundwater flow where the water will move quickly through the gravels and very slowly in the fine sands and clays. Since they have perchlorate in their groundwater, they will have it in the soils above the groundwater and there might be a long term source of perchlorate from the soils to the aquifers. If they clean up all the groundwater now, in a few years it could be a problem again if the soils continue to leach out this material. It does not degrade under these conditions.

> > *The PREFERRED REMEDIAL ALTERNATIVE for soils located between the ground surface and the groundwater table (vadose zone soils) at the JPL site is based on an evaluation of results from sampling and analyzing soils and soil vapors at the site. Analytical results showed no risks to humans or pland and animal life from the chemicals know as volatile ortanic compounds (VOCs) present in soils. However, the VOCs were detected at elevated concentrations in soil-vapor samples beneath the north-central part of the site at depths extending to th ewater tabe. These VOCs have the potential to migrate to the groundwater atthe site. Therefore, soil vapor extraction (SVE) is the preferred remedial alternative to remove the VOCs and prevent them from migrating to groundwater."*----------

> *SVE is a two step treatment process. In the first step, VOCs are removed from soil vapors by a vacuum applied to an underground well. In the second step, the VOC vapors are treated to prevent their release to the atmosphere. The EPA has identified SVE as a presumptive remedy for sites with VOCs present in soil. A presumptive remedy is a technology that is commonly used to clean up sites similar to JPL and has been given a special status by USEPA. Moreover, SVEwas shown to be effective in a pilot study at JPL."*------

Soil vapor extraction is a very good method for the removal of volatile compounds since they are present in the gas phase. It is widely used and appropriate for the compounds found at JPL. Two issues ought to be of concern:
1) If the solvents were disposed as part of a waste solvent tank leakage, then there is lots of oil also present, and the liquid oil will lower the amount of solvents in the gas phase compared to the liquid. The existence of the oil would require longer soil vapor extraction treatment times. This is OK since it would stop any releases to the atmosphere and pick up the gases before they contaminate any more groundwater. You might want to ask two questions:
a) What levels of petroleum hydrocarbons have been found in the soils

where the solvent spills occurred? (Their response may be that they were not required to look for petroleum hydrocarbons since they are not part of the superfund remediation. Chances are their consultants spent lots of money analyzing for everything.) If the concentration is greater than 10 to 100 mg of hydrocarbons per kilogram of soil, then there is a very good chance that a liquid oil phase exists where the contaminants of interest reside. This means a long cleanup time and greater contamination.
b) How well do they understand the location of the contamination and the flow paths of the air during soil vapor extraction? We really do not understand what the subsurface looks like, in spite of having hundreds of borings. It is likely that the oils and solvents will not be found where the air is moving, and thus there is some inefficiency in this process, but it is a reasonable approach.

Steam injection is not an obvious solution to their problem from the data presented. If there is a lot of oil present, it could be mobilized by the steam, and in the process, remove the contaminants. There has been some concern with using steam in the vadose zone since some liquid water is produced when the steam condenses, and this water and associated contaminants might tend to sink down to make things worse. For any remedial scheme to work, it is essential to understand the source term, but that is pretty hard.

Good luck.

> >
> > *Hope I've selected info useful in our*
> > *discussion. Love. BFS*
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