Monthly Progress Report

Rec'd 8-3-92
B.B.

NAME: Ciba Geigy
I.D.: RID001194323
FILE LOC: R-9
OTHER:

Submitted to: Mr. Frank Battaglia, Project Manager
USEPA Region I
Waste Management Building
90 Canal Street
Boston, MA 02114

Submitted by: Ms. Diane Leber, Project Coordinator
CIBA-GEIGY Corporation
444 Sawmill River Road
Ardsley, NY 10502

Pursuant to: RCRA I-88-1088

Facility Site: Cranston, RI

Period Covered: July 1992 (27 June 1992 – 24 July 1992)*

Date Submitted: 10 August 1992

1.0 SUMMARY

This is the twenty-fifth monthly progress report. Five significant events occurred this month.

Hydrological Investigation. Reducing the bathymetric and sediment thickness data, and preparing the bathymetric/sediment thickness maps, continued. Stage height measurements of the river continued. Routine (weekly) water column monitoring (at the six sampling stations) was completed; analysis of the samples for selected analytes continued.

Water Level Monitoring. Monthly groundwater level monitoring continued.

Data Validation. Validation of the PCB analytical data for surficial soil samples continued.

Stabilization Investigation. Preparation of the Stabilization Work Plan began; authoring team meetings were held on 6/30 and 7/17/92 to discuss schedules and report content. A tele-conference call with USEPA and WCC was held on 7/9/92 to review the USEPA comments on the outline for the Work Plan; these comments were discussed subsequently with CIBA-GEIGY. It was agreed that the outline will be fleshed out as submitted, but certain issues important to the USEPA would be added. Installing the Production Area wells/piezometers for stabilization was completed. Advancing borings, collecting soil samples, and installing the in-river wells/piezometers for the stabilization investigation continued; well development began. Groundwater from selected borings was sampled in-situ using a hydropunch; the samples were submitted for Appendix IX volatile organic analysis. Groundwater from monitoring wells MW-1S, MW-1D, MW-2S, MW-3S, and MW-13S was sampled for bench-scale treatability testing on 6/30/92; the samples were submitted to the CIBA-GEIGY Corporate Environmental Technology Center for analysis. Construction of the over-the-river access platform began; detailed drawings for the other two access platforms were completed. Other planning for stabilization continued.

*As agreed, the reporting period will be monthly through the fourth Friday of the month.

SEMS DocID 666719

Project Management. Information requested by the Cranston POTW (to discharge treated groundwater to the POTW) was submitted; a copy of the letter is included in Attachment A. WCC performed a site visit on 7/10/92 to collect additional information requested by the Cranston POTW; this information was submitted on 7/20/92, and a copy of that letter also is included in Attachment A.

2.0 TASKS AND ACTIVITIES COMPLETED

The sampling and other activities (subtasks) that were completed are reported here.

2.1 Sampling Activities Completed

Groundwater sampled in-situ from selected borings was submitted for Appendix IX volatile organic analysis. Routine Pawtuxet River water column sampling was completed. Groundwater from monitoring wells MW-1S, MW-1D, MW-2S, MW-3S, and MW-13S was sampled for bench-scale treatability testing on 6/30/92; the samples were submitted to the CIBA-GEIGY Corporate Environmental Technology Center for analysis.

2.2 Other Activities Completed

The other activities (subtasks) completed during this reporting period were described in Section 1.0.

3.0 JEOPARDY TASKS (scheduled tasks not completed)

No tasks were in jeopardy as of 24 July 1992.

4.0 OTHER TASKS UNDERWAY (and on schedule)

The tasks that were underway (and on schedule as of 24 July 1992) were described in Section 1.0.

5.0 DATA OBTAINED

Groundwater level data have been obtained but have not yet been peer reviewed. TSS data for river surface water (collected using the ISCO samplers) have been received but have not yet been peer reviewed. Chemical data (analytes to be modeled) for the river surface water samples (collected at the six sampling stations) have been received but have not yet been peer reviewed. Analytical results from in-situ (hydropunch) groundwater samples were received but have not yet been peer reviewed.

