5600 Cottle Road
San Jose, CA 95193 0001

November 20, 2006

Stephen A. Hill
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Tentative Order Amending Site Cleanup Requirements, Order R2-2002-0082

Dear Mr. Hill:

In response to the letter from Stephen Hill dated October 24, 2006, IBM is providing the following comments to the proposed Site Cleanup Requirements modifications. The comments primarily relate to the impact of modifying the current Order on IBM's ability to effectively manage its' overall groundwater remediation operations. IBM is also requesting an update of the current Self-Monitoring Program to incorporate recent changes in the groundwater monitoring well network which have resulted from the Hitachi redevelopment activities and Board approval of proposed changes in overall offsite groundwater monitoring.

Incorporation of groundwater recharge requirements within Order No. R2-2002-0082 does not directly impact IBM's ability to effectively manage its' groundwater remediation program and IBM concurs with this proposed change. However, the Board's proposed coverage of IBM's groundwater remediation discharges under General NPDES (National Pollution Discharge Elimination System) VOC Permit No. CAG912003 does impact our ability to meet the proposed requirements of paragraph 12b.

Paragraph 12b Revisions

The proposed revision states that "Groundwater extracted by wells ORB-1 and ORB-7 would be discharged directly to the storm sewer under General NPDES VOC Permit No. CAG912003.". In fact, the discharges from these wells could not be directly discharged to the storm sewer without violating the discharge limits established by Permit No. CAG912003. The discharge from these wells, even after being processed by the installed spray aeration systems, do not meet the discharge standards specified in Permit No. CAG912003 for 1,1,2-trichloro-1,2,2 trifluoroethane (Freon 113) and 1,1,1-trichloroethane (TCA). As such, these wells cannot feasibly be operated for groundwater capture or even to allow for maintenance and sampling activities.

As explained in our November 14, 2006 letter to Ms. Lila Tang related to the proposed incorporation of IBM's discharges under Permit No. CAG912003, the following is the basis for our concern:

When the Board approved the cessation of groundwater extraction from wells ORB-1 and ORB-7, IBM was required to maintain these wells in operable condition so that they could be reactivated in response to unanticipated increases in offsite groundwater chemical concentrations. Due to this requirement, IBM is concerned that the 5 ug/L discharge limits for Freon 113 and TCA stipulated in Permit No. CAG912003 would prohibit use of these wells should it become necessary to reactivate the wells in order to re-establish hydraulic control of chemical migration.

When last operated, flow from wells ORB-1 and ORB-7 was approximately 75,000 and 150,000 gallons per day respectively. Discharges of Freon 113 from wells ORB-1 and ORB-7 were approximately 4 ug/L and 11 ug/L, respectively. Discharges of TCA from wells ORB-1 and ORB-7 were approximately 11 ug/L from each well.

Wells ORB-1 and ORB-7 are installed in residential areas and therefore it is not feasible to install treatment facilities such as air stripping or carbon adsorption systems. This is due to space limitations, traffic concerns, and potential noise impacts on the nearby homeowners. Extracted groundwater is currently treated by simple spray nozzle aeration with subsequent discharge to surface water via the City of San Jose storm sewer system.

Additionally, due to the size of these wells, it is necessary to discharge in excess of 1,000 gallons of water in order to simply obtain a representative sample from these wells. Given the location and logistical constraints associated with these extraction wells, it is not feasible to collect this volume of water and transport it for treatment prior to discharge.

In summary, discharges from these wells during normal operation, sampling, and maintenance operations do not meet the Freon 113 and TCA limits established in the General Permit and it is infeasible to treat the discharges to meet the proposed limits.

Therefore, IBM requests that the discharge limits for Freon 113 and TCA be maintained at the current 50 ug/L value which should be sufficient to allow the wells to be operated in the event unanticipated increases in offsite groundwater concentrations of these two chemicals should occur.

