CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 90-109
NPDES NO. CA0029742

WASTE DISCHARGE REQUIREMENTS FOR:

FORD AEROSPACE CORPORATION
SPACE SYSTEMS DIVISION
3825 FABIAN WAY
PALO ALTO, CA 94303

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. Ford Aerospace Corporation, Space Systems Division (FAC), hereinafter called the discharger, by application dated February 9, 1990, has applied for issuance of waste discharge requirements under the National Pollutant Discharge Elimination System (NPDES).

2. The discharger has owned and occupied a large complex, on 3825 Fabian Way, Palo Alto, Santa Clara County since 1959. This site is bordered to the north and south by the Bayshore Freeway and East Charleston Road and to the west and east by Fabian Way and San Antonio Road.

3. Subsurface investigations by the discharger have revealed significant levels of organic chemical pollution in soils and ground water beneath the site.

4. The discharger seeks to treat the contaminated groundwater being discharged from Building 5 sump (3875 Fabian Way) and being produced incidental to the discharger's groundwater monitoring program. This system will consist of an air stripper to reduce volatile organic compounds (VOCs) in the groundwater.

   The discharger proposes to discharge from this treatment system an average of 100,800 gallons per day (gpd) of treated groundwater to a storm drain on Fabian Way which is tributary to Adobe Creek, and the South San Francisco Bay.

   The discharger has considered the feasibility of reclamation, reuse, or discharge to a publicly owned treatment works (POTW), as specified in Board Resolution No. 88-160. The discharger and the California Department of Transportation (Caltrans) have discussed the potential for reusing some of this groundwater for irrigation along Highway US 101 and dust control. Due to the availability of lower TDS groundwater from a nearby remediation site. Caltrans has no immediate need for FAC's groundwater. FAC would make the treated groundwater available for future reuse by Caltrans, should its needs change. The discharger will also consider non-potable use

in any new buildings that will be constructed. Also, the City of Palo Alto sewer system could not handle this flow during the wet months.

5. Groundwater from Building 5 was sampled, and 14 organic chemicals were found, the sampling detected trichloroethene (TCE), 1,1 Dichloroethane (1,1 DCA), 1,1 Dichloroethene (1,1 DCE), cis 1,2 DCE, Dichlorotrifluoroethane ($C_2HCl_2F_3$), Tetrachloroethylene (PCE), 1,1,2 Trichloro 1,2,2 trifluoroethane (Freon 113). TCE was found at the highest level, 130 ppb.

   Table 1 (attached) consists of the chemicals found in the groundwater at FAC, all these chemicals have the potential to migrate to the building 5 sump. It is also possible that new chemicals could show up at the sump.

6. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for Adobe Creek and South San Francisco Bay.

7. The existing and potential beneficial uses of Adobe Creek include:

   - Contact and non-contact water recreation
   - Warm fresh water and cold fresh water habitat
   - Wildlife habitat

8. The existing and potential beneficial uses of South San Francisco Bay include:

   - Contact and non-contact water recreation
   - Wildlife habitat
   - Preservation of rare and endangered species
   - Estuarine habitat
   - Fish spawning and migration
   - Industrial service supply
   - Shellfishing
   - Navigation
   - Ocean commercial and sport fishing

9. The Basin Plan prohibits discharge of wastewater which has "particular characteristics of concern to beneficial uses" (a) "to San Francisco Bay south of the Dumbarton Bridge" and (b) "at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1, or into any nontidal water, dead-end slough, similar confined water, or any immediate tributaries thereof".

10. The Basin Plan allows for exceptions to the prohibitions referred to in Finding #9 above when it can be demonstrated that a net environmental benefit can be derived as a result of the discharge.

11. Exceptions to the prohibitions referred to in Finding #9 are warranted because this discharge is an integral part of a program to cleanup polluted ground water and thereby produce an environmental benefit, and because receiving water concentrations

are expected to be below levels that would affect beneficial uses. Should studies indicate chronic effects, not currently anticipated, the Board will review the requirements of this Order based upon Provision B.1.e.

12. The Basin Plan prohibits discharge of "all conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, to waters of the Basin". The discharger's ground water extraction and treatment systems and associated operation, maintenance, and monitoring plans constitute an acceptable control program for minimizing the discharge of toxicants to waters of the State.