6.0 PROBLEM AREAS

The resolved, new, potential (i.e., anticipated or possible), and outstanding (i.e., still unresolved) problem areas are reported here.

6.1 Resolved Problem Areas

One potential problem area was resolved during this reporting period.

Review of the Problem. Differences over licensing issues between WCC and the vendor of the HIVAC technology had arisen, so an alternative technology might have been needed for the dual-phase extraction pilot test in SWMU-11.

Resolution. The issues were resolved; the HIVAC technology will be used for the pilot test.

6.2 New Problem Areas

No new problem areas were identified during this reporting period.

6.3 Potential Problem Areas

No potential problem areas were identified during this reporting period.

6.4 Outstanding Problem Areas

No problem areas remained unresolved during this reporting period.

7.0 SCHEDULE OF TASKS (next two months)

The projected schedule is provided here. It covers the tasks to be performed in the next two months (August and September 1992), along with other comments or considerations.

Target Date	Task#	Task	Comments/Considerations
ongoing	9	Project Management	
ongoing	10	Data Management	
ongoing	11	Project Administration	
ongoing	12	Quality Assurance	
ongoing	13	Health & Safety Assurance	
8/92	—	Prepare and submit Stabilization Work Plan	

8.0 CHANGES IN WORK PLAN

No changes were made to the Work Plan during this reporting period.

9.0 OTHER COMMENTS

The plans going forward into August and September include:

- completing the installation of the in-river wells and piezometers needed for Phase II,
- sampling groundwater (scheduled for 8/3/92) from newly installed monitoring wells,
- planning for stabilization activities,
- submitting the Stabilization Work Plan, and
- additional planning for future investigations.

The following document is appended:

- Attachment A — Information Sent to the Cranston POTW.

ATTACHMENT A

Information Sent to the Cranston POTW

CIBA-GEIGY Facility
Cranston, Rhode Island

Woodward-Clyde Consultants

Engineering & sciences applied to the earth & its environment

July 9, 1992
87X4660

Mr. Alfred J. Tutela
Tutela Engineering Associates, Inc.
P.O. Box 28066
Providence, RI 02908

RE: Request for Authorization to Discharge Treated Groundwater from Pump Testing at former CIBA-GEIGY Facility (Cranston, Rhode Island)

Dear Mr. Tutela:

As per our 18 June 1992 conference call, Woodward-Clyde Consultants (WCC) is providing information to obtain authorization for our client to discharge treated groundwater generated from aquifer testing at the former CIBA-GEIGY Cranston facility to your treatment works. This letter describes the proposed aquifer testing program, the proposed process to treat the groundwater extracted during testing, and a request to amend discharge limitations for selected analytes.

Description of Aquifer Testing

The objectives of the aquifer testing program are:

- to obtain data on the hydrogeology of the overburden aquifer in the production area;
- to obtain additional groundwater treatability data in order to design an effective pump and treat system;
- to evaluate the potential for reversal of the groundwater gradient along the bulkhead; and

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- to evaluate capture zones and anisotropic conditions (if any) that would affect final well locations, the pumping rate and schedules of the pumping system.

To accomplish these objections, WCC has installed two recovery wells on site that will be used to conduct the following tests:

- Pre-test monitoring;
- Step drawdown testing;
- 72-hour constant rate testing;
- 30-day constant rate testing; and
- 30-day flush/surge testing.

The duration of each test is an expected maximum period. It is anticipated that the testing program could last 12 weeks. Testing will be terminated prior to specified time periods when sufficient data is collected.

The expected pumping rate will average 10 gallons per minute per well. Both wells will be pumped continuously (24 hours/day) for the 72-hour and 30-day constant rate tests. The aquifer tests are planned be begin on September 1, 1992.