Alternatively, IBM requests that it be allowed to place wells ORB-1 and ORB-7 in an inactive status based on Santa Clara Valley Water District requirements such that the wells will no longer be required to be operated for sampling or maintenance. In the event that chemical concentrations in the offsite area increase to a level above established cleanup criteria, IBM will request Board approval for the temporary discharge to surface water of groundwater from these wells in order to prevent undesired chemical migration.

Self-Monitoring Program Revisions:

Since Order R2-2002-0082 was issued, many changes have occurred to the IBM monitoring and extraction well network, most recently closure of 44 wells completed in response to Hitachi's site redevelopment activities. These and other changes have

resulted in significant changes to wells currently listed in Table 1 of the Self-Monitoring Program. IBM requests that Table 1 be modified to update the well listing and monitoring requirements.

As Table 1 is updated to reflect current conditions, IBM is also requesting the Board to approve cessation of monitoring of the majority of offsite wells. The offsite monitoring wells being proposed for removal from Table 1 have not exceeded the current cleanup standards for many years and in some cases have never exceeded current cleanup standards. Wells proposed for removal include the public and private wells located in Region II beyond the Edenvale Gap area since these wells have never exceeded the current groundwater cleanup standards for the B- and deeper aquifer zones and meet current drinking water standards. It should also be noted that during the past year following cessation of pumping by wells ORB-1 and ORB-7, no significant changes in chemical concentrations have been observed in any offsite monitoring well.

IBM is proposing to maintain monitoring of several offsite wells to assure that key areas of the offsite groundwater aquifers continue to be monitored to detect any unanticipated increases in chemical concentrations. These wells would be used to determine whether or not wells ORB-1 and ORB-7 would need to be reactivated.

In support for our request to remove offsite monitoring wells from the Self-Monitoring Program, Table 2 is attached which presents monitoring data collected during 2004 to 2006 from the offsite monitoring wells. As can be seen from the data, all wells have been below current cleanup standards during this time period for the chemicals which have been detected above the established laboratory analytical detection limits.

The proposed Table 1 Self-Monitoring Plan is attached for Board consideration. Making these modifications to the Self-Monitoring Program at this time is warranted, especially since the wells that are being proposed for removal have either already been approved for closure, closed, or have been below established cleanup levels for many years.

As you conduct your review of the above comments and the attached proposed Self-Monitoring Program, if you have any questions or concerns, please contact Jim Dumanowski at (408) 284-4739.

Sincerely yours,

John R Lattyak 11/20/2006

John Lattyak
Manager, Site Operations

Attachments

Table 1. Chemical Analysis Schedule for Groundwater Samples
Groundwater Self-Monitoring Program
IBM
San Jose, California

Onsite Monitoring Wells

Well No.	Sampling Frequency	Analytical Method
A-01	Q	8260B, 8015B (S.Sol), Cr/Cr+6
A-07	SA	8021B
A-10	SA	8021B
A-11	Q	8260B
A-17	Q	8260B,8015B (Pet Nap)
A-18	SA	8260B, 8015B (S.Sol)
A-20	SA	8021B
A-21	A	8021B
A-22	A	8260B, 8270 (Isoph only), 8015B (S.Sol & Pet Nap)
A-24	SA	8260B
A-28	SA	8021B, 8015B (S.Sol), Cr/Cr+6
A-30	SA	8021B
A-31	SA	8021B
A-32	A	8021B, 8015B (S.Sol), Cr/Cr+6
A-38	SA	8260B, 8015B (S.Sol)
A-39	Q	8260B, 8015B (S.Sol)
A-40	A	8021B
A-41	Q	8260B, 8015B (S.Sol)
A-45	SA	8021B
A-49	A	8021B
A-53	Q	8260B
A-61	SA	8260B, 8270 (NMP only)
A-64	A	8021B
A-71	A	8260B, 8015B (S.Sol), Cr/Cr+6
A-72	A	8260B, 8015B (S.Sol)
A-77	A	8021B
A-79	A	8021B
A-81	A	8021B
B-02	A	8021B
B-04	Q	8021B
B-05	A	8021B
B-10	SA	8260B
B-13	A	8021B
B-16	A	8021B
B-22	Q	8260B
B-24	Q	8260B
B-35	SA	8021B
B-47	SA	8021B
B-49	SA	8260B, 8015B (S.Sol)
B-50	A	8021B
B-51	SA	8021B
C-09	A	8021B
C-21	SA	8021B
C-23	SA	8021B
RA-05	SA	8021B, Cr/Cr+6
RA-06	SA	8021B
RA-11	Q	8260B
RA-12	Q	8260B
RA-13	SA	8021B
RA-14	Q	8260B