13. Effluent limitations of this Order are based on the Clean Water Act, Basin Plan, State and U. S. Environmental Protection Agency (EPA) plans and policies, and best engineering and geologic judgement. EPA Region IX draft guidance "NPDES Permit Limitations for Discharge of Contaminated Groundwater: Guidance Document" was also considered in the determination of effluent limits.

14. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.

15. The Board has notified the discharger and interested agencies and persons of its intent to issue waste discharge requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.

16. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. EFFLUENT LIMITATIONS

1. The effluent, at the discharge point to the storm drain, shall not contain constituents in excess of the following limits:

Constituent	Instantaneous Maximum (μg/l)
VOCs	
trichloroethene	5.0
1,1,1-trichloroethane	5.0
cis 1,2-dichloroethene	5.0
trans 1,2 dichloroethene	5.0
1,2-dichloroethane	5.0
vinyl chloride	5.0
Freon 113	5.0
chloroform	5.0
acetone	50.0
carbon tetrachloride	5.0
1,2 dichlorobenzene	5.0
1,3 dichlorobenzene	5.0
1,4 dichlorobenzene	5.0
1,1 dichloroethylene	5.0
1,2 dichloropropane	5.0
dichlorotrifluoroethane	5.0
isopropyl ether	5.0
methylene chloride	5.0
phenol	500.0
tetrachloroethylene	5.0
trichlorofluoromethane	5.0
toluene	5.0
total VOCs	100.0
Metals	
arsenic	20.0
cadmium	10.0
chromium (VI)	11.0
copper	20.0
lead	5.6
mercury	1.0
nickel	7.1
silver	2.3
zinc	58.0
Others	
cyanide	25.0

2. The pH of the discharge shall not exceed 8.5 nor be less than 6.5.

3. In any representative set of samples, the discharge shall meet the following limit of quality:

   Toxicity: The survival of rainbow trout in 96-hour bioassays of the effluent as discharged shall be a median of 90% survival and a 90 percentile value of not less than 70% survival.

B. RECEIVING WATER LIMITATIONS

1. The discharge of wastes shall not cause the following conditions to exist in waters of the State at any place:

   a. floating, suspended, or deposited macroscopic particulate matter or foam;

   b. bottom deposits or aquatic growths;

   c. alteration of temperature or apparent color beyond present natural background levels;

   d. visible, floating, suspended, or deposited oil or other products of petroleum origin;

   e. toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:

   a. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.

   b. Dissolved oxygen: 5.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause lesser concentration(s) than specified above, the discharge shall not cause further reduction in the concentration of dissolved oxygen.

   c. Un-ionized ammonia (as N): 0.025 mg/l annual mean
      0.4 mg/l maximum

3. This discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

C. PROVISIONS

1. The discharger shall comply with all sections of this order immediately upon adoption by the Board and upon starting any discharge.

2. The discharger shall comply with the self-monitoring program as adopted by the Board and as may be amended by the Executive Officer.

3. The discharger shall notify the Board if any activity has occurred or will occur which would result in the discharge, on a frequent or routine basis, of any toxic pollutant which is not limited by this Order.

4. Any discharge to a location other than the discharge point(s) specified in this Order will require a modification to this Order or submission of a second NPDES application.

5. The maximum flow rate of groundwater through the air stripper shall not exceed 115,200 gallons per day (gpd) without prior written approval of the Board's Executive Officer.

6. The discharger shall develop and submit a Best Management Practices (BMP) program to the Board by April 1, 1991. The BMP program shall be consistent with the EPA regulation 40 CFR 125, Subpart K and the general guidance contained in the "NPDES Best Management Guidance Document", EPA Report No. 600/9-79-45, December 1979 (revised June 1981). A BMP program acceptable to the Executive Officer shall be implemented by October 1, 1991.

7. The discharger shall submit an operation and maintenance plan for the treatment system by October 1, 1990.

8. The discharger shall comply with all items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated December 1986 and modified January 1987, except items A.10, B.2, B.3, C.8 and C.11.

9. This Order expires August 15, 1995. The discharger must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Code of Regulation no later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.

10. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective 10 days after date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on August 15, 1990.