Description of Groundwater Treatment

The groundwater generated during the aquifer testing program will be pretreated prior to discharge. Table 1 summarizes the chemical analysis of the groundwater for contaminants of concern from five representative sampling wells. Metals and volatile organic compounds (VOCs) will be removed from the extracted groundwater before discharge to the public-owned treatment works (POTW). Submersible pumps in each

well will pump groundwater to a pilot treatment facility to be housed in the on-site warehouse. The proposed treatment process is illustrated in Drawing 1.

The maximum groundwater extraction rate will be 14 gpm from each of the two pumping wells (28 gpm total). The expected average total extraction rate will be 20 gpm. The treatment process design basis is also 20 gpm. The groundwater will be piped from the wells to a 21,000-gal equalization tank (T-1). The equalization tank has capacity to store water for 17 hours of continuous pumping at 20 gpm. Therefore, the treatment process can be adjusted and maintained without upset to the aquifer tests. The equalization tank will have high and low level controls to prevent tank overflow and pump cavitation.

Water will be pumped from the equalization tank to the oxidation tank (T-2) to begin treatment. Oxidant (H_2O_2) and caustic (50% NaOH) will be added to precipitate metals from solution and adjust pH. The residence time in the oxidation tank will be 20 minutes. A flocculant will be added as the solution is transferred to the clarifier. The flocculation chamber will gently mix the solution to aggregate metals and solids into a floc. The floc will collide with plates in the clarification chamber (C-1) and quiescently settle from the solution.

The sludge from the clarifier will be pumped periodically to a sludge handling tank (T-3) and subsequently filtered by a filter press. The filter cake containing the metals separated from the groundwater will be dewatered and disposed of off-site. The filtrate will be returned to the equalization tank. A high level alarm will indicate when filtration is necessary and an overflow line will return sludge to the clarifier.

The effluent from the clarifier will flow to a holding tank (T-4) and be pumped through a multi-media filter (F-1 or F-2). The filters can handle loads of 10 gpm each and will remove residual suspended solids entrained in the clarifier effluent. The filters will periodically be backwashed. The backwash water will be recycled to the equalization tank. A high level alarm on the holding tank will indicate an excessive pressure drop across the filters. The filter effluent will be pumped to a packed bed air stripper.

The air stripper will remove those organic compounds which have a greater affinity for air than water (e.g. chlorobenzene, xylenes, methylene chloride, toluene, ethylbenzene). The organic compounds absorbed in the air stream will then be adsorbed on vapor phase

activated carbon (VPC). The aqueous phase from the air stripper will discharge to a holding tank (T-5). The holding tank will have high and low level controls to activate or disengage the pump (P-5). The water will be polished with aqueous phase activated carbon (APC) to remove organic compounds prior to discharge to the POTW.

The effluent from the APC will be pumped to the sewer manhole near the warehouse. WCC personnel will visit the site on 10 July 1992 to develop discharge sewer tie-point details. These details will be provided to you by 17 July 1992.

The final effluent discharge will be continuously monitored for flow and pH in accordance with POTW requirements. Water samples will be collected for analysis from locations within the process to evaluate the effectiveness of major unit operations. The sample locations are as follows:

- equalization tank (T-1) to characterize the system influent,
- pumping tank (T-4) to measure the efficiency of the oxidation and clarification operations,
- pumping tank (T-5) to measure the efficiency of the filters and air stripper,
- filter press cake: a TCLP analysis to identify off-site disposal options, and
- the system effluent to measure the efficiency of the APC and to demonstrate system compliance with effluent quality standards.

Samples will be collected and analyzed for those parameters with discharge limitations, as listed in the City Sewer Ordinance, to evaluate the efficiency of the major unit operations. This sampling program will allow WCC to optimize the pilot treatment facility and provide data for development of full-scale designs. The pretreatment discharge will be tested daily for the first five (5) days of operation. Thereafter, the effluent will be tested bi-weekly. The results of the process effluent sampling will be provided to the POTW after the laboratory reports have been reviewed and summarized.