Onsite Monitoring Wells

Well No.	Sampling Frequency	Analytical Method
RA-22	Q	8260B, 8270 (Isoph & 1,4-dioxane), 8015B (S.Sol 7 Pet Nap), Cr/Cr+6
RA-24	Q	8260B, 8015B (S.Sol)
RA-26	Q	8021B
RA-29	Q	8260B
RB-07	Q	8021B

Offsite Monitoring Wells

Well No.	Sampling Frequency	Analytical Method
01-B	A	8021B
02-A	A	8021B
02-B	Q	8021B
05-B	SA	8021B
09-B	SA	8021B
13-B	Q	8021B
24-B	A	8021B
29-B	A	8021B
30-BC	A	8021B

Onsite Extraction Wells

Well No.	Sampling Frequency	Analytical Method
RA-02	Q	8260B
RA-25	Q	8260B, 8015B (S.Sol)
RA-27	Q	8260B
RA-30	Q	8260B
RA-31	Q	8021B
RA-32	Q	8021B
RB-08	Q	8021B

Onsite Recharge Wells

Well No.	Sampling Frequency	Analytical Method
BR-1	Q	8021B
BR-2	Q	8021B

Offsite Extraction Wells

Well No.	Sampling Frequency	Analytical Method
12-A	Q	8021B
ORA-4	Q	8021B
ORA-5	Q	8021B
ORB-6	Q	8021B & MTBE

Public/Private Wells (Offsite)

Well No.	Sampling Frequency	Analytical Method
03	A	8021B
37	A	8021B

Table 1. Chemical Analysis Schedule for Groundwater Samples
Groundwater Self-Monitoring Program
IBM
San Jose, California

Production Wells (Onsite)		
Well No.	**Sampling Frequency**	**Analytical Method**
W-3	A	8021B
W-4	A	8021B
W-5	A	8021B
W-6	A	8021B
W-7	A	8021B
W-8	A	8021B

NOTES:

Water levels will be measured in all these wells quarterly

Abbreviations for frequencies are:

Q	Quarterly
SA	Semiannually (2 times a year)
A	Annually

Abbreviations for chemicals are:

Cr	Chromium
Cr+6	Hexavalent Chromium
Isoph	Isophorone
MTBE	Methyl tert-Butyl Ether
NMP	n-Methyl-2-Pyrrolidone
Pet Nap	Petroleum Naptha
S.Sol	Shell Sol 140

Test Methods:

8015B	Leaking Underground Fuel Tank Manual, Petroleum Hydrocarbons (TPH) in the range C6-C22
8021B	EPA Test Method 8021B, Volatile Organic Compounds by Gas Chromotography (GC); may be replaced by 8260B
8260B	EPA Test Method 8260B, Volatile Organic Compounds by Gas Chromotography/Mass Spectrometry (GC/MS)
8270C	EPA Test Method 8270C, Semivolatile Organic Compounds by GC/MS, for isophorone or n-methyl-2-pyrrolidone
Cr/Cr+6	EPA Test Mehtod 6010B, Chromium by Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP) and EPA Test Method 7196A – Hexavalent Chromium by Colorimetric