STEVEN R. RITCHIE
Executive Officer

Attachments:
Table 1
Self-Monitoring Program
Site Map

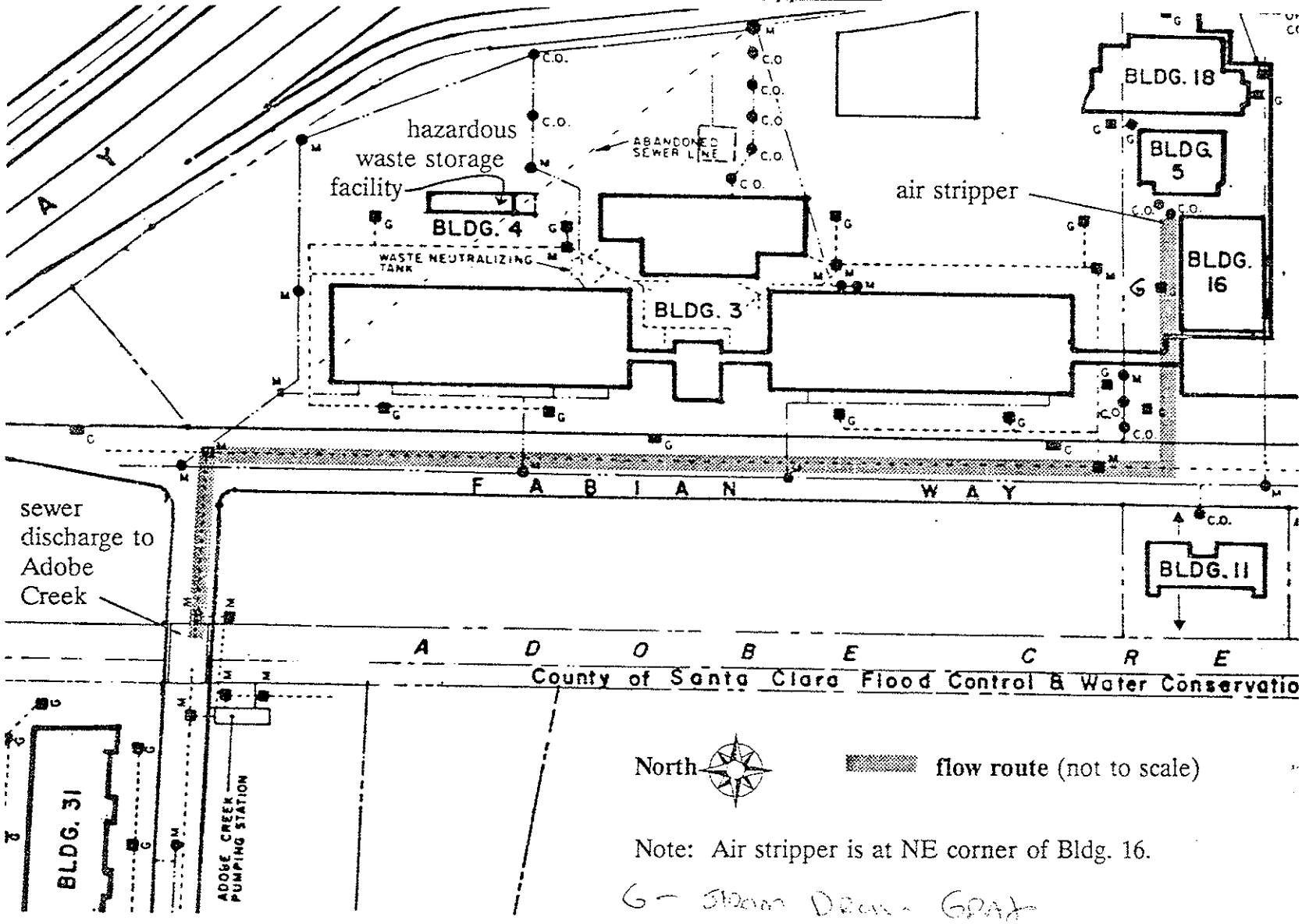
TABLE 1

VOCs
trichloroethene
1,1,1-trichloroethane
1,1-dichloroethane
cis -1,2-dichloroethene
trans-1,2-dichloroethene
1,2-dichloroethane
vinyl chloride
Freon 113
chloroform
acetone
1,2 dichlorobenzene
1,3 dichlorobenzene
1,4 dichlorobenzene
1,1 dichloroethylene
1,2 dichloropropane
dichlorotrifluoroethane
isopropyl ether
methylene chloride
phenol
tetrachloroethylene
trichlorofluoromethane
1 butanol
carbon tetrachloride
xylenes
tolune