Treatment Standards

The pretreated groundwater will satisfy TCLP non-hazardous waste standards and meet the industrial pretreatment standards for the Industrial Pretreatment Program of Cranston. For those analytes not listed under this program, the discharge limitations of the City of Cranston Sewer Use Ordinance will be met with the exception of the following metals:

- Antimony;
- Arsenic;
- Beryllium;
- Manganese; and
- Mercury.

For the above metals, we propose the following alternate discharge limits. These limits are based on the maximum potential emissions from the pretreatment system.

Metal	Proposed Discharge Limit
Antimony	300 ppb
Arsenic	500 ppb
Beryllium	300 ppb
Manganese	2000 ppb
Mercury	20 ppb

It is our understanding that you require about one month to review the above information and issue the necessary approvals. We plan to begin aquifer testing on site on 1 September 1992. The pretreatment equipment is planned to be installed two weeks

prior to this date. Therefore, we would like to request a reply to this letter before 9 August 1992 in order to meet our deadlines.

Please call if you require any additional information or if you have any questions

Very truly yours,

Tracey Ann Maloney

Tracey Ann Maloney
Assistant Project Engineer

Mark Houlday

Mark Houlday
Project Manager

cc: Diane Leber (CIBA)
John Gratz (WCC)

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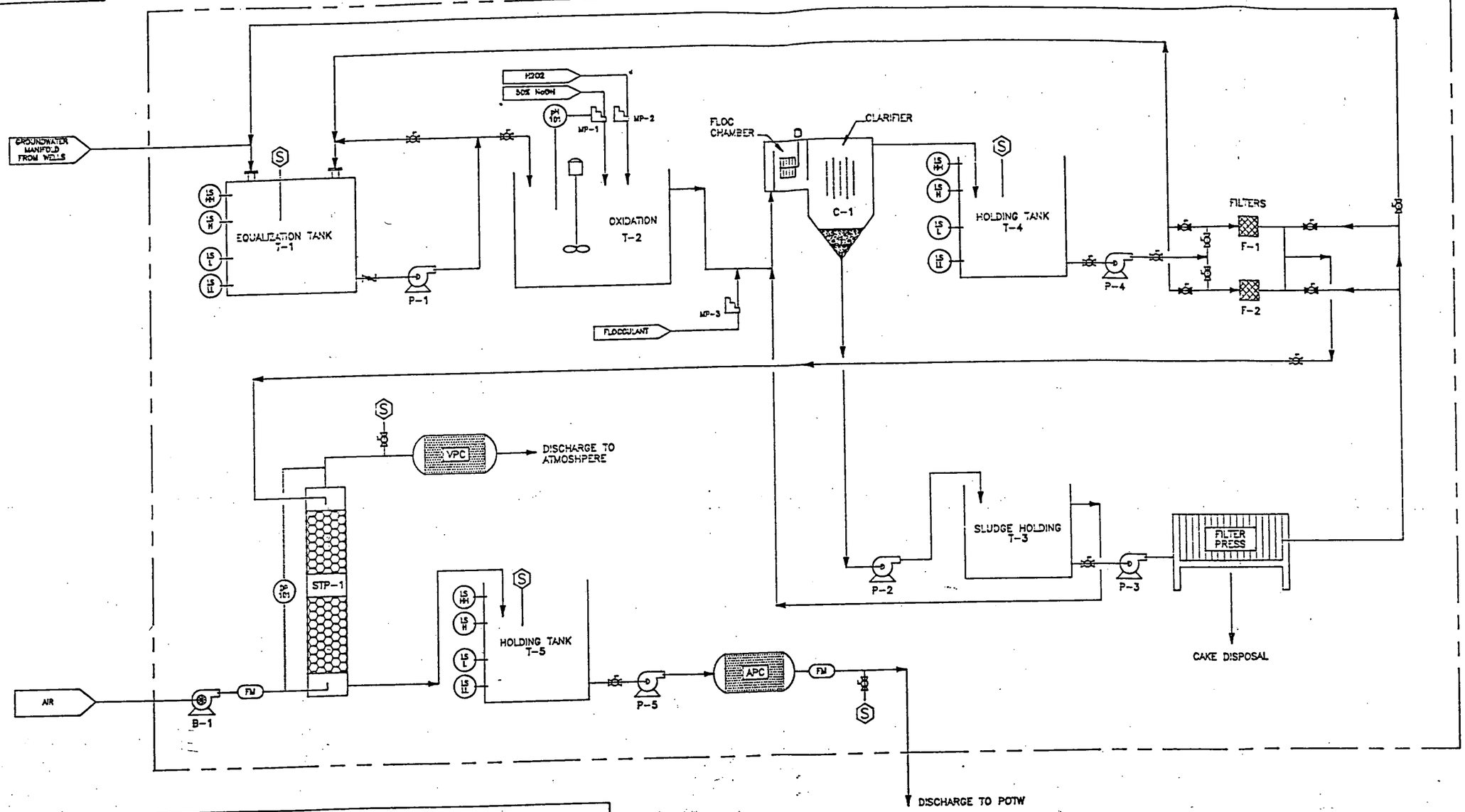