Table 2. IBM Offsite Monitoring Well Data – 2004 to 2006

Well	Date	Freon 113	TCA	TCE	DCE	DCA
01-B	10/18/04	**1.3 A/J**	ND(0.50)A	ND(0.50)A	ND(0.50)A	ND(0.50)A
01-B	10/24/05	**3.8 A**	ND(0.50)A	ND(0.50)A	ND(0.50)A	ND(0.50)A
02-A	10/24/05	ND(2.0)A	ND(0.50)A	ND(0.50)A	ND(0.50)A	ND(0.50)A
02-B	10/19/04	14. A	3.1 A	ND(0.50)A	2.4 A	0.46 A/J
02-B	01/11/05	12. A	6.6 A	ND(0.50)A	5.1 A	0.70 A
02-B	04/19/05	11. A	9.5 A	ND(0.50)A	5.0 A	0.83 A
02-B	07/27/05	10. A	9.2 A	ND(0.50)A	4.9 A	0.77 A
02-B	10/25/05	12. J	7.8 J	ND(0.50)J	4.6 J	0.80 J
02-B	01/25/06	4.6 A	3.4 A	ND(0.50)A	2.0 A	0.38 A/J
02-B	05/01/06	21. A	4.9 A	ND(0.50)A	4.7 A	0.68 A
02-B	08/02/06	5.6 A	0.70 A	ND(0.50)A	0.94 A	ND(0.50)A
02-C	10/19/04	2.3 A	ND(0.50)A	ND(0.50)A	ND(0.50)A	ND(0.50)A
02-C	10/25/05	18. J	ND(0.50)J	ND(0.50)J	ND(0.50)J	ND(0.50)J
05-B	10/19/04	2.0 A	2.8 A	0.15 U/JH	1.0 A	0.19 A/J
05-B	01/11/05	4.6 A	5.5 A	ND(0.50)A	2.5 A	0.26 A/J
05-B	04/19/05	3.2 A	4.6 A	ND(0.50)A	1.4 A	0.24 A/J
05-B	07/28/05	5.3 A	6.8 A	ND(0.50)A	2.3 A	0.37 A/J
05-B	10/25/05	10. J	13. J	ND(0.50)J	4.4 J	0.37 J/J
05-B	01/25/06	9.1 A	11. A	ND(0.50)A	3.5 A	ND(0.50)A
05-B	05/01/06	5.1 A	6.4 A	ND(0.50)A	2.8 A	0.29 A/J
05-B	08/03/06	8.4 A	11. A	ND(0.50)A	4.6 A	0.38 A/J
05-C	10/19/04	36. A	1.1 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
05-C	04/20/05	40. A	1.6 A	ND(0.50)J	ND(0.50)A	ND(0.50)A
05-C	10/25/05	74. J	2.1 J	ND(0.50)J	0.51 J	ND(0.50)J
05-C	05/02/06	54. A	1.7 A	ND(0.50)A	0.45 A/J	ND(0.50)A
09-B	10/19/04	8.9 A	13. A	ND(0.50)A	2.0 A	0.22 A/J
09-B	01/11/05	12. A	14. A	ND(0.50)A	2.8 A	0.23 A/J
09-B	04/19/05	9.9 A	14. A	ND(0.50)A	2.1 A	0.23 A/J
09-B	07/28/05	11. A	16. A	ND(0.50)A	2.5 A	0.26 A/J
09-B	10/25/05	13. J	17. J	ND(0.50)J	2.8 J	ND(0.50)J
09-B	01/25/06	12. A	14. A	ND(0.50)A	1.8 A	ND(0.50)A
09-B	05/01/06	8.6 A	10. A	ND(0.50)A	1.9 A	0.18 A/J
09-B	08/03/06	11. A	14. A	ND(0.50)A	2.9 A	0.25 A/J
09-D	10/19/04	6.4 A	0.68 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
09-D	10/25/05	30. J	2.5 J	ND(0.50)J	ND(0.50)J	ND(0.50)J
10-B	10/18/04	3.0 A	1.2 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
10-B	10/24/05	5.2 A	1.5 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
13-B	10/19/04	2.5 A	3.1 A	0.13 U/JH	1.1 A	0.41 A/J
13-B	01/11/05	11. A	9.9 A	ND(0.50)A	5.3 A	0.49 A/J
13-B	04/19/05	9.6 A	11. A	ND(0.50)A	4.3 A	0.52 A
13-B	07/27/05	10. A	12. A	ND(0.50)A	5.4 A	0.52 A
13-B	10/25/05	13. J	13. J	ND(0.50)J	5.4 J	0.54 J
13-B	01/25/06	10. A	10. A	ND(0.50)A	4.1 A	0.42 A/J
13-B	05/01/06	9.1 A	9.3 A	ND(0.50)A	5.0 A	0.46 A/J
13-B	08/02/06	10. A	10. A	ND(0.50)A	5.2 A	0.51 A
13-D	10/18/04	2.4 A	1.4 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
13-D	10/24/05	10. A	5.9 A	ND(0.50)A	0.82 A	ND(0.50)A
15-B	10/19/04	10. A	1.4 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
15-B	04/20/05	11. A	1.6 A	ND(0.50)J	ND(0.50)A	ND(0.50)A
15-B	10/25/05	7.2 J	0.94 J	ND(0.50)J	ND(0.50)J	ND(0.50)J
15-B	05/01/06	11. A	1.2 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
18-B	10/20/04	79. A	ND(0.50)A	ND(0.50)A	ND(0.50)A	ND(0.50)A
18-B	10/25/05	80. A	ND(0.50)A	ND(0.50)A	ND(0.50)A	ND(0.50)A

Table 2. IBM Offsite Monitoring Well Data – 2004 to 2006 (cont'd)

Well	Date	Freon 113	TCA	TCE	DCE	DCA
20-B	10/19/04	1.0 A/J	3.6 A	0.18 U/JH	ND(0.50)A	ND(0.50)A
20-B	01/11/05	0.65 A/J	1.6 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
20-B	04/19/05	ND(2.0) A	0.93 A	ND(0.50)J	ND(0.50)A	ND(0.50)A
20-B	07/27/05	ND(4.0) A	ND(1.0) A	ND(1.0) A	ND(1.0) A	ND(1.0) A
20-B	10/25/05	4.0 J	3.9 J	ND(0.50)J	0.40 J/J	ND(0.50)J
20-B	01/25/06	ND(2.0) A	0.23 A/J	ND(0.50)A	ND(0.50)A	ND(0.50)A
20-B	05/01/06	ND(2.0) A	ND(0.50)A	ND(0.50)A	ND(0.50)A	ND(0.50)A
20-B	08/02/06	1.0 A/J	0.99 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
23-B	10/19/04	46. A	13. A	ND(0.50)A	1.0 A	ND(0.50)A
23-B	01/11/05	5.8 A	1.8 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
23-B	04/20/05	11. A	2.8 A	ND(0.50)J	ND(0.50)A	ND(0.50)A
23-B	07/27/05	7.7 A	1.7 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
23-B	10/25/05	34. J	8.2 J	ND(0.50)J	0.63 J	ND(0.50)J
23-B	01/25/06	6.9 A	1.5 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
23-B	05/02/06	38. A	10. A	ND(0.50)A	0.81 A	0.15 A/J
23-B	08/02/06	41. A	11. A	ND(0.50)A	ND(0.50)A	ND(0.50)A
24-B	10/18/04	4.9 A	4.5 A	ND(0.50)A	0.77 A	ND(0.50)A
24-B	01/11/05	5.1 A	4.0 A	ND(0.50)A	0.76 A	ND(0.50)A
24-B	04/19/05	4.6 A	3.9 A	ND(0.50)A	0.63 A	ND(0.50)A
24-B	07/28/05	1.6 A/J	1.3 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
24-B	10/24/05	15. A	13. A	ND(0.50)A	1.7 A	ND(0.50)A
24-B	01/25/06	12. A	9.5 A	ND(0.50)A	1.3 A	ND(0.50)A
24-B	05/01/06	12. A	7.7 A	ND(0.50)A	1.7 A	ND(0.50)A
24-B	08/02/06	9.4 A	7.1 A	ND(0.50)A	1.2 A	ND(0.50)A
29-B	10/18/04	0.73 A/J	0.45 A/J	ND(0.50)A	ND(0.50)A	ND(0.50)A
29-B	01/11/05	1.1 A/J	1.1 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
29-B	04/19/05	3.2 A	8.7 A	ND(0.50)A	0.52 A	ND(0.50)A