Semivolatile Organic Compounds

cumene
2,3 dihydro 1h inden 1 one
2,3 dihydro 1 methyl 1h indene
2,3 dihydro 4 methyl 1h indene
1 ethyl 2 methylbenzene
1 ethyl 4 methylbenzene
indan
propylbenzene
pseudocumene
1,2,3 trimethylbenzene

Ford Aerospace Corporation
Regional Board Order 89-137
NPDES Application



SITE MAP

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR:

Ford Aerospace Corporation
Space Systems Division
3825 Fabian Way
Palo Alto, Santa Clara County

NPDES NO. CA0029742

ORDER NO. 90-109

CONSISTS OF:

PART A Dated December 1986 Modified January 1987

PART B Adopted August 15, 1990

PART B

FORD AEROSPACE CORPORATION
Space Systems Division
3825 Fabian Way
Palo Alto, Santa Clara County

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

Station	Description
I-001	At a point in the ground water extraction system immediately prior to treatment in the air striper.

B. EFFLUENT

Station	Description
E-001	At a point immediately following treatment in the air stripper.

C. RECEIVING WATERS

Station	Description
C-001	At a point in Adobe Creek at least 100 feet but no more than 200 feet downstream from the storm drain discharge point of E-001 into Adobe Creek.
C-002	At a point in Adobe Creek at least 100 feet but no more than 200 feet upstream from the storm drain discharge point of E-001 into Adobe Creek.

II. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis is provided in the attached Table A.

III. MODIFICATIONS TO PART A, DATED DECEMBER 1986 AND MODIFIED JANUARY 1987

All items of Self-Monitoring Program Part A, dated December 1986 and as modified January 1987 shall be complied with except for the following:

A. Additions to Part A: Section G.4.d.5: "Results from each required analysis and observation shall be submitted as laboratory originated data summary sheets in the quarterly self-monitoring reports. All chromatographic peaks for purgeable halocarbons and/or volatile organics shall be identified and quantified for all effluent samples. If previously unquantified peaks are identified in any effluent sample, then these peaks shall be confirmed based on analyses using chemical standards necessary to achieve proper identification and quantification. Results shall also be submitted for any additional analyses performed by the dischargers at the specific request of the Board for parameters for which effluent limits have been established and provided to the dischargers by the Board."

B. Deletions from Part A: Sections D.2.b., D.2.g., D.3.b., E.1.e.1, E.1.f., E.2.b., E.3., E.4., E.5., F.2.b., G.2., G.4.b., and G.4.f.

C. Modifications to Part A: For the following, the discharger shall comply with the Sections as changed and reported herein:

1. Section D.2.a. is changed to read:

   "Samples of effluent and receiving waters shall be collected at times coincident with influent sampling unless otherwise stipulated. The Regional Board or Executive Officer may approve an alternative sampling plan if it is demonstrated that expected operating conditions warrant a deviation from the standard sampling plan."

2. Section D.2.d. is changed to read:

   "If two consecutive samples of any one constituent or parameter monitored on a weekly or monthly basis in a 30-day period exceed the effluent limit or are otherwise out of compliance, or if the required sampling frequency is once per month or less (quarterly, annually or other) and the sample or parameter exceeds the limit or is otherwise out of compliance, the discharger shall implement procedure(s) acceptable to or approved by the Board's Executive Officer, on a case by case basis."

3. Section D.2.e. is changed to read:

"If any instantaneous maximum limit is exceeded, within 24 hours of receiving the analytical results indicating the violation, a confirmation sample shall be taken and analyzed with 24 hour turn-around time. If the instantaneous maximum is violated in the second sample, the discharger shall monitor daily, until the cause of the violation is found and corrected or the Board's Executive Officer authorizes frequency of the monitoring to be change."