LS HH — LEVEL SWITCH-HIGH/HIGH
LS H — LEVEL SWITCH-HIGH
LS L — LEVEL SWITCH-LOW
LS LL — LEVEL SWITCH-LOW/LOW

S — SAMPLE LOCATION
FM — FLOW METER

STP AIR STRIPPER
VPC VAPOR PHASE ACTIVATED CARBON
APC AQUOUS PHASE ACTIVATED CARBON

DWG. NO.	DESCRIPTION	DWG. NO.	DESCRIPTION
REFERENCE DWGS.		REFERENCE DWGS.	

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DATE	JULY 1992

CLIENT : CIBA-GEIGY
LOCATION : CRANSTON, RI

PROCESS SCHEMATIC
PILOT GROUNDWATER TREATMENT PLANT

CONTRACT NO.	OWNER NO.	DRAWING NO.	REV. NO.
E7X4680		01-04-001	1

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July 20, 1992
87X4660

Mr. Alfred J. Tutela
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P.O. Box 28066
Providence, RI 02908

RE: Additional Information for Authorization to Discharge Treated Groundwater from Pump Testing at former CIBA-GEIGY Facility (Cranston, Rhode Island)

Dear Mr. Tutela:

As per our 9 July 1992 letter, Woodward-Clyde Consultants (WCC) is providing additional information to obtain authorization for our client to discharge treated groundwater generated from aquifer testing at the former CIBA-GEIGY Cranston facility to your treatment works. This letter describes the proposed sewer connection tie point for discharge to your facility.

On 10 July 1992, WCC personnel visited the site to select a sewer tie-point for discharge of treated groundwater from the pretreatment system (refer to the system discussion in our 9 July 1992 letter). The pretreatment system process equipment will be located in or near the warehouse on site. We propose to tie into the existing piping inside the warehouse. A working sanitary sewer line has been selected for this purpose. This line is piped from the restrooms in the warehouse to the sewer line in the street. The line is a 4 inch carbon steel pipe with an cleanout fitting. We plan to connect the effluent piping from the treatment system to the cleanout fitting. Monitoring equipment will be located prior to the pipe connection.

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Mr. Alfred Tutela
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July 20, 1992

Please call if you require any additional information or if you have any questions

Very truly yours,

Tracey Ann Maloney/MH

Tracey Ann Maloney
Assistant Project Engineer

Mark Houlday

Mark Houlday
Project Manager

cc: Diane Leber (CIBA-GEIGY)
John Gratz (WCC)

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