29-B	07/27/05	0.70 A/J	2.0 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
29-B	10/24/05	1.4 A/J	1.3 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
29-B	01/25/06	4.9 A	11. A	ND(0.50)A	0.52 A	ND(0.50)A
29-B	05/01/06	5.1 A	6.6 A	ND(0.50)A	0.52 A	ND(0.50)A
29-B	08/02/06	10. A	8.8 A	ND(0.50)A	0.79 A	ND(0.50)A
29-B	10/18/04	0.73 A/J	0.45 A/J	ND(0.50)A	ND(0.50)A	ND(0.50)A
30-BC	10/19/04	15. A	7.1 A	ND(0.50)A	0.57 A	ND(0.50)A
30-BC	01/11/05	16. A	6.4 A	ND(0.50)A	0.59 A	ND(0.50)A
30-BC	04/19/05	18. A	8.1 A	ND(0.50)A	0.63 A	ND(0.50)A
30-BC	07/28/05	17. A	7.0 A	ND(0.50)A	0.57 A	ND(0.50)A
30-BC	10/25/05	18. J	6.4 J	ND(0.50)J	0.54 J	ND(0.50)J
30-BC	01/25/06	21. A	11. A	ND(0.50)A	0.55 A	ND(0.50)A
30-BC	05/01/06	14. A	7.4 A	ND(0.50)A	0.63 A	ND(0.50)A
30-BC	08/02/06	10. A	5.6 A	ND(0.50)A	0.52 A	ND(0.50)A
38-BC	10/19/04	4.6 A	2.1 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
38-BC	10/24/05	3.3 A	1.3 A	ND(0.50)A	ND(0.50)A	ND(0.50)A
45-BC	10/18/04	ND(2.0) A	ND(0.50)A	ND(0.50)A	ND(0.50)A	ND(0.50)A
45-BC	10/24/05	ND(2.0) A	ND(0.50)A	ND(0.50)A	ND(0.50)A	ND(0.50)A
46-BC	10/18/04	0.54 A/J	0.30 A/J	ND(0.50)A	ND(0.50)A	ND(0.50)A
46-BC	10/24/05	4.1 A	2.5 A	ND(0.50)A	ND(0.50)A	ND(0.50)A

All values in ug/L
A, J – Laboratory qualifers
TCA – 1,1,1-trichloroethane
TCA – trichloroethene
DCE – 1,1-dichloroethene
DCA – 1,1-dichloroethane

cc:	Max Shahbazian	Regional Water Quality Control Board
	Lou Gonzales	Regional Water Quality Control Board
	Mr. John Roeder	Great Oaks Water Company
	Mr. Andy Gere	San Jose Water Company
	Mr. Napp Fukuda	City of San Jose Environmental Services
	Mr. John McHugh	Santa Clara Valley Water District
	Mr. Ben Gale	Santa Clara County Dept. of Environmental Health
	Ms. Elizabeth Zimmermann	Hitachi Global Storage Technologies
	Mr. Dean Chartrand	IBM
	Mr. Bill Fowler	Golder Associates
	Ms. Susan Panttaja	Mactec