4. In Section F.1, the phrase "(at the waste treatment plant)" is changed to read, "(at the locations of the various extraction and treatment systems).

5. Section F.1.e. is changed to read:
"Date that analyses are performed."

6. Section F.1.f. is changed to read:
"Complete procedure used, including method of preserving sample and identity and volumes of reagents used. A reference to a specific section of the Standard Methods or to an EPA publication of appropriate analytical methods is satisfactory."

7. Section F.1.g. is changed to read:
"Calculations of results, but not including calculations performed by the analytical laboratory that are not normally reported on the analytical report."

8. Section F.2.a. is changed to read:
"Total waste flow or volume for each day that flow is required tobe measured by Part B of this Self-Monitoring Program"

9. Monthly written reports required in Section G.4 shall be filed monthly by the thirtieth day of the following month.

10. Section G.4.e is changed to read:

"Summary tabulations of the data shall include, for each constituent, total number of analyses, maximum, minimum, and average values for each period. Total flow data shall also be included. This information shall be prepared in a format similar to EPA Form 3320-1. This information shall be submitted only to the Regional Board:

Executive Officer
California Regional Water Quality Control Board
1800 Harrison Street, Suite 700
Oakland, CA 94612

11. The Annual Report required in Section G.5. shall be submitted by January 30 of each year in place of the monthly report due on the same day.

IV. MISCELLANEOUS REPORTING

If any chemicals or additives are proposed to be used in the operation and/or maintenance of the ground water extraction/treatment system, the discharger shall obtain the Executive Officer's concurrence prior to use. The details concerning such approved use shall be reported in the next periodic report submitted to the Board.

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 90-109.

2. Was adopted by the Board on August 15, 1990.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the dischargers, and revisions will be ordered by the Executive Officer or Regional Board.

STEVEN R. RITCHIE
Executive Officer

Attachments: Table A
Site Map

TABLE A: SCHEDULE FOR SAMPLING, MEASURMENTS, AND ANALYSIS

	A	B	C	D	E
1	SAMPLE STATION	I-1	E-1	C-1	C-2
2	TYPE OF SAMPLE	Grab	Grab	Grab	Grab
3	FLOW RATE (MGD)		M		
4	BOD 5-day, 20C, or		Y		
5	COD (mg/l &kg/day)				
6	Chlorine Residual &				
7	Dosage (mg/l &kg/day)				
8	Settleable Matter		Y	Y	Y
9	(ml/1-hr &cu.ft/day)				
10	Total Suspended Matter				
11	(mg/l &kg/ day)				
12	Oil and Grease				
13	(mg/l & kg/day)				
14	Coliform (Total or Fecal)				
15	(mpn/100ml) per reg't				
16	Fish Tox'y 96-hr. TL		Y		
17	Surv'l in undiluted waste				
18	Ammonia Nitrogen		V		
19	(mg/l & kg/day)				
20	pH (units)		M	Q	Q
21	Dissolved Oxygen		Y	Y	Y
22	(mg/l & %Saturation)				
23	Temperture (C)		M	Q	Q
24	Aresenic		M/Q		
25	(mg/l & kg/day)				
26	Cadmium		M/Q		
27	(mg/l & kg/day)				
28	Chromium Total		M/Q		
29	(mg/l & kg/day)				
30	Copper		M/Q		
31	(mg/l & kg/day)				
32	Cyanide		M/Q		
33	(mg/l & kg/day)				
34	Silver		M/Q		
35	(mg/l & kg/day)				
36	Lead		M/Q		
37	(mg/l & kg/day)				
38	Mercury		M/Q		
39	(mg/l & kg/day)				
40	Nickel		M/Q		
41	(mg/l & kg/day)				
42	Zinc		M/Q		
43	(mg/l & kg/day)				
44	EPA Method 601 with	M/Q	M/Q		
45	Freon 113 or				
46	EPA Method 624 O.S.				
47	EPA Method 624 O.S.	Y	Y	Y	Y

TABLE A: SCHEDULE FOR SAMPLING, MEASURMENTS, AND ANALYSIS

	A	B	C	D	E
48	EPA Method 625	Y	Y	Y	Y
49	EPA Method Mod. 8015	Y	Y	Y	Y
50	Standard Observation			M